This Annual Report is preliminary approved by the Board of Directors on May 24, 2019, subject to approval by the Annual General Meeting of Shareholders of RusHydro
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COMPANY PROFILE

RESPONSIBILITY STATEMENT

Management’s responsibility statement in respect of the annual report and consolidated financial statements

We hereby confirm that to the best of our knowledge:

(a) the consolidated financial statements of PJSC RusHydro and its subsidiaries (RusHydro Group), prepared in accordance with the IFRS, give a true and fair view of the assets, liabilities, financial position and profit or loss of RusHydro Group;

(b) this annual report includes a fair review of the development and performance of the business and the position of RusHydro Group, as well as a description of the principal risks and uncertainties affecting the operations of PJSC RusHydro and its subsidiaries.

Chairman of the Management Board –
General Director
N. Shulginov

Chief Accountant
Y. Medvedeva

Disclaimer: forward-looking information

The report contains information on RusHydro Group’s plans and intentions in the medium and long term. These plans and intentions are forward-looking and their feasibility depends, among other things, on a number of economic, political and legal factors beyond the Company’s control (the global financial, economic and political situation, key markets, changes in tax, customs and environmental legislation, etc.). As such, actual future performance indicators may differ from the forward-looking statements published in this annual report.

A representative of the senior management responsible for the preparation of the report and the quality of its information is a Member of the Management Board – First Deputy General Director, who is also in charge of the Unit of financial and corporate law management.

The appendixes to this annual report are available in the Appendices Book at the Company’s website: http://www.rushydro.ru

Information on the report

The annual report of Public Joint-Stock Company Federal Hydro-Generating Company RusHydro (“PJSC RusHydro” or the “Company”) for 2018. (102-05) (102-06) is the 14th annual report prepared by the Company and addressed to a diverse range of stakeholders. The report has been prepared in an integrated format and contains comprehensive information on the financial, operational and sustainability performance of RusHydro Group (the “Group”) in 2018, as well as plans and forecasts for the medium and long term.

The Company issues reports annually to inform stakeholders about its operations. (102-04)

Paper and electronic versions of the 2017 annual report were published at the Company’s website on July 2, 2018. (102-01)

Compliance with standards and requirements

The report was prepared in line with the principles and requirements of:

- the Russian laws;
- Moscow Exchange;
- London Stock Exchange;
- the Disclosure Guidance and Transparency Rules of the UK Listing Authority;
- the Corporate Governance Code recommended by the Bank of Russia;
- RusHydro’s Corporate Governance Code;
- RusHydro’s Information Policy Regulations;
- the International Integrated Reporting Framework (IIRF);
- GRI Sustainability Reporting Standards (GRI SRS), in accordance level – Core;
- the GRI Electric Utilities Sector Supplement (GRI 04 – Electric Utilities (EU));
- specific provisions of the AA1000 Institute of Social and Ethical Accountability Series of Standards (AA1000AP and AA1000SE).

In 2018, there were no significant changes in the scope of the Group’s operations, wording, or fundamental changes in the calculation of indicators, which could affect the assessment of the Group’s key performance indicators as compared to the previous annual report.

Additional comments to the calculation of indicators are provided in the footnotes. (102-48)

The accuracy of data provided in the annual report has been confirmed by the Company’s auditor opinion provided in Appendix 16. The accuracy of the financial report has been confirmed by the Company’s auditor’s report provided in Appendix 16. The accuracy of the information is a Member of the Company’s Internal Audit Commission.

Additional comments to the calculation of indicators are provided in the footnotes. (102-48)

The accuracy of the financial report has been confirmed by the Company’s auditor opinion provided in Appendix 16.

The accuracy of data provided in the annual report has been confirmed by the Company’s auditor’s report provided in Appendix 16.

The accuracy of data provided in the annual report has been confirmed by the Company’s auditor opinion provided in Appendix 16.

Comparability with the previous annual reports

The report has also taken into account the comparability with the previous reports.

The operational results of RusHydro Group (including financial and production ones) have been disclosed in line with the IFRS reporting boundaries, unless otherwise specified in the notes to the disclosure.

The boundaries of the Group’s subsidiaries not included in the boundaries of the disclosure are not material for the purposes of reporting.

The Group’s subsidiaries not included in the boundaries of the disclosure are not material for the purposes of reporting.

The full list of legal entities belonging to RusHydro Group is available in the section “Structure of RusHydro Group” on page 20.

The boundaries of the Group’s subsidiaries not included in the boundaries of the disclosure are not material for the purposes of reporting.

Assurance of the report (102-04)

The accuracy of the financial report has been confirmed by the Company’s auditor opinion provided in Appendix 16. The accuracy of data provided in the annual report has been confirmed by the Company’s auditor’s report provided in Appendix 16.

The report contains information on RusHydro Group’s plans and intentions in the medium and long term. These plans and intentions are forward-looking and their feasibility depends, among other things, on a number of economic, political and legal factors beyond the Company’s control (the global financial, economic and political situation, key markets, changes in tax, customs and environmental legislation, etc.). As such, actual future performance indicators may differ from the forward-looking statements published in this annual report.

A representative of the senior management responsible for the preparation of the report and the quality of its information is a Member of the Management Board – First Deputy General Director, who is also in charge of the Unit of financial and corporate law management.

The appendices to this annual report are available in the Appendices Book at the Company’s website: http://www.rushydro.ru

See PJSC RusHydro’s annual reports for the previous years here: http://www.eng.rushydro.eng

See PJSC RusHydro’s corporate social responsibility and sustainability reports for the previous years here: http://www.rushydro.ru

In 2018, the consolidation of reporting information expanded from 48 to 60 companies. Criteria for inclusion in the consolidation perimeter:

- the Company’s share in total group revenues as of 2017 is at least 0.1%;

- the headcount is at least 40 people as of December 31, 2017.

The Group’s subsidiaries not included in the boundaries of the disclosure are not material for the purposes of reporting.

The accuracy of data provided in the annual report has been confirmed by the Company’s auditor opinion provided in Appendix 16.

The report has also taken into account feedback and recommendations from the expert committees of the Moscow Exchange and Expert RA rating agency judging the annual report competitions, as well as the recommendations of the RSRP Committee on Social Responsibility.
2018 marked yet another year for RusHydro Group’s ongoing growth and development. We commissioned new power plants in the Far East and modernized existing hydropower plants to increase our total installed capacity to 39.4 GW, setting a new record for the fourth consecutive year.

As a matter of strategic importance, we help deliver on the national goals in the Far Eastern Federal District. In 2018, we launched Vostochnaya CHP in Vladivostok, the third hydropower unit of Ust-Srednekanskaya HPP in the Magadan Region, and a wind power plant in the Arctic settlement of Tiksi in Yakutia. We are also completing the construction of Sakhalinskaya GRES-2 and a CHP in Sovetskaya Gavan. Grid infrastructure projects are underway, including in priority development areas.

The Russian government places a great emphasis on the development of the Far East, with the region’s investment appeal rising, new businesses emerging, and the economy booming. 2018 saw electricity consumption in the region growing twice as fast as across Russia. Still, we have to focus on energy sector development and modernization and power grid expansion—this is the only way to accelerate the improvement of quality of living in the Far East going forward.

The Long-Term Program for Replacement of Retiring Capacities developed in 2018 by RusHydro’s management and approved by its Board of Directors is key to address the problem of ageing CHP equipment in this strategically important and rapidly growing macroregion.

The alignment of tariffs in the Far East’s isolated areas outside of UES of the East with average national rates helps promote further investments in the region’s economy. The Russian Government is going to extend the tariff adjustment mechanism up to 2028, with RusHydro as its operator.

In 2018, the Company continued its efforts to improve corporate governance. RusHydro Group delivered 15% optimization in its structure by consolidating businesses with similar functions or closing down poor performers. The Group introduced and has ever since been improving its vertically integrated audit, control and risk management framework to enhance the quality of asset management. As a result, we are confident that we are on track to accelerate the improvement of the quality of living in the Far East.

The Long-Term Program for Replacement of Retiring Capacities developed in 2018 by RusHydro’s management and approved by its Board of Directors is key to address the problem of ageing CHP equipment in this strategically important and rapidly growing macroregion.

The alignment of tariffs in the Far East’s isolated areas outside of UES of the East with average national rates helps promote further investments in the region’s economy. The Russian Government is going to extend the tariff adjustment mechanism up to 2028, with RusHydro as its operator.

In 2018, the Company continued its efforts to improve corporate governance. RusHydro Group delivered 15% optimization in its structure by consolidating businesses with similar functions or closing down poor performers. The Group introduced and has ever since been improving its vertically integrated audit, control and risk management framework to enhance the quality of asset management.

As Russia’s leader in generating green energy, RusHydro Group remains committed to the principles of sustainable development. In 2018, the Company made strong progress in this field, including targets approved to reduce greenhouse gas emissions and the mechanisms for their achievement, with the regulations on procurements now requiring bidders’ compliance with the principles of social responsibility and sustainable development. In 2018, RusHydro’s Board of Directors approved its updated Environmental Policy, which sets targets to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions by 6.1% by 2025 vs 2005, and prevent species elimination as a result of the Group’s operating activities.

RusHydro Group focuses on the development of local communities across its footprint, providing for better living and health conditions. A major employer and taxpayer in the regions of its operations, RusHydro created 1,250 new jobs in 2018. Its tax payments to budgets of different levels exceeded RUB 81 bn. The Company implements charitable projects prioritizing support to vulnerable population groups, people with disabilities, veterans and healthcare institutions, along with culture, education, sports and environment projects.

Over the past year, the Board of Directors held 18 meetings, both in person and in absentia, and considered more than 100 key matters related to RusHydro Group’s general management and strategic development.

We are grateful to our shareholders, partners and employees for their contribution to RusHydro’s development and confidence in the Company’s governing bodies.

Yury TRUTNEV
Chairman of the Board of Directors of RusHydro
Dear shareholders, colleagues and partners,

The year of 2018 was another confident step forward for RusHydro as we registered record-high power generation and ensured financial growth, including through consistent cost optimization. In addition to bringing completion several major investment projects, RusHydro drove home the need to build new and upgrade existing thermal power generation facilities in the Far East with guaranteed return on investment.

We are also working towards establishing long-term tariff Regulation in the Far Eastern Federal District that would take due account of energy companies' economically justified expenses. Taken together, these initiatives represent a concerted effort on our part to boost the Company’s fundamental value for the benefit of all shareholders.

The Group’s power generation, including Boguchanskaya HPP, increased 2.8% y-o-y to reach an all-time peak of 144.3 bn kWh, while power output across Russia grew 1.6% y-o-y. Our strong operating performance was the result of effective management of hydropower operational regimes amid higher-than-usual water levels in rivers and the growing demand for electricity in the Far Eastern Federal District, which is almost entirely powered by RusHydro Group.

In 2018, RusHydro launched Vostochnaya CHPP in Vladivostok (the new capital of the Far Eastern Federal District) and the third hydropower unit at Ust-Srednekanskaya HPP in the Magadan Region. The Group also commissioned a unique wind power plant in the Arctic settlement of Tiksi in the Republic of Sakha (Yakutia) and completed the first stage of Anadyrskaya CHPP gasification in the Arctic settlement of Anadyr in the Republic of Sakha (Yakutia) and completed the first stage of Anadyrskaya CHPP gasification in Chukotka.

As part of its HPP Comprehensive Modernization Program, RusHydro upgraded eight hydropower units with a total capacity of 659 MW at seven HPPs.

By the end of the year, the installed capacity at the Company’s plants reached 39.4 GW, putting RusHydro ahead of all its Russian peers.

RusHydro’s Board of Directors supported the Management Board’s initiative to start levelling the station node building at Zagorskaya PSP-2 using the compensation grouting technology to inject special solutions under the foundation. Once the project is completed, RusHydro will make further decisions on how to finish construction of this essential element in Russia’s unified energy system.

In 2018, the Company completed the construction of 110 kV and 35 kV approach lines to the 220 kV Maya substation. Thanks to this major infrastructure project in the Far Eastern Federal District, starting 2019, the frequencies of the Central and Western energy hubs of Yakutia were synchronized with the UES of East, thereby ensuring a more reliable power supply for the republic.

RusHydro continues to develop power retailing, having opened 17 unified accounting centers in the Krasnoyarsk and Khabarovsk territories and in the Sakhalin Region, with two more centers in the Primorye Territory set to follow in 2019. This aligns perfectly with the Russian President’s Order On National Goals and Strategic Objectives of the Russian Federation through to 2024, as such centers contribute to fostering a comfortable urban environment and promoting digital economy.

Unified accounting centers help create synergies for RusHydro by consolidating the Group’s retail functions, improving payment discipline, slashing consumer debt, and diversifying its business. The Group’s investment program through to 2023 (as approved by the Board of Directors) sets out the scope of mid-term initiatives, providing for an estimated RUB 383 bn to be spent on commissioning around 1.4 GW and over 560 Gcal/h of power and heat capacities, respectively, as well as on building and refurbishing more than 130 km of heat and 7,600 km of electric power supply networks. During this period, the Group plans to launch Sakhalinskaya GRES-2, CHPP in Sovetsky area, Nizhne-Bureyskaya HPP, Zaramagsky HPP-1, and 5 smaller HPPs in the North Caucasus, while also completing the construction of Ust-Srednekanskaya HPP as per the design parameters and building a 110 kV Yukovskaya substation. The upgrade and modernization program is expected to yield 163.7 MW of additional capacity at the existing hydropower generation facilities.

Among other things, RusHydro focuses on implementing the Long-Term Program for Replacement of Retired Capacities and Power System Development in the Far East that was drafted by the Company’s management team and approved by the Board of Directors in 2018. Key projects under the Program include the construction of Khabarovsky CHPP-4, Artemovskaya CHPP-2 and the second stage of Yuzhnozemelskaya GRES-2; the upgrade of Vladivostokskaya CHPP-2; following the inclusion of these projects in the state heat upgrade program, RusHydro will proceed with the construction and modernization of power plants with guaranteed return on investment.

RusHydro’s Value Growth Plan through 2021 includes a number of initiatives, but most importantly it promotes the principles of guaranteed return on investment in the Far East thermal generation, introduction of long-term tariff regulation in the Far Eastern Federal District, stronger efficiency and lower operating costs.

In 2017–2018, savings from initiatives aimed at cutting operating costs amounted to over RUB 12 bn, while total procurement savings across RusHydro Group came in at RUB 9.55 bn for 2018 alone. We intend to continue our cost reduction and efficiency improvement efforts to maximize savings.

The management’s work to optimize operating costs coupled with strong operational performance were the main drivers behind strong consolidated financials. RusHydro Group’s revenue grew by 5.9% to RUB 400.4 bn, EBITDA increased by 5.3% to a record RUB 109.7 bn, and net profit rose by 28.5% to RUB 31.8 bn.

RusHydro Group boasts a robust credit profile, which makes it highly attractive for investors. In 2018, the Company successfully completed three Eurobond offerings, including two ruble-denominated issues and a debut dim sum bond issue, with the books substantially oversubscribed by international investors.

The year marked the first time all three major international rating agencies – S&P, Moody’s, and Fitch – upgraded the Company’s credit ratings to sovereign (investment grade). At the same time, ACRA confirmed RusHydro’s top credit rating on the national scale, noting the critical systemic importance of the Company for the Russian economy.

I would like to take this opportunity to express deep gratitude to the employees engaged in the generation, transmission, retail, design and other operations of our unique energy holding.

At the end of the day, it was your hard work that made this year a success for RusHydro Group. We have no intention of slowing down. Instead, we will continue raising the bar to bring the best value to our shareholders, consumers, and the country’s economy.

Nikolay SHULGINOV
Chairman of the Management Board – General Director
RUSHYDRO GROUP ANNUALLY COMMISSIONS NEW GENERATION FACILITIES AND UPGRDES EXISTING ONES. AT THE END OF 2018, RUSHYDRO’S INSTALLED CAPACITY INCREASED TO 39.4 GW, WHICH BROUGHT THE POWER HOLDING TO FIRST PLACE AMONG DOMESTIC PEERS AGAINST THIS INDICATOR. RUSHYDRO OPERATES AND BUILDS POWER PLANTS IN THE CENTRAL PART OF RUSSIA, THE VOLGA REGION, IN THE NORTH CAUCASUS, IN SIBERIA, AND IN THE FAR EAST.
PJSC RusHydro was established on December 2, 2004 as part of the reorganization of the national energy holding RAO UES of Russia.

RusHydro is the largest hydro-generating company in Russia and among the top global hydropower companies in terms of installed capacity of power plants.

RusHydro Group is a leader in generating renewable energy from water flows, solar, wind, and geothermal energy. (2021-2022)

The Company is registered in Krasnoyarsk and headquartered in Moscow. (2022)

RusHydro Group operates within the Unified Energy System (UES) of Russia. One of the Group’s key assets is JSC RAO ES East Subgroup representing the most part of the Far Eastern Federal District’s power grid. The Company also operates in the global market by managing Armenia’s power grid. The Company also operates in part of the Far Eastern Federal District’s ES East Subgroup representing the most part of the reorganization of the national energy holding RusHydro Group’s Far Eastern energy companies since 2012.

Currently, RusHydro Group comprises over 400 power generation facilities, including Russia’s largest Sayano-Shushenskaya HPP named after P. S. Neporozhny (capacity of 6,400 MW), nine power plants of Volga-Kama cascade (total installed capacity over 10,000 MW), Bureyskaya HPP (capacity of 2,010 MW), Zeyzkaya HPP (capacity of 1,330 MW), Novosibirskaya HPP (capacity of 1,280 MW), several dozen hydroelectric power plants in the North Caucasus and highly maneuverable capacities of pumped storage power plants (PSP).

RusHydro Group also includes thermal power plants in the Far East with a total capacity of over 8,000 MW and geothermal power plants in Kamchatka.

The main recovery and reconstruction operations of Sayano-Shushenskaya HPP were completed, with the HPP reaching its design capacity of 6,400 MW. In addition, a major upgrade took place at the entire technological complex of the plant, making Sayano-Shushenskaya HPP the most advanced and the safest hydroelectric power plant in Russia.

In accordance with the Russian President’s Decree, RUB 50 bn were contributed to RusHydro’s authorized capital for the implementation of four priority thermal generation projects in the Far East, including the construction of the second stage of Blagoveschenskaya CHPP, the first stage of Yakutskaya GRES-2, Salahinskaya GRES-2, and CHPP in Sovetskaya Gavan.

For the first time in its history, RusHydro was named among the world’s Top 250 largest energy companies, according to the 2010 Top 250 Global Energy Company Rankings by Platts. The Company ranked 113th in the consolidated rating and 2nd in the list of the world’s fastest-growing energy companies.

The indicator includes the electric capacities of RAO ES East Subgroup and Boguchanskaya HPP built and jointly operated with UC RUSAL.

Installed electrical capacity of RusHydro Group is 39.4 GW

Installed heat capacity of RusHydro Group is 18,924 Gcal/h

Headcount as at December 31, 2018 totaled 69,710,000 people

2004–2005
As part of the government program to reform the power sector, PJSC RusHydro (previously, OJSC HydroOGK) was established on the basis of RAO UES of Russia hydropower plants.

2006
RusHydro and RUSAL signed a joint agreement on the implementation of the Boguchanskaya Power and Metallurgical Association project to complete Boguchanskaya HPP – one of the largest and longest construction projects of the Soviet time and build an aluminium smelter.

The Company put into operation the first stage of Uraevskaya (600 MW), Gelbakhskaya (44 MW), Maginskaya (1.2 MW) and Aguskaya (0.56 MW) smaller HPPs in the Republic of Dagestan, and the third stage of Zelenchukskaya HPP in Karachay-Cherkessia.

2009
An accident took place at Sayano-Shushenskaya HPP. RusHydro arranged for the recovery operations and engaged Power Machines as a supplier of the core equipment. First units were restored and put into operation in next to no time.

2010
For the first time in its Notory, RusHydro was named among the world’s Top 250 largest energy companies, according to the 2010 Top 250 Global Energy Company Rankings by Platts. The Company ranked 113th in the consolidated rating and 2nd in the list of the world’s fastest-growing energy companies.

2011
The Russian Federation contributed a controlling stake in RAO ES East to the Company’s authorized capital, increasing the installed capacity of RusHydro Group from 26.1 to 35.2 GW.

2013–2014
The main recovery and reconstruction operations of Sayano-Shushenskaya HPP were completed, with the HPP reaching its design capacity of 6,400 MW. In addition, a major upgrade took place at the entire technological complex of the plant, making Sayano-Shushenskaya HPP the most advanced and the safest hydroelectric power plant in Russia.

The Company commissioned the first two hydropower units at Ust-Srednerechenskaya HPP in the Magadan Region, with the plant capacity reaching 168 MW.

Boguchanskaya HPP ramped up to the designed installed capacity of 2,997 MW.

Yuzhno-Sakhalinskaya CHPP-1 saw its 139 MW power unit No. 4 start generating electricity.

2016
The Company completed the construction of Zelenchukskaya HPP-PSP with a capacity of 140 MW and 156 MW in turbine and pump modes, respectively.

The Company completed the second construction stage of Blagoveschenskaya CHPP, increasing its electricity and heat capacity by 100 MW to 400 MW and by 1.38 Gcal/h to 1.005 Gcal/h, respectively.

2017
RusHydro and VTB Bank completed the unique for the Russian market transaction on acquiring 13% of RusHydro’s shares and concluding a five-year forward contract. All proceeds were used to refinance the debt of RusHydro Group’s Far Eastern energy companies.

The Company completed the first construction stage of 193.5 MW Yakutskaya GRES-2, the largest power plant built under the Presidential Decree.

2018
The Company completed the construction of Zelenchukskaya HPP-PSP with a capacity of 140 MW and 156 MW in turbine and pump modes, respectively.

The Company completed the second construction stage of Blagoveschenskaya CHPP, increasing its electricity and heat capacity by 100 MW to 400 MW and by 1.38 Gcal/h to 1.005 Gcal/h, respectively.
2018 milestones

February

- RusHydro was the first of the Russian corporates to issue three-year ruble-denominated Eurobonds with a coupon rate of 7.4% in 2018. The issue was oversubscribed by four times of the necessary volume of RUB 20 bn.
- The Group’s financial debt went down by RUB 26 bn following exclusion of guarantee obligations between RusHydro and Vnesheconombank on PJSC Boguchanskaia HPP.
- PJSC RusHydro was named Approved Employer by the Association of Chartered Certified Accountants (ACCA).
- S&P-Global Ratings (S&P) upgraded the Company’s long-term credit rating to an investment grade BBB- (stable outlook).
- PJSC Boguchanskaia HPP.

March

- Volzhskaya HPP, the largest HPP of the Volga-Kama cascade, commissioned a new hydropower unit and replaced a turbine, generator and auxiliary equipment as part of the Comprehensive Modernization Program.
- The first gas power boiler of Anadyrskaya TPP was launched under a gasification agreement between RusHydro and the Government of the Chukotka Autonomous Area to carry out an extensive upgrade of the plant’s equipment and build gas pipelines.

April

- RusHydro Group sold its stock in PJSC Inter RAO (5,131,669,622.18 shares) to JSC Inter RAO Capital, which accounts for 4.915% of the authorized capital. The decision was part of non-core asset divestment effort in accordance with the orders and directives of the Russian Government.
- At Novosibirskaya HPP, the turbine replacement was followed by commissioning of the hydropower unit No. 7, as part of the Comprehensive Modernization Program. The upgrade boosted Novosibirskaya HPP’s installed capacity by 5 MW.
- The Alania National Park and RusHydro released two leopards on the IUCN Red List into the wild. RusHydro’s leopard conservation project in the North Ossetia received the Vernadsky National Environmental Award as the Best Social and Environmental Initiative.
- Chelyabinskaya HPP put into operation hydropower unit No. 1¼ as part of the Comprehensive Modernization Program, which included the recovery of the adjustable blade pitch and the replacement of the generator stator.

May

- RusHydro’s Dagestan branch commissioned Miatlisnkaya HPP’s hydropower unit No. 2. Now all HPP’s turbines were replaced as part of the Comprehensive Modernization Program.
- RusHydro was named Approved Employer by the Association of Chartered Certified Accountants (ACCA).
- PJSC Boguchanskaia HPP.

June

- Votkinskaya HPP’s hydropower unit No. 7 was upgraded as part of RusHydro’s Comprehensive Modernization Program, becoming the second fully modernized hydropower unit at the plant.

July

- RusHydro Group sold its stock in PJSC Inter RAO (5,131,669,622.18 shares) to JSC Inter RAO Capital, which accounts for 4.915% of the authorized capital. The decision was part of non-core asset divestment effort in accordance with the orders and directives of the Russian Government.
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- The Alania National Park and RusHydro released two leopards on the IUCN Red List into the wild. RusHydro’s leopard conservation project in the North Ossetia received the Vernadsky National Environmental Award as the Best Social and Environmental Initiative.
- Chelyabinskaya HPP put into operation hydropower unit No. 1¼ as part of the Comprehensive Modernization Program, which included the recovery of the adjustable blade pitch and the replacement of the generator stator.

August

- The Company paid out RUB 11.2 bn as dividends for 2017.
- PJSC Sakhalinenergo completed the first stage of power asset consolidation in the Sakhalin Region, which increased the Group’s voting share holding to above 75%. As part of the additional issue of PJSC Sakhalinenergo’s shares, 91 MW power unit No. 5 at Yuzhno-Sakhalinskaia CHP-1 and other facility infrastructure were transferred from JSC RAO ES East into the ownership of PJSC Sakhalinenergo.
- The Bank of Russia registered RusHydro’s additional share issue and the prospectus. The issue size totaled RUB 1¼ bn. The decision was made by RusHydro’s Board of Directors in June 2018 as part of the first stage of construction of two 110 kV high-voltage single-circuit power lines Pevek – Bilbin in Chukotka.
- Fitch Ratings (Fitch) upgraded the Company’s long-term credit rating and the credit ratings of its bonds to an investment grade BBB- (stable outlook).

September

- CHPP Vostochnaya commissioned in Vladivostok is the first large-scale power plant going into operation in the capital of the Primorye Territory in the last 45 years. It is expected to produce 791 m kWh of electricity and 1.377 mn Gcal of heat annually.

October

- RusHydro and Uzbekgidroenergo, the Uzbek national hydro-generating company, signed a cooperation agreement to develop hydropower generation in Uzbekistan. The agreement provides for a feasibility study of 240 MW Mullalakskaya HPP and 200 MW Verkhne-Pskemskaya HPP construction projects on the Pskem River in Uzbekistan, including design and survey, and research and development.
- RusHydro’s updated environmental policy came into effect seeking to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions, and prevent species elimination as a result of operating activities.
- RusHydro established the Institute of Hydropower and Renewable Energy Sources as part of Moscow Power Engineering Institute to train engineers for hydro- and renewable power generation.

November

- At the end of the reporting year, the issue won annual Cbonds Award 2018 as Best Primary Eurobond Deal through open voting among professional bond market participants.
- PJSC Boguchanskaia HPP.

December

- As at December 31, 2018, RUB 11.188 bn was paid to all persons and entities listed in the dividend records, excluding those who had not provided full and accurate banking details for the payment on their registration form, and those for whom the nominal holder has not fulfilled their dividend transfer obligations for reasons outside their control.
November

- A unique 900 kW wind power plant was commissioned in the settlement of Tiksi, the Republic of Sakha (Yakutia). It produces green energy for over 4,500 inhabitants of the isolated polar settlement.
- RusHydro became the first Russian corporate borrower to issue three-year dim sum bonds (Eurobonds denominated in offshore Chinese renminbi) for CHN 1.5 bn. The issue is the largest public financing transaction denominated in CHN by a Russian borrower. The coupon rate was set at 6.35% per annum.
- The first unit was commissioned at Rogun HPP, which is under construction on the Vakhsh River (Tajikistan) according to the resolution of the national government. The project was developed by the Moscow-based Hydroproject Institute, part of RusHydro Group.
- RusHydro issued ruble-denominated eurobonds in the amount of RUB 15 bn maturing in 2022. The issue was oversubscribed three times, and the coupon rate was set at 8.975% per annum. The eurobonds were placed on the Irish Stock Exchange.
- RusHydro Group put into operation 6.125% per annum.
- The divestment of RusHydro’s 40% share in Volgahydro, a hydropower equipment manufacturing joint venture in the Saratov Region, to Voith. The sale price (RUB 450 mn) was determined by an independent appraiser and fully covered RusHydro’s investment into the project.
- Moody’s Investors Service Inc. (Moody’s) upgraded the Company’s long-term credit rating and Eurobonds rating to an investment grade Baa3 (stable outlook).

February

- RusHydro and RUSAL commissioned, within two start-up complexes, the first series of the Boguchansky Aluminium Smelter being being part of the Boguchansky energy-metallurgical association.
- At once several projects were completed within RusHydro Comprehensive Modernization Program: next to the last hydro turbine was replaced at the Novosibinskaya HPP; the hydraulic unit No. 9 was commissioned at the Saratovskaya HPP; and a hydraulic unit with SS No. 3 and a new hydrogenator was commissioned at the Volzhskaya HPP; a hydraulic unit with SS No. 3 was commissioned at the Chabotsarskaya HPP.
- RusHydro joined the leaders in the indices of the Russian Union of Industrialists and Entrepreneurs “Responsibility and transparency” and “Sustainability Vector”.

March

- RusHydro and RUSAL commissioned, within two start-up complexes, the first series of the Boguchansky Aluminium Smelter being being part of the Boguchansky energy-metallurgical association.
- Moody’s Investors Service Inc. (Moody’s) upgraded the Company’s long-term credit rating and Eurobonds rating to an investment grade Baa3 (stable outlook).

April

- Moody’s upgraded the Company’s BCA; in February 2019, it upgraded credit ratings of RusHydro and its bonds to an investment grade BBB- (stable outlook).

December

- RusHydro’s Board of Directors adopted the resolution to begin the levelling of Zagoskaya PSPP-2 building. The works will kick off in 2019 and will take some 3.5 years.
- RusHydro Group put into operation the third hydropower unit at Ust-Srednekanskaya HPP in the Magadan Region, increasing the plant’s capacity by 142.5 MW to 310.5 MW.

January

- The Central and Western districts of Yakutia are connected to the Unified Energy System of Russia. PSSC Yakutskenergo, a subsidiary of PSSC RusHydro, transferred the supervision and control over the territory to the System Operator.

Events after the reporting date

Key Awards and Ratings

RusHydro’s Credit Ratings

International:

- S&P Global Ratings
  - In February 2018, the agency upgraded long-term credit rating of RusHydro and its Eurobonds at investment grade BBB- (stable outlook), which was affirmed in April 2018.

Fitch Ratings
  - In August 2018, the agency upgraded the Company’s long-term credit rating and the credit ratings of its bonds to an investment grade BBB- (stable outlook).

Moody’s
  - In October 2018, the agency upgraded the Company’s BCA; in February 2019, it upgraded credit ratings of RusHydro and its bonds to an investment grade Baa3 (stable outlook).

National:

- ACRA
  - In June 2018, ACRA affirmed its long-term credit rating on RusHydro and its bonds at AАA(RU) (stable outlook), which represents the top reliability level.

FOR THE FIRST TIME IN THE COMPANY’S HISTORY, INTERNATIONAL RATING AGENCIES PUT RUSHYDRO IN THE INVESTMENT CATEGORY.

National Corporate Governance Rating

RusHydro’s corporate governance rating upgraded to level 8 (Best Corporate Governance Practice). It is the highest rating assigned by the National Corporate Governance Rating to its Russian members.

AWARDS

RusHydro won annual Cbonds Award 2018 as its ruble-denominated notes placement in February 2018 was named Best Primary Eurobond Deal.

Report Watch
Report Watch maintained its rating on RusHydro’s annual report for 2017 at B+ (the top rating among the Russian companies).

LACP 2018 Spotlight Awards
RusHydro’s annual report for 2017 won international LACP 2018 Spotlight Awards and made it to the Top 100 Worldwide.

RusHydro enjoys a leading position in corporate social responsibility

- Ranks among Top 3 most transparent electricity companies, according to Transparency in Corporate Reporting analysis conducted by the Russian branch of Transparency International;
- leads the Responsibility and Transparency and Sustainability Vector indices of the Russian Union of Industrialists and Entrepreneurs;
- ranks second in the environmental rating of the Russian energy companies and the best electricity company according to Environmental Initiatives of the Russian Companies in Media: Energy and Metals study;
- ranks among world’s Top 20 green energy companies according to Energy Intelligence.

AWARDS

Cbonds Awards
- RusHydro won annual Cbonds Award 2018 as its ruble-denominated notes placement in February 2018 was named Best Primary Eurobond Deal.

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- ranks among world’s Top 20 green energy companies according to Energy Intelligence.
Financial data in accordance with IFRS

Revenue and operating costs, RUB mn

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>Operating costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>193,702</td>
<td>133,703</td>
</tr>
<tr>
<td>'17</td>
<td>190,964</td>
<td>129,949</td>
</tr>
<tr>
<td>'18</td>
<td>190,853</td>
<td>129,835</td>
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</table>

Net income, RUB mn

<table>
<thead>
<tr>
<th>Year</th>
<th>Net income</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>102,051</td>
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<tr>
<td>'17</td>
<td>124,178</td>
</tr>
<tr>
<td>'18</td>
<td>110,307</td>
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</tbody>
</table>

EBITDA, RUB mn

<table>
<thead>
<tr>
<th>Year</th>
<th>EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>27,261</td>
</tr>
<tr>
<td>'17</td>
<td>24,774</td>
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<tr>
<td>'18</td>
<td>31,837</td>
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CAPEX, RUB mn

<table>
<thead>
<tr>
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<th>CAPEX</th>
</tr>
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<tbody>
<tr>
<td>'16</td>
<td>7,064</td>
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<tr>
<td>'17</td>
<td>9,068</td>
</tr>
<tr>
<td>'18</td>
<td>7,905</td>
</tr>
</tbody>
</table>

Total and net financial debt, RUB bn, leverage as at the year-end

<table>
<thead>
<tr>
<th>Year</th>
<th>Total financial debt</th>
<th>Net financial debt</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>223.5</td>
<td>220.5</td>
<td>1.5</td>
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<td>'17</td>
<td>226.5</td>
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<tr>
<td>'18</td>
<td>131.1</td>
<td>127.1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Margin performance, %

<table>
<thead>
<tr>
<th>Year</th>
<th>EBITDA margin</th>
<th>Return on equity (ROE)</th>
<th>Return on assets (ROA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>24.9</td>
<td>6.5</td>
<td>4.0</td>
</tr>
<tr>
<td>'17</td>
<td>27.3</td>
<td>6.5</td>
<td>5.0</td>
</tr>
<tr>
<td>'18</td>
<td>27.0</td>
<td>6.5</td>
<td>5.3</td>
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</tbody>
</table>

Heat supply, '000 Gcal

<table>
<thead>
<tr>
<th>Year</th>
<th>Heat supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>24,379</td>
</tr>
<tr>
<td>'17</td>
<td>25,261</td>
</tr>
<tr>
<td>'18</td>
<td>25,784</td>
</tr>
</tbody>
</table>

Operational performance

Installed capacity, MW

<table>
<thead>
<tr>
<th>Year</th>
<th>Installed capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>29,645</td>
</tr>
<tr>
<td>'17</td>
<td>29,891</td>
</tr>
<tr>
<td>'18</td>
<td>30,095</td>
</tr>
</tbody>
</table>

Electricity generation, bn kWh

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>138.8</td>
</tr>
<tr>
<td>'17</td>
<td>140.3</td>
</tr>
<tr>
<td>'18</td>
<td>146.3</td>
</tr>
</tbody>
</table>

Heat supply, '000 Gcal

<table>
<thead>
<tr>
<th>Year</th>
<th>Heat supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
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<tr>
<td>'17</td>
<td>25,261</td>
</tr>
<tr>
<td>'18</td>
<td>25,784</td>
</tr>
</tbody>
</table>

1 Revenue and operating costs, profits EBITDA and margins for 2017–2018 are aligned with the Group’s 2018 consolidated financial statements stated using the new accounting method. The 2017 reporting data were restated due to changes in the Group’s accounting policy with PP&E recognized at historical cost less accumulated depreciation, amortization and impairment losses. The 2016 reporting data do not take into account the change in the accounting policy. The full text of the accounting policy is included in the Group’s 2018 consolidated financial statements.

2 Revenue includes government grants.

3 Excl. VAT

4 Financial debt is calculated as the sum of long-term and short-term liabilities (less accrued interest payable as at the reporting date) and non-deliverable forward with VTB Bank at the end of 2017–2018, and RusHydro’s guarantee obligations on Boguchanskaya HPP loan by Vnesheconombank under the Group’s IFRS financial statements.

5 EBITDA margin and net margin factors in other operating income generated by RusHydro Group in 2016 (RUB 12.4 bn), in 2017 (RUB 0.7 bn) and in 2018 (RUB 5.5 bn) and is calculated as insurance proceeds and profits from changes in the value of financial assets at fair value through profit or loss, from sale of assets and subsidiaries, and dividends received.
estructure of RusHydro Group (as of 02-04)

- RusHydro's Executive office and branches and its subsidiaries within report boundaries, excluding RAO ES East Subgroup.
- RAO ES East Subgroup’s companies within report boundaries.
- Companies that are part of RusHydro Group, but not within report boundaries.

Branches
- PJSC RusHydro's branch Bureyskaya HPP
- PJSC RusHydro's branch Volzhskaya HPP
- PJSC RusHydro's branch Votkinskaya HPP
- PJSC RusHydro's branch Volzhskaya HPP
- PJSC RusHydro's branch Bureyskaya HPP
- PJSC RusHydro's branch CorUnH

Generating subsidiaries
- JSC FEGC
- JSC Geotherm
- PJSC KamIEC
- PJSC KIRES
- PJSC Kolymaenergo

Electric grid subsidiary
- JSC DRSK

Subsidiaries combining generation, transfer and sales of electricity
- PJSC Yakutskenergo
- PJSC Sakhakenergo
- PJSC Kamchatkenergo
- JSC SENK
- PJSC Magadanenergo
- JSC Chukotenergo
- PJSC Sakhalinenergo
- PJSC Perekhodnaya Energetika

Subsidiaries - management companies
- JSC MC HydroOGK
- JSC ESC RusHydro

Electricity retail subsidiaries
- PJSC Krasnoyarskenergosbyt
- PJSC Ryazanenergosbyt
- JSC Chuvashskaya Electricity Sales Company
- PJSC Far-Eastern Energy Company (FEEC)

Subsidiaries engaging in construction and repairs
- JSC Hydroimmont - VCC
- JSC ChirikovHPPtrstremont
- JSC Ust-Srednekansky HPPtrstremont
- JSC KNIRC
- JSC Neryungrienergoremont
- JSC KNKTC

Subsidiaries that are service providers
- JSC RHS
- JSC RusHydro CAC JSC
- LLC RusHydro IT Service
- JSC SMSPP SC
- JSC Transport Company RusHydro
- RusHydro International India Private Limited
- JSC Vehicle Fleet Operator LUTEC
- LLC SNIRG
- JSC Rodnik Zdorovya
- JSC VOSTEC
- JSC Energotransnab
- RusHydro International B.V.
- RusHydro International A.G.

Subsidiaries that are customer-developers
- JSC ChPP at Sovetskaya Gavan
- JSC Sakhalinenergo
- JSC Nizhne-Bureyskaya HPP
- LLC SHPP of Stavropol Krai and Karachay-Cherkessia branch
- LLC Verkhnebalkarskaya SHPP
- JSC Zaramagshskaya SHPP
- LLC SHPPs of Stavropol Krai and Karachay-Cherkessia branch

Subsidiaries that are institutes
- JSC Vedeneyev VNIG
- JSC NIES
- JSC Lenhydroprojekt
- JSC Mosobленhydroprojekt
- JSC Hydroprojekt Institute
- LLP VNIG

Companies within the structure of BEMO
- PJSC Boguchanskaya HPP
- JSC BoAP
- JSC BoHPP Holding Company
- HYDROOGK ALUMINIUM COMPANY LIMITED
- HYDROOGK POWDER COMPANY LIMITED

Subsidiaries that do not have any relevant activities or the liquidation (preparation for liquidation) of which is in progress
- JSC RHBE
- JSC Karachay-Cherkessia
- JSC Hydrogeneration company
- JSC HydroEngineering Siberia
- JSC Verkhne-Naryn HPPs
- JSC Technopark Rumyantsevo
- JSC FEETC
- JSC MGES of Altai
- JSC HUA
- JSC ESKO UES
- JSC Engineering Center for Renewable Energy
- JSC AvtobrotransNergo
- JSC KRKP

Other investments ranging from 1 to 50%
- LLC Transbaikal Development Corporation
- JSC Magadanenerco
- JSC IESC
- LLC Volgahydro
- JSC CBK
- LLC INTERNATIONAL INSTITUTE OF GEOMECHANICS AND HYDRAULIC STRUCTURES
- JSC Krasnoyarsk Krai Development Corporation
- JSC SKK
- JSC NGES
- JSC Shaktia Ugodnaya
- LLC Okhinskaya TPP
- CJSC Verkhne-Narynsk HPPs

Holding companies and asset holders
- JSC RAO ES East
- JSC Hydroinvest
- JSC Malaya Dmitrovka
- JSC Blagoveshchenskaya CHPP
- JSC NDES
- LLC Transbaikal Development Corporation
- JSC BoAP
- JSC BoHPP Holding Company
- HYDROOGK ALUMINIUM COMPANY LIMITED
- HYDROOGK POWDER COMPANY LIMITED
- JSC MGES CBK
- JSC Sulaksky HydroCascade

PJSC Boguchanskaya HPP is a joint venture of RusHydro Group and RUSAL Group, not part of RusHydro Group.
RUSHYDRO GROUP COMPRIS EMS MORE THAN 70 HYDROPOWER PLANTS IN RUSSIA AND ABBROAD, THERMAL GENERATION, RENEWABLES, ELECTRIC GRIDS IN THE FAR EAST, ENERGY RETAIL, CONSTRUCTION AND SERVICE COMPANIES, AND RESEARCH AND DESIGN ORGANIZATIONS.
BUSINESS MODEL

Incoming Capital Assets¹

Financial capital

The Company strives after increasing its intrinsic value and boosting investment potential through guaranteed dividend payouts to shareholders and interest payments to lenders.

- 586 RUB bn own fund
- 196.8 RUB bn debt funds

Property plant and equipment

The Company ramps up electricity generation capabilities by improving the performance of generation programs and investment projects adjusted to their economic efficiency.

- 39,370 MW installed electric output
- 18,924 Gcal/h installed heat output
- 104,7 '000 km OHL length

Natural capital

As the leader of low-carbon power generation in Russia, the Company ensures the reliability and safety of production facilities and seeks to reduce the negative environmental impact.

- 787 mm cu m water used
- 17.5 mm tonnes coal used in 2018
- 6.4 '000 cu m gas used in 2018
- 239 '000 fuel tonnes other fuels used

Social and reputational capital

The Company contributes to the implementation of government tasks to speed up socio-economic development of the presence regions.

Russia’s first and the world’s fourth-biggest among peer companies with a predominant share of hydrogeneration

Intellectual capital

The Company works towards the upgrade in economic and operational efficiency through the deployment of innovative technical and managerial solutions.

- 3.04 RUB bn Innovative Development Program financing
- 7 design institutes
- 20 partner universities

Human capital

The Company offers development opportunities, safe working conditions, and fair remuneration to its employees.

- 69.7 '000 people headcount

Results for Stakeholders¹

Financial capital

- 109.7 RUB bn own fund
- 5.5% return on Equity (ROE)
- 1.2 1.5 in 2017 net debt / EBITDA
- 11.2 RUB bn dividends payouts to shareholders (50% of net profit under IFRS)
- 12,464 RUB bn Free cash flow (FCF)

Natural capital

- 1.7 RUB bn environmental costs
- 769.6 in tonnes of CO₂-eq reducing specific GHG emissions from TPF
- 63 tonnes total hazardous waste class I and II

Property plant and equipment

- 331 MW growth of installed electricity capacity
- 426.9 Gcal growth of installed heat capacity
- 144.7 '000 km electric power generation
- 29,864 '000 Gcal foe output

Intellectual capital

- Establishment of the Institute of Hydropower and Renewables at the National Research University Moscow Power Engineering Institute

Human capital

- 339 RUB mn training costs
- 36,537 training courses RusHydro Group’s employees attended

¹ The figures are as of December 31, 2018.

The Company contributes to the implementation of government tasks to speed up socio-economic development of the presence regions.

Russia’s leader in renewable energy recovery

The Company ramp up electricity generation capabilities by improving the performance of generation programs and investment projects adjusted to their economic efficiency.

Russia’s first and the world’s fourth-biggest among peer companies with a predominant share of hydrogeneration

The Company strives after increasing its intrinsic value and boosting investment potential through guaranteed dividend payouts to shareholders and interest payments to lenders.

The Company works towards the upgrade in economic and operational efficiency through the deployment of innovative technical and managerial solutions.

The Company offers development opportunities, safe working conditions, and fair remuneration to its employees.

The Company ensures the reliability and safety of production facilities and seeks to reduce the negative environmental impact.

The figures are as of December 31, 2018.

In 2018, RusHydro granted financial assistance to the following entities: 21 health facilities, 6 sports schools and clubs, 18 placeholder-care facilities, 9 rehabilitation centers for non-adults, and 35 charitable foundations and non-commercial entities.

Electricity tariff reduction for end consumers through the application of the tariff equalization mechanism in the Far Eastern Federal District

81.2 RUB bn taxes paid to the budgets of various levels

28.0% Purchases only from SMEs

Contribution to the safety of water bodies (anti-flood function and participation in emergency response)

In 2018, RusHydro granted financial assistance to the following entities: 21 health facilities, 6 sports schools and clubs, 18inator-care facilities, 9 rehabilitation centers for non-adults, and 35 charitable foundations and non-commercial entities.

As the leader of low-carbon power generation in Russia, the Company ensures the reliability and safety of production facilities and seeks to reduce the negative environmental impact.

The Company ramp up electricity generation capabilities by improving the performance of generation programs and investment projects adjusted to their economic efficiency.

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RusHydro Group's Production Chains

New construction
- Equipment suppliers
- External construction and repair companies

Buyers/consumers
- Sakhalin-1 project, operator – Exxon Neftegas Limited LLC (ExxonMobil subsidiary), Sakhalin-1 project, operator – Gazprom Mezhregiongaz LLC
- Sakhalin-Khabarovsk-Vladivostok gas pipeline system
- Sakhatransneftegaz, Alrosa gas

Coal supply
- SUEK, Mechel, Colmar, and Russian Coal

Other producers of power and heat transferred by RusHydro to the Far Eastern Federal Districts
- PJSC Alrosa, JSC Rosenergoatom, Bilibino SPP, Municipal energy

Perimeter of RusHydro Group

Construction companies

Design institutes
- Repairs

Customers - Developers

Generation
- 24,874 MW
  - PJSC RusHydro
- 3,340 MW
  - JSC DGK Far East Generating Company
- 6,062 MW
  - 13,246 Gcal/h

Retail companies
- ESC RusHydro
- JSC Chuvash Energy Retail Company
- PJSC Ryazan Energy Retail Company
- PJSC Krasnoyarskenergosbyt

External construction and repair companies

Sakhalin-1 project, operator – Exxon Neftegas Limited LLC (ExxonMobil subsidiary), Sakhalin-1 project, operator – Gazprom Mezhregiongaz LLC

Sakhalin-Khabarovsk-Vladivostok gas pipeline system

Sakhatransneftegaz, Alrosa gas

SUEK, Mechel, Colmar, and Russian Coal

PJSC Alrosa, JSC Rosenergoatom, Bilibino SPP, Municipal energy

Electricity and heat generation, transmission, and sales
- PJSC DEK
- JSC DRSK

- Length of 0.4-110 kV OHL and cable lines: 58,327 km | 15,744 MVA
- 11,847 substations

 Buyers/consumers

Large industrial consumers on WECM
- Retail electricity consumers
- Retail companies
- Grid companies

Non-price zone of the East

Electricity transmission
- PJSC DEK

Retail companies
- ESC RusHydro
- JSC Chuvash Energy Retail Company
- PJSC Ryazan Energy Retail Company
- PJSC Krasnoyarskenergosbyt

I and II price zones

Non-price zone of the East

Electricity transmission
- PJSC DEK

Retail companies
- ESC RusHydro
- JSC Chuvash Energy Retail Company
- PJSC Ryazan Energy Retail Company
- PJSC Krasnoyarskenergosbyt

Buyers/consumers

Large industrial consumers on WECM
- Retail electricity consumers
- Retail companies
- Grid companies

Electricity and heat generation, transmission, and sales
- JSC-energo and controlled companies in isolated power systems

- 4,555.5 MW | 5,678 Gcal/h
- 46,420 km | 10,153 substations | 13,573 MVA

Perimeter of RusHydro Group

1. Transfer the commissioned power facilities to operating utility companies according to a territorial logic.
RUSHYDRO GROUP, THE TOP PERFORMER IN THE RENEWABLE ENERGY GENERATION IN RUSSIA, IS BOLSTERING GEOTHERMAL, SOLAR, WIND AND HYDRO-GENERATION PROJECTS IN ISOLATED POWER AREAS OF THE FAR EASTERN FEDERAL DISTRICT. IN 2018, IN THE ARCTIC VILLAGE OF TIKSI, A UNIQUE WIND POWER STATION WITH A CAPACITY OF 900 KW WAS PUT INTO OPERATION.
MARKETS SERVED [102-4]

Position in the industry

The Russian electricity and capacity market is comprised of the wholesale electricity and capacity market and the retail electricity market (REM), with RusHydro operating in the wholesale electricity and capacity market.

The wholesale market is a place where a special type of commodities – electricity and capacity – are traded within the Unified Energy System across Russia’s economic space. Capacity as a commodity is an obligation to properly maintain power generating facilities in order to timely meet the consumer demand for electric power. The retail market trades in only one commodity – electric power.

With acquisition of a number of electricity retailers and the companies of RAO ES East, RusHydro Group has significantly increased its visibility in the retail electricity and heat markets of Russia. The Group also owns distribution grids in the Far East, the Luchegorsky coal strip mine, construction and repair companies, and design institutes, which makes it one of Russia’s largest energy infrastructure holdings.

RusHydro’s key competitive advantages include:

- HPP/PSPP-based power generation does not require fuel and is therefore not susceptible to fluctuations in fossil fuel prices (natural gas, oil, coal, and other). Moreover, it remains highly profitable as pricing in the electricity and capacity markets reflects the cost of heat generation, which includes fuel expenses.
- HPPs can adjust output in response to changing demand for power supply, which provides them with guaranteed load during the times of peak demand when electricity price is the highest.
- Low production cost of power generated by HPPs is the main reason why extra hydropower supplies and capacities are fully consumed within the unified energy systems.
- As a renewable resource, hydropower ranks among the most environmentally friendly sources of energy. Its use helps reduce emissions from thermal power plants and save hydrocarbons for future generations. Hydropower produced at RusHydro’s HPPs annually saves the planet 50 mt of CO2 emissions;
- To bring electricity tariffs in the Far East in line with the Russian base (average) rate, a surcharge was added to the capacity price in the first and second price zones of the WECM. RusHydro has been designated by the Russian Government to collect and transfer the surcharge amount to the Far East. This measure has helped reduce the accounts receivable from current consumers in the Far Eastern Federal District and attract investments in the region’s energy-intensive industrial projects to help create potential effective demand for electricity.

With the generating assets of the Group boasting a total installed hydropower capacity of 31 GW,

RusHydro ranks among the world’s top hydropower generating companies.

![The world’s largest hydropower generating companies, GW](chart)

<table>
<thead>
<tr>
<th>Country/Company</th>
<th>GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Three Gorges Corporation (China)</td>
<td>72</td>
</tr>
<tr>
<td>Eletrobras (Brazil)</td>
<td>68</td>
</tr>
<tr>
<td>Hydro-Québec (Canada)</td>
<td>57</td>
</tr>
<tr>
<td>RusHydro</td>
<td>31</td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers (USA)</td>
<td>30</td>
</tr>
<tr>
<td>Statkraft (Norway)</td>
<td>19</td>
</tr>
</tbody>
</table>

Competitive landscape

RusHydro Group is one of Russia’s leading electric power producers, with Rosatom State Corporation and the independent energy companies emerging from the restructuring of RAO UES of Russia acting as its main competitors.

RusHydro’s competitors in Russia, GW

<table>
<thead>
<tr>
<th>Company</th>
<th>GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro</td>
<td>39.4</td>
</tr>
<tr>
<td>Gazprom Energoholding</td>
<td>39</td>
</tr>
<tr>
<td>Intar RAO</td>
<td>34</td>
</tr>
<tr>
<td>ROSATOM</td>
<td>29</td>
</tr>
<tr>
<td>EnerSibirzengro</td>
<td>20</td>
</tr>
<tr>
<td>T Plus (IES)</td>
<td>18</td>
</tr>
</tbody>
</table>

RusHydro’s share in Russia’s electric power market¹

<table>
<thead>
<tr>
<th>Year</th>
<th>Output in Russia</th>
<th>Electricity</th>
<th>Capacity</th>
<th>Total installed capacity, Russia</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mn kWh</td>
<td>Output by RusHydro</td>
<td>%</td>
<td>MW</td>
<td>MW</td>
</tr>
<tr>
<td>2016</td>
<td>1,071,800</td>
<td>138,605</td>
<td>12.91</td>
<td>244,100</td>
<td>38,309</td>
</tr>
<tr>
<td>2017</td>
<td>1,073,700</td>
<td>139,820</td>
<td>13.02</td>
<td>246,868</td>
<td>38,479</td>
</tr>
<tr>
<td>2018</td>
<td>1,091,700</td>
<td>143,853</td>
<td>13.18</td>
<td>250,400</td>
<td>38,803</td>
</tr>
</tbody>
</table>

¹ Excluding International Energy Corporation
STRATEGY OF RUSHYDRO GROUP

Mission and values
RusHydro Group’s mission is to ensure efficient use of water resources and reliability of the Unified Energy System of Russia, as well as to support the social and economic development of the Far Eastern regions by providing its existing and prospective consumers with access to energy infrastructure.

Strategy and its implementation
RusHydro Group’s Development Strategy until 2020 with an outlook for 2025 was approved by RusHydro’s Board of Directors in 2016 (Minutes No. 238 of June 8, 2016). The Group’s strategy stems from the draft energy strategy of the Russian Federation until 2035 developed jointly with RusHydro. The industry strategy centres around the transition from resource-based to innovative development of the energy sector, focusing on the comprehensive upgrade of the Russian energy companies. RusHydro Group’s strategy seeks to implement the tasks outlined in the draft energy strategy of the Russian Federation until 2035.

The strategy sets out development goals for the entire RusHydro Group along with specific objectives for their achievement.

RUSHYDRO GROUP’S CORPORATE VALUES

Clean energy – ensuring environmental safety and protection of natural resources.

Engineering culture – operating assets in a safe and reliable manner.

Prosperous society – promoting reliability and infrastructure development, efficient use of water resources, utilization of hydropower potential and expanded use of renewable energy sources which contribute to the development of territories, economic growth and society’s welfare and prosperity.

Reliable business – implementing social policy which supports the Company’s employees and residents across its footprint.

Leading company – striving for the Company’s success and leadership by combining its employees’ efforts, resources and business components to achieve excellence in every aspect of the Company’s operations.

United team – providing opportunities for the development and fair remuneration of the employees to build a competitive edge across RusHydro’s operations (team spirit, self-expression and unlocking employees’ potential).

Developmental environment – implementing new technologies and offering infinite opportunities to foster further development.

Young energy – promoting energy-related careers among schoolchildren.

RusHydro Group’s strategic goals

Ensuring reliable and safe operations of the Company’s facilities

The Company ensures the reliable and safe operation of equipment, hydraulic structures and thermal power plant infrastructure with regard to society and environment, taking into account the economic feasibility of funds allocated for mitigating possible risks and reducing potential damage.

Promoting stable development of electricity generation

The Company expands its electricity generation volumes by implementing new technologies and offering infinite opportunities to foster promoting stability and infrastructure development, efficient use of water resources, sustainability of Russia’s Unified Energy System, as well as social and economic development of the region.

Developing the Far Eastern energy sector

The Company ensures steady development of the Far Eastern energy sector and participates in the implementation of national goals to streamline the social and economic development of the region.

Increasing the Company’s value

The Company strives to increase its fundamental value, investment appeal and value growth while ensuring reliable and safe operation of its facilities.

Key tasks

Development and improvement of performance of production and technological complex

Investment policy and changing approaches to the investment program development

Operating efficiency and transparency

Improvment of the Far East assets management and the Far East energy development

Human resources development

Strategic management system

The Company has a strategic management system in place, which links strategic management processes with the incentive system.

The main tools for implementing the strategy are RusHydro Group’s Long-term Development Program and the Value Growth Plan.

Long-term Development Program

RusHydro’s Long-term Development Program for 2018-2022 has been prepared in accordance with the instructions of the President of the Russian Federation and the Russian Government. RusHydro Group’s Long-term Development Program sets out the main principles and activities for the Company’s rapid growth, seeking to ensure efficient use of water resources, sustainability of Russia’s Unified Energy System, as well as social and economic development of the Russian regions, including the Far East, by providing its existing and prospective consumers with access to energy infrastructure.
RusHydro Group’s Long-term Development Program for 2018–2022 has been prepared in accordance with RusHydro Group’s Development Strategy until 2020 with an outlook for 2025 and sets key parameters for the production programs, investment program, Innovative Development Program, and the Consolidated Business Plan of the Group, while also featuring the analysis of implementation risks and key performance indicators of the Long-term Development Program.

Objectives of RusHydro Group’s Long-term Development Program:
- Ensuring reliable and safe operations of the Company’s facilities;
- Promoting stable development of electricity generation;
- Developing the Far Eastern energy sector;
- Increasing the Company’s value.

In the reporting year, RusHydro Group’s Long-term Development Program was implemented within the framework of production, investment and innovative programs. Information on the program implementation and on Long-term Development Program’s KPI achievement is provided in the following sections: Key performance indicators, Economics and finance, Production and sales, investment activities, innovations, as well as in Appendix No. 9 Report on the Long-term Development Program implementation of RusHydro Group for the year of 2018 and Methodology of Calculation and Measurement and Appendix No. 10 The auditor’s report on the Long-term Development Program implementation in 2017 of RusHydro Group for the period 2016-2020.

The progress on RusHydro Group’s Long-term Development Program is monitored in accordance with the Long-term Development Program audit standard approved by RusHydro’s Board of Directors’ and the Terms of Reference for auditing the implementation of the Long-term Development Program developed in line with the recommendations of the Russian government.

The focus area of the Company’s efforts in 2018 to pursue the Value Growth Plan was a change in approaches to setting tariffs in the Far Eastern Federal District. A Decree of the Government of the Russian Federation was drafted to introduce long-term tariffs for non-price zones in the Far Eastern Federal District, which makes it possible for the energy companies to accommodate economically justified costs in the tariff and to retain the effect of cost savings. Within the framework of the heat generation modernization program of the Government of the Russian Federation, a return on investment is expected at a rate consistent with that of the projects for replacing retired capacities in the Far East.

In terms of optimization measures for investment and operating activities, as well as for the sale of non-core assets, the resulting effect has already exceeded RUB 53 bn.

In addition, in order to minimize the impact of ongoing non-monetary impairment on the amount of dividends paid, proposals were made for adjusting the Dividend Policy to establish the minimum level of dividend payout. The revised Dividend Policy was approved by the Company’s Board of Directors (Minutes No. 287 of April 22, 2019).

Strategic risks
The Company maintains a strategic risk register which identifies risk owners and is reviewed on an annual basis. The register is used to disclose risk-related information to shareholders, rating agencies, auditor and other stakeholders, and to further promote and control risk optimization initiatives.

Value Growth plan
RusHydro Group’s Value Growth Plan through to 2021 was approved by RusHydro’s Board of Directors on October 27, 2017, to maximize the Company’s value and its investment appeal for shareholders and investors. Value Growth Plan aims to increase RusHydro’s fundamental and market value as fundamental value drives market capitalization, which is particularly important in view of the fact that shares of RusHydro and other Russian power companies are currently traded with a significant discount to global majors.

To secure effective implementation of the Value Growth Plan, it is planned to introduce a cost approach to the Company’s management for the management processes, systems and solutions to maximize value while ensuring safe operations at generating facilities. At the same time, the Value Growth Plan includes tasks and initiatives to streamline operational and investment activities, both controlled by the management and dependent on external factors.

Moreover, the Value Growth Plan outlines the Company’s key focus areas aimed at improving the openness and transparency of RusHydro Group in regards to the market participants and minimizing the gap between the fundamental and market value of the Company.

The list of strategic risks and information on the risk management system are available in the Risk management section.

Strategy implementation in 2018
The Strategy Implementation Plan for 2018 sets the following strategic goals.

Key strategic goals for 2018

<table>
<thead>
<tr>
<th>Goal</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring reliability of existing assets and their upgrade, enhancing management efficiency with respect to the production complex</td>
<td>RusHydro Group’s Technical Policy is being developed to reconcile top-level documents of RusHydro and RAO ES East aiming to determine the scope and development trends of technologies and technical solutions improving reliability and efficiency of RusHydro Group’s production facilities in the short and long term, while also ensuring safe operations.</td>
</tr>
<tr>
<td>Enhancing the operating performance and transparency</td>
<td>Cost optimization plan is being implemented based on the results of the external independent cost audit of RusHydro and its subsidiaries.</td>
</tr>
<tr>
<td>Improving the efficiency of the Far Eastern asset management system and developing the Far Eastern energy sector</td>
<td>In 2017–2018, the economic effect of the initiatives to optimize operating costs and the management model amounted to RUB 10,552 mn and RUB 1,863 mn, respectively.</td>
</tr>
<tr>
<td>Increasing the competitive edge of the engineering design complex</td>
<td>The Company is preparing a development strategy for its scientific and engineering design complex.</td>
</tr>
<tr>
<td>Drafting the Company’s strategic documents</td>
<td>The Group’s Long-term Development Program for 2018–2032 has been updated.</td>
</tr>
<tr>
<td>Improving the corporate governance system</td>
<td>RusHydro has approved the concept of the Company’s positioning in the international market seeking to determine the main development areas of RusHydro Group’s international activities and its approaches to fostering a positive image of the Company in the global business arena.</td>
</tr>
<tr>
<td>Expanding the talent pool</td>
<td>The number of corporate governance standards and principles set forth in the Corporate Governance Code and implemented in RusHydro’s corporate governance practices grew to 92.4%.</td>
</tr>
<tr>
<td></td>
<td>The Action Plan for the Introduction of Professional Standards into RusHydro’s Operations is being implemented, including 53 standard training programs for the professional development and retraining of facility personnel at the Corporate Hydropower University based on the professional standards framework.</td>
</tr>
<tr>
<td></td>
<td>RusHydro Group’s employees completed 36,537 training courses.</td>
</tr>
<tr>
<td></td>
<td>RusHydro participated in the creation of Institute of Hydropower and Renewable Energy Sources (part of Moscow Power Engineering Institute) acting as a single center for education and training of engineers specializing in hydropower and renewables.</td>
</tr>
</tbody>
</table>
The system of key performance indicators ("KPI") for RusHydro’s management is based on national statutory requirements and is designed to improve the Company’s performance and achieve the goals set by its shareholders. Since 2017, the management KPI system includes annual key performance indicators of the Management Board and key performance indicators of RusHydro’s Long-Term Incentive Plan ("LTIP").

In 2016, based on recommendations of an independent advisor, the Company developed its annual KPI list, as well as calculation and evaluation methodology for the KPI of RusHydro’s Management Board, and KPI of the LTIP aimed at motivating the Company’s management to achieve strategic goals and thus balancing the interests of the Company’s management and shareholders. In 2019, the independent advisor updated the list of the LTIP KPI by introducing Earnings per share (EPS), RUB/Share as a KPI with a 15% weight. The RusHydro Management Board’s KPI and the Company’s LTIP KPI are calculated and evaluated using the calculation and evaluation methodology (approved by the Board of Directors) for the Management Board’s KPI and the calculation and evaluation methodology for the KPI of RusHydro’s Long-Term Incentive Plan.

Annual KPI of RusHydro’s Management Board in 2018

The annual KPI of RusHydro’s Management Board for 2018 consist of five financial and two industry-specific indicators. Financial indicators of the annual KPI of RusHydro’s Management Board include a mandatory indicator required by the Federal Agency for State Property Management – return on equity (ROE). The Company’s financial indicators are calculated based on the Group’s consolidated financial statements prepared under the IFRS.

Resolution of the Board of Directors approved the target annual KPI of RusHydro’s Management Board for 2018 and target KPI of the second cycle of the Long-Term Incentive Plan for 2018–2020.

In 2017, the independent advisor updated the list of KPIs, as well as calculation and evaluation methodology for the KPI of RusHydro’s Management Board, and KPI of the LTIP by introducing Earnings per share (EPS), RUB/Share as a KPI with a 15% weight. The RusHydro Management Board’s KPI and the Company’s LTIP KPI are calculated and evaluated using the calculation and evaluation methodology (approved by the Board of Directors) for the Management Board’s KPI and the calculation and evaluation methodology for the KPI of RusHydro’s Long-Term Incentive Plan.

<table>
<thead>
<tr>
<th>KPI</th>
<th>Period</th>
<th>Target</th>
<th>Actual</th>
<th>Target KPI achievement</th>
<th>Weight, %</th>
<th>KPI achievement in 2018, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA, RUB mn</td>
<td>2017</td>
<td>97,993</td>
<td>110,323</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>170,632</td>
<td>181,526</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>ROE, %</td>
<td>2017</td>
<td>6.10</td>
<td>10.13</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>15.86</td>
<td>23.88</td>
<td>Achieved</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>Share of procurement from small and medium businesses, %</td>
<td>2017</td>
<td>≥18</td>
<td>85</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>≥18</td>
<td>76</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Including: based on procurement from small and medium businesses only, %</td>
<td>2017</td>
<td>≥18</td>
<td>38</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>≥15</td>
<td>46</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Accident prevention</td>
<td>2017</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>number of production-related accidents</td>
<td>2017</td>
<td>≤5-year average</td>
<td>14</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>≤5-year average</td>
<td>9</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>number of major accidents</td>
<td>2017</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Adherence to the capacity commissioning schedule, funding and spending plan, %</td>
<td>2017</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Labor productivity, RUB ‘000/man-hour</td>
<td>2017</td>
<td>4.74</td>
<td>5.20</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>5.30</td>
<td>6.12</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Decrease in operating expenses (costs), %</td>
<td>2017</td>
<td>2</td>
<td>2.26</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>2</td>
<td>2.69</td>
<td>Achieved</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

According to the applicable calculation and evaluation methodology for the KPI of RusHydro’s Management Board, the EBITDA approved by resolution of the Board of Directors shall be calculated on the basis of RusHydro Group’s audited consolidated financial statements under the IFRS using the following formula: EBITDA = EBT + depreciation and amortization, gain on financial assets at fair value through profit or loss, impairment of fixed assets, impairment of receivables, gain/loss on disposal of fixed assets, gain/loss on disposal of subsidiaries and joint ventures, and other non-cash operating income and expenses. According to resolution of the Board of Directors (Minutes No. 245 of December 26, 2016), the EBITDA calculated using this formula is different from that used in RusHydro Group’s IFRS financial statements due to different approaches to calculating the indicator.

According to the applicable calculation and evaluation methodology for the KPI of RusHydro’s Management Board, the EBITDA approved by resolution of the Board of Directors shall be calculated on the basis of RusHydro Group’s audited consolidated financial statements under the IFRS using the following formula: EBITDA = EBT + depreciation and amortization, gain on financial assets at fair value through profit or loss, impairment of fixed assets, impairment of receivables, gain/loss on disposal of subsidiaries and joint ventures, and other non-cash operating income and expenses.
**KPI of the Long-Term Incentive Plan**

The first and second cycles of RusHydro’s LTIP consist of the following KPI: three financial indicators (including total shareholder return (TSR)) as a mandatory indicator required by the Federal Agency for State Property Management) and an integrated innovative KPI.

The achievement of target KPI for the Long-Term Incentive Plan will be assessed upon expiry of the respective period.

### Target KPI for the first LTIP cycle for 2017–2019

<table>
<thead>
<tr>
<th>KPI</th>
<th>Target</th>
<th>2019</th>
<th>2020</th>
<th>Target</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA, RUB mn</td>
<td>170,932</td>
<td>181,526</td>
<td>Achieved</td>
<td>175,629</td>
<td>193,795</td>
<td>209,846</td>
</tr>
<tr>
<td>ROE, %</td>
<td>15.86</td>
<td>23.88</td>
<td>Achieved</td>
<td>16.36</td>
<td>16.12</td>
<td>16.70</td>
</tr>
<tr>
<td>Share of procurement from small and medium businesses, %</td>
<td>18</td>
<td>76</td>
<td>Achieved</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>including procurement from small and medium businesses only, %</td>
<td>15</td>
<td>46</td>
<td>Achieved</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Number of accidents</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Adherence to the capacity commissioning schedule, funding and spending plan</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Labor productivity, RUB 1000/man hour</td>
<td>5.30</td>
<td>6.12</td>
<td>Achieved</td>
<td>5.72</td>
<td>5.31</td>
<td>5.60</td>
</tr>
<tr>
<td>Decrease in operating expenses (costs), %</td>
<td>2</td>
<td>2.69</td>
<td>Achieved</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Integrated innovative KPI, %</td>
<td>85</td>
<td>96</td>
<td>Achieved</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Total shareholder return (TSR), %</td>
<td>100</td>
<td>0</td>
<td>Not achieved</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Target KPI for the second LTIP cycle for 2018–2020

<table>
<thead>
<tr>
<th>KPI</th>
<th>Target</th>
<th>2019</th>
<th>2020</th>
<th>Target</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE, %</td>
<td>2</td>
<td>2.69</td>
<td>Achieved</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Share of procurement from small and medium businesses, %</td>
<td>15</td>
<td>46</td>
<td>Achieved</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>including procurement from small and medium businesses only, %</td>
<td>18</td>
<td>76</td>
<td>Achieved</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Number of accidents</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Adherence to the capacity commissioning schedule, funding and spending plan</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Labor productivity, RUB 1000/man hour</td>
<td>5.30</td>
<td>6.12</td>
<td>Achieved</td>
<td>5.72</td>
<td>5.31</td>
<td>5.60</td>
</tr>
<tr>
<td>Decrease in operating expenses (costs), %</td>
<td>2</td>
<td>2.69</td>
<td>Achieved</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Integrated innovative KPI, %</td>
<td>85</td>
<td>96</td>
<td>Achieved</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Total shareholder return (TSR), %</td>
<td>100</td>
<td>0</td>
<td>Not achieved</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### KPI of the Long-Term Development Program

RusHydro’s Long-Term Development Program consists of KPI established for 2018–2022.

The target KPI were calculated in accordance with RusHydro Group’s draft Consolidated Business Plan for 2018–2022 and the Group’s programs. The list of KPI for RusHydro’s Long-Term Development Program for 2018–2022 includes the list of annual KPI of the Management Board and the list of LTIP KPI.

<table>
<thead>
<tr>
<th>KPI</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA, RUB mn</td>
<td>170,932</td>
<td>181,526</td>
<td>Achieved</td>
<td>175,629</td>
<td>193,795</td>
<td>209,846</td>
</tr>
<tr>
<td>ROE, %</td>
<td>15.86</td>
<td>23.88</td>
<td>Achieved</td>
<td>16.36</td>
<td>16.12</td>
<td>16.70</td>
</tr>
<tr>
<td>Share of procurement from small and medium businesses, %</td>
<td>18</td>
<td>76</td>
<td>Achieved</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>including procurement from small and medium businesses only, %</td>
<td>15</td>
<td>46</td>
<td>Achieved</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Number of accidents</td>
<td>0</td>
<td>0</td>
<td>Achieved</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Adherence to the capacity commissioning schedule, funding and spending plan</td>
<td>85</td>
<td>92.8</td>
<td>Achieved</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Labor productivity, RUB 1000/man hour</td>
<td>5.30</td>
<td>6.12</td>
<td>Achieved</td>
<td>5.72</td>
<td>5.31</td>
<td>5.60</td>
</tr>
<tr>
<td>Decrease in operating expenses (costs), %</td>
<td>2</td>
<td>2.69</td>
<td>Achieved</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Integrated innovative KPI, %</td>
<td>85</td>
<td>96</td>
<td>Achieved</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Total shareholder return (TSR), %</td>
<td>100</td>
<td>0</td>
<td>Not achieved</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Free cash flow (FCF), RUB mn</td>
<td>–66,079</td>
<td>–41,789</td>
<td>Achieved</td>
<td>11,704</td>
<td>25,498</td>
<td>54,277</td>
</tr>
</tbody>
</table>


3. Target KPI for the LTDP for 2018–2022 were approved as part of RusHydro’s LTDP for 2018–2022 (Minutes No. 271 of the Board of Directors of June 1, 2018, as amended by Minutes No. 279 of the Board of Directors of October 26, 2018). The actual KPI for 2018 are calculated using RusHydro’s KPI calculation and evaluation methodology approved by the Board of Directors (Minutes No. 271 of June 1, 2018).

4. Share of procurement from small and medium businesses, %

5. As resolved by the Company’s Board of Directors (Minutes No. 282 of December 27, 2018).
INVESTMENT ACTIVITIES

Investment policy and its principles

The Company’s investments are governed by the Regulations on Managing Investing Activities Performed in the Form of Capital Investments.

RusHydro’s investment policy principles

<table>
<thead>
<tr>
<th>Compliance of investment decisions and projects with statutory requirements, building codes and regulations, and environmental standards</th>
<th>Step-by-step approach to implementation of investment projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance of investment decisions and projects with risk-return profiles approved by the Board of Directors</td>
<td>Analysis of costs and benefits associated with alternative investment decisions (performed at the end of each stage in case of a change in key project metrics)</td>
</tr>
<tr>
<td>Access to financing for all investment projects</td>
<td></td>
</tr>
</tbody>
</table>

Investment programs are approved by the respective boards of directors within RusHydro Group, with the programs of members involved in the electricity sector additionally reviewed by the authorized government agencies. The drafts are based on the Group’s consolidated investment program, which is approved by the Management Board and presented to the Board of Directors. In the case of entities involved in the electricity sector, the drafts are submitted to the authorized government agencies. The drafts are based on the Group’s consolidated investment program, which is approved by the Management Board and presented to the Board of Directors. In the case of entities involved in the electricity sector, the drafts are submitted to the authorized government agencies.

Investment objectives

- Ensure stable power supply with no disruptions for the consumers
- Satisfy the growing energy consumption
- Upgrade energy facilities
- Reduce grid losses
- Reduce power equipment failures and wear and tear

Role of federal and regional governments in the investment program development (EUR)

Our cooperation with the country’s federal and regional governments extends beyond developing and reviewing our investment program, with working on proposals and updates to energy policy papers (the “Policy Papers”) also on our agenda. These documents include:

- the schemes and programs to develop regional energy systems (the “DSPs”);
- the Scheme and Program to Develop the Unified Energy System of Russia (the “UES DSP”);
- the general layout of power generation facilities in Russia (the “General Layout”); and
- the territorial planning layout for the Russian power industry (the “TPL”).

Both the DSPs and the UES DSP focus on developing the grid infrastructure and the generating capacities, meeting the mid- to long-term demand for electricity and heat (capacity-wise), and creating a stable and favorable environment for investments in the electricity infrastructure.

The General Layout provides a foundation for organizing the power generation facilities and the grid infrastructure in a way to proactively balance production, consumption and capacities in UES Russia and technologically isolated local energy systems, prevent the forecasted power and capacity shortages, identify the key locations for placing transmission lines and substations, and ensure the normal operating conditions for UES Russia and the actual output from new power plants.

The TPL aims to consolidate data on prospective energy facilities of federal importance, including their types, purposes, names, key specifications, and locations.

RusHydro Group works to ensure that the Policy Papers contain only the most recent information on its energy facilities and plans, providing materials, commentary and suggestions as necessary.

The Group’s cooperation with regional governments extends to drafting proposals and updating information on heating layouts for Russian cities and towns.

Developing and updating heating layouts for cities and towns across the Far Eastern Federal District ensures efficient and safe performance of heat supply systems and help improve them as heat suppliers within RusHydro Group upgrade their fixed assets and implement energy conservation and efficiency initiatives.

RusHydro’s subsidiaries have participated in public hearings on heat supply schemes for the Khabarovsk, Vladivostok and Artyom urban districts and other Far Eastern municipalities.
Long-term Program for Replacement of Retiring Capacities

The Long-term Program for Replacement of Retiring Capacities and Power System Development in the Far East drafted by RusHydro's management aims to ensure a stable and robust power supply to existing and prospective customers in the Far Eastern Federal District by formulating solutions to develop the region's energy infrastructure as necessary.

The Program provides a foundation for developing the electrical power industry in the Russian Far East. Its key objectives include:

- drafting capacity retirement and replacement proposals (including possible alternatives);
- drafting proposals to satisfy the prospective demand and develop the energy infrastructure; and
- identifying the best courses of action in respect of the proposed initiatives; and
- assessing the economic effect of the Program.

The Program includes projects to build or upgrade energy facilities in the Russian Far East with a view to replacing 1.6 GW of retiring capacities and satisfy the prospective demand from regional energy systems:

- Chaunskaya CHPP to be decommissioned (30 MW);
- Yakutskaya GRES-1 to be decommissioned (368 MW);
- Yakutskaya GRES-2 to be commissioned (226 MW);
- Khabarovskaya CHPP-1 to be decommissioned (435 MW);
- Khabarovskaya CHPP-4 to be commissioned (320 MW);
- Artyomovskaya CHPP to be decommissioned (460 MW);
- Artyomovskaya CHPP-2 to be commissioned (420 MW);
- Vladivostokskaya CHPP-2 to be upgraded (bringing the installed capacity of heat power units No. 1, 2, 3 to 360 MW).

The Program seeks to provide a rationale for including RusHydro Group’s projects in a program being developed by the Russian Government to raise funds for upgrading the heat generation infrastructure, and a foundation for proposals related to investment programs within the Group.

Design and survey works are currently underway for the stage 2 of Yakutskaya GRES-2, Artyomovskaya CHPP-2, Khabarovskaya CHPP-4 construction projects and Vladivostokskaya CHPP-2 upgrade project; the project parameters will be specified following their completion. Construction (upgrade) of these generation facilities is planned to be carried out by introducing the capacity price surcharge as part of the program to upgrade generation facilities approved by the Government of the Russian Federation.

In order to implement the CHPP construction project in Pevek, it is necessary to determine the budget financing mechanisms for the financial standing of RusHydro to remain unaffected. The corresponding instruction is reflected in the Minutes of the meeting with Dmitry Kokaz, Deputy Chairman of the Government of the Russian Federation (Minutes No. DK-PP-250pr (section I, para. 8) dated December 12, 2018).

Construction of Ust-Srednekanskaya HPP is planned as part of the consolidated investment program of RusHydro Group and will be financed internally.

Key investment areas under RusHydro Group’s consolidated investment program in 2018

<table>
<thead>
<tr>
<th>Utility connection and modernization</th>
<th>Rehabilitation and modernization</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>26,522</td>
<td>29,790</td>
<td>128</td>
</tr>
<tr>
<td>53,036</td>
<td>51,036</td>
<td>30</td>
</tr>
</tbody>
</table>

RusHydro's investment program for 2020–2027

RusHydro’s updated investment program for 2018 and investment program for 2019-2028 were approved by the Russian Ministry of Energy’s Order No. 66 On Approval of RusHydro’s Investment Program for 2019-2028 and Amendments to RusHydro’s Investment Program Approved by the Russian Ministry of Energy’s Order No. 34@ of December 29, 2017 of October 22, 2018.

The Group’s updated consolidated investment program for 2018 was approved by RusHydro’s Board of Directors (Minutes No. 276 of October 4, 2018) as part of RusHydro Group’s Consolidated Business Plan for 2018. In addition, the updated Business Plan for 2018, as approved by the Board of Directors (Minutes No. 281 of December 27, 2018), included updates to RusHydro’s investment program for the same year.

The draft RusHydro Group’s consolidated investment program for 2020-2024 and for 2019 (revised) was reviewed by RusHydro’s Board of Directors (Minutes No. 285 of March 29, 2019).

There are no investments with the projected return exceeding 10% per year.
Investments in construction of new facilities in 2018

Spending, RUB mn (incl. VAT)

- Priority projects in the Russian Far East: 12,704
- Zaramagskie HPPs: 9,648
- Off-site infrastructure for priority projects in the Russian Far East: 5,638
- Ust-Srednekanskaya HPP: 4,519
- Nizhne-Bureyskaya HPP: 3,200
- Vostochnaya CHPP: 2,451
- Other: 3,610
- Total: 43,829

Spending by source of funds in 2018, RUB mn (incl. VAT)

- Own: 16,010
- Raised: 5,516
- Federal: 4,424
- Other: 3,126
- Total: 28,276

CAPEX, RUB mn (excl. VAT)

- Priority projects in the Russian Far East: 14,015
- Zaramagskie HPPs: 10,138
- Off-site infrastructure for priority projects in the Russian Far East: 5,493
- Ust-Srednekanskaya HPP: 3,471
- Nizhne-Bureyskaya HPP: 2,638
- Vostochnaya CHPP: 2,037
- SHPPs in the North Caucasian Federal District: 1,704
- Other: 2,848
- Total: 42,343

Consolidated investment program spending by region in 2018 vs the Business Plan, RUB mn

- Siberian Federal District: 56,537
- European Russia: 51,507
- Far Eastern Federal District: 30,619
- Total: 126,221

Capacity commissioning in 2018

<table>
<thead>
<tr>
<th>Type</th>
<th>Russian Far East</th>
<th>European part of Russia and Siberia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power generation, MW</td>
<td>285.29</td>
<td>289.45</td>
</tr>
<tr>
<td>Heat, Gcal/h</td>
<td>442.33</td>
<td>442.47</td>
</tr>
<tr>
<td>Power lines, km</td>
<td>1,378.93</td>
<td>1,336.15</td>
</tr>
<tr>
<td>Transformer capacities, MVA</td>
<td>1,100.7%</td>
<td>972.23</td>
</tr>
</tbody>
</table>

Targets for capacity commissioning

<table>
<thead>
<tr>
<th>Type</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power generation, MW</td>
<td>982.4</td>
</tr>
<tr>
<td>Heat, Gcal/h</td>
<td>529.6</td>
</tr>
<tr>
<td>Transformer capacities, MVA</td>
<td>548.0</td>
</tr>
<tr>
<td>Power lines, km</td>
<td>1,647.7</td>
</tr>
</tbody>
</table>

Construction of energy facilities

Key investment projects and their impact on local economies across the Group’s footprint (203-3)

- Zaramagskie HPP
  - Installed capacity: 356 MW
  - Average annual output: 842 mn kWh
  - Year of commissioning: 2019
- Social and economic effects
  - Higher tax revenues at every government level.
- Supply stability effects
  - Addressing the electricity shortage in the Republic of North Ossetia – Alania.
  - Reducing exchange-related grid losses.
  - Addressing supply disruptions that might be experienced by remote communities.
- Nizhne-Bureyskaya HPP
  - Installed capacity: 320 MW
  - Average annual output: 1,670 mn kWh
  - Year of commissioning: 2019
- Social and economic effects
  - Reducing current heat generation expenses for the Unified Energy System of the East.
  - Creating an opportunity for nearby settlements to use electric boiler facilities instead of expensive coal or fuel oil and lower heat tariffs for customers.
  - Higher tax revenues at every government level.
- Supply stability effects
  - Managing load irregularities of Bureyskaya HPP, contributing to power generation and supply within the Unified Energy System of the East, and ensuring flood control.
- Ust-Srednekanskaya HPP
  - Installed capacity: 570 MW (142.5 MW third stage commissioned in 2018)
  - Average annual output: 2,555 mn kWh
  - Year of commissioning: 2022
- Social and economic effects
  - Generates power for Matrosov Mine (the Natalya gold deposit) to support the mining industry in driving the region’s economic growth.
  - Higher tax revenues at every government level.
  - Supply stability effects
    - Making the isolated Magadan energy system more reliable.

The RUB 7.46 bn difference between the actual spending under the consolidated investment program and the 2018 target was mainly attributable to:

- Updates on the work schedules for rehabilitation and modernization, with the reasons including more time required for contractors to complete their assignments and reductions in project costs following approval of design documentation (RUB 4.04 bn); and
- Updates on the work schedules for utility connection upon customer requests (RUB 2.45 bn).

1. In 2018, no economic migration came as a result of building RusHydro Group’s new facilities. (EU22)

In 2018, no economic migration came as a result of building RusHydro Group’s new facilities. (EU22)
Comprehensive modernization, rehabilitation, and upgrade programs

Comprehensive Modernization Program

As many large HPPs were commissioned in the 1950s and 1960s, the need arose in the early 2000s to upgrade or replace the existing equipment. Tough economic conditions prevented RusHydro from replacing obsolete and worn-out equipment and forced it to focus on maintenance and partial replacements instead. Since mid-2000s, a number of RusHydro’s HPPs began replacing equipment on a case-by-case basis, but the overall trend of ageing prevailed.

This was true until December 2011, when the Board of Directors approved the Comprehensive Modernization Program to upgrade the Company’s power generation facilities by 2025. Its key priority is to ensure that no core generation equipment with expired safe operation life remains in place by then.

Key results of RusHydro’s Comprehensive Modernization Program

<table>
<thead>
<tr>
<th>Results, pcs</th>
<th>Type of equipment</th>
<th>2018</th>
<th>2019 E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbines</td>
<td></td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Generators</td>
<td></td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Transformers</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>High-voltage circuit breakers</td>
<td></td>
<td>76</td>
<td>12</td>
</tr>
<tr>
<td>Hydraulic structures</td>
<td></td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>Secondary switches</td>
<td></td>
<td>362</td>
<td>191</td>
</tr>
<tr>
<td>Secondary equipment</td>
<td></td>
<td>360</td>
<td>178</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additions to installed capacity, MW</th>
<th>HPP</th>
<th>2018</th>
<th>2019 E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zhabulovskaya HPP</td>
<td>10.5</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>Saratovskaya HPP</td>
<td>12.0</td>
<td>12.0</td>
<td></td>
</tr>
<tr>
<td>Novosibirskaya HPP</td>
<td>5.0</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Votkinskaya HPP</td>
<td>15.0</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Cascade of Verkhnevolzhskie HPPs</td>
<td>10.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Nizhegornyiskaya HPP</td>
<td>3.0</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

Total: 55.5 MW

Health of RusHydro’s core equipment in 2018, %

<table>
<thead>
<tr>
<th>Equipment</th>
<th>%</th>
<th>Turbines</th>
<th>78.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generators</td>
<td>76.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformers</td>
<td>67.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In 2018, Votkinskaya HPP’s hydropower unit No. 7 was upgraded as part of RusHydro’s Comprehensive Modernization Program, becoming the second fully modernized hydropower unit at the plant.

Over the five decades since its commissioning in 1962, this unit had worn down to a significant extent. It took about a year to replace its turbine, generator and secondary equipment and upgrade its automatic control system. The new hydropower unit was manufactured by Power Machines – a Russian company.

The second unit’s runner, turbine chamber and automatic control and excitation system were replaced entirely. Designed to prevent lubes from being released to the environment, the new runner is expected to contribute more to ecological sustainability. The upgraded automatic control system will update the operators on the equipment status while also enhancing the operating efficiency and mitigating the risk of malfunctions.

In 2018, Votkinskaya HPP commissioned a new hydropower unit and replaced a turbine, generator and auxiliary equipment as part of the Comprehensive Modernization Program.
At Novosibirskaya HPP, the turbine replacement was followed by commissioning of the hydropower unit No. 14 following its upgrade, which included the recovery of the adjustable blade pitch and the replacement of the generator stator.

Rehabilitation and modernization program

The rehabilitation and modernization program draws upon the Comprehensive Modernization Program. While focused on ensuring adequate maintenance and commissioning new capacities, it differs from the Comprehensive Modernization Program in that it looks to replace equipment on a case-by-case basis, bringing more advanced alternatives to RusHydro's facilities. Its other priorities include extending lifespans of the core generation equipment, reducing production costs and enhancing the overall economic efficiency.

Driven by the need to ensure long-term reliability throughout its technological complex, JSC RAO ES East Subgroup runs its own rehabilitation and modernization program (as part of its investment program). The development and implementation of this initiative is regulated by RusHydro Group's Technical Policy.

The rehabilitation and modernization program saw Anadyr CHPP launch its first gas power boiler under a gasification agreement signed by RusHydro and the Government of the Chukotka Autonomous Area in May 2017 to carry out an extensive upgrade of the plant's equipment and build gas pipelines. It took less than a year to build the infrastructure for an on-site gas pipeline and gas distribution station, implement key utility systems and rehabilitate the boiler to feed on natural gas. All gas equipment has been pre-commissioned successfully. The plant feeds on the natural gas coming from the Zapadno-Özemnaya field, which is operated by Sibneft-Chukotka.

RusHydro’s Dagestan branch commissioned Miatlisnkaya HPP's hydropower unit No. 2. Now all HPP's turbines were replaced (hydropower unit No. 1 was upgraded in 2010).

Program for the development of energy based on renewables

Using renewables is a top priority for RusHydro Group, which keeps ramping up installed capacities by building new HPPs and commissioning new power generation facilities. RusHydro was among the first in Russia to start developing projects relying on geothermal, solar and wind power generation. One of RusHydro Group’s objectives for 2016–2020 with an outlook until 2025 is to improve energy efficiency by using alternative energy sources. Most of the projects are implemented in isolated energy hubs of the Far Eastern Federal District outside of the Unified Energy System.

Solar and wind power in isolated energy hubs

Since 2012, RusHydro Group has launched 19 solar power plants with a total capacity of 1.6 MW and four wind power plants with a total capacity of 3.6 MW.

Given the local specifics, none of the projects are standard by design, the 1 MW northernmost SPP in Batagay is an exception. Our R&D specialists have designed a prototype wind diesel and solar diesel power stations and tested a range of equipment, including energy storage units, all to be used in isolated energy hubs of the Far Eastern Federal District.

Commissioned in November 2018, a unique 900 kW wind power plant in Tiksi, an isolated polar settlement in the Republic of Sakha (Yakutia), generates green power for over 4,500 residents. This facility ensures a more stable power supply in Tiksi and makes Yakutia’s Bulunsky District less dependent on expensive diesel fuel deliveries – expected to shrink by 500 tonnes in annual terms. Its three unique turbines were designed to operate in an Arctic climate at temperatures as low as -50ºC and withstand winds of up to 70 m/s. Manufactured by Japan’s Komahaltec, each turbine is 41.5 m high and has 33 m blades. In 2019, RusHydro will continue working to build a diesel power plant equipped with three 3 MW diesel generators and an energy storage system. Once the project is completed, all these systems will be integrated into a single power generation complex.

Smaller HPPs

RusHydro is active in developing smaller HPPs, which are vital for remote, hard-to-reach and power-deficient areas as well as for local water supply to towns and settlements. These plants are sustainable and provide additional benefits, including the opportunity to store drinking water for future use. In Russia, smaller HPPs are defined as those with a capacity of 30 MW or less (as per GOST R52348-98). They are built on rivers as well as on lake spillways, irrigation channels, etc. 2018 saw the commissioning of a 1.26 MW SHPP on the Bolshoy Zelenchuk River.

<table>
<thead>
<tr>
<th>Project</th>
<th>RES</th>
<th>Capacity, MW</th>
<th>Year of commissioning</th>
<th>Indirect economic impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>900 kW wind power plant in Tiksi, Bulunsky District</td>
<td>Wind</td>
<td>0.9</td>
<td>2019</td>
<td>Replacing the output of a local diesel power plant (operated by JSC Sakha Energy’s Bulun Electric Power Grid) with renewable energy and reducing the consumption of expensive diesel fuel as a result. In addition, a 3,000 kW diesel power plant will be constructed, providing an energy storage unit for the wind diesel power station in Tiksi, Bulunsky District.</td>
</tr>
<tr>
<td>Krasnoyorskaya SHPP</td>
<td>Water</td>
<td>26.9</td>
<td>2021</td>
<td>Addressing shortages within the energy system of Karachay-Cherkessia.</td>
</tr>
<tr>
<td>Pravolubanska SHPP</td>
<td>Water</td>
<td>4.9</td>
<td>2022</td>
<td>Enhancing the power supply to the Balkarian hub.</td>
</tr>
<tr>
<td>Verkhnebalkarskaya SHPP</td>
<td>Water</td>
<td>10</td>
<td>2019</td>
<td>Enhancing the power supply to the Balkarian hub.</td>
</tr>
<tr>
<td>Ust-Ozhegotinskaya SHPP</td>
<td>Water</td>
<td>5.6</td>
<td>2019</td>
<td>Alleviating electricity shortages in Karachay-Cherkessia and enhancing the power supply by using water flows from the Ust-Ozhegotinskoye Main Hydrotechnical Complex.</td>
</tr>
</tbody>
</table>
**RusHydro Group construction quality assurance**

Construction and installation quality assurance is performed to ensure the following:
- compliance with the Urban Development Code, design documentation, technical regulations, and results of engineering surveys; and
- reliable and trouble-free operation of energy facilities and lower unproductive costs after commissioning.

Quality assurance:
- means developing engineering requirements for deliverables and verifying their compliance with these requirements and internal and statutory regulations;
- is performed by all parties involved in construction, including the general contractor, developer/administrator and designer (during field supervision);
- includes incoming, operational and acceptance inspections, progress control, final checks and issuing quality assurance reports; and
- involves external supervision by the Federal Environmental, Industrial and Nuclear Energy Supervision Service and other government agencies in the field of industrial supervision.

**Regulation and supervision**

Our quality assurance procedures for construction and installation, materials, structures and assemblies are compliant with Russian laws, industry standards and regulations, internal engineering standards, and regulatory requirements for design documentation.

In addition to primary and secondary federal legislation, all construction works are subject to both industry and RusHydro’s own internal quality assurance standards. Our key design quality management principles and the employees in charge are specified in the Regulations on Managing and Monitoring Investment Projects during the Development of documentation for Construction of RusHydro Group’s New Facilities as approved by RusHydro’s Order No. 1021 of December 28, 2018.

The Supervisory Board of the Uniform System of Conformity Assessment for Health, Safety and Environment, and Safety in the Energy and Construction Industries is developing the Uniform System of Conformity Assessment (Modernization and Renovation of Immovable Property) and requirements in respect of the corresponding control activities. Compliance monitoring is performed by the Federal Environmental, Industrial and Nuclear Energy Supervision Service.

Before a power plant is commissioned, it receives an automated diagnostic control system that will read and process measurements to help analyze the status of facilities across the hydrotechnical complex. After completion of a hydraulic structure, its measuring equipment, along with all data collected, is handed over by the construction company to the project administrator.

Quality assurance systems for new energy facilities are developed individually under agreements with the respective general contractors.

• For the first stage of Sakhalinskaya GRES-2, the general contractor (JSC HPC Mosenero) has developed and implemented a quality management system that is now certified under ISO 9001:2008, ISO 14001:2004 (GOST R ISO 14001:2007); and
- the project administrator and developer (JSC Sakhalinskaya GRES-2) has adopted construction and installation quality assurance guidelines for building control.
- For the CHPP in Sovetskaya Gavan, the project administrator and developer (JSC CHPP in Sovetskaya Gavan) has adopted construction and installation quality assurance guidelines for building control; and
- constructors (JSC Ust SrednekanskaiGSESstroy, JSC Hydroremont – VCC, ARSENAL PLUS, and Corporation of JSC ESKM) have developed a quality assurance system to facilitate planning and management in the corresponding domain.

The Company adheres to the corporate social responsibility concept as defined by ISO 26000. According to the standard, a company is responsible for the impact of its decisions and operations on society and the environment and must act in a transparent and ethical way that:
- promotes sustainable development, including public health and well-being;
- takes into account the expectations of stakeholders;
- complies with applicable laws and international standards of conduct;
- is integrated into the operation of the entire company and is applied with regard to its stakeholders.

One of RusHydro Group’s strategic goals is to ensure the reliable and safe operation of its facilities, taking into account the economic feasibility of funds allocated for mitigating possible risks and reducing potential damage.

The Company is committed to increasing the share of renewables in the country’s energy mix by means of commissioning new facilities and increasing the generation of clean energy, while also improving energy efficiency.

SUSTAINABLE DEVELOPMENT

As the largest Russian energy holding, RusHydro Group is fully aware of its responsibility to the government and society and is focused on the development of socially responsible business, while pursuing a consistent policy of introducing elements of sustainable development into its operational and management processes relying on Russian and international best practices. Sustainable development is an important value and is outlined in the Company’s strategic goals.

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- promotes sustainable development, including public health and well-being;
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The Company is committed to increasing the share of renewables in the country’s energy mix by means of commissioning new facilities and increasing the generation of clean energy, while also improving energy efficiency.

RusHydro Group’s another priority is its contribution to the development of the regions where it operates. RusHydro Group facilitates the growth of welfare, creating new jobs, paying taxes, and delivering positive multiplier effects by developing energy infrastructure (connection of new consumers to power grids, water supply, etc.). RusHydro Group supports education, culture, sports, and environmental protection and provides assistance to socially vulnerable population groups across its footprint.

A comprehensive approach to addressing RusHydro Group’s sustainable development objectives ensures the most efficient transition to low-carbon development with minimal environmental impact, as well as compliance with all occupational health and safety standards for employees and residents across the Company’s operations.
Sustainable development governance

Responsibility for providing control, methodology support and regulation of RusHydro Group’s sustainable low-carbon development, as well as preserving cultural heritage sites and biological diversity in accordance with Order No. 420 of June 15, 2018, is assigned to member of the Management Board, First Deputy General Director – Chief Engineer.

Sustainable development activities are carried out by specialized units within the area of their functional responsibility:

» Social responsibility – personnel management unit;
» Cooperation with government authorities in the regions of the Company’s operations and creation of a favorable social environment for the Company’s efficient development – corporate communications unit, Far East Division;
» Economic responsibility – unit of economic planning and investments, unit of production activity, unit of capital construction, and unit of financial and corporate law management;
» Power generation, improvement of energy efficiency and environmental responsibility – unit of production activity; charity – corporate communications unit;
» Providing charitable aid – corporate communications unit.

Operation of RusHydro’s different subdivisions and subsidiaries is coordinated at regular meetings of the working group on sustainable development to monitor the efficiency of implementation of key tasks in sustainable development for the period through to 2020 approved by RusHydro’s Order No. 614 of September 11, 2017.

Key sustainable development issues are reviewed at the meetings of the Board of Directors and the Company’s Management Board. The Committee on Reliability, Energy Efficiency and Innovation under RusHydro’s Board of Directors plays an important role in RusHydro’s sustainable development management and also preliminary reviews matters of long-term development of hydropower and energy based on other renewables (“RES”), as well as development of functional policies (technical, environmental, etc.), corporate standards in technical regulation, etc.

The Company has adopted a number of internal regulations outlining and governing the approach to sustainable development and corporate social responsibility (“CSR”). In 2018, a number of new internal regulations on environmental protection and social development were approved, including the new consolidated Environmental Policy of RusHydro Group (approved by Minutes No. 275 of the Board of Directors of August 9, 2018), as well as the Uniform Regulations on RusHydro Group’s Procurements (approved by Minutes No. 277 of the Board of Directors of October 4, 2018).

Internal regulations

<table>
<thead>
<tr>
<th>CSR area</th>
<th>Internal regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable production</td>
<td>» RusHydro Group’s Development Strategy until 2020 with an outlook until 2025; » RusHydro’s Long-term Development Program for 2018–2022; » RusHydro’s Regulations on the Working Group on Technical Standards; » Regulations on Managing Investing Activities Performed in the Form of Capital Investments; » RusHydro’s Regulations on the Standardization System; » RusHydro’s Regulations on Internal Controls.</td>
</tr>
<tr>
<td>Procurement</td>
<td>» The Uniform Regulations on RusHydro Group’s Procurements and other internal regulations developed to provide further details, including the Methodology for Reviewing the Reliability (Business Reputation) and Financial Standing of the Bidders.</td>
</tr>
<tr>
<td>Corporate ethics and anti-corruption</td>
<td>» RusHydro’s Code of Corporate Ethics; » RusHydro’s Anti-Corruption Policy; » RusHydro’s Regulations on the Prevention and Management of Conflicts of Interest; » Regulations on the Procedure to Report Presents Received by RusHydro’s Employees during Official Events, Business Trips, etc.; » RusHydro’s Regulations on the Committees for Compliance with the Corporate Ethics Standards and Management of Conflicts of Interest; » Rules of RusHydro’s Line of Trust Operation; » RusHydro’s Comprehensive Program of Anti-Corruption Activities for 2016–2019.</td>
</tr>
<tr>
<td>Environmental impact</td>
<td>» RusHydro Group’s Environmental Policy; » RusHydro’s Program of Energy Saving and Increased Energy Efficiency through to 2020; » RAO ES East Subgroup’s Energy Saving and Energy Efficiency Improvement Policy.</td>
</tr>
<tr>
<td>Health and safety</td>
<td>» RusHydro’s Health and Safety Policy; » Policies on occupational health and safety of RusHydro’s subsidiaries.</td>
</tr>
<tr>
<td>Charity</td>
<td>» The Company’s Charity and Sponsorship Policy; » Charity and Sponsorship Policy of the Company’s Subsidiaries.</td>
</tr>
<tr>
<td>Innovative development</td>
<td>» Innovative Development Program of RusHydro Group for 2016–2020 with an outlook until 2025; » RAO ES East’s Innovative Development Program for 2016–2020 with an outlook until 2025; » Regulations on Design and Implementation of RusHydro’s Innovative Development Program; » Regulations on R&amp;D Management Process in RusHydro’s Operations; » Regulations on the Intellectual Property Management Process in RusHydro Group; » Regulation on Planning and Monitoring the Progress of Activities as Part of the Innovative Development Programs of RusHydro Group and RAO ES East; » Regulation on Preparation, Adjustment and Monitoring of Implementation of Procurement Plans for Innovative and/or High-Tech Products; » Methodology for Assessment of Technical and Economic efficiency of Innovative Projects and the Temporary Procedure for Assessment of Technical and Economic Efficiency of Innovative Projects Implemented as R&amp;D.</td>
</tr>
<tr>
<td>Personnel management</td>
<td>» RusHydro’s Social Policy; » Regulations on RusHydro’s Employee Training; » Regulations on Personnel Certification at RusHydro’s Branches; » Regulations on the Database Formation of Candidates to Be Recruited at RusHydro’s Branches; » Regulations on RusHydro’s Talent Pool; » Concept of advanced human resource development From School to Workplace.</td>
</tr>
</tbody>
</table>
Compliance of the Group’s operations with the UN Sustainable Development Goals

Sustainable development activities of RusHydro Group are focused on achieving a number of Sustainable Development Goals (SDGs) adopted by the UN in September 2015.

The Company has identified 13 SDGs which are particularly important for its operations, while sharing other SDGs and contributing to their achievement.

In 2017, RusHydro joined the UN Global Compact, the largest business initiative in sustainable development. The Company shares ten principles on human rights, labor, anti-corruption, and the environment, and strives to ensure that the needs of the current generation will not compromise the opportunities of those who will come next. On June 27, 2018, the Annual General Meeting of Shareholders resolved on RusHydro’s participation in the National Network of Global Compact Association. At the General Meeting of the members of the National Network of Global Compact Association held on September 26, 2018, Boris Bogush, Member of the Management Board, First Deputy General Director – Chief Engineer, was elected member of the Governing Board.

RusHydro’s main goals, objectives and corporate programs for achieving sustainable development goals

<table>
<thead>
<tr>
<th>Goals and objectives</th>
<th>Programs, projects and initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECONOMIC TARGETS</strong></td>
<td></td>
</tr>
<tr>
<td>Regulatory framework of water regimes and protection of territories and population from floods.</td>
<td>Implementing program of efficient collaboration with the System Operator and the Federal Water Resources Agency in terms of planning and managing the HPP water and energy regime.</td>
</tr>
<tr>
<td>Affordable energy.</td>
<td>Ensuring the functioning of the tariff adjustment mechanism in five out of nine regions of the Far Eastern Federal District to the average Russian level of RUB 6.3 per kWh. Acting as the scheme’s operator, RusHydro collects the surcharge to the capacity price (KOM price) and transfers these funds in full to budgets of regions of Russian Federation to energy companies of the Far Eastern Federal District to offset lost revenue caused by sales of power at reduced tariffs.</td>
</tr>
<tr>
<td>Increasing the share of renewables in the energy mix.</td>
<td>Launching new energy facilities (including HPPs and renewables).</td>
</tr>
<tr>
<td>Maximization of value for the state, shareholders, the Company and its employees.</td>
<td>Implementing RusHydro Value Growth Plan through to 2021 aimed at increasing the Company’s fundamental and market value.</td>
</tr>
<tr>
<td>Innovative development.</td>
<td>Developing target indicators to reduce greenhouse emissions, and mechanisms for their achievement.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ENVIRONMENTAL TARGETS</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributing to low-carbon development.</td>
<td>Implementing the Environmental Policy in terms of ensuring low-carbon development.</td>
</tr>
<tr>
<td>Preserving biodiversity.</td>
<td>Developing target indicators to reduce greenhouse emissions, and mechanisms for their achievement.</td>
</tr>
<tr>
<td>Conserving and restoring fish reserves in water bodies.</td>
<td>Developing and implementing a biodiversity conservation program.</td>
</tr>
<tr>
<td>Promoting efficient water use.</td>
<td>Carrying out initiatives aimed at restoring fish reserves. Installing fish protection equipment.</td>
</tr>
<tr>
<td></td>
<td>Implementing RusHydro Group’s programs in terms of rational use of water resources.</td>
</tr>
<tr>
<td></td>
<td>Carrying out the oBEREGAI annual program for cleaning up rivers and reservoirs.</td>
</tr>
<tr>
<td></td>
<td>Creating tourist route in protected natural areas.</td>
</tr>
</tbody>
</table>

1 The decision on the Company’s joining the UN Global Compact was made by RusHydro’s Board of Directors (Minutes No. 259 of October 30, 2017).
Stakeholder relations

Stakeholder relations principles and approaches

In the course of its operations, RusHydro strives to balance the interests of all its stakeholders, ensuring the most complete and timely disclosure of relevant information.

To this end, in preparation of the integrated annual report for 2018, RusHydro Group’s stakeholders ranking map was updated following a survey among internal and external stakeholders. Those who scored over 2.8 points as part of the assessment of stakeholder group impact on RusHydro Group (and vice versa) were recognized as the key stakeholders. (102-43)

In building a framework for successful relations with stakeholders, RusHydro Group follows four fundamental principles of the AA1000 (102-43) Series of Standards:

- Inclusivity – relates to identifying stakeholders and their needs and arranging interaction with them on material sustainability topics.
- Materiality – relates to identifying and prioritizing the most relevant sustainability topics, taking into account the effect each topic has on the stakeholders.
- Responsiveness – relates to providing timely reaction from the Company to events related to material sustainability topics, expressed in specific actions or communication with the stakeholders.
- Impact – relates to assessing the Company’s positive and/or negative effect on sustainable development aspects and stakeholders’ interests.

RusHydro strives to balance principles and approaches ensuring the most complete and timely disclosure of relevant information.

RusHydro Group’s stakeholder relations in 2018 (102-43) (102-44)

Key mechanisms

1. Shareholders and investors

Stakeholders’ interests: economic efficiency; business resilience; business process transparency

Preparing and holding Annual General Meetings of Shareholders
Preparing IR presentations and arranging IR activities
Public reporting
Maintaining business contacts with analysts of investment banks and other financial institutions
Preparing press releases and information materials about the Company
Arranging meetings between investors and the Company’s management
Preparing and conducting roadshows

For more information, see the Shareholder and Investor Relations section on p. 159.

2. Customers and consumers

Stakeholders’ interests: reliable power supply; improved quality of products and services; high standards of service

Online consultations on the websites of sales companies
Line of Trust
Mobile service centers
Online reception desk
Contact center
Personal accounts for consumers of guaranteed suppliers
Developing front offices

For more information, see the Production and sales section on p. 74.

3. Business partners, suppliers and contractors

Stakeholders’ interests: fair competition and responsible market behavior; transparent operations, including procurement

Forums, exhibitions, conferences, dialogues
Open and competitive procurement procedures
Joint projects


RusHydro, the Government of the Sakha Republic (Yakutia) and Japan’s New Energy and Industrial Technology Development Organization signed memorandum on the construction of a wind diesel power station in the Tiksi settlement.

RusHydro, the Government of the Magadan Region and Polyus Magadan signed cooperation agreements.
4. Environmental organizations

**Stakeholders’ interests: environmental protection**

- Development and approval of low-carbon development goals as part of RusHydro Group’s Environmental Policy.
- Improvement of the volunteer movement and initiatives aimed at environmental protection.
- Environmental awareness raising.
- Implementation of biodiversity protection programs.

For more information, see the Environmental Protection section on p. 131.

5. Employees and trade unions

**Stakeholders’ interests: professional and career development; safe working conditions; solid remuneration**

- RusHydro Group provides voluntary health insurance and non-government pension insurance plans. Employees receive support as part of existing collective bargaining agreements and internal documents.
- In 2018, Chairman of the Management Board – General Director of RusHydro Nikolay Shulginov and managers of RusHydro met with representatives of territorial and regional organizations of the All-Russian Trade Unions in the Far Eastern Federal District.
- Following the meeting, Minutes No. 56pr/2 of December 11, 2018 was signed in order to further improve social partnership at all levels, enhance social dialogue between authorized representatives of employers and employees of RAO ES East, and maintain the existing level of social guarantees.
- RusHydro has a corporate newsletter and runs an intranet portal.

For more information, see the HR and Social Policy section on p. 117.

6. Professional industry associations and expert community

**Stakeholders’ interests: energy science development; development of innovative technologies; partnership prospects; transparent operations**

- RusHydro’s participation in committees and working groups of a number of non-profit partnerships and international organizations, including:
  - Global Sustainable Energy Partnership;
  - International Hydropower Association;
  - International Commission on Large Dams;
  - World Energy Council.

7. Federal and local executive authorities

**Stakeholders’ interests: ensuring reliable and uninterrupted power supply and heat supply; tax revenues; development of regions of presence; improvement of the regulatory framework for energy based on renewable energy sources**

- Agreements on social and economic cooperation with regions of the Russian Federation
- Public hearings on plant construction projects
- Engagement in joint committees, commissions, and expert groups on energy sector development

In 2018, a working group was set up to address matters related to the development of hydropower generating facilities of the Republic of Dagestan and social and economic matters in the regions of the Company’s operations.

For more information, see the Environmental Protection section on p. 131.

8. Regulators and infrastructure organizations

**Stakeholders’ interests: compliance with Russian and international laws**

- Reporting
- Development of proposals to improve legislation

For more information, see the HR and Social Policy section on p. 117.
### Key mechanisms Responses to requests and relations stakeholders in 2018

#### 9. Educational institutions

**Stakeholders’ interests:** targeted training programs; energy science development; development of innovative technologies, including those which reduce the environmental impact

- Cooperation in R&D
  - Training, retraining, and skills improvement for employees
    - Orders for R&D projects
      - Launching the Institute of Hydropower and Renewable Energy Sources, part of Moscow Power Engineering Institute, in 2018 supported by RusHydro; implementation of the advanced personnel development program From School to Workplace; and participation in the organization of various events, including Energy for Education Industry contest, ProeKTOriYa, a national career guidance forum, and project sessions in the Russian Children’s Education Centers (Sinus, Ocean, Simena, Ohryonok).
  - Publishing information on the corporate website and social media statements, and comments of the Company
    - Energy for Development contest for university undergraduates.

**For more information,** see the HR and Social Policy section on p. 117.

#### 10. Local communities and regions of presence

**Stakeholders’ interests:** local development; reliable and smooth power supply; creation of new jobs at the Group’s facilities

- Conducting public hearings on energy construction projects
- Providing good working conditions and solid remuneration
  - RusHydro builds and commissions energy facilities that help create new jobs. In 2018, 1,253 new jobs were provided, mainly in the Far Eastern Federal District.
  - RusHydro helps develop social infrastructure in the regions where it operates. As an example, construction of the Srednekansk Central Hospital supported by RusHydro Group makes free medical care more available to people and creates additional jobs for healthcare professionals.
  - Implementation of over 300 charitable projects to provide financial support to educational, medical, social, environmental, cultural, and sports institutions and organizations across the Company’s footprint.
  - Involvement of RusHydro Group’s employees as corporate volunteers in socially important projects and events in the Company’s regions of operations.

**For more information,** see the HR and Social Policy section on p. 117.

#### 11. Media

**Stakeholders’ interests:** receiving full reliable information on the Company’s operations; quick informed responses to media inquiries; timely handling of media inquiries

- Preparing and providing the media with press releases, statements, and comments of the Company
  - Publishing information on the corporate website and social media
  - Preparing background materials, presentations, and other information
  - Organizing and holding briefings, press conferences, interviews, media scrums, press tours and other media events
  - Providing information in a timely manner in response to media inquiries

- Coverage of RusHydro Group’s key projects and focus areas across its footprint. Media coverage, including arranging and holding of press tours, of the launches of Vostochnaya CHPP in Vladivostok, the third hydropower unit of List Srednekanskaya HPP in the Magadan Region, and a wind power plant in the Arctic settlement of Tiksi, as well as projects for comprehensive modernization of RusHydro’s HPPs, construction of power facilities, and HPP operations during high water seasons and floods.
  - Information support for events in the financial sector: the first offshore renminbi-denominated offering among Russian corporates and Eurobonds offerings in rubles.
  - Information support during the engineering and blasting works for clearing a landslide at the Bureyskoye water reservoir.
  - Information coverage for RusHydro’s social initiatives, such as a project to recover the population of leopards in North Ossetia, as well as projects aimed at developing internal corporate culture and professional training. RusHydro’s spartakiads and contests among HPP and CHPP operating personnel.

**For more information,** see the HR and Social Policy section on p. 117.

#### 12. Public social and charitable organizations

**Stakeholders’ interests:** support for social activities and securing financial assistance; environmental protection; support for charitable initiatives and volunteers

- **Social and charitable programs**
  - Public reporting
  - Social events and initiatives

- **Public social and charitable organizations**
  - **For more information,** see the HR and Social Policy section on p. 117.
In 2018, in the Year of its 40th Anniversary, the Fully Modernized Sayano-Shushenskaya HPP, the Largest Power Plant in Russia, Set a Record for Electricity Generation—26 Billion KWh. The Cumulative Yield of Hydroelectric Power Plant Enabled to Avoid Burning 160 Billion Cubic Meters of Gas, or 330 Million Tonnes of Coal, or 190 Million Tonnes of Oil Fuel Necessary for the Operation of Heat Power Plants.
# Key financial results

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2017</th>
<th>2018</th>
<th>2018–2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EBITDA, RUB mn</strong></td>
<td>104,180</td>
<td>109,673</td>
<td>5,493</td>
</tr>
<tr>
<td><strong>EBITDA margin</strong>, %</td>
<td>27.3</td>
<td>27.0</td>
<td>-0.3 p.p.</td>
</tr>
<tr>
<td><strong>Net income, RUB mn</strong></td>
<td>24,774</td>
<td>31,837</td>
<td>7,063</td>
</tr>
<tr>
<td><strong>Net margin</strong>, %</td>
<td>6.5</td>
<td>7.8</td>
<td>1.3 p.p.</td>
</tr>
<tr>
<td>Earnings per share (EPS), RUB</td>
<td>0.0656</td>
<td>0.0739</td>
<td>0.0083</td>
</tr>
<tr>
<td>Return on assets (ROA), %</td>
<td>2.8</td>
<td>3.4</td>
<td>0.6 p.p.</td>
</tr>
<tr>
<td>Return on equity (ROE), %</td>
<td>4.5</td>
<td>5.5</td>
<td>1.0 p.p.</td>
</tr>
<tr>
<td>Adjusted net income, RUB mn</td>
<td>65,738</td>
<td>70,757</td>
<td>5,019</td>
</tr>
</tbody>
</table>

**EBITDA, RUB mn and EBITDA margin, %**

- Recognition of RUB 24,221 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);
- Recognition of RUB 3,845 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);
- Recognition of RUB 24,221 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);
- Recognition of RUB 13,993 mn loss on fair value of the non-deliverable forward transaction for shares due to lower RusHydro’s share price in the reporting period;
- Recognition of RUB 5,379 mn loss from impairment of receivables due to expected credit losses.

In the reporting period, EBITDA increased by 5.3% year-on-year to RUB 109,673 mn.

RusHydro Group’s net income in 2018 grew by 28.5% to RUB 31,837 mn.

Adjusted net income in the reporting period totaled RUB 70,757 mn, up 7.6% compared to 2017.

The difference between the reported and adjusted figures mainly reflects key non-cash metrics, including:

- Recognition of RUB 3,845 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);
- Recognition of RUB 3,845 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);
- Recognition of RUB 3,845 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);
- Recognition of RUB 3,845 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares).
Our Performance

Total revenue 2018 increased by 5.1% year-on-year. This is mainly driven by:

- a rise in fuel costs due to increased electricity and heat generation by JSC DGO’s stations, a higher price of coal and higher purchase prices of petroleum products at PSC Kamchatskenergo in H2 2018;
- an increase in labor costs due to indexation of rates and salaries according to the effective collective bargaining agreements;
- a rise in costs for third party services as a result of growing repair and maintenance expenses, primarily at PSC Yakutskenergo and PSC Sakhalinenergo, and costs for other third-party services at JSC LCM due to increased use of third party services in coal production;
- an increase in costs depreciation and amortization caused by an uplift in PP&E costs as a result of the launch of new facilities (namely Yakutskaya GRES-2 with off-site infrastructure commissioned in 2017 and through 2018) and refurbishment and upgrade of PP&E at Rushydro’s branches;
- higher costs for taxes (excluding income tax) due to an increase in property tax rate for grid assets and higher costs for property tax due to the launch of Yakutskaya GRES-2 and the off-site infrastructure;
- a rise in costs for purchased electricity and capacity due to growing expenses at JSC RAO ES East Subgroup in the wake of transition to a new settlement system at PSC Kamchatskenergo;
- a rise in costs for petroleum products purchased for resale due to an increase in volumes to be supplied to external buyers under petroleum product sales contracts;
- an increase in other expenses as a result of changes in loss from write-off or other disposal of PP&E and assets under construction.

Government grants

In accordance with the Russian legislation, some companies of the Group received government grants to fund the costs for difference between the approved electricity and heat tariffs assumed in the economic feasibility study and the actual reduced tariffs applied to consumers, as well as the costs for fuel and purchased electricity and capacity.

In 2018, the Group received RUB 41,648 mn in government grants (2017: RUB 32,745 mn). The grants were provided to companies in the following regions: the Kamchatka Territory, the Republic of Sakha (Yakutia), Magadan Region, Chukotka Autonomous Area and other regions of the Russian Far East.

The total grants received by the Group’s guaranteed suppliers under Russian Government Decree No. 895 On the establishment of base rates (tariffs) for electricity (capacity) in the Far Eastern Federal District grew to RUB 26,300 mn in 2018, a 52.4% increase from the previous year due to tariff adjustment started in H2 2017.

The Group’s total revenue in 2018 increased by 5.1% year-on-year to RUB 400,418 mn against RUB 380,864 mn in the previous reporting period. Key drivers of the change in revenue include:

- increase of RUB 13,220 mn in total revenue from electricity sales (including government grants) by RAO ES East Subgroup mostly due to higher prices and volumes;
- growth in Rushydro’s revenue of RUB 4,807 mn from electricity sales driven by higher output resulting from the increased water inflow in reservoirs of the Volga-Kama cascade in H1 2018 and in Siberian HPPs in H2 2018;
- growth in revenue from the sale of capacity by RUB 2,952 mn on the back of higher sales volume at PJSC DUK;
- increase of RUB 1,448 mn in ESK Rushydro Subgroup revenue from the sales of electricity driven by higher net supply and average tariffs;
- increase in revenue of RUB 1,243 mn from heat and hot water sales resulting from increased heat prices and net supply;
- growth of other revenue of RUB 4,497 mn, mainly from RAO ES East Subgroup driven by higher electricity transmission and volumes of contractual petrochemical sales to third parties.

From January 1, 2018, the Group’s revenue from offset of electricity transmission losses and Group’s expenses for electricity transmission services of grid operators under relevant contract has been reported in an aggregated form. Offset of grid losses received by the Group from grid operators shall not be deemed as separate obligations under IFRS 15, the loss offset contract shall not be an agreement with the consumer in the IFRS 15 context, therefore, these offsets cannot be recognized as revenue. The grid loss offset received by the Group’s companies for the year ended December 31, 2018 amounted to RUB 8,459 mn, including RAO ES East Subgroup – RUB 3,375 mn. [20-44]
Operating costs, RUB bn

<table>
<thead>
<tr>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>6.7</td>
</tr>
<tr>
<td>2.5</td>
<td>1.6</td>
</tr>
<tr>
<td>0.7</td>
<td>0.6</td>
</tr>
<tr>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>-0.4</td>
<td>-0.2</td>
</tr>
<tr>
<td>2.0</td>
<td>1.9</td>
</tr>
<tr>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>0.7</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Direct economic value generated and distributed [2018]

<table>
<thead>
<tr>
<th>Metrics, RUB mn</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic value generated</td>
<td>383,534</td>
<td>402,123</td>
</tr>
<tr>
<td>Operating profit after impairment loss on receivables</td>
<td>342,162</td>
<td>353,391</td>
</tr>
<tr>
<td>Government grants</td>
<td>32,745</td>
<td>41,648</td>
</tr>
<tr>
<td>Interest income and dividends received</td>
<td>9,575</td>
<td>8,879</td>
</tr>
<tr>
<td>(Losses)/gains from sale of assets</td>
<td>(948)</td>
<td>(1,795)</td>
</tr>
<tr>
<td>Economic value distributed</td>
<td>300,789</td>
<td>316,509</td>
</tr>
<tr>
<td>Operating costs</td>
<td>190,539</td>
<td>201,270</td>
</tr>
<tr>
<td>Economic value retained</td>
<td>82,765</td>
<td>85,614</td>
</tr>
</tbody>
</table>

Equity and liabilities, RUB bn

<table>
<thead>
<tr>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>871.7</td>
<td>931.9</td>
</tr>
<tr>
<td>28.1</td>
<td>22.0</td>
</tr>
<tr>
<td>111</td>
<td>134.5</td>
</tr>
<tr>
<td>55.9</td>
<td>62.4</td>
</tr>
<tr>
<td>70.6</td>
<td>85.9</td>
</tr>
<tr>
<td>12.7</td>
<td>23.5</td>
</tr>
<tr>
<td>20.7</td>
<td>13.7</td>
</tr>
<tr>
<td>90.9</td>
<td>586.2</td>
</tr>
<tr>
<td>569.6</td>
<td>314.9</td>
</tr>
<tr>
<td>299.7</td>
<td>314.9</td>
</tr>
</tbody>
</table>

In 2018, the Group’s short-term debt and leverage decreased, while the long-term debt went up. At the end of 2018, RusHydro Group’s total net financial debt stood at RUB 226.5 bn and RUB 1311 bn, respectively. Given higher consolidated operating income in 2018 and smart investing policy, net financial debt / EBITDA declined to 1.2x as at December 31, 2018 vs 1.4x as at December 31, 2017. This means sustainable improvement of the Group’s financial position since 2016.

The period under review saw an increase in long-term borrowings, mainly due to the placement of three Eurobond issues in 2018 (one issue worth RUB 20 bn placed in February and two issues worth RUB 15 bn and 1.5 bn offshore Chinese rembini placed in November). On top of that, in April 2018, RusHydro and the Far East and Baikal Region Development Fund entered into a special-purpose loan agreement worth RUB 5 bn to finance the construction of off-site facilities of Sakhalinskaya GRES-2. In July 2018, the Group also successfully raised RUB 20 bn under a loan agreement with VTB Bank. At the end of 2018, the rate of ruble-denominated borrowings averaged about 8% per annum. In December 2018, RusHydro prepaid an ECA-covered FX loan of some EUR 69 mn from UniCredit Bank Austria AG.

Assets, equity and liabilities

As at December 31, 2018, the Group’s assets grew by 6.9% (RUB 60,228 mn) to RUB 933,931 mn year-on-year. The change is mainly driven by:

- an increase in PP&E costs (due to the implementation of the Group’s investment program);
- an increase in other current assets due to a larger share of funds placed on deposits with maturities of over 90 days;
- an increase in advance payments made to Far Eastern distribution company mainly by DRSK for grid connection.

As at December 31, 2018, the Group’s liabilities grew by 14.4% (RUB 43,617 mn) to RUB 345,712 mn year-on-year. The Group’s liabilities changed as follows: non-current liabilities rose by RUB 74,787 mn due to an increase in long-term borrowings, while current liabilities declined by RUB 31,170 mn mainly due to a reduction in short-term borrowings and current portion of long-term borrowings.

Debt portfolio management

Fair value of the non-deliverable forward for the Group’s shares recognized in accordance with the terms of the transaction with VTB Bank (PISC) increased from RUB 20,716 mn (as at December 31, 2017) to RUB 31,896 mn (as at December 31, 2018). The change in fair value of the non-deliverable forward is mainly attributable to movements in RusHydro’s share prices in 2018.

As at December 31, 2018, the Group’s liabilities changed as follows: non-current liabilities rose by RUB 25,500 mn year-on-year. The change is mainly attributable to movements in RusHydro’s share prices in 2018.
In 2018, the Group was also bringing down its short-term debt. In February 2018, RusHydro repurchased its series 07 and 08 ruble bonds  under the put option for a total of about RUB 15 bn. In March, the Group repaid a loan of RUB 10.6 bn from Sberbank. July saw a successful redemption of series BO-P01, BO-P02 and BO-P03 exchange bonds worth RUB 15 bn. In February 2018, the Group terminated its contract of guarantee to meet obligations of PJSC Boguchanskaya HPP under a loan agreement with VEB worth RUB 25.9 bn as at December 31, 2017, which also helped reduce leverage.

As at December 31, 2018, the shares of the Group’s ruble-denominated and fixed-rate consolidated financial debt (excluding liabilities on the non-deliverable forward with VTB Bank (PJSC), including hedging ruble liabilities to issue Eurobonds denominated in offshore Chinese renminbi) account for about 98% and 91%, respectively. This means the minimum level of currency and interest risks for the Group in terms of financial debt. More information on the main changes in the structure of long- and short-term debt (excluding forward) is available below.

Bonds

As at December 31, 2018, the outstanding bonds of RusHydro include seven issues for a total of RUB 70.0 bn (the aggregate value of outstanding bonds is RUB 28.2 bn).

Key parameters of RusHydro’s bond issues

<table>
<thead>
<tr>
<th>Issue parameters</th>
<th>Series 01 and 02 bonds</th>
<th>Series 07 and 08 bonds</th>
<th>Series 09 bonds</th>
<th>Series BO-PO4 exchange bonds</th>
<th>Series BO-PO5 exchange bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond type</td>
<td>Non-convertible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>certificated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>interest-bearing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bearer bonds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with mandatory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>centralized custody</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State registration number</td>
<td>4-01-55038-E</td>
<td>4-02-55038-E</td>
<td>4-07-55038-E</td>
<td>4-09-55038-E</td>
<td>4B02-04-55038-E-001P</td>
</tr>
<tr>
<td>Maturity date</td>
<td>12.04.2021</td>
<td>02.02.2023</td>
<td>15.04.2025</td>
<td>04.04.2019</td>
<td>12.06.2020</td>
</tr>
<tr>
<td>Offering price</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coupon rate</td>
<td>1-10 – 8.0% p.a.</td>
<td>11-20 – 9.5% p.a.</td>
<td>12-20 – 12.75%</td>
<td>16-20 – 10.35% p.a.</td>
<td>16-21 – 8.2% p.a.</td>
</tr>
<tr>
<td></td>
<td>8.5% p.a.</td>
<td>9.5% p.a.</td>
<td>7.5% p.a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.75% p.a.</td>
<td>7.5% p.a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.35% p.a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.2% p.a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form of offering</td>
<td>Open subscription,</td>
<td>Yield</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bookbuilding</td>
<td>8.16%</td>
<td>8.68%</td>
<td>13.16%</td>
<td>10.62%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8.37%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coupon payments</td>
<td>semi-annual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Series 01 – 7.75%</td>
<td>Series 07 – 8.1%</td>
<td>Series 09 – 8.22%</td>
<td>Series BO-PO4 – 7.69%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Series 02 – 8.19%</td>
<td>Series 08 – 8.93%</td>
<td></td>
<td>Series BO-PO5 – 7.75%</td>
</tr>
</tbody>
</table>

Eurobonds

As of December 31, 2018, the outstanding bonds of RusHydro include four issues of Eurobonds for a total of RUB 55 bn and 1.5 bn of offshore Chinese renminbi placed by RusHydro Capital Markets DAC company on Irish Stock Exchange under Reg S rules. All issues have the confirmed long-term rating from S&P / Moody’s / Fitch / ACRA aligned with RusHydro’s credit rating.

FINANCIAL RISKS ARE CONSIDERED AS INSIGNIFICANT

Structure of the long-term debt (to be redeemed after twelve months from the reporting date), %

- Bonds (including Eurobonds (UPG)): 53.7%
- Loans and borrowings: 46.9%
- Other long-term borrowings: 0.0%

Structure of the short-term debt (to be redeemed within twelve months from the reporting date), %

- Bonds: 18.0%
- Outstanding short-term part of long-term loans, borrowings and bonds: 84.0%
- Short-term loans and borrowings: 15.7%
- Other short-term borrowings: 0.3%
IN THE REPORTING PERIOD, THE COMPANY ENJOYED THE TOP CREDIT RATING

Credit ratings

RusHydro’s high credit quality is confirmed by S&P, Moody’s and Fitch, the three leading international rating agencies.

The Company’s strong operating performance, solid position in the domestic electricity market, coupled with healthy liquidity and leverage levels contributed to RusHydro’s improved credit standing in 2018 and early 2019. For the first time in the Company’s history, its long-term credit rating was upgraded to the investment grade to become on a par with the sovereign rating of the Russian Federation by all three rating agencies.

RusHydro’s rating is assigned under the national scale by the Analytical Credit Rating Agency (ACRA). In the reporting period, the Group enjoyed the top credit rating by ACRA.

Credit ratings as at March 31, 2019

<table>
<thead>
<tr>
<th>Rating agency</th>
<th>Long-term credit rating</th>
<th>Credit rating outlook</th>
<th>Changed/reaffirmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P</td>
<td>&quot;BBB–&quot; Stable</td>
<td></td>
<td>April 27, 2018</td>
</tr>
<tr>
<td>Moody’s</td>
<td>&quot;Ba3&quot; Stable</td>
<td>Stable</td>
<td>February 12, 1997</td>
</tr>
<tr>
<td>Fitch Ratings</td>
<td>&quot;BBB–&quot; Stable</td>
<td>Stable</td>
<td>August 1, 2018</td>
</tr>
<tr>
<td>AKPA</td>
<td>&quot;AAA(RU)&quot; Stable</td>
<td></td>
<td>June 29, 2018</td>
</tr>
</tbody>
</table>

Cash flows

In 2018, the Group’s cash flow from operating activities (after changes in working capital) increased by RUB 6,426 mn (up 8.2%) to RUB 84,551 mn. Cash spent to purchase PP&E decreased by RUB 4,270 mn, or 6.0% to RUB 67,423 mn in 2018 due to the completion of the investment cycle of the Far Eastern investment projects.

Cash flows, RUB mn

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flows from operating activities (after accounting for changes in working capital)</td>
<td>78,125</td>
<td>84,551</td>
<td>8.2</td>
</tr>
<tr>
<td>Cash for PP&amp;E acquisition</td>
<td>-71,693</td>
<td>-67,423</td>
<td>-6.0</td>
</tr>
<tr>
<td>Proceeds from sale of PP&amp;E</td>
<td>213</td>
<td>977</td>
<td>358.7</td>
</tr>
<tr>
<td>Proceeds from sale of Inter RAO shares</td>
<td>-</td>
<td>2,160</td>
<td>-</td>
</tr>
<tr>
<td>Proceeds from disposal of joint venture</td>
<td>-</td>
<td>871</td>
<td>-</td>
</tr>
<tr>
<td>Interest received</td>
<td>7,848</td>
<td>5,545</td>
<td>-29.3</td>
</tr>
<tr>
<td>Interest paid</td>
<td>-15,794</td>
<td>-14,217</td>
<td>-10.0</td>
</tr>
<tr>
<td>Free cash flow (FCF)</td>
<td>-1,301</td>
<td>12,464</td>
<td>-</td>
</tr>
</tbody>
</table>

Tax payments

RusHydro Group is one of the main taxpayers in the regions of its operation. In 2018, tax payments to budgets of all levels totaled RUB 81.2 bn, including RUB 34.3 bn to regional budgets.

Tax payments to budgets of different levels, RUB mn

<table>
<thead>
<tr>
<th>Level of budget</th>
<th>RusHydro Subgroup</th>
<th>JSC RAO ES East Subgroup</th>
<th>RusHydro Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>17,093</td>
<td>22,026</td>
<td>29,432</td>
</tr>
<tr>
<td>including insurance contributions</td>
<td>4,302</td>
<td>4,494</td>
<td>4,934</td>
</tr>
<tr>
<td>Regional</td>
<td>21,647</td>
<td>23,578</td>
<td>23,971</td>
</tr>
<tr>
<td>Local</td>
<td>434</td>
<td>426</td>
<td>403</td>
</tr>
<tr>
<td>Total</td>
<td>39,374</td>
<td>46,028</td>
<td>55,806</td>
</tr>
</tbody>
</table>

In the table for 2017–2018, tax payments are allocated to the federal and regional budgets according to the budget level (income tax, water tax, mineral extraction tax, payment for the use of water bodies, pollution charge).
PRODUCTION AND SALES

Key production assets

Electricity and heat production is the key business of RusHydro Group. The Group’s asset structure includes over 90 renewable energy facilities, both in Russia and abroad, along with some thermal power plants and electrical grid assets in the Far East. At January 1, 2019, the installed capacity of RusHydro power plants, including Boguchanskaya HPP; totaled 39,370 MW, up 331 MW year-on-year. The installed heat capacity increased to 18,926 Gcal/h, up 426.9 Gcal/h.

The growth in the installed capacity of the Group’s facilities was driven also by the commissioning of Vostochnaya CHPP (339.5 MW, 322.6 Gcal/h) in Vladivostok and hydroelectric unit No. 3 at Ust-Srednekanskaya HPP (142.5 MW) as well as the implementation of the Comprehensive Modernization Program at Saratovskaya HPP (+12 MW), Nizhegorodskaya HPP (+3 MW), Novosibirskaya HPP (+5 MW) and Rybinskaya HPP (+10 MW).

The installed capacity structure shows the prevalence of large HPPs generating 28,866 MW, or 74% of the total installed capacity, while 8,398 MW, or 22% of the installed capacity, is generated by the TPPs of RAO ES East Subgroup. The Group’s assets also include 1,200 MW Zaporizhskaya PSPP, 300 MW Zelenchukskaya HPP-PSPP and 16 MW Kubanskaya PSPP. The Group’s renewable energy facilities, including SHPP (up to 30 MW), GeoPP, WPP and SPP, account for a total installed capacity of 290 MW.

RAO ES East electrical grids

The businesses of PJSC RAO ES East ensure power transmission and distribution both in UES of the East and in isolated energy systems.

In UES East, the power from higher voltage grids in 220 kV UNEG is transmitted to the consumers by JSC DRSK, while in isolated electrical grids – by AO-energo. At the end of 2018, the total length of 35–220 kV transmission grids was 34,966 km.

The distribution grid transmits power from a 35–220 kV grid to low and medium (MV-V) voltage consumers. At the end of 2018, the total length of low voltage overhead and cable power lines made up 69,781 km, up 526 km year-on-year.

At the end of the reporting period, the total number of transformer substations increased to 22,000, up 336, with their total capacity hitting 29,317.3 MVA, up 540 MVA. For the low-voltage category, changes in the length of transmission power lines and in the number and capacity of transformer substations are primarily associated with the housing construction in large cities of the Far East, recognition of abandoned rural grids and grid reconstruction.

The number of utility connection contracts executed during the year rose by 1% (to 22,000). The Group made it technologically possible to connect consumers (including in ASEZs) to the maximum capacity of 884.3 MW.

In 2018, total electricity fed to the grids of JSC RAO ES East Subgroup stood at 35,427.2 mn kWh, up 1,139.3 mn kWh year-on-year. The grid losses amounted to 9.6%. (EU12)

### Installed capacity, MW

<table>
<thead>
<tr>
<th>Year</th>
<th>Installed capacity, MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>38,868</td>
</tr>
<tr>
<td>2017</td>
<td>39,039</td>
</tr>
<tr>
<td>2018</td>
<td>39,370</td>
</tr>
</tbody>
</table>

### Installed capacity structure by generation type

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity, MW</th>
<th>%</th>
</tr>
</thead>
</table>
| HPP  | 28,966       | 75%
| TPP  | 6,598        | 17%
| SHPP | 2,156        | 5%
| GeoPP| 1,200        | 3% |

### Installed capacity structure by regulatory regime

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity, MW</th>
<th>%</th>
</tr>
</thead>
</table>
| Price zone 1 | 14,223 | 36%
| Price zone 2 | 10,396 | 26%
| Non-price zone of UES East | 9,376 | 24%
| Isolated areas | 6,570 | 17% |
| Armenian market | 562 | 1% |

### Installed capacity structure by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Capacity, MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro Subgroup</td>
<td>29,845</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td>9,525</td>
</tr>
</tbody>
</table>

### Length of transmission and distribution power lines by regulatory regime, km

<table>
<thead>
<tr>
<th>Grid class</th>
<th>2017</th>
<th>2018</th>
<th>2018–2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>WECM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110 kV</td>
<td>7,940</td>
<td>7,975</td>
<td>35</td>
</tr>
<tr>
<td>35 kV</td>
<td>8,807</td>
<td>8,856</td>
<td>49</td>
</tr>
<tr>
<td>Cable power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110 kV</td>
<td>40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>35 kV</td>
<td>84</td>
<td>92</td>
<td>8</td>
</tr>
<tr>
<td>REM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220 kV</td>
<td>5,180</td>
<td>5,180</td>
<td>0</td>
</tr>
<tr>
<td>110 kV</td>
<td>5,906</td>
<td>5,898</td>
<td>-6</td>
</tr>
<tr>
<td>35 kV</td>
<td>6,997</td>
<td>6,917</td>
<td>-80</td>
</tr>
<tr>
<td>Cable power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110 kV</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>35 kV</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total transmission power lines</td>
<td>34,958</td>
<td>34,967</td>
<td>9</td>
</tr>
</tbody>
</table>

### Length of distribution power lines

<table>
<thead>
<tr>
<th>Grid class</th>
<th>2017</th>
<th>2018</th>
<th>2018–2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>WECM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 (10) kV</td>
<td>20,540</td>
<td>20,632</td>
<td>82</td>
</tr>
<tr>
<td>0.4 kV</td>
<td>20,532</td>
<td>20,503</td>
<td>-29</td>
</tr>
<tr>
<td>Cable power lines</td>
<td></td>
<td></td>
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<tr>
<td>6 (10) kV</td>
<td>1,156</td>
<td>1,258</td>
<td>112</td>
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<tr>
<td>0.4 kV</td>
<td>1,120</td>
<td>1,120</td>
<td>0</td>
</tr>
<tr>
<td>REM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 (10) kV</td>
<td>10,957</td>
<td>11,025</td>
<td>68</td>
</tr>
<tr>
<td>0.4 kV</td>
<td>11,459</td>
<td>11,677</td>
<td>218</td>
</tr>
<tr>
<td>Cable power lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 (10) kV</td>
<td>2,041</td>
<td>2,085</td>
<td>44</td>
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<tr>
<td>0.4 kV</td>
<td>1,451</td>
<td>1,480</td>
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<tr>
<td>Total distribution power lines</td>
<td>69,256</td>
<td>69,780</td>
<td>524</td>
</tr>
<tr>
<td>Total length of power lines</td>
<td>106,216</td>
<td>106,747</td>
<td>533</td>
</tr>
</tbody>
</table>

Measured by chain.
In 2018, the electricity generation at the Group’s HPPs, PSSPs, and geothermal power plants increased by 2% year-on-year, reaching 319.8 bn kWh. During the same period, the electricity generation at the Sevan–Hrazdan Cascade HPPs in Armenia fell by 11.5%, accounting for 412 mn kWh.

The Group’s thermal power plants in the Far East demonstrated a positive trend with their generation of 31.7 bn kWh, up 5.9% year-on-year. The Group’s wind, solar and geothermal power plants generated 431 mn kWh, while the heat supply stood at 29.9 mn Gcal.

In 2018, the main factors affecting the Group’s electricity generation and heat supply included:

- water inflow to most Volga and Kama reservoirs at a level higher than the long-term annual average;
- water inflow to HPPs in Siberia at the same or slightly higher level than the long-term annual average;
- growing electricity generation at TPPs in the Far East, up 5.0% (to 34,464 mn kWh) due to the year-on-year drop in electricity generation at HPPs in UES of the East and a 3.7% increase in electricity consumption in the Far East;
- the heat supply stood at 29.9 mn Gcal.

In 2018, the Group’s businesses were involved in implementing the Target Model for Utility Connection to Electrical Grids approved by the Russian Government’s Decree No. 147-р on target models for simplifying business procedures and enhancing investment appeal of the Russian regions dated January 31, 2017 (the “Program”).

The project seeks to simplify the procedure for utility connection (the “UC”) for legal entities or sole proprietors requesting the power of up to 150 kW with reliability category 2 and 3 (shorter timing, enabling interaction with the grid company via a personal account without a need to visit the client office). The Group’s participants in the Program comprise JSC DRSK, PJSC Kamchatskenergo, PJSC Sakhalinenergo, PJSC Magadanenergo, JSC Chukotenergo and PJSC Yakutskenergo.

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- the heat supply stood at 29.9 mn Gcal.

Operating performance

Electricity and heat generation

2018 saw a new record for the Group’s electricity generation. In the reporting period, the Group’s power generation, including Boguchanskyaya HPP, added 2.8% year-on-year, peaking at 144.3 bn kWh. According to the System Operator of the Unified Energy System, last year saw the growth in Russia’s electricity generation and consumption by 1.7% and 1.6%, respectively. The Group’s electricity generation made up 13.2% of the Russian total power generation, demonstrating an upward trend for the fourth year in a row.

### Number and installed capacity of 06–220 kV transformer substations

<table>
<thead>
<tr>
<th>Unit</th>
<th>2017</th>
<th>2018</th>
<th>2018–2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of 220 kV transformer substations pcs</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Capacity of 220 kV transformer substations MVA</td>
<td>80</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>Number of 110 kV transformer substations pcs</td>
<td>242</td>
<td>246</td>
<td>4</td>
</tr>
<tr>
<td>Number of 110 kV transformer substations MVA</td>
<td>7,370.8</td>
<td>7,667.4</td>
<td>296.6</td>
</tr>
<tr>
<td>Number of 35 kV transformer substations pcs</td>
<td>476</td>
<td>479</td>
<td>3</td>
</tr>
<tr>
<td>Number of 35 kV transformer substations MVA</td>
<td>4,380.8</td>
<td>4,445.9</td>
<td>65.1</td>
</tr>
<tr>
<td>Number of 6 (10) kV transformer substations pcs</td>
<td>10,943</td>
<td>11,121</td>
<td>178</td>
</tr>
<tr>
<td>Number of 6 (10) kV transformer substations MVA</td>
<td>3,571.8</td>
<td>3,565.1</td>
<td>52.3</td>
</tr>
</tbody>
</table>

### Generation structure by primary energy source, GWh [GJ]

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable energy sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydro resources</td>
<td>79</td>
<td>112</td>
</tr>
<tr>
<td>Gas and fuel oils</td>
<td>22</td>
<td>21.7</td>
</tr>
<tr>
<td>Fossil fuel</td>
<td>0.002</td>
<td>0.4</td>
</tr>
<tr>
<td>Non-renewable energy sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear power</td>
<td>0.001</td>
<td>0.2</td>
</tr>
</tbody>
</table>

HPP and TPP installed capacity utilization factor (ICUF), %

In 2018, the electricity generation at the Group’s HPPs, PSSPs, and geothermal power plants increased by 2% year-on-year, reaching 319.8 bn kWh. During the same period, the electricity generation at the Sevan–Hrazdan Cascade HPPs in Armenia fell by 11.5%, accounting for 412 mn kWh.

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Sales of electricity and heat

RusHydro Group’s steady development depends on stable electricity and capacity sales in the wholesale market and the growing retail business providing for smooth and efficient power supply to consumers, which remains one of its priorities.

The Group sells electricity in Russia both in the wholesale electricity and capacity market (first and second price zones of the wholesale market and UES East’s non-price zone) to major consumers and to retail consumers via its retail companies and guaranteed suppliers.

WECM performance

The wholesale electricity and capacity market (WECM) participants include generating companies, electric power exporters/importers, electricity retailers, electric grid companies (electricity purchases to cover transmission losses), and large consumers. The wholesale electricity and capacity market covers both price and non-price zones. The first price zone comprises the European part of Russia and Urals, while the second price zone encompasses Siberia. Special wholesale trading rules apply to the non-price zones that include the Arkhangelsk and Kaliningrad Regions, Komi Republic, and regions in the Far East, including the Western and Central Energy Districts of the Republic of Sakha (Yakutia).

Under the Russian law, all electricity and capacity facilities with an installed capacity of over 25 MW located in the price and non-price zones are required to sell their products in the WECM only. Power plants with a capacity below 5 MW are required to trade in the retail electricity market (REM) only, while power plants with a capacity between 5 MW and 25 MW can trade in both WECM and REM.

The WECM has several sectors that offer different transaction terms and delivery times:

- regulated contracts (RC) cover electricity and capacity volumes supplied to households and equivalent consumer categories under regulated prices (tariffs) approved by Russia’s Federal Antimonopoly Service. Total electricity and capacity supplies under regulated contracts may not exceed 35% of electricity and capacity output;
- the day-ahead market (DAM) is a place where power generated in excess of the RC volumes is traded at market prices. Prices are determined through a competitive bidding process one day ahead of the delivery, with bids accepted from both the suppliers and buyers. The DAM market uses the marginal pricing mechanism, which balances supply and demand and applies to all market participants;
- the balancing market (BM) is a real-time vehicle used to balance discrepancies between the power volumes actually produced/consumed and those originally planned. Discrepancies between the planned and actual consumption occur as a result of internal and external initiatives. Internal initiatives come from the market participants (consumers or suppliers), while external initiatives are reserved to the System Operator. The discrepancies are priced in such a way as to encourage market participants to adhere to the planned electricity consumption and production volumes as determined in the DAM and to follow the System Operator’s instructions;
- capacity auctions (KOM) enable capacity trading at market (unregulated) prices determined through a competitive bidding process. Close to 50% of the capacity in the first price zone and the overwhelming majority of capacity volumes in the second price zone of the wholesale market are sold through capacity auctions;
- capacity supply agreements (DPM) target power generating facilities included in the designated list approved by the Russian Government’s Decree No 1334-r dated August 11, 2010. Similar capacity sale agreements exist with respect to newly built NPPs (PSPPs) and HPPs (capacity sale agreements for new NPPs/HPPs). Capacity supply agreements and capacity sale agreements for new NPPs/HPPs ensure fulfillment of supplier obligations under approved investment programs, while also providing payment guarantees for the capacities of newly built (upgraded) generating facilities. A thermal power plant built under a capacity supply agreement is provided with capacity payment guarantees effective for a period of 10 years (20 years under capacity sale agreements for new NPPs/HPPs), which ensures recovery of the capital and maintenance expenditures and the target level of return. The capacity price under capacity supply agreements and capacity sale agreements for new NPPs/HPPs is paid by all consumers of the relevant price zone. The main restraining factor for prices under capacity sale agreements for new NPPs/HPPs is the decrease in the average yield of long-term Russian Government bonds used to calculate the capacity price for suppliers from 10.04% in 2017 to 8.395% in 2018; capacity sale contracts for must-run generating facilities are signed by suppliers with respect to generating facilities designated by the Russian Government (based on proposals from the Government Commission on the Development of the Electric Power Industry) or generating facilities ordered by an authorized body to suspend decommissioning in accordance with the rules for decommissioning of electric power facilities and their shutting down for repairs. The capacity of must-run facilities generating electricity to avoid power shortages is paid for by consumers of the relevant free power transfer zone. The capacity of must-run facilities generating power to avoid heating shortages is paid for by consumers of the relevant Russian region; unregulated bilateral contracts, as well as unregulated electricity and/or capacity sales contracts (FBC, FECC, FCC) allow the WECM participants to sign electricity and/or capacity sales contracts at unregulated prices.
The Russian energy system is served by dedicated technological and commercial infrastructure operators. Non-Profit Partnership Council for Organizing Efficient System of Trading at Wholesale and Retail Electricity and Capacity Markets (Market Council) Non-Profit Partnership established under Federal Law No. 35-FZ On Power Industry dated March 26, 2003) is responsible for running the wholesale market's commercial infrastructure. Trading System Administrator of the Wholesale Electricity and Capacity Market (JSC TASS) is responsible for administering electricity transactions in the wholesale market (the trading system of the wholesale market).

Financial settlements between the WECM participants are handled through the Center for Financial Settlements (CFS).

The WECM technological infrastructure is administered by the System Operator of the Unified Energy System which exercises exclusive and centralized operational management of Russia's Unified Energy System and monitors compliance with the system's technological parameters. The System Operator supports the wholesale electricity and capacity market by updating the calculation model, based on which the Commercial Operator determines the WECM power volumes and prices. In addition, it decides on the structure of operating generating facilities, administers capacity auctions, and provides support to the balancing market.

The market's technological infrastructure is also supported by the Federal Grid Company (FSGUES) which manages the unified national electric grid (UNEG), and interregional distribution grid companies (IDGC).

The activities of infrastructure operators, including their pricing policies and counterparty relations, are subject to government regulation and control.

**Regulatory framework for tariff-related decision making**

Federal Law No. 35-FZ On Electric Power Industry dated March 26, 2003 outlines the basic principles and methods of state regulation in the electric power industry and the regulators' scope of authority.


The procedure and timing for financial settlements and approval of pricing and capacity tariffs are set out in the Russian Government's Resolution No. 1178 On Pricing in the Field of the Wholesale Market's Commercial Electricity and Capacity Tariffs (Prices) under Sale Contracts dated December 27, 2010.

**Tariff setting for generating facilities across WECM price zones**

Tariffs for the generating facilities operating within the WECM are set by Russia's Federal Antimonopoly Service (FAS) in line with a methodology developed by the Federal Tariff Service (FTS) which was approved by FTS Order No. 210-e/1 On Approval of Indexation Formulas for Regulated Prices (Tariffs) of Electricity (Capacity) Used in Electricity (Capacity) Sale Contracts, Procedure for their Application, and the Procedure for Calculating Planned and Actual Indicators for the Purposes of Such Formulas dated August 28, 2014. The base tariff calculated in 2007 is annually adjusted to factor in the index of changes in semi-fixed costs as determined by the Russian Ministry of Economic Development. The 4% deflator index in the 2018 tariff was in line with the PPI (excluding contribution from the energy sector). This methodology is also used for new generating facilities starting from the second year of their operation. With respect to the facilities operating under supply and sale agreements, the methodology applies to electricity generation only.

During the first year in the wholesale market, the tariff for generating facilities located in non-price zones is set based on economically justified expenses approved by FTS Decree No. 199-e/6 On Approval of Guidelines for Calculation of Regulated Wholesale Electricity and Capacity Tariffs (Prices) under Sale Contracts dated September 15, 2006. This methodology determines the economically justified amount of financial resources a company needs to operate at regulated tariffs within a specific regulation period (the return on investments, which is accrued through amortization, is not taken into consideration).

For facilities operating under sale agreements for new NPPs/HPPs, the capacity price is calculated by FAS in line with the methodology approved by FTS Decree No. 486-e On Approval of Capacity Pricing Procedure for Newly Built Nuclear and Hydroelectric Power Plants (including Pumped Storage Power Plants) dated October 13, 2010. The Group increased actual output and sendout of electricity by 2.0% y-o-y, mainly due to higher power generation by HPPs in Siberia and in the Far East thus boosting sales volumes, including in the day-ahead market (DAM). In 2018, RusHydro's average DAM price was RUB 1,285 per MWh (+6.0%) for the European part of Russia and RUB 825 per MWh (+3.6%) for Siberia. Key WECM tariff drivers:
- tariff indexation, with the 2018 deflator index standing at 4% (in line with the PPI, excluding the energy sector's contribution);
- increase of tax rates for facilities using water bodies for the purposes of hydropower generation without water withdrawal (as required by Russia's Tax Code, a coefficient of 1.75 was applied to the tax rates in 2018).

Major regulatory changes included amendments to the Russian Government's Resolution No. 876 dated December 30, 2006 which, among other things, raised the fees paid for using water bodies or parts thereof for the purpose of electric power generation with no water withdrawal operations by approximately 10%. These amendments have been in effect since 2018.

**Electricity sales in the first and second price zones**

RusHydro directly sells electricity in the WECM's first and second price zones.

Electricity sales are governed by the Company's local internal documents:
- Regulations for Information Exchange in the Economic Dispatching Business Process;
Electricity prices, RUB/MWh

The first price zone

The second price zone

RusHydro’s electricity and capacity sales prices

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DAM price, RUB/MWh</td>
<td>1,072.9</td>
<td>1,096.0</td>
<td>1,080.0</td>
<td>1,094</td>
<td>1,114</td>
<td>20.1%</td>
</tr>
<tr>
<td>1 PZ DAM price, RUB/MWh</td>
<td>1,226.9</td>
<td>1,207.1</td>
<td>1,267.2</td>
<td>1,224</td>
<td>1,285</td>
<td>61.5%</td>
</tr>
<tr>
<td>2 PZ DAM price, RUB/MWh</td>
<td>776.8</td>
<td>882.5</td>
<td>793.3</td>
<td>824</td>
<td>825</td>
<td>10.1%</td>
</tr>
<tr>
<td>KOM price, RUB / MW per month</td>
<td>116,190.6</td>
<td>127,564.1</td>
<td>139,780.8</td>
<td>580,558</td>
<td>783,822</td>
<td>203,264%</td>
</tr>
<tr>
<td>1 PZ KOM price, RUB / MW per month</td>
<td>140,566.7</td>
<td>125,524.0</td>
<td>111,627.7</td>
<td>3,212,516</td>
<td>4,312,779</td>
<td>1,100,263%</td>
</tr>
<tr>
<td>2 PZ KOM price, RUB / MW per month</td>
<td>68,492.8</td>
<td>131,695.6</td>
<td>178,724.1</td>
<td>283,873</td>
<td>342,675</td>
<td>58,802%</td>
</tr>
</tbody>
</table>

The DAM price in the first price zone grew on the back of lower price-taking supply of HPP electricity in the first price zone in H2 2018 and the rising supply of expensive TPP electricity.

The DAM price in the second price zone changed only marginally.

The KOM price growth was driven by the capacity price surcharge effective from January 2018 (vs 2017 when the surcharge was introduced effective from July 2017) as the Russian Government designated RusHydro to collect and transfer the surcharge amount to the Far East in order to bring the region’s tariffs in line with the Russian base rate.

RusHydro’s electricity and capacity sales rose mainly due to the rising power generation and a higher base of funds used for calculating the capacity price surcharge.

Sales of electricity and heat in retail markets

Companies operating within the designated price zones of the retail electricity market are guided by the retail market pricing rules based on the WECM tariffs, while also taking into account approved tariffs for services subject to government regulation.

Electricity sold in the retail market is either purchased in the WECM or sourced from generating companies that do not operate in the wholesale market. In the Russian regions included in non-price zones of the wholesale market, the retail electricity price for end consumers is set based on the wholesale market prices. Prices aligned with the wholesale market apply to all end consumers, with the exception of households and equivalent consumer categories.

Households and equivalent consumer categories are supplied with power at regulated prices (tariffs) approved by the regional executive authorities in charge of tariff regulation.

On November 16, 2018, FAS published Order No. 1413/’18 of October 12, 2018 introducing amendments to the Guidelines for Calculation of Electricity (Capacity) Tariffs for Households and Equivalent Consumer Categories. These amendments updated the formulas for calculating the electricity (capacity) tariff for households within the social consumption limit differentiated by the time of use during the day (two and three-rate tariffs). In addition, they adjusted the formulas for calculating the electricity (capacity) tariff for households in excess of the social consumption limit and formulas for calculating tariffs for the transmission of electric power supplied to households within and in excess of the social consumption limit. Finally, the maximum value of coefficient reflecting alignment of multiple rate tariffs for households with the single-rate electricity (capacity) tariff was raised to 4.0.

The sales in the first and second price zones are consolidated within JSC ESC RusHydro Subgroup (JSC ESC RusHydro, PJSC Krasnoyarskenergosbyt, PJSC Ryazanenergosbyt, JSC Chuvashskaya Electricity Sales Company) whose core business is to supply electricity both directly and via its retail subsidiaries acting as guaranteed suppliers in three Russian regions. In 2018, ESC RusHydro Subgroup supplied electricity to 1,843,222 consumers in the retail market, including 1,786,334 households on direct contracts. Total sendout of electricity amounted to 20,272.5 mn kWh in 2018.

The number of consumers (households and corporates) in service in the first and second price zones (in thousands)

<table>
<thead>
<tr>
<th>Category</th>
<th>Active contracts for electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer</td>
<td>3,781</td>
</tr>
<tr>
<td>Manufacturing industry</td>
<td>1,155</td>
</tr>
<tr>
<td>Transport and communications</td>
<td>2,282</td>
</tr>
<tr>
<td>Agriculture</td>
<td>5,268</td>
</tr>
<tr>
<td>State-financed</td>
<td>1,864</td>
</tr>
<tr>
<td>Management companies, condominiums, housing associations, etc.</td>
<td>75</td>
</tr>
<tr>
<td>Resource providers</td>
<td>908</td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>89</td>
</tr>
<tr>
<td>Heat suppliers</td>
<td>41,164</td>
</tr>
<tr>
<td>Other</td>
<td>1,786,334</td>
</tr>
<tr>
<td>Households on direct contracts</td>
<td></td>
</tr>
<tr>
<td>Total accounts</td>
<td>1,843,222 (in thousands)</td>
</tr>
</tbody>
</table>

1 Trading System Administrator data
JCSC RusHydro seeks to:
- Consolidate retail companies and create a unified sales framework to introduce uniform operating standards in line with RusHydro’s approved corporate standards;
- Create a single retail name brand, common standards of retail sales;
- Expand its footprint elsewhere.

In 2018, RAO ES East Subgroup served retail consumers under 2,565,255 electricity supply contracts, including 2,478,200 households, and 884,542 heat supply contracts, including 864,182 households.

In 2018, total sendout of electricity under RAO ES East Subgroup’s retail contracts amounted to 30,153.6 GWh, while sendout of heat reached 22,370,500 Gcal.

### The number of consumers (households and corporates) in service in the Far Eastern Federal District (RAO ES East Subgroup)\(^1\) from January 1, 2018 to December 31, 2018 (RUB)

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Active contracts</th>
<th>Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing industry</td>
<td>3,169</td>
<td>436</td>
</tr>
<tr>
<td>Transport and communications</td>
<td>2,137</td>
<td>59</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1,655</td>
<td>32</td>
</tr>
<tr>
<td>State-financed</td>
<td>11,179</td>
<td>3,508</td>
</tr>
<tr>
<td>Management companies, condominiums, housing associations, etc.</td>
<td>12,154</td>
<td>2,497</td>
</tr>
<tr>
<td>Resource providers</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>957</td>
<td>23</td>
</tr>
<tr>
<td>Heat suppliers</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>55,780</td>
<td>13,995</td>
</tr>
<tr>
<td>Households</td>
<td>2,478,200</td>
<td>864,182</td>
</tr>
<tr>
<td><strong>Total accounts</strong></td>
<td><strong>2,565,255</strong></td>
<td><strong>884,542</strong></td>
</tr>
</tbody>
</table>

### Results of activities aimed at reducing consumer debt

Debt recovery is one of RusHydro Group’s key focus areas for reducing receivables. As at December 31, 2018, RusHydro Group’s receivables from buyers and consumers grew by 6% to RUB 65,167 mn.

As at December 31, 2018, payments received by RusHydro for electricity supplies to WECM stood at 99.1%.

In the Far East, retail sales of heat amounted to 22,370,500 Gcal.

### Receivables from buyers and consumers, RUB bn

<table>
<thead>
<tr>
<th>Time</th>
<th>Receivables</th>
</tr>
</thead>
<tbody>
<tr>
<td>On time</td>
<td>34.7</td>
</tr>
<tr>
<td>Overdue for over one year</td>
<td>24.3</td>
</tr>
<tr>
<td>Three months to one year overdue</td>
<td>9.0</td>
</tr>
<tr>
<td>Overdue for under three months</td>
<td>7.2</td>
</tr>
</tbody>
</table>

### Improvement of payment discipline through outreach measures

Drawing attention to systemic non-payment of energy bills is an effective way to improve payment discipline among households, businesses, and public sector.

The prompt payment culture is created through measures encouraging regular and timely payment. Given that utility service providers are among the biggest debtors, these initiatives seek to incentivize those management companies, condominiums and housing associations that fulfill their payment obligations promptly.

Other actions include regular posting of ‘black lists’ of persistent non-payers featuring organizations with the worst payment discipline and the highest debt levels.

Encouraging early payment has also been proven effective in addressing the debt issue. In 2018, Far Eastern Energy Company and DKG ran a joint campaign ‘New Year Without Debts’ writing off penalties accrued in unpaid electricity and heat bills (unless claimed through court) for the debtors from the Primorye and Khabarovsk Territories, Amur Region and Jewish Autonomous Region who had paid their electricity and heat arrears before December 20, 2018.

### Debt recovery through court

As part of its efforts to reduce receivables, RusHydro Group works to enforce debt recovery through court action:

- In 2018, ESC RusHydro Subgroup filed 40,876 claims to recover debt on electricity bills for a total of RUB 4,534 mn, of which 4,598 claims against legal entities, including 94 claims of RUB 918 mn against grid companies purchasing electricity to offset grid losses, 643 claims of RUB 424 mn against state-funded organizations, and 36,184 claims of RUB 249 mn against individuals.

Courts of different instances satisfied 30,204 claims for RUB 2,945 mn, and issued 31,759 writs of execution for over RUB 2,394 mn. The measures that bailiffs may use for non-payment include direct debiting, freezing injunction, travel restriction, and restriction on disposal (sale, transfer by gift, etc) of cars and real estate.

- In 2018, RAO ES East Subgroup filed 197,021,000 claims to recover debt on electricity and heat bills for a total of RUB 12,344 mn, including 7,191 claims of RUB 9,336 mn against legal entities, of which 1,089 claims against state-funded organizations, and 189,830 claims of RUB 2,808.3 mn against individuals. Courts of different instances satisfied 186,139 claims for RUB 9,364 mn.
Disconnection for non-payment

Disconnection for non-payment is an effective measure, but a last resort in ensuring debt recovery. The supply is disconnected upon notice made in accordance with the applicable legislation and delivered by hand, on signature of a delivery receipt, by registered post, via text message or by phone. The notice is sent 10 days before the actual disconnection. After disconnection, the electricity supply may not be resumed until the debt has been paid in full (or a debt restructuring agreement has been signed), including the penalties and reconnection fees.

ESC RusHydro Subgroup: in 2018, RUB 14,963 mn of debt was repaid by 300,000 consumers after receiving notices, RUB 466 mn by 22,522 consumers after disconnect, including RUB 73 mn by households. Total number of consumers disconnected in 2018 amounted to 64,577, including 64,093 consumers from the Households group.

RAO ES East Subgroup: total number of disconnections for non-payment in 2018 amounted to 244,775, including 239,550 disconnections in the Households group.

Electricity markets in the Far Eastern Federal District

Tariffs in the non-price and isolated zones of the Far Eastern Federal District are set by the federal executive authorities (FTS until July 21, 2015, and FAS after July 21, 2015) and the regional executive authorities in charge of tariff regulation (regional regulators). There are no unregulated tariff zones in the Far Eastern Federal District.

In the non-price zone of the WECM, a single purchaser model has been put in place, with suppliers selling electricity and capacity to a single purchaser at set rates. Wholesale customers buy electricity and capacity from the single purchaser at prices calculated by the Trading System Administrator, based on indicative buyer prices set by FAS.

In accordance with paragraph 170 of the Russian Government’s Resolution No. 1178 of December 27, 2010, Far Eastern Energy Company (DEK) has been designated as the single purchaser in the Far East. Accounting for over 50% of retail electricity supplies in the Far East, DEK is an electricity retailer created through restructuring of regional energy and electrification companies. The company is the guaranteed supplier in the Amur Region, Jewish Autonomous Region, and Khabarovsk and Primorye Territories. DEK’s share in the total retail UES of the East electricity consumption stands at over 85%.

In some areas of the Far East, including the isolated energy systems of the Kamchatka Territory, Magadan Region, Chukotka Autonomous Area, Western and Central districts of the Republic of Sakha (Yakutia) and Sakhalin Region, retail market is the only available option as these areas are not linked to the Unified Energy System of Russia.

According to the Russian Government’s Resolution No. 1146 On Connecting the Western and Central Energy Districts of the Republic of Sakha (Yakutia) to the Unified Energy System of Russia, and on Amending and Classifying as Invalid Certain Acts of the Government of the Russian Federation dated December 8, 2018 and published on December 10, 2018, the Western and Central Energy Districts of the Republic of Sakha (Yakutia) are included in the non-price zone of the Far Eastern WECM effective from January 1, 2019.

Electricity tariffs and supply in the Far Eastern Federal District

Federal Law No. 35-FZ On Electric Power Industry dated March 26, 2003 outlines the basic principles and methods of state regulation in the electric power industry and the regulators’ scope of authority. The basic principles and methods of price (tariff) regulation in the electric power industry and the procedure for setting tariffs are set out in the Russian Government’s Resolution No. 1178 On Pricing in the Field of Regulated Prices (Tariffs) for Electric Power dated December 29, 2011.

For the purpose of tariff determination, regulators used the following regulation methods:
- tariffs for DGK electricity (capacity) supplies in the WECM non-price zones (as approved by FAS Order No. 1736/16 of December 8, 2016) were calculated using the indexation methodology;
- DRSK electricity transmission tariffs for services provided by Amur and Khabarovsk Power Systems were determined based on the regulatory asset base method (RAB), while tariffs for services provided by Primorye Power System, Electric Networks of the Jewish Autonomous Region and South-Yakutsk Power System were set using long-term indexation of required gross revenue;
- sales surcharge for FSCC DEK was determined using the comparative method;
- electricity tariffs for end consumers in isolated zones were determined using the method of economically justified expenses.

Since July 1, 2016, in the WECM non-price zone numerical tariff values are no longer set for other consumers. In accordance with the estimated tariff values determined based on indicative prices, the uniform transmission tariff and the sales surcharge approved by the regulator, the tariff increase in the WECM non-price zone ranged from 0.35 to 23.64%.

In 2018, the overall increase in average electricity tariffs for consumers in the isolated zone of the Far Eastern Federal District amounted to 14.44% y-o-y. The smallest increase was registered by JSC UESK (6.1%), while the largest one (88.1%) was delivered by JSC Chukotenergo (owing to inclusion of additional costs to the required gross revenue to offset the cost of electricity purchased from Bilibino NPP in 2017). The average annual increase in wholesale energy price of DGK in 2018 amounted to 0.97% y-o-y, with the electricity rates declining by 0.5% and capacity rates growing by 4.1%.

The weighted average energy rate for all of the DGK plants was: RUB 1,321.33 per MWh in H1 2018 and RUB 1,327.98 per MWh in H2 2018 (an increase of 0.5% over H1 2018).

Key factors behind changes in the DGK electricity tariff rates in H2 2018 compared to the rates approved for H2 2017 included lower per unit fuel consumption at production facilities, 2018 gas prices under the Consortium-1 project, and application of growth indices for coal and fuel oil in 2018 with downward adjustment based on the actual 2016 indices.

The average DGK capacity tariff rate was: RUB 262,332 / MW per month in H1 2018; RUB 272,172 / MW per month in H2 2018 (an increase of 3.7% over H1 2018).

Power transmission tariffs at DRSK

For the branches of JSC DRSK (Primorye Power System, Amur Power System, Khabarovsk Power System, and Electric Networks of the Jewish Autonomous Region (ES EAO)), 2018 marked the beginning of the second long-term regulation period. During this period (2018–2022), electricity transmission tariffs for Amur and Khabarovsk Power Systems will be regulated using the ROCIC method, while tariffs for Primorye Power System and Electric Networks of the Jewish Autonomous Region will be set using long-term indexation of required gross revenue.

For South-Yakutsk Power System, 2018 was the last year of the long-term regulation period, with tariffs for 2014–2018 set using the long-term indexation method.

In 2018, the average power transmission tariff growth within the footprint of DRSK was 1.14% y-o-y, with sendout and required growth revenue increasing by 2.28% and 3.44%, respectively.

For the purposes of transition to the next long-term regulation period (effective for all branches except for South-Yakutsk Power System), the base level of controllable expenses was determined using the comparative method, with the company-wide controllable cost growing by 19.05%. The opex efficiency ratio was approved at 2% for the entire duration of the long-term regulation period.

The company-wide per unit opex accounted for in the 2018 tariffs rose by 15.38% compared with 2017.
IN 2018 THE TARIFF ADJUSTMENT MECHANISM WAS IMPLEMENTED IN FIVE REGIONS OF THE FAR EASTERN FEDERAL DISTRICT

Average electricity tariffs in the Far Eastern Federal District, RUB/MWh

Alignment of tariffs in the Far Eastern Federal District with national averages: impact on the regions and RusHydro


These amendments provide for a surcharge to be applied to the capacity price in the WECM price zones, with proceeds from the surcharge transferred to the regional budgets of the Far Eastern Federal District in the form of target non-repayable contributions.

As part of the effort to bring electricity (capacity) prices (tariffs) for the Far Eastern consumers other than households to the base rate, the Government issued Decree No. 2527 dated November 15, 2018 to set the base electricity (capacity) price (tariff) for 2018 at RUB 4.3 per kWh. Currently, the effective average tariff for industrial consumers in the above areas ranges from RUB 4.58 to RUB 32.3 per kWh.

As part of the effort to align prices in the Far East with the Russian base rate, the surcharge amount for 2018 was approved by the Russian Government at RUB 35,032.3 mn.

In 2018, the alignment mechanism was used in five out of nine regions of the Far Eastern Federal District. In all of those regions, before introducing this mechanism, the average electricity tariff for consumers was higher than RUB 4.3 per kWh. Tariff reduction does not result in lower revenue, as it is fully offset by government subsidies paid from the budget funds generated by surcharge to the capacity auction rate. Total subsidies received by guaranteed suppliers from RusHydro Group as compensation for the shortfall in income following tariff alignment amounted to RUB 26,480.6 mn in 2018.

In 2018, the Group was actively involved in the work on the Russian Government’s draft resolution aimed at changing the tariff system. The new system provides for a switch to long-term tariff regulation for existing power generation facilities to reflect the actual fuel costs incurred by energy companies.

Long-term regulation takes into account, among other things:

- base operating costs;
- opex efficiency ratio (X factor);
- energy saving and energy efficiency indicators.

This project is currently assessed for its regulatory impact and is awaiting the conclusion of the Russian Ministry of Justice.

Electricity sales in the Far East’s non-price zone

In 2018, PJSC DEK acting as the single purchaser in the non-price zone of the Far East’s wholesale electricity (capacity) market purchased 30,998 mn kWh. Its commercial purchases of electricity and capacity in the WECM for PJSC DEK amounted to RUB 51,646 mn in 2018.

DEK’s commercial sales of electricity and capacity in the WECM amounted to RUB 20,198 mn 2018.
As new consumers were tapping into the wholesale market, the volumes and cost of electricity (capacity) sales grew by a sound 36% and 33% y-o-y, respectively. The bulk of demand came from Rusenergosbyt LLC building up purchases for JSC Russian Railways and tariff indexation. The cost of electricity (capacity) market. Its commercial sales of electricity and capacity in the WECM amounted to RUB 49,711 mn in 2018.

In 2018, PJSC DEK supplied 22,391 mn kWh in the non-price zone of the Far East’s wholesale electricity market. Its commercial sales of electricity and capacity in the WECM for DGK amounted to RUB 49,711 mn in 2018.

The cost of electricity (capacity) supply grew by 3% y-o-y, mainly due to the rising electricity sales volumes and tariff indexation.

**Heat market**

In the heat generation market of the Far Eastern Federal District, RusHydro is represented by RAO ES East Subgroup and Bureyskaya and Zeyskaya HPPs.

Heat is supplied on a centralized basis from the thermal power plants and boiler stations operated by energy systems. Some energy systems engage in both heat production and distribution, while others do not go beyond production operations.


On July 19, 2017, amendments were introduced to Federal Law No. 190-FZ On Heat Supply dated July 27, 2010 to enable transitioning from fully regulated prices (tariffs) for heat supplies to contractual prices (with certain caps provided for the benefit of consumers). This approach is based on the so-called “alternative boiler” principle, which provides for capping the contractual consumer price at a level sufficient to cover for the construction and maintenance of an alternative boiler station not included in the centralized heat supply system. In some municipalities, a transition to this model has been underway since 2018.

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Reliability and safety of production facilities

RusHydro Group’s reliability and safety policy

One of RusHydro Group’s strategic goals is to provide reliable power supply that will be safe for people, environment in which the equipment operates, hydraulic structures, and production facilities. The RusHydro Group’s Technical Policy defines requirements for the integrated process safety management system, including the industrial safety management subsystem.

The following documents were developed and adopted as part of the industrial safety management system:
- Standard Regulations on In-Process Monitoring of Compliance with Industrial Safety Requirements at Subsidiary’s Hazardous Production Facilities approved by RusHydro’s Order No. 170 of March 11, 2015;
- RusHydro’s In-Process Monitoring Information System (“IPMIS”) commissioned by RusHydro’s Order No. 170 of November 27, 2013. The IPMIS has been deployed across all RusHydro’s branches;
- Integrated analytical database recorder (KRAB-3) improving monitoring efficiency and automating the recording, analysis, and planning of measures prescribed by federal, institutional and internal health, industrial and fire safety supervisory bodies. The recorder was commissioned by Decree No. 467 of December 8, 2015 On Using a Data Reporting Form – Integrated Recorder for the Analytical Database of Supervisory Activities.
- Decree No. 157 of May 14, 2018 On Using a Data Reporting Form – Integrated Recorder for the Analytical Database of Supervisory Activities redistributed the responsibilities for the KRAB-3 recorder and monitoring compliance with supervisory bodies’ instructions among departments of the Production Unit at RusHydro’s HQ;
- RusHydro’s methodology of identification, classification and recording of hazardous production facilities in the State Register of Hazardous Production Facilities with due regard to operational risks and new requirements of the Russian laws on industrial safety (the “Methodology”) approved by the Federal Environmental, Industrial and Nuclear Supervision Service of Russia (Rostechnadzor) as compliant with Russian industrial safety laws (Rostechnadzor letter No. 00-02-07/1695 of September 29, 2014);
- RusHydro’s Regulations on the Reliability and Safety Management System for Hydraulic Structures and Hydroelectric Power Plants (approved by RusHydro’s Order No. 315 of August 8, 2017).

The industrial safety priorities are:
- to continuously enhance and improve industrial safety of the Company’s hazardous production facilities in line with the global best practices by ensuring timely upgrades of process equipment and its safe, reliable and trouble-free operation;
- to establish and maintain an efficient on-site safety monitoring system to enable industrial safety planning and tackling major challenges faced by the Company.

Meeting the above industrial safety goals helps reduce industrial risks associated with hazardous production facilities as a result of better process control, quality of repairs and industrial safety audits.

Ways of ensuring reliable and safe facility operation include:
- quality assurance at design and construction phase;
- external regulatory supervision;
- internal process monitoring;
- compliance with industry and corporate operating standards and procedures;
- implementation of the Technical Policy and engineering system controls.

In pursuance of RusHydro’s Decree No. 50r of February 22, 2018 On the Approval of Target Audit Schedule, Production Unit departments performed target audits of branches and subsidiaries to improve the effectiveness and control of process compliance with applicable safety requirements.

The dual control and monitoring of compliance with industrial safety requirements at hazardous production facilities - both internally and externally (by state supervisory bodies) - secures efficient control over safety and reliability of existing assets.

Allocation of industrial safety responsibilities

<table>
<thead>
<tr>
<th>Functions</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>General control of compliance with industrial safety requirements at hazardous production facilities of RusHydro and production subsidiaries; Methodological support and coordination of industrial safety efforts at the Company’s hydropower facilities, including recording of violations, emergency prevention and response;</td>
<td>Boris Bogdanchik, Member of the Management Board, First Deputy Director General — Chief Engineer</td>
</tr>
<tr>
<td>Setting up and running internal controls of compliance with industrial safety requirements at hazardous production facilities and hydropower facilities of RusHydro and its production subsidiaries; Coordination and control of HQ units, branches and subsidiaries as regards in-process monitoring and compliance with industrial safety requirements; Methodological support of the Company’s branches and subsidiaries as regards in-process monitoring of compliance with industrial safety requirements, operation of industrial safety management systems; Control over the development and implementation of action plans by Company branches and subsidiaries, to eliminate industrial safety gaps identified by supervisory bodies, as well as annual industrial safety action plans.</td>
<td>Industrial and Fire Safety Office of the Industrial and Occupational Safety Department</td>
</tr>
<tr>
<td>Ensuring operation of hazardous production facilities as required by the Russian laws and RusHydro Group’s internal regulations; In-process monitoring along with the development and implementation of industrial safety efforts.</td>
<td></td>
</tr>
</tbody>
</table>

All of RusHydro Group’s production facilities have put in place regulations on in-process monitoring of compliance with industrial safety requirements at hazardous production facilities. RusHydro Group has 478 hazardous production facilities registered in the State Register of Hazardous Production Facilities, including: 177 RusHydro’s hazardous production facilities and 301 subsidiaries’ hazardous production facilities.

**Accident rate at RusHydro Group’s facilities**

RusHydro Group accident rate was down 11.5% year-on-year. The vast majority of accidents (over 90%) occurred at RusHydro Group’s grid facilities. In 2018, most accidents (52%) were caused by adverse weather conditions, third parties, animals, or birds. 21% of accidents were due to untimely or insufficient equipment maintenance and repair.

<table>
<thead>
<tr>
<th>Causes of accidents in 2018, %</th>
<th>Number of accidents across RusHydro Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent natural hazards</td>
<td>16</td>
</tr>
<tr>
<td>Failure to fully comply with the maintenance schedule and work plan</td>
<td>17</td>
</tr>
<tr>
<td>Unidentified reasons</td>
<td>19</td>
</tr>
<tr>
<td>Impacts caused by animals and birds</td>
<td>9</td>
</tr>
<tr>
<td>Third party impacts</td>
<td>8</td>
</tr>
<tr>
<td>Project, structure, manufacturing and assembly flaws (deficiencies)</td>
<td>7</td>
</tr>
<tr>
<td>Employee errors (incl. contractors)</td>
<td>1</td>
</tr>
</tbody>
</table>

Accident rate at RusHydro Group’s facilities

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>21</td>
</tr>
<tr>
<td>'17</td>
<td>35</td>
</tr>
<tr>
<td>'18</td>
<td>35</td>
</tr>
</tbody>
</table>

*Note: Data includes only accidents with injuries.*
The Sakhalin Region has one of the most troublesome power grids in terms of power outages, as the island is exposed to violent winds and heavy snowfalls. As instructed by Minutes No. YUT-PP-13 of March 18, 2016 of the meeting at the office of Yury Trutnev, Deputy Prime Minister of the Russian Federation and Presidential Plenipotentiary Envoy to the Far Eastern Federal District, the Government of the Sakhalin Region and RusHydro Group developed the Program of Stable Power Grid Operation in the Sakhalin Region.

The Program is expected to help tackle the key issues causing disruptions in Sakhalin’s power grid, including inadequate design solutions used in the construction of high-voltage overhead power lines, which do not take into account actual local weather conditions, as well as increasing wear and tear of the equipment and power transmission lines.

The Program saw 55 priority projects listed with respect to PJSC Sakhalinenergo’s (included in RusHydro Group) area of responsibility and operation, including renovation/construction projects for 35–220 kV overhead power lines (33 lines, 936 km and 22 substations (789 MVA). With total investments over a ten-year horizon estimated at RUB 40 bn, the projects are now facing a financing shortage of RUB 25 bn.

The Program has been approved by the Government of the Sakhalin Region, Russian Ministry of Energy and PJSC RusHydro. To the extent permitted by tariffs, Sakhalinenergo is implementing the Program as part of its own investment program.

RusHydro Group is responsible for reliable and uninterrupted operation of its facilities. To this end, a system was implemented at the Group’s assets to prevent and respond to natural disasters and emergencies. In particular, efforts are made to prevent process upsets and accidents, and if an interruption occurs, the Company does its best to bring the facility operation back to normal as soon as reasonably possible. Furthermore, employees of RusHydro have regular trainings in civil defense and emergency response.

Key potential sources of natural disasters at RusHydro’s production facilities:
- high magnitude low-frequency flood may result in boosting the headrace, overflowing hydraulic structures, waterfront destruction in junction areas, and a hydrodynamic accident followed by the flooding of adjacent areas;
- during emergency alerts, there is a risk of electrical grid accidents caused by wire breaks or overlapping and short circuits at transformer stations followed by power outages in residential areas, administrative buildings, and production facilities;
- river overflowing its banks may cause the flooding and failure of pylons, possibly resulting in power outages in commercial and residential buildings.
- technological emergencies affecting equipment (including electrolysis plants (hydrogen receivers), gas distribution stations, boiler units and turbo generators) and grid infrastructure may cause interruptions or failures of power and heat generation or supply;
- accidental oil spill affecting economic assets and people.

In RusHydro Group, the following parties are responsible for the protection of population and territories from emergencies:
- Situation Analysis Center and Industrial and Occupational Safety Department (as regards fire safety) at the Headquaters. They report to Member of the Management Board, First Deputy Director General – Chief Engineer of the Company;
- first deputy directors – chief engineers with the direct involvement of civil defense and emergency response engineers reporting to them – at the Group’s branches;
- employees authorized to deal with the issues of civil defense and protection of population from natural and industrial emergencies at RusHydro’s subsidiaries.

RusHydro prevents and responds to emergencies in full accordance with regulatory requirements of Russian laws applicable to hydraulic structures and hazardous production facilities. For the purpose of rescue and emergency recovery operations, the Company has established an insurance fund for documentation of RusHydro Group’s hazardous facilities. The insurance fund is held on file by authorities.

All RusHydro Group’s facilities have:
- action plans for natural and industrial emergency prevention and response, as well as action plans for oil and petrochemicals spill prevention and response approved by local bodies of the Ministry of the Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM);
- hydraulic structures safety declarations updated (revised) at least once in every five years subject to obligatory audit of such hydraulic structures by ad hoc commissions in collaboration with design and R&D institutions;
- facility safety certificates; special machinery for prompt response to potential damage or accidents (for facilities with own (or contractor’s) fire stations);
- emergency and rescue equipment.

Volunteer emergency response teams and contractors’ professional emergency response teams have been established and maintained at all RusHydro Group’s facilities operating extremely dangerous and highly dangerous hydraulic structures or class 2 and class 3 hazard class facilities with civil defense categories duly assigned.

System Average Interruption Frequency Index (SAIFI)\(^1\) (EU28)

<table>
<thead>
<tr>
<th>Grid subsidiaries</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>PJSC Magadanenergo</td>
<td>7.83</td>
<td>4.33</td>
<td>5.45</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>45.54</td>
<td>44.90</td>
<td>35.88</td>
</tr>
<tr>
<td>PJSC Yakutskenergo</td>
<td>4.93</td>
<td>8.91</td>
<td>9.05</td>
</tr>
<tr>
<td>PJSC Magadanenergo</td>
<td>18.34</td>
<td>39.30</td>
<td>20.97</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>7.83</td>
<td>4.33</td>
<td>5.45</td>
</tr>
<tr>
<td>PJSC Mobile Energy</td>
<td>10.60</td>
<td>7.20</td>
<td>5.48</td>
</tr>
<tr>
<td>PJSC Mobile Energy</td>
<td>2.5</td>
<td>1.9</td>
<td>2.6</td>
</tr>
</tbody>
</table>

\(^1\) The System Average Interruption Frequency Index (SAIFI) is calculated using the formula \(\sum li*Ni/NT\), where \(li\) is the failure rate, \(Ni\) is the number of customers for location \(i\), and \(NT\) is the total number of customers served. The index is calculated for the entire location served.

System Average Interruption Duration Index (SAIDI)\(^2\) (EU28)

<table>
<thead>
<tr>
<th>Grid subsidiaries</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>PJSC Magadanenergo</td>
<td>0.005</td>
<td>0.0043</td>
<td>0.0054</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>2.60</td>
<td>1.83</td>
<td>2.30</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>4.72</td>
<td>6.99</td>
<td>5.28</td>
</tr>
<tr>
<td>PJSC Mobile Energy</td>
<td>6.70</td>
<td>9.00</td>
<td>1.23</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>31.95</td>
<td>12.84</td>
<td>6.21</td>
</tr>
<tr>
<td>PJSC Yakutskenergo</td>
<td>4.72</td>
<td>6.99</td>
<td>5.28</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>12.9</td>
<td>11.43</td>
<td>11.79</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>2.60</td>
<td>1.83</td>
<td>2.30</td>
</tr>
<tr>
<td>PJSC Sakhalinenergo</td>
<td>0.005</td>
<td>0.0043</td>
<td>0.0054</td>
</tr>
</tbody>
</table>

\(^2\) The System Average Interruption Duration Index (SAIDI) is calculated using the formula \(li*Ni/NT\), where \(li\) is the failure rate, \(Ni\) is the number of customers served and \(NT\) is the total number of customers served. The index is calculated for the entire location served.
Our performance

Ministry of Energy Management System of the National Emergency Functional subsystem with laws and regulations of the Russian and response activities in accordance with laws and regulations of the Russian Federation and internal documents of the Company. Management bodies responsible for day-to-day operations of the Company’s functional subsystem – the Situation Analysis Center’s duty and duty shifts at generating branches and subsidiaries – conduct 24/7 situation monitoring at facilities, give notices of any equipment failures identified, and carry out priority emergency prevention activities. Local alarm systems are in place at 31 facilities of the Group. For the purpose of emergency prevention and response, RusHydro established resource stockpiles at its branches operating hydraulic structures and a dedicated financial reserve at RusHydro. The dedicated financial reserve for emergencies was established on a centralized basis in the interests of RusHydro’s branches by transferring 1% of the average monthly revenue from electricity and capacity sales. All subsidiaries have established the required financial reserves and resource stockpiles for emergency prevention and response. Emergency recovery exercises Employees are trained in emergency recovery as part of the corporate civil defense and emergency response training program. The list of persons to be trained was made in accordance with Russian laws and regulations. Pursuant to the schedule for 2018, RusHydro Group conducted:
- 32 comprehensive exercises;
- 433 facility-based exercises;
- 97 table top exercises and training sessions;
- 60 tactical training exercises.

In 2018, 244 people passed training or advanced professional training at training centers and civil defense courses, including three civil defense managers and 53 chairmen and members of emergency prevention and response and fire safety commissions.

Prevention of injuries and fatalities involving the Company’s assets

A special occupational safety focus is the prevention of individual injuries arising from interaction with the Company’s assets. This issue is primarily covered through mass media (articles published in printed and online media) and safety lessons at school on hazardous and harmful health impact of various power installations in the event of exposure within the hazard distance. Legal proceedings were launched in 2018 in connection with two individual injuries, including those taking place at JSC DRSK assets. A compensation for moral damages of RUB 200,000 was awarded on one of the cases (injury suffered in 2016), while the second suit was dismissed without hearing.

Occupational health and workplace injuries

Workplace safety management framework

The fundamental document that defines the principles of workplace safety at RusHydro is the Health and Safety Policy (approved by RusHydro’s Order No. 327 of April 29, 2015). Also, the Company has health and safety regulations in place as follows:
- regulations on Occupational and Fire Safety Day at RusHydro’s branches (approved by Order No. 300 of April 25, 2016);
- and Temporary Regulations for Authorization of Building and Fitting Contractors and Seconded Staff to Operate at RusHydro’s Sites (approved by Order No. 736 of November 13, 2008).

RusHydro Group’s labor protection and industrial safety objectives:
- protecting the life and health of the Group’s employees in the workplace;
- preventing occupational injuries and diseases;
- creating safe employee behavior patterns and hazard prevention skills;
- improving working conditions on an ongoing basis.

Occupational health and safety management includes:
- management decisions on organizational, technical, sanitary and hygienic, treatment and preventive, medical and social measures aimed at ensuring safety;
- protection of employee capability, health and life in the workplace, monitoring of employee compliance with occupational safety, fire prevention and industrial safety requirements.

Distribution of responsibility for occupational health and safety management at RusHydro

Table: Distribution of responsibility for occupational health and safety management at RusHydro

<table>
<thead>
<tr>
<th>Member of the Management Board, First Deputy General Director – Chief Engineer</th>
<th>Industrial and Occupational Safety Department</th>
<th>Health and safety functions at branches and subsidiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of health and safety activities at hydropower facilities</td>
<td>Development, oversight and control of occupational health and industrial safety measures at the Company level</td>
<td>Development, oversight and control of occupational health and industrial safety measures directly at branches and subsidiaries</td>
</tr>
</tbody>
</table>

Key focus areas in occupational health and safety management for 2018

Occupational safety training and knowledge assessment (403-4)

- Free-of-charge occupational safety training and knowledge assessment for employees and labor safety officers.
- Employee training for a new job with internship in the workplace.
- Emergency and fire response drills.
- Occupational health and safety briefings for in-house and contractor staff.
- Special and advanced staff training.
- Demonstrations for crews before work authorization.
- Occupational Safety Days on a monthly basis.

Demonstrations for crews before work

- Staff interviews and meetings. [403-4]
- Overviews of injuries in electrical installations and development of injury prevention measures.
- Workplace rounds to identify violations of occupational, industrial and fire safety rules by in-house and contractor staff.
- Reviews of proposals from employees, trade unions or other employees authorized bodies aimed at improving working conditions and occupational safety. [403-4]
- Occupational health and safety provisions in formal agreements with trade unions. [403-4]
- Training staff for maintenance campaigns. Staff training in safe work methods, adequate use of tools and personal protective equipment.
- Training efficiency is assessed based on tests and knowledge checks (protocols).
- Training efficiency can be assessed by both trainees and managers, training officers, teachers, experts and dedicated assessment teams.

Identification of occupational hazards (403-4)

- Special assessment of working conditions to identify occupational hazards. Assessment of workplace conditions, definition of their class.
- Operational control of compliance with sanitary rules as well as sanitation and epidemic prevention measures (laboratory tests, working environment surveys).

Employee health screening and voluntary health insurance for the working environment and operating process (403-4)

- Social guarantees and compensations to employees working in hazardous conditions following the special assessment (reduced hours, additional leave, therapeutic and preventive nutrition).
- Mandatory regular medical and psychiatric examinations (check-ups).
- Medical aid to the insured according to the programs of outpatient care, stationery, emergency medical aid as part of VHI.
- Outpatient care, emergency and routine inpatient treatment, emergency medical aid and foreign travel insurance as part of VHI.
- Annual preventive measures (employee vaccination and examinations) to reduce threats to human life or health, as part of VHI.
- Staff training in safe work methods, adequate use of tools and personal protective equipment.
- Training efficiency is assessed based on tests and knowledge checks (protocols).
- Training efficiency can be assessed by both trainees and managers, training officers, teachers, experts and dedicated assessment teams.

Mandatory regular medical and psychiatric examinations for employees engaged in certain activities, including high-hazard operations (with exposure to harmful substances and occupational hazards), or working in a high-risk environment;
- mandatory psychiatric examination of employees engaged in certain activities, including high-hazard operations (with exposure to harmful substances and occupational hazards), or working in a high-risk environment;
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Health and safety measures (403-2)

In 2018, health and safety measures taken at RusHydro Group included:
- on-site control of occupational hazards to reduce their impact on employees;
- ensuring compliance with health and safety requirements by contractors’ teams engaged by the Company’s branches;
- drafting RusHydro Group’s accident response guidelines to prevent injuries;
- monthly and quarterly Group-wide occupational safety (including fire safety) days with progress reviews;
- measures to prevent occupational injuries;
- mandatory medical examinations of employees working in hazardous and harmful conditions, and implementation of measures recommended in post-examination reports;
- mandatory psychiatric examination of employees engaged in certain activities, including high-hazard operations (with exposure to harmful substances and occupational hazards), or working in a high-risk environment;
- purchasing and restocking first-aid kits;
- potable water supply to employees;
- infectious disease prevention;
- personnel preventive vaccination;
- health and safety briefings;
- inspections of workplaces;
- setting up health and safety rooms and areas across the Company, purchasing stands, equipment and simulators, visual aids, learning software;
- buying technical standards documents, including their electronic versions;
- holding health and safety trainings and employee knowledge checks;
- training employees on first aid to the injured using robot simulators and distance learning;
- overviews of injuries in the Russian electric power industry;
- arranging for employee visits to sports facilities and swimming pools;
- centralized procurement of protective clothing and footwear for the Company’s branches;
- providing employees with protective clothing, footwear and personal protective equipment (PPE);
- organizing PPE storage, care, repair and replacement;
- providing employees with detergents and decontaminants;
- providing milk or equivalent products to employees working in hazardous conditions;
- disinsection and deratization measures;
- assessment of working conditions and implementation of follow-up action plans to provide better and healthier working conditions.

Assessment of workplace conditions and identification of occupational hazards (403-4, 403-10)

One of the Company’s priorities is to make sure that the special assessment of workplace conditions covers more employees and workplaces comply with statutory health and safety requirements. The assessment of 100% workplaces takes place as scheduled.

Overall, review of occupational injuries and diseases helped identify six occupational hazards that had led to a serious injury or occupational disease.

Health and safety expenses, RUB mn

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,774.8</td>
<td>210.6</td>
<td>445.8</td>
</tr>
<tr>
<td>RusHydro' subsidiaries (excluding PJSC RusHydro and RAO ES East Subgroup)</td>
<td>1,632.8</td>
<td>210.6</td>
<td>445.8</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td>1,632.8</td>
<td>210.6</td>
<td>445.8</td>
</tr>
</tbody>
</table>

2,083.8

RusHydro

2,209.1

2,139.9
In 2018, RusHydro Group had 32 accidents to their own staff that resulted in 41 injuries, including six fatalities. The accidents caused injuries to six managers, five skilled specialists and 30 workers. Injuries mainly occurred due to inadequate work management by contractors’ employees in charge (code 08). Each accident was investigated, with urgent preventive measures put in place.

Number of casualties in 2016–2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Indicator</th>
<th>RusHydro</th>
<th>RusHydro (excluding RAO ES East Subgroup)</th>
<th>RAO ES East Subgroup</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Number of injuries, employees</td>
<td>1</td>
<td>12</td>
<td>27</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>incl. fatalities</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Rate of recordable work-related injuries</td>
<td>0.19</td>
<td>0.96</td>
<td>0.54</td>
<td>0.59</td>
</tr>
<tr>
<td>2017</td>
<td>Number of injuries, employees</td>
<td>0</td>
<td>12</td>
<td>21</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>incl. fatalities</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Rate of recordable work-related injuries</td>
<td>0.00</td>
<td>0.96</td>
<td>0.43</td>
<td>0.49</td>
</tr>
<tr>
<td>2018</td>
<td>Number of injuries, employees</td>
<td>5</td>
<td>12</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>incl. fatalities</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Rate of recordable work-related injuries</td>
<td>1.07</td>
<td>0.89</td>
<td>0.52</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Hazardous factors (occupational hazards) that may cause injuries or occupational diseases

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Number of severe injuries and occupational diseases caused by an occupational hazard</th>
<th>Action taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical hazards</td>
<td>5</td>
<td>The Company has taken urgent preventive measures and developed an action plan to eliminate the impact on others</td>
</tr>
<tr>
<td>Electrical hazards</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Thermal hazards</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Labor severity and intensity hazards</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Noise hazards</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Injuries and occupational diseases

In 2018, RusHydro Group recorded five occupational diseases. Occupational diseases (hazards) are caused by noise and labor severity. In each case, the Company issued a relevant report followed by stricter control over medical examinations to enable early diagnosis and minimize the risks of developing chronic diseases.

The following measures were taken to prevent occupational diseases:

- Providing milk or equivalent products to employees working in hazardous conditions;
- Supplying effective individual hearing protection means;
- Reimbursing for costs related to additional medical check-ups;
- Organizing health resort treatment and sports activities;
- Educating on how to prevent infectious diseases;
- Personnel preventive vaccination;
- Restocking first aid kits;
- Supply of potable water and vitamins;
- Supply of detergents and decontaminants.

PLANS FOR IMPROVING HEALTH AND SAFETY IN 2019

- Draft a policy in line with the Group’s risk-based approach.
- Actively engage employees in occupational health and safety improvements to boost performance and reduce occupational diseases and workplace accidents.
- Maintain strong employee competencies, leverage innovative health and safety practices, ensure collaboration and exchange of information between health and safety experts and employees, develop and implement effective initiatives to identify, eliminate or limit hazards and risks and preserve employee life and health throughout the employment period.
- In 2018, RusHydro Group recorded five occupational diseases. Occupational diseases (hazards) are caused by noise and labor severity.
- In each case, the Company issued a relevant report followed by stricter control over medical examinations to enable early diagnosis and minimize the risks of developing chronic diseases.
- Categories of injured employees in 2018

<table>
<thead>
<tr>
<th>Categories of injured employees in 2018</th>
<th>Workers (m)</th>
<th>Managers (m)</th>
<th>Skilled employees (m)</th>
<th>Skilled employees (f)</th>
<th>Workers (f)</th>
<th>Managers (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe injuries to workers (m)</td>
<td>7</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal injuries to workers (m)</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal injuries to managers (m)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number and types of injuries in 2018

<table>
<thead>
<tr>
<th>Bone fracture</th>
<th>Bruising</th>
<th>Thermal burns</th>
<th>External blows</th>
<th>Electric shock</th>
<th>Jamming/pinching</th>
<th>Ligament rupture</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>26</td>
<td>6</td>
<td>18</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Categories of employees with fatal and severe injuries in 2018

- Workers (m)
- Managers (m)
- Skilled employees (m)
- Skilled employees (f)
- Workers (f)
- Managers (f)

Rate of recordable work-related injuries = Number of recordable work-related injuries * 1,000,000 man-hours / average number of workers in the reporting year.
Energy consumption and efficiency

The Russian Federation as RusHydro’s main shareholder ensures energy companies’ commitment to increasing energy security and reducing energy intensity. The Energy Efficiency and Development national program approved by Resolution No. 321 of the Russian Government of April 15, 2014 sets out three key areas for improving energy efficiency across all types of energy resources:

- energy saving and improving energy efficiency;
- development and modernization of electric power industry; and
- promotion of renewables.

RusHydro Group’s energy saving initiatives are governed by Federal Law No. 241-FZ On Energy Saving and Improving Energy Efficiency and Amendments to Certain Legislative Acts of the Russian Federation dated November 25, 2009 and the respective programs of energy saving and increased energy efficiency.

HPPs have their own specific, which requires a special approach to assessing and improving their energy efficiency. That is why RusHydro launched the Program of Energy Saving and Increased Energy Efficiency through 2020 (ESIEE) specifically intended for HPPs and providing for the list of key initiatives for increasing the efficiency of energy and water resources as well as a number of priority energy saving solutions. In 2017, the program was updated following the review by the Russian Ministry of Energy to be aligned with changes to the applicable laws and regulations. The updated program is based on energy audits held in 2010 through 2016. In 2018, the Ministry of Energy registered RusHydro’s Energy Performance Certificate for another five-year period.

That same year, JSC RAO ES East’s companies engaged in regulated activities’ updated and approved their programs of energy saving and increased energy efficiency for 2019–2024 in reliance on the updated Regulations for Developing, Negotiating, Approving, Implementing and Monitoring Programs for Energy Saving and Improving Energy Efficiency for Subsidiaries Engaged in Regulated Activities approved by RusHydro’s Order No. 462 of July 2, 2018.

Energy efficiency of hydropower

In addition to power generation, HPPs serve multiple functions which are critically important both for the industry and the communities at large. These include hydrotechnical tasks (river runoff control, flood prevention), irrigation of agricultural lands, transportation (vehicle and railway traffic across rivers) as well as waterborne traffic.

In this connection, HPPs sometimes have to meet direct opposite requirements, so it is quite a hard task to analyze their performance. For example, discharge of water reduces the overall energy efficiency but provides a vital river runoff. Moreover, the generators operating in the synchronous compensator mode also reduces the overall efficiency but ensures the stability of the energy system as a whole. (103)

Since HPPs require no specific fuel to produce electricity, the performance analysis counts out this main cost item inherent in other types of power plants, with the exception of renewables. Therefore, the focus is on own consumption by HPPs.

Key areas for improving RusHydro’s energy efficiency:

- modernization of interior and exterior, routine and emergency lighting systems (partially based on automatic controls);
- modernization of HVAC systems for powerhouses and auxiliary buildings (including weather controls);
- rehabilitation of heated buildings and facilities, elimination of warm air leaks, reduction in indoor infiltration;
- rehabilitation of heating and hot water supply systems, electric boiler houses, modernization of pump stations, elevators (replacing mechanisms for frequency-regulated drives);
- replacement of hydropower units with ones with a higher efficiency rate, modernization of automatic control and excitation systems;
- modernization and rehabilitation of hydraulic structures, including service, emergency and repair gates, phased rehabilitation of water intakes and industrial water disposal areas; and
- replacement of power transformers with energy saving ones, replacement of air circuit breakers with gas-insulated ones (as compressors are phased out).

Better usage of water resources

Better usage of water resources is another way to improve the HPP energy efficiency which helped reduce water discharge above turbine flows and increase carbon-free generation by at least 330 mn kWh in 2018 through the following initiatives:

- RusHydro, JSC SO UES and PJSC FGC UES teamed up to optimize the repair schedules for power generation facilities and grids at Sayano-Shushenskaya HPP, which translated into an additional output of 250 mn kWh thanks to the ruling out of water discharge above turbine flows in August 2018;
- RusHydro efficiently redistributed automatic load-frequency control (ALFC) reserves at the Volga-Kama cascade in a high-water season, which translated into additional output of 200 mn kWh (reducing water discharge above turbine flows by 3.3 cu km); and
- following its modernization, Zhigulevskaya HPP now operates at full capacity in a high-water season. Its capacity gained 177.5 MW translating into an additional 80 mn kWh in a high-water season.

Energy efficiency of electrical grids

Key ESIEE initiatives in 2018:

- replacement of wires with heavier-gauge ones at overloaded power transmission lines and replacement of overhead power lines with self-supporting insulated wires; and
- replacement of underloaded and overloaded transformers.

To reduce grid losses and optimize energy consumption, the Company kept on installing commercial-grade electricity and heat meters while also modernizing and introducing the automated electric power accounting system.

Energy efficiency of heat

Key ESIEE initiatives in 2018:

- rehabilitation of power generation facilities (turbo generators, boiler units, secondary equipment) for better cost effectiveness, including steam path improvement, heating surface replacement, sealing off air gas ducts, etc.;
- rehabilitation of boiler houses, including boiler replacement;
- replacing existing inefficient capacities through construction and rehabilitation of diesel power plants;
- modernization of lighting systems based on high-performance illuminants and light control systems; and
- modernization and scheduled maintenance with a view to extending the operational life of the equipment.

Key technical arrangements for improving energy efficiency in 2018:

- energy audits; and
- optimized operating modes for the equipment and systems by redistributing loads and matching the plant mix to its operating mode.
**Energy Efficiency of Heating Grids**

Key ESIEE initiatives in 2018:
- Comprehensive equipment modernization at heat substations; and
- Rehabilitation of heat pipelines using heat proof materials.

TPPs heavily rely on electricity for own consumption accounting for a hefty 10–16% of RusHydro Group’s electricity generation. By contrast, HPPs rarely consume more than 1.5%.

**Efficiency of Energy Utilization**

Own consumption by energy resource in 2018 [202-1]

<table>
<thead>
<tr>
<th>Non-renewables</th>
<th>In-kind</th>
<th>RUB mn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity consumption, mm kWh</td>
<td>6,579</td>
<td>1,624.48</td>
</tr>
<tr>
<td>Heat consumption, Gcal</td>
<td>716,422</td>
<td>142.16</td>
</tr>
<tr>
<td>Boiler and furnace fuels, tonnes</td>
<td>17,687,304</td>
<td>63,771.16</td>
</tr>
<tr>
<td>Motor gasoline, l</td>
<td>5,619,939</td>
<td>224.20</td>
</tr>
<tr>
<td>Diesel fuel, l</td>
<td>23,566,189</td>
<td>1,069.68</td>
</tr>
<tr>
<td>Natural gas, cu m</td>
<td>6,365,269</td>
<td>1,069.68</td>
</tr>
</tbody>
</table>

JSC RAO ES East’s subsidiaries mainly use coal, natural gas and fuel oil along with some other non-renewables, including diesel fuel and firewood.

As for renewables, geothermal steam from the Mutnovskoye hydrothermal deposit in the Kamchatka Territory is used, with consumption standing at 308,065 GJ.

The fuel mix of JSC RAO ES East’s TPPs remained virtually unchanged. Gas consumption also remains flat over the years, which contributes to better environmental conditions across its footprint, including lower greenhouse gas emissions as well as ash and slag waste.

In 2018, RAO ES East Subgroup’s companies’ consumption by energy resource in 2018

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy resource saved</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural gas, ’000 cu m</td>
<td>446</td>
<td>270</td>
<td>4,328</td>
</tr>
<tr>
<td>Diesel fuel, tonnes of natural fuel</td>
<td>7</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Other fuel, tonnes of equivalent fuel</td>
<td>18,045</td>
<td>27,467</td>
<td>29,322</td>
</tr>
<tr>
<td>Heat, Gcal</td>
<td>19,482</td>
<td>27,868</td>
<td>28,443</td>
</tr>
<tr>
<td>Electricity, ’000 kWh</td>
<td>70,610</td>
<td>87,551</td>
<td>91,099</td>
</tr>
</tbody>
</table>

RAO ES East Subgroup’s consumption per unit of equivalent fuel (202-3)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption per unit of equivalent fuel for electricity generation, g/kWh</td>
<td>385.319</td>
<td>385.174</td>
<td>385.858</td>
</tr>
<tr>
<td>Consumption per unit of equivalent fuel for heat generation, kg/Gcal</td>
<td>161,216</td>
<td>159,867</td>
<td>160,084</td>
</tr>
</tbody>
</table>

RAO ES East Subgroup’s energy efficiency initiatives for 2019

In 2019, RusHydro and its subsidiaries (HPPs) plan to spend RUB 16,235 mn on energy saving and energy efficiency initiatives, which is set to bring RUB 1,985 mn kWh of annual benefits.

Energy savings by RAO ES East Subgroup’s [202-6]

In 2018, RusHydro held energy audits at 12 branches: Volzhskaya HPP, Zvotkinskaya HPP, Dagestan branch, Zhigulevskaya HPP, Kamenskaya HPP, Kabardino-Balkaria branch, Cascade of Verkhnevolzhskie HPPs, Cascade of Kubanskiye HPPs, Karachay-Cherkessia branch, Nizhegorodskaya HPP, Novosibirskaya HPP, Saratovskaya HPP and two power generating subsidiaries (Geoterm and HPP-3 of PSC KamGEEK).

Plans to improve energy efficiency in 2019

As a result, all branches and subsidiaries being audited now have energy performance certificates, programs for energy saving and improving energy efficiency and audit reports with recommendations.

In 2018, PSC Yakutskenergo’s integrated management system was recertified for compliance with ISO 50001:2011 issued by Bureau Veritas Certification Rus on August 24, 2016.

Building a Lean Consumer Behavior Model


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INNOVATIONS

Innovative Development Program of RusHydro Group for 2016–2020 with an outlook until 2025

The Innovative Development Program of RusHydro Group is a policy paper that sets out the focus and framework of the Group’s innovations and specifies the amounts and sources of funds to be spent on its innovative projects.

Prior to approval by the Board of Directors, RusHydro’s draft Innovative Development Program was agreed with the Ministry of Education and Science of the Russian Federation and the Ministry of Energy of Russia, and then reviewed and approved by the Interdepartmental Commission for Technological Development of the Presidium of the Presidential Council for Economic Modernization and Innovative Development of Russia (Minutes No. 8-001 of September 23, 2016).

RusHydro’s approved Innovative Development Program was reviewed and evaluated by the Interdepartmental Working Group on the Implementation of Innovative Development Priorities under the Presidium of the Presidential Council for Economic Modernization and Innovative Development of Russia (Minutes No. 1 of April 14, 2017).

In the medium term, it aims to improve RusHydro Group’s economic and operational efficiency by using innovative engineering, technical and management solutions focused on: extending lifespans and improving performance of equipment; enhancing reliability and economic efficiency of equipment; improving the quality of equipment diagnoses coupled with proactive identification and mitigation of operational risks; import substitution and reducing the dependence on imported equipment; reducing the environmental footprint; and improving energy efficiency and cutting losses.

In the long term, the Innovative Development Program of RusHydro Group aims to:

• Assure the Company’s position as one of the most technologically advanced energy companies, both domestic and international, including via:
  • development of efficient construction, modernization and repair processes for power generation facilities;
  • development of real-time monitoring technologies for the core equipment;
  • automation and robotization of maintenance and repair; and development of new innovative products based on RusHydro’s know-how and expertise (e.g. energy efficiency and storage solutions, EV infrastructure, and advanced materials);
  • Ensure deeper engagement in green energy, including via:
    • development of hydroelectric potential in certain regions of Russia;
    • development of RES-based alternative energy infrastructure (geothermal power generation); and
    • analysis and development of mini-hydro solutions.

Integrated innovative development management for RusHydro and RAO ES East Subgroup

The innovative development programs of RusHydro Group and RAO ES East Subgroup have been integrated as follows:

• R&D expenses, % of revenue;
• growth in the quantity of IP assets on the balance sheet, %; and
• heat efficiency, % (for JSC RAO ES East only).

The Innovative Development Program of JSC RAO ES East and the corresponding annual progress reports are reviewed and approved by RusHydro’s Board of Directors as part of the Innovative Development Program of RusHydro Group.

Amounts and sources of funds spent on the Innovative Development Program

In 2018, spending on the Innovative Development Program of RusHydro Group totaled RUB 655.4 mn (without the Innovative Development Program of JSC RAO ES East), while the figure for the Innovative Development Program of RAO ES East Subgroup amounted to RUB 1,717.5 mn.

The equivalent KPI for R&D expenses across RusHydro Group stood at 0.28, or 112% of the target, in 2018.

KPI for the Innovative Development Program of RusHydro Group

<table>
<thead>
<tr>
<th>KPI</th>
<th>2018</th>
<th>Target</th>
<th>2019</th>
<th>2020</th>
<th>Result</th>
<th>Delivered or not</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D expenses, % of revenue</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.28</td>
<td>Delivered</td>
<td></td>
</tr>
<tr>
<td>Growth in the quantity of IP assets on the balance sheet, %</td>
<td>5.5</td>
<td>6.5</td>
<td>7</td>
<td>6.7</td>
<td>Delivered</td>
<td></td>
</tr>
<tr>
<td>Efficiency of hydroelectric capacity management, employees per 100 MW</td>
<td>20.52</td>
<td>20.36</td>
<td>20.13</td>
<td>21.19</td>
<td>96.9% Delivered</td>
<td></td>
</tr>
<tr>
<td>Innovative products purchased, % of total volume</td>
<td>1.21</td>
<td>1.33</td>
<td>1.46</td>
<td>1.21</td>
<td>Delivered</td>
<td></td>
</tr>
<tr>
<td>HPP repair expenses, ‘000 RUB/MW (at 2000 prices)</td>
<td>19.0</td>
<td>19.8</td>
<td>19.6</td>
<td>12.86</td>
<td>Delivered</td>
<td></td>
</tr>
</tbody>
</table>

1 Approved by RusHydro’s Board of Directors on November 22, 2016 (Minutes No. 244 of November 23, 2016).
2 An “inverse” indicator (the lower the better).
KEY INNOVATIVE PROJECTS IN 2018

- Development of a hardware and software system for monitoring and predicting the reliability of HPP/PSPPs' hydraulic structures in geologically challenging environments. The objective was to test and implement a hardware and software system for safety and reliability monitoring of hydraulic structures at Zagorskaya PSPP and Zagorskaya PSPP-2.

- Research into new processes to repair and restore hydraulic structures, extend their lifespans and enhance their reliability, and drafting implementation guidelines. The objective was to develop robust techniques for repair and restoration of hydraulic structures.

- Development of recommendations on assessing the human impact on tailraces with regard to the HPP equipment, hydraulic structures and energy efficiency. The objective was to develop and justify an action plan to raise and stabilize the water levels in separate outlets for better performance of HPP turbine equipment.

- Modernization of reinforced concrete penstock encasements, including application of protective coatings. The objective was to insulate penstocks with waterproofing coatings based on advanced materials, extend time between repairs and cut repair expenses.

- Expansion of the digital testing complex at RusHydro’s branch Nizhegorodskaya HPP. The objective was to evaluate the iSAS automated protection and management system and assess the feasibility of its implementation at energy facilities with a view to a commercial rollout at Nizhegorodskaya HPP.

- As regards RAO ES East Subgroup, its key innovative project was to develop technical solutions to reduce the erosive wear and enhance the reliability of moving blades at the downstream stages of steam turbines by using multifunctional nanocomposite coatings. The initiative was carried out during 2018.

Focus of innovations in 2018

Given the industry’s rapid technological development, it is no longer sufficient to adjust corresponding priorities once in five years (as requires the planning horizon for our Innovative Development Program).

In 2018, RusHydro compared the Group’s technological capabilities and innovation KPI with those of its major peers (the "Companion") to review its development priorities in this field. The key objective was to identify attractive areas and technologies, assess their actual potential, and set ambitious but feasible technological development goals for RusHydro Group.

The results are now used to draft proposals on amending the Innovative Development Program, compile a list of technologies crucial to the Group’s further development, and plan measures to bring it on a par with more technologically advanced peers.

Program for Intellectual Property Rights Management within RusHydro Group

The Russian Government has toughened innovation requirements for companies where it is a shareholder, including those on intellectual property management. In 2017–2018, it issued a number of directives setting IP management requirements for such organizations, which resulted in the Company’s Board of Directors approving the Program for Intellectual Property Rights Management within RusHydro Group along with a corresponding action plan.

R&D projects

RusHydro Group is committed to ramping up its R&D investments. In 2018, they grew by 59.7% to RUB 642.6 mn (incl. VAT).

2018 R&Ds were aimed at addressing the most significant (critical) process problems of RusHydro Group related with the prevention of the risks of process upsets leading to the undersupply of electricity to consumers and significant economic losses.

Key R&D projects implemented by RusHydro Group to ensure sustainable development

Description

Pilot testing of the digital testing complex at Nizhegorodskaya HPP

Objectives:

- to increase the guaranteed measurement accuracy; ensure high electromagnetic immunity and low susceptibility to vibration and temperature fluctuations;
- to improve the electromagnetic compatibility of modern protective relaying equipment with automated process control systems by using optical fibers;
- to prevent saturation, ferroresonance and undesirable transient events; and
- to perform self-diagnosis and online monitoring.

Solution:

- to install optical and electronic measuring devices.
OUR PERFORMANCE

<table>
<thead>
<tr>
<th>Description</th>
<th>Progress in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development and implementation of a process to partially restore heat transfer surface elements of cogeneration heat exchange equipment (tubes) instead of replacing the entire tube bundle</strong></td>
<td></td>
</tr>
<tr>
<td>Objective:</td>
<td></td>
</tr>
<tr>
<td>&gt; to develop and implement a process to partially restore heat transfer surface elements of cogeneration heat exchange equipment (tubes) instead of replacing the entire tube bundle and thereby improve its performance, which includes exploiting the properties of a set of thermal conductive materials and developing a process and a commercial prototype for application of a protective coating to damaged elements (tubes) of a heat exchanger’s tube bundle.</td>
<td></td>
</tr>
<tr>
<td>Solution:</td>
<td></td>
</tr>
<tr>
<td>&gt; to apply specialty epoxy coating (BLOKOR-MX115).</td>
<td></td>
</tr>
<tr>
<td>Epoxy coating (BLOKOR-MX115) developed in 2018 along with a modular (block) pilot machine designed to apply it evenly along the inner surfaces of heat exchange tubes. Pilot testing (application of the protective coating and in situ tests) underway at Khabarovskaya CHP-3.</td>
<td></td>
</tr>
<tr>
<td><strong>Design of avalanche-resistant pylons and foundations for 220 kV power lines</strong></td>
<td></td>
</tr>
<tr>
<td>Objective:</td>
<td></td>
</tr>
<tr>
<td>&gt; to cut operating costs for overhead power lines by reducing expenses associated with emergency recovery operations to fix pylons damaged by avalanches.</td>
<td></td>
</tr>
<tr>
<td>Solution:</td>
<td></td>
</tr>
<tr>
<td>&gt; to design special avalanche-resistant pylons and foundations compliant with building codes and regulations, including seismic performance requirements.</td>
<td></td>
</tr>
<tr>
<td>Detailed design drawings of pylons and foundations made along with a prototype of an avalanche-resistant angle pylon for overhead power lines.</td>
<td></td>
</tr>
<tr>
<td>Following utility models obtained:</td>
<td></td>
</tr>
<tr>
<td>&gt; multi-layered steel pole for overhead power line pylons; and</td>
<td></td>
</tr>
<tr>
<td>&gt; reinforced cast-in-place concrete foundation.</td>
<td></td>
</tr>
<tr>
<td><strong>Design of a composite power line conductor core based on thermoplastic resins</strong></td>
<td></td>
</tr>
<tr>
<td>Objectives:</td>
<td></td>
</tr>
<tr>
<td>&gt; to achieve a 50% higher current-carrying capacity and reliability vs ACSR conductors without adding weight (resulting in savings on account of the increased quantities of transmitted power).</td>
<td></td>
</tr>
<tr>
<td>&gt; to make overhead power lines and the entire grid more reliable by reducing the ice and wind load on pylons (resulting in extended conductor lifespans); and</td>
<td></td>
</tr>
<tr>
<td>&gt; 15% to 40% lower costs of building new crossings as fewer pylons will be required.</td>
<td></td>
</tr>
<tr>
<td>Solution:</td>
<td></td>
</tr>
<tr>
<td>&gt; to design a composite power line conductor core based on thermoplastic matrices along with manufacturing equipment.</td>
<td></td>
</tr>
<tr>
<td>Manufacturing equipment engineering and production documentation drafted. Patents for composite cores and corresponding production processes explored.</td>
<td></td>
</tr>
<tr>
<td>Plans made to develop an experimental pultrusion machine, manufacture and test core prototypes, draft specifications for the core and conductors, and perform field tests on the conductors to verify their compliance with standards and requirements.</td>
<td></td>
</tr>
</tbody>
</table>

R&D effect on the Company’s risks

Damage caused by natural and industrial disasters outside RusHydro Group’s facilities is one of the key risks for the Company.

This risk results from the underprotection of RusHydro Group’s production assets against natural disasters.

The risk management initiatives provided for by the 2018 calendar plan include the following R&D projects:

> research and development in the field of remote monitoring of HPP facilities condition and operating modes. Development of a technique to assess the condition of hydraulic structures and hydropower units at HPPs based on the monitoring of the amplitude and frequency of vibrations along with the earth foundation;

> development and testing of a technology to monitor structural stress in case of a tensiometer failure;

> development of a hardware and software system for monitoring and forecasting the reliability of HPP/PSPP hydraulic structures in geologically challenging environments;

> development of an automated warning system to detect ruptures and measure turbine flows at RusHydro’s diversion and impoundment HPPs;

> development of recommendations on how to assess human impact in the tailrace on the condition of machinery and hydraulic structures and HPP energy efficiency;

> research into new technologies to repair and rehabilitate hydraulic structures and their elements extending their lifespan and reliability, development of implementation guides; and introduction of an expert system to support decision-making in response to incidents, accidents and emergencies at RusHydro Group’s production facilities.

Business process digitalization at RusHydro Group

RusHydro Group launched its Digitalization Program in 2018 and plans to develop a Digital Transformation Blueprint in 2019. Currently, the Program includes 22 digital projects covering virtually all business lines of the Group such as hydropower and heat generation, grid assets, and sales.

Key focus areas:

> supporting operational management of RusHydro’s production and grid assets and developing internal capabilities for condition-based repairs;

> developing infrastructure to collect, process, store and escalate know-how up the ladder;

> developing internal capabilities for remote control over facilities and systems; and

> leveraging advanced technologies to ensure external communications, including transfer of technical data.

Key milestones:

> building advanced integrated multi-service information and telecommunications infrastructure;

> transforming production chains and processes, governance models and planning procedures;

> using analytical systems to process Big Data to support decision-making; and

> relying on cross-industry cooperation to build shared services in support of governance models.

RusHydro Group has a distance learning system up and running, which is made accessible to the employees of RusHydro’s HQ, branches and subsidiaries.

In compliance with the respective import substitution directives of the Russian Government, RusHydro Group developed and approved the Action Plan for 2018-2021 which provides for the Group’s increased reliance on domestically developed software.
PROCUREMENT

Procurement management

To support its activities, RusHydro Group purchases large quantities of works, services, raw materials (including fuel) and products from third parties. RusHydro Group has in place a number of internal by-laws to prevent inappropriate and inefficient use of funds.

Procurement by RusHydro is governed by the applicable Russian laws, including Federal Law No. 223-FZ On Procurement of Goods, Works and Services by Certain Types of Legal Entities dated July 18, 2011 and the Regulations on Procurement (approved in 2018 by resolution No. 265 of RusHydro’s Board of Directors No. 265 dated February 6, 2018, restated as the Uniform Regulations on RusHydro Group’s Procurement Policy effective as of November 1, 2018 pursuant to resolution No. 277 of RusHydro’s Board of Directors No. 277 dated October 4, 2018), whereby:

- the CPC appoints standing procurement commissions, which are directly authorized to arrange for and carry out procurement procedures. Depending on the scope of powers, there are procurement commissions of level 1 and level 2 as ad hoc commissions.

The objectives and principles of the Uniform Regulations on RusHydro Group’s Procurement Policy

The Regulations on Procurement set out the following objectives and principles:

- procurement regulation aims to ensure timely and efficient supply of goods, works and services to the customer as well as prudent use of the customer’s funds;
- procurement regulation relies on rational use of special procedures to make purchases on an arm’s length basis as closely as practicable and provides for mandatory procedures to be followed by the officers in charge of procurement.

These procedures ensure:

- careful planning of demand;
- market research;
- procurement transparency;
- focus on equality and fairness, with no discrimination or unreasonable restrictions on competition among participants where possible, or, if impossible, enhanced internal control;
- intended and efficient use of funds allocated for purchasing goods, works and services (taking into account their life cycle cost, where applicable), and implementation of cost-cutting initiatives;
- no restrictions on participation in the procurement in the form of non-measurable requirements for participants;
- efficient and fair selection of preferred suppliers following a comprehensive SWOT analysis (with price and quality being the key factors); and
- follow-up on contracts and use of goods, works and services purchased.

Procurement regulation is based on a systemic approach which ensures that uniform corporate rules are laid down and followed, also determining the authority and responsibility of the officers in charge of procurement. As a result, the customer enjoys:

- benefits of a regulatory framework;
- effective platform for procurement management and follow-up control;
- qualified procurement professionals;
- well-established procurement infrastructure (information support, e-commerce tools, certification, professional consultants, etc.).

RusHydro publishes information on planned procurement activities and places up-to-date official announcements describing the scope of procurement (item name), material terms of the competitive procurement and other details on its official website in Russia at www.zakupki.gov.ru as well as on the electronic trading platform at https://rushydro.roseltorg.ru.

Following the competitive procedure, the Company publishes the procurement results specifying the winning bidder and the respective price. [102-2]

Implementation of the annual comprehensive procurement program

In 2018, total value of contracts awarded under procurement procedures at RusHydro Group amounted to RUB 270,704 mn (incl. VAT), down by 13% year-on-year, mainly due to a 39% decrease at RusHydro Subgroup. At the same time, the number of procurement procedures rose by 10% to 17,445 due to a 14% increase at JSC RAO ES East Subgroup. Open bidding accounts for over 50% of all procurement procedures, of which 99% run on an electronic trading platform. [102-9]

Procurement by method, %

<table>
<thead>
<tr>
<th>Type of procurement</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro Subgroup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic procurement</td>
<td>87.95</td>
<td>99.40</td>
</tr>
<tr>
<td>Procurement through open bidding</td>
<td>67.79</td>
<td>42.37</td>
</tr>
<tr>
<td>Single-source procurement</td>
<td>32.09</td>
<td>52.69</td>
</tr>
<tr>
<td>Procurement through closed bidding</td>
<td>0.29</td>
<td>0.82</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic procurement</td>
<td>98.62</td>
<td>98.77</td>
</tr>
<tr>
<td>Procurement through open bidding</td>
<td>52.69</td>
<td>48.31</td>
</tr>
<tr>
<td>Single-source procurement</td>
<td>45.95</td>
<td>50.03</td>
</tr>
<tr>
<td>Procurement through closed bidding</td>
<td>0.29</td>
<td>0.82</td>
</tr>
</tbody>
</table>
Impact of procurement activities on the regions of operations, communities and the environment

Being one of Russia’s largest purchasers of goods, products, services and raw materials, RusHydro Group is fully aware of its responsibility to the regions where it operates, communities and environment and relies on the Uniform Regulations on RusHydro Group’s Procurement Policy (approved by resolution No. 277 of RusHydro’s Board of Directors No. 277 dated October 4, 2018). According to the regulation, any design works (including pre-feasibility studies) for new hydropower and thermal power projects, their construction and modernization, any core equipment and technical specifications and the terms of contracts awarded under procurement procedures must be aligned with the customer’s approved internal sustainability by-laws to ensure:

- compliance with environmental requirements;
- protection of cultural heritage sites;
- industrial and occupational safety;
- protection of indigenous peoples and socially-vulnerable groups;
- control over negative footprint on climate change and environment; and
- biodiversity conservation and restoration.

Procurement procedures based on tenders or requests for bids may include relevant sustainability criteria.

One of the Group’s most important strategic priorities in procurement is to ensure, in a timely and efficient manner, competitive awarding of contracts for fuel supplies (mainly coal and diesel fuel) to meet the needs of its generating facilities (GRES, CHPP, etc.). In 2018, the value of contracts awarded for fuel supplies amounted to RUB 83,042.59 mn (incl. VAT), or 30.7% of total value of contracts awarded under procurement procedures.

The years 2016 through 2018 were characterized by high export prices for coal products, including in the Asia-Pacific market. As a result, the domestic market faced shortage of coal supply nudging up prices that steadily rose at a rate of up to 20% a year. During the period of low coal prices, RusHydro Group’s subsidiaries entered into a number of long-term contracts that expired in 2018. The price terms in these contracts were based on the tariffs then applicable. RusHydro Group intends to adjust the coal purchase price so that it equals the fair price reflecting the fuel cost component and use it as a base price in bidding for long-term coal supply contracts.

To facilitate competition and development of SMEs, RusHydro Group seeks to partner with small and medium-sized businesses as part of its procurement activities.

RusHydro launched a partnership program with small and medium-sized businesses (the “Partnership Program”) approved by RusHydro’s Order No. 568 dated July 16, 2014). The Partnership Program is developed in accordance with the Russian Ministry of Economic Development’s guidelines (Letter No. 23941-EE/028i dated November 1, 2013).

The register of small and medium-sized businesses included in the Partnership Program is published on RusHydro’s official website in the Procurement section and is updated as necessary.

The list of goods, works and services purchased from SMEs can be found on the website of the Unified Information System for Procurement and on RusHydro’s website.

RusHydro’s target for contracts awarded to SMEs in 2018 was determined by Russian Government’s Resolution No. 1352 On Special Aspects of Participation of Small and Medium Enterprises in Procurement of Goods, Works and Services for Certain Types of Legal Entities dated December 11, 2014. As at December 31, 2018, the Group significantly exceeded the target.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement through businesses including SMEs, % of annually awarded contracts</td>
<td>RusHydro</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>RusHydro Group</td>
<td>18</td>
</tr>
<tr>
<td>Procurement only through SMEs, % of annually awarded contracts</td>
<td>RusHydro</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>RusHydro Group</td>
<td>15</td>
</tr>
</tbody>
</table>

RusHydro Group’s planned target for contracts to businesses including SMEs in 2019 is at least 18%, with at least 15% of its procurement to be delivered only through SMEs.
Import substitution projects

- As part of the Comprehensive Modernization Program for RusHydro’s generating facilities, the Company plans to increase supplies from domestic machinery producers given that, among other things, certain types of equipment and components will be produced in Russia.
- To increase supplies from local manufacturers in 2018, RusHydro reduced the share of imported equipment for its operations so that foreign goods, works and services are gradually phased out and replaced by local goods, works and services of equivalent performance and properties.
- As part of import substitution, in compliance with Federal Law No. 223-FZ On Procurement of Goods, Works and Services by Certain Types of Legal Entities dated July 18, 2011 as well as Russian Government’s Directive No. 1659p-P1383 dated March 15, 2016, the Company approved the Regulations on Registering Investment Projects Included in the List of RusHydro Group’s Investment Projects, which determine a set of standards, rules and requirements for selecting investment projects and obtaining approval to include the investment projects in the Register approved by the Government Commission on Import Substitution. The Standard Regulations for RusHydro’s Subsidiaries on Registering Investment Projects Included in the List of RusHydro Group’s Investment Projects were approved by RusHydro’s Management Board.
- In 2018, the share of imported equipment stood at 23%, which is in line with the Roadmap target capped at 23%.

Share of imported equipment, %

- As part of efforts to gradually substitute purchases of foreign goods, works and services locally manufactured that have equivalent performance and properties, the Company is supposed to reduce the share of imported equipment in the course of its operations.
- The Roadmap until 2025 was amended along with RusHydro Group’s updated Long-Term Development Program for 2018–2022 (Minutes No. 271 of the Board of Directors No. 271 dated June 1, 2018).

Optimization of procurement processes

- Further automation of the Group’s procurement processes, including the development of an automated analytical reporting system
- Development of the reference data system

HR AND SOCIAL POLICY

Our people

RusHydro’s HR policy is aimed at developing the potential of its employees and using it to pursue the strategic goals of RusHydro Group.

Employee overview

The employees of RusHydro Group are the Company’s key asset. The Group’s power facilities in Russia and abroad are staffed with professionals with extensive operational experience and superior technical expertise. The HR policy of RusHydro seeks to unlock the potential of its people and use it to deliver on the strategic priorities of the Group. RusHydro is committed to promoting workplace stability by adopting a socially responsible attitude towards its employees, which means that the HR strategy is closely linked to the Group’s social policy. In particular, the Group protects the social and economic rights of its employees, ensures their financial stability and social guarantees.

Headcount by country and region as at December 31, 2018 (102-2), (102-4)

Country, region | Headcount, people
--- | ---
Russia | 
Central Federal District | 3,858
Southern Federal District | 621
North-Western Federal District | 919
Ural Federal District | 311
Far Eastern Federal District | 52,801
Siberian Federal District | 3,439
Volga Federal District | 3,557
North Caucasian Federal District | 3,727
Foreign countries | 
Republic of Armenia | 401
Republic of Tajikistan | 31

1 The RusHydro Group headcount figures for 2016 and 2017 may be different from the previous annual reports due to changes in the reporting boundaries applied in 2016 report.
OUR PERFORMANCE

Workforce by gender, region, type of employment and kind of employment contract (402-4)

Gender distribution varies depending on the category of employees. In the management cohort, there are 3 times as many men as women; in the white-collar category - 1.7 times as many women as men; and in the blue-collar category - 6 times as many men as women, which reflects the specifics of RusHydro Group’s operations.

26% of RusHydro Group’s employees are aged 35 or younger. One of RusHydro Group’s key tasks on the personnel management front is to attract young talent.

Seasonal employment (402-4)

RusHydro Group hires seasonal labor. In 2018, one seasonal worker was hired to control water flows from Lake Sevan, 27 workers were hired for the heating season, 62 workers were hired during the summer vacation, and 4,139 people were put into operation.

Recruitment

RusHydro Group recruits staff, including management, on a competitive basis. This approach enables the Company to recruit motivated people who meet the qualification requirements and have potential to grow professionally. Candidates of any gender, age and nationality are allowed to compete for vacancies, with professional skills being the main selection criterion.

In 2018, RusHydro Group created 1,253 new jobs as the scope of work increased and additional power capacities were put into operation. Entry-level wages at RusHydro Group are equal to or higher than the minimum monthly wage, or up to 9.4 times higher than that depending on the region of presence, which means that RusHydro is a competitive and reliable employer. (202-1)

Percentage of employees who will reach retirement age in the next 5 and 10 years (403)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>&lt;25 years</th>
<th>25-34 years</th>
<th>35-44 years</th>
<th>45-54 years</th>
<th>&gt;55 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RusHydro Group</td>
<td>4,856</td>
<td>9.8%</td>
<td>7,718</td>
<td>11%</td>
<td>16,576</td>
<td>21%</td>
</tr>
<tr>
<td>Management</td>
<td>1,131</td>
<td>10.4%</td>
<td>1,372</td>
<td>13%</td>
<td>2,503</td>
<td>24%</td>
</tr>
<tr>
<td>White-collar employees</td>
<td>1,586</td>
<td>7.4%</td>
<td>2,040</td>
<td>10%</td>
<td>3,626</td>
<td>17%</td>
</tr>
<tr>
<td>Blue-collar employees</td>
<td>4,139</td>
<td>11.0%</td>
<td>4,306</td>
<td>11%</td>
<td>8,445</td>
<td>22%</td>
</tr>
</tbody>
</table>

Total number of employees starting or leaving employment at RusHydro Group in 2018, by age, gender and region, people (404-1)

<table>
<thead>
<tr>
<th>Region</th>
<th>&lt;25 years</th>
<th>25-34 years</th>
<th>35-44 years</th>
<th>45-54 years</th>
<th>&gt;55 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Federal District</td>
<td>45</td>
<td>19</td>
<td>98</td>
<td>72</td>
<td>91</td>
<td>79</td>
</tr>
<tr>
<td>Southern Federal District</td>
<td>14</td>
<td>1</td>
<td>11</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>North-Western Federal District</td>
<td>19</td>
<td>10</td>
<td>9</td>
<td>15</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Far Eastern Federal District</td>
<td>829</td>
<td>312</td>
<td>1,724</td>
<td>870</td>
<td>1,378</td>
<td>753</td>
</tr>
<tr>
<td>Siberian Federal District</td>
<td>38</td>
<td>29</td>
<td>89</td>
<td>74</td>
<td>86</td>
<td>82</td>
</tr>
<tr>
<td>Ural Federal District</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Volga Federal District</td>
<td>79</td>
<td>5</td>
<td>183</td>
<td>28</td>
<td>135</td>
<td>18</td>
</tr>
<tr>
<td>North Caucasian Federal District</td>
<td>160</td>
<td>3</td>
<td>269</td>
<td>23</td>
<td>179</td>
<td>33</td>
</tr>
<tr>
<td>Republic of Armenia</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Republic of Tajikistan</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1,187</td>
<td>379</td>
<td>2,394</td>
<td>1,087</td>
<td>1,899</td>
<td>981</td>
</tr>
</tbody>
</table>

Personnel assessment

The Corporate Hydropower University, a branch of RusHydro, assesses employee potential to join the Company’s management talent pool using various professional and managerial competency appraisal methods, including the Assessment Center. The Company’s employees are also tested for adequacy to the job and have their professional, business and personal qualities and achievements assessed. Managers and white-collar employees, regardless of gender, are assessed once every three years. (404-2)
Further professional training

To achieve its strategic goals, RusHydro Group participates in the development and integration of occupational standards, develops employee professional and managerial competencies, implements career guidance programs for talented students. For this purpose, RusHydro Group implements advanced personal development programs, builds a talent pool and trains employees.

The continuous training system serves to develop employee competencies to meet their current job requirements and to be promoted as part of the talent pool arrangement. The Company offers employees professional retraining opportunities, including in accordance with occupational standards.

RusHydro Group’s personnel training and development costs rose to RUB 339 mn in 2018 as the Company held the 8th biennial All-Russia HPP Operations Staff Competition and the Open Corporate WorldSkills Competition in the reporting year and also increased spending on employee training under the education license issued to RusHydro’s Corporate Hydropower University in December 2017. Specifically, the Company increased training hours, conducted out-of-office sessions, developed new training and methodological materials and updated the existing ones in accordance with occupational standards and requirements of the Ministry of Education and Science of the Russian Federation for advanced and occupational training.

Key areas of employee training:
- Statutory training under the requirements of the Federal Environmental, Industrial and Nuclear Supervision Service of Russia, the Federal Service for Labor and Employment, and other controlling authorities;
- Technical and statutory trainings required for performing job duties;
- Management and leadership trainings;
- Project management training;
- Corporate governance training;
- Graduate degrees;
- Second professional degree.

In 2018, RusHydro Group provided 36,537 training courses to its employees under corporate training programs, further professional education and occupational training programs. RusHydro became the first company in the Russian power sector to implement in 2018 a project for professional and public accreditation of programs run by its corporate training centers based on occupational standards. In particular, the Company’s Far Eastern centers in Magadan, Khabarovsk and Artyom (Primorye Territory) were awarded accreditation certificates for the next 7 years.

The Corporate Hydropower University

In 2018, the Corporate Hydropower University developed 10 occupational retraining programs and 44 further professional training programs for operational staff in accordance with the education license issued in 2017. 153 employees were retrained in 5 programs, 190 employees received further professional training in 14 programs. Furthermore, the Corporate University conducted 51 corporate programs for other RusHydro Group personnel, with 3,244 employees participating in 2018. 12,356 distance training courses were completed. Training sessions covered employees of RusHydro and its subsidiaries.

Percentage of RusHydro Group employees who undergo periodic performance and career development appraisal, by gender and category (% of total headcount across the specified category), 2018 (404-1)

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro Subgroup</td>
<td>1.15</td>
<td>1.18</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td>1.03</td>
<td>0.63</td>
</tr>
<tr>
<td>White-collar employees</td>
<td>0.93</td>
<td>0.63</td>
</tr>
<tr>
<td>Blue-collar employees</td>
<td>1.15</td>
<td>1.18</td>
</tr>
</tbody>
</table>

Average hours of training per employee (404-1)

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>3.12</td>
<td>3.12</td>
</tr>
<tr>
<td>White-collar employees</td>
<td>3.12</td>
<td>3.12</td>
</tr>
<tr>
<td>Blue-collar employees</td>
<td>3.12</td>
<td>3.12</td>
</tr>
</tbody>
</table>

Average training expenses for different employee categories in 2018, RUB/people

<table>
<thead>
<tr>
<th>Category</th>
<th>Managers</th>
<th>White-collar employees</th>
<th>Blue-collar employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro Subgroup</td>
<td>290.28</td>
<td>290.28</td>
<td>290.28</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td>133.49</td>
<td>133.49</td>
<td>133.49</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td>132.90</td>
<td>132.90</td>
<td>132.90</td>
</tr>
<tr>
<td>RusHydro Group</td>
<td>16.29</td>
<td>16.29</td>
<td>16.29</td>
</tr>
</tbody>
</table>

Lifelong learning and training programs that support the continued employability of employees and assist them in managing career endings (404-2)

<table>
<thead>
<tr>
<th>Form of training</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further professional training</td>
<td>At least once every five years</td>
</tr>
<tr>
<td>Occupational training</td>
<td>As required by regulators, in case of retraining for a new career</td>
</tr>
<tr>
<td>Occupational retraining</td>
<td>As required for operational reasons to enable employees to do a new type of work or to receive additional qualifications as well as for talent pool training</td>
</tr>
<tr>
<td>Corporate trainings</td>
<td>On an as-needed basis when required to solve specific tasks</td>
</tr>
<tr>
<td>Internal training in production and technical skills</td>
<td>Annually</td>
</tr>
<tr>
<td>Short-term training programs (seminars, conferences, forums)</td>
<td>Annually, with the content depending on business needs</td>
</tr>
<tr>
<td>Distance learning</td>
<td>Annually, with the content depending on business needs</td>
</tr>
</tbody>
</table>

The Corporate Hydropower University

In 2018, the Corporate Hydropower University developed 10 occupational retraining programs and 44 further professional training programs for operational staff in accordance with the education license issued in 2017. 153 employees were retrained in 5 programs, 190 employees received further professional training in 14 programs. Furthermore, the Corporate University conducted 51 corporate programs for other RusHydro Group personnel, with 3,244 employees participating in 2018. 12,356 distance training courses were completed. Training sessions covered employees of RusHydro and its subsidiaries.
Training at the Corporate Hydropower University

<table>
<thead>
<tr>
<th>Employee categories</th>
<th>Number of courses</th>
<th>Onsite</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro, including:</td>
<td>2,446</td>
<td>10,875</td>
<td></td>
</tr>
<tr>
<td>managers</td>
<td>1,200</td>
<td>2,921</td>
<td></td>
</tr>
<tr>
<td>white-collar employees</td>
<td>1,029</td>
<td>5,396</td>
<td></td>
</tr>
<tr>
<td>blue-collar workers</td>
<td>237</td>
<td>2,558</td>
<td></td>
</tr>
<tr>
<td>Subsidaries</td>
<td>1,121</td>
<td>1,481</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3,587</td>
<td>12,356</td>
<td></td>
</tr>
</tbody>
</table>

In 2018, RusHydro held its Corporate WorldSkills Russia Juniors Competition in Electrical Installations at the Sayano-Shushensky training center of excellence of its Corporate Hydropower University. The competition was entered by 14 juniors up to 16 years old from orphanages in Rybinsk, Nevinnomyssk, Perm, Novosibirsk, Khabarovsk and Sayanogorsk under the patronage of RusHydro.


In October, RusHydro’s branch Volzhskaya HPP, the Volga Training Center of the Corporate Hydropower University and the Volga Branch of the Moscow Power Engineering Institute (as part of a trial demonstration exam) participated in the championship.

Talent pool

In order to ensure management succession, improve management appointment process and to incentivize employees to enhance their professional skills and knowledge for career development purposes, RusHydro Group has management talent pool building and development programs in place.

The programs are divided into two levels. The talent pool for any given position is a specially trained group of employees from the headquarters and branches, who combine strong leadership competencies and professional skills commensurate with corporate requirements for a particular managerial position.

In 2018, the Company arranged and conducted the following talent pool training modules:

- Occupational training;
- Personal performance improvement;
- Project management;
- Production asset management;
- Digital transformation.

161 employees were trained in these modules.

In 2018, 10 employees from the first group of talent pool candidates for key positions at the chief engineer’s office defended their diploma projects and completed training under the talent pool program. The diploma projects were written under the guidance of mentors from the production unit and assessed by an expert committee for applicability at RusHydro Group, the maturity and viability of the projects.

The Company’s young talent pool called “Internal Source of Energy” is a group of young specialists up to 30 years old, who have been assessed and selected as potential professionals and/or leaders and receive regular targeted training to improve their qualifications.

The “Internal Source of Energy” project is aimed at identifying, developing and retaining young talent. In 2018, the third intake of young professionals completed a modular program that covered project management, operational excellence, finance for non-finance managers, and went on to work on their diploma projects to be presented at a later stage. A new pool of young talent will be selected and trained in 2019.

Apart from offering training modules for talent pool candidates, RusHydro Group arranged a number of other events for young employees in 2018, including participation in industry-wide competitions in innovation, the engineering training initiative Technological Leadership School run as part of the Youth Day at the St. Petersburg International Economic Forum and development of young people’s vision of technological growth of Russia’s energy sector in the context of global trends until 2030. The vision was elaborated in the format of a competition among young energy professionals. The research by RusHydro’s young specialists won the competition and was showcased to the Ministry of Energy during the Youth Day of the Russian Energy Week.

In 2018, RusHydro’s young specialists participated in the 8th International Forum of Young Power Professionals and Industrialists called the Fast and the Furious 2018. It was for the first time that the vast majority of RusHydro’s branches and subsidiaries, including those from the Far East, were represented at the event. At the forum, the Young Employees’ Community started work under the guidance of RusHydro’s senior management and experts. The key goals of this professional community are as follows:

- to communicate RusHydro Group’s values to young people;
- to position RusHydro Group as an employer brand across its geographies;
- to create opportunities for proactive young employees;
- to develop young employees’ competencies and skills and create opportunities for promotion at RusHydro Group.

The community operates, on a voluntary basis, to implement joint projects, share experience and practices, search for new, more efficient approaches and solutions to deliver on RusHydro Group’s strategic priorities. The community set the project stream as follows: Technology Leadership, Professional Development, Health and Safety, Comfortable Environment in the Regions of Operation. For each stream, community participants designed a work plan for 2019 and determined mentors from among the managers and experts of RusHydro’s headquarters.

The first project implemented by the community in 2018 was a virtual walking marathon across RusHydro Group’s sites called “Walking from the Far East to North Caucasus” aimed at promoting a healthy lifestyle and building communications among employees. 6,000 employees from 28 regions participated in the walking marathon. The project won the first prize in the Life Style nomination at the 9th International Competition for Internal Communication Projects INTERCOMM-2018.

Personnel management system development plans for 2019

In 2018, RusHydro Group established a Qualifications Assessment Center as a separate legal entity to assess employees for compliance with industry occupational standards. In September 2018, the Energy Sector Occupational Qualifications Council authorized the Qualifications Assessment Center to conduct independent assessments of professional qualifications under the occupational standards for the electrical and heating power sector.

The assessments will be conducted starting from 2019, in line with statutory regulations, as an occupational exam, more efficient approached and solutions to deliver on RusHydro Group’s strategic priorities. The community set the project stream as follows: Technology Leadership, Professional Development, Health and Safety, Comfortable Environment in the Regions of Operation. For each stream, community participants designed a work plan for 2019 and determined mentors from among the managers and experts of RusHydro’s headquarters.

In 2019, RusHydro Group, at its Sakhalinenenergo Training Center, will hold the 2nd corporate competition for operations staff at cross-connection thermal power plants. Teams from DKG, Kamchatskenergo, Magadanenergo, Sakhalinenenergo and Chukotenergo will take part in the competition.

Other plans for 2019 include:

- the 1st Corporate Engineering Case Championship of Innovation and Work Improvement Improvements called Ratsenergy;
- the 2nd Corporate Championship WorldSkills Russia Juniors in Electrical Installations;
- the Industry (Corporate) Championship for protective relaying and automation of hydropower plants and pumped storage power plants, arranged to WorldSkills standards; and
- a conference of RusHydro Group’s young talent community at the International Innovation Forum of Industrialists and Power Professionals called the Fast and the Furious 2019.

Apart from offering training modules for talent pool candidates, RusHydro Group arranged a number of other events for young employees in 2018, including participation in industry-wide competitions in innovation, the engineering training initiative Technological Leadership School run as part of the Youth Day at the St. Petersburg International Economic Forum and development of young people’s vision of technological growth of Russia’s energy sector in the context of global trends until 2030. The vision was elaborated in the format of a competition among young energy professionals. The research by RusHydro’s young specialists won the competition and was showcased to the Ministry of Energy during the Youth Day of the Russian Energy Week.

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- to position RusHydro Group as an employer brand across its geographies;
- to create opportunities for proactive young employees;
- to develop young employees’ competencies and skills and create opportunities for promotion at RusHydro Group.
Social policy

In order to implement RusHydro’s socially responsible position, the Board of Directors approved the Company’s Social Policy in 2013. The document established the key principles, goals and objectives for RusHydro Group’s social development across the regions of operation.

Objectives and results of the social policy

Objectives of the social policy:

- furthering the Company’s socially responsible agenda;
- promoting shared social responsibility and social partnership practices;
- making RusHydro Group more attractive as an employer to recruit and retain the best talent;
- maximizing employee commitment to RusHydro’s goals and principles;
- improving occupational relations and taking into account the interests of the employer, employees, shareholders, and the government.

In its social policy, RusHydro Group follows international standards and best practices in the field of human rights, labor relations, environmental protection, anti-corruption initiatives and stakeholder relations. The Company relies on the Guidance on Social Responsibility (ISO 26000) and the universal principles enshrined in the UNGC Guide to Corporate Sustainability in the field of human rights, labor relations, environmental protection and anti-corruption initiatives, as well as the Social Charter of the Russian Federation and the Tariff Agreement for the Electrical Power Industry of the Russian Federation.

RusHydro Group grants benefits to full-time employees:

- voluntary medical insurance;
- insurance against accidents and diseases;
- disability/temporary disability compensation;
- maternity/paternity leave;
- one-off financial aid in case of death of a close relative;
- other payments and benefits in accordance with collective bargaining agreements and in-house rules and regulations.

To support young families, the Group provides them with one-off payments in connection with the registration of marriage, the birth of a child, childcare allowance for up to three years, compensation of expenses for nursery and kindergarten daycare costs.

RusHydro also contributes to local employment, fiscal sustainability, construction and financing of social infrastructure facilities, urban improvement, supporting education, healthcare, culture and sports, caring for veterans and disabled people, making technical arrangements to reduce environmental footprint and providing assistance to those affected by natural and other disasters.

Private pension plans

In 2018, the private pension coverage for employees at RusHydro’s branches included several pension plans designed to finance the pension savings of different target employee groups.

The private pension plans include:

- the “Individual” option (employees finance their pension savings);
- the “Close People” option (employees finance pension savings for the benefit of third parties).

The corporate plan (financed by the Company) consists of:

- the “Supporting” option (the Company accumulates pension contributions on registered pension accounts of employees who, as a result of the reform of the state pension system, do not receive or have a limited opportunity to form the funded part of the work pension for employees born before 1966);
- the “Veterans” option (the Company accumulates pension savings on the pension accounts of its former employees as a supplementary pension for retired employees).

Similar programs are in place at several subsidiaries, including Hydroremont – VCC, Transport Company RusHydro, Kolymaenergo, DGK, Far Eastern distribution company (DRES), Far Eastern energy company (DEK), Kamchatskenergo, etc.

Security for RusHydro Group’s liabilities under pension plans

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net pension liabilities as at December 31, 2018, RUB mn</td>
<td>7418</td>
</tr>
<tr>
<td>Estimated coverage ratio of special assets vs. liabilities under the scheme (fair value of plan assets / current value of plan liabilities), %</td>
<td>12.52</td>
</tr>
</tbody>
</table>

Improving housing conditions for employees

RusHydro continues implementing a program to improve housing conditions for employees. The priority right to participate in the program is given to young professionals under the age of 30, who do not have their own apartment or house, relocated specialists, key and highly qualified specialists, as well as employees with many children, and single parents.

In 2018, pursuant to Regulations on Improving Employee Housing Conditions at Branches of RusHydro approved by Company’s Order No. 702 dated September 8, 2016, 139 employees received compensation of interest payments on mortgage loans and lease expenses. Furthermore, in 2018 employee housing programs were introduced at Yakutskenergo, Sakhaenergo and Kolymaenergo.

Employee rights, trade unions

At RusHydro Group, employees are free to fully exercise their right to freedom of association. Most of RusHydro Group’s companies have trade unions in place, with a total of 35,882 members in 2018. [207]

On December 11, 2018, Chairman of the Management Board – General Director of RusHydro, Nikolay Shulgino, and the senior management of RusHydro had a meeting with the leaders of the Far Eastern sections of the All-Russian Electric Trade Union.

[1] Liabilities under IFRS as appraised by Actuarial and Financial Services LLC
Charity programs and volunteering

Charity programs
RusHydro pursues charitable activities in accordance with the Company’s Charity and Sponsorship Policy approved by its Board of Directors (Minutes No. 280 of December 7, 2018).

The main objective of RusHydro’s charity programs is to set the stage for sustainable development in and labor relations in the industry and sets a minimum level of guarantees for employees. This standard significantly facilitates the dialogue in social partnerships at the levels of industry companies and the Group, enabling RusHydro to compare and assess the level of guarantees provided to employees.

All companies that are “ERA of Russia” members comply with the key provisions of the Industry Tariff Agreement pertaining to the amount and frequency of indemnification of the minimum monthly rate of pay, additional benefits and guarantees such as one-off payments made prior to a paid leave, financial assistance provided in the face of certain events (marriage, childbirth, death of close relatives), one-off payments to retiring employees, compensation to families in cases of work-related fatalities and deaths caused by common diseases or home accidents, as well as other benefits provided for by the Industry Tariff Agreement if the company is financially able to make the payments (50% discount of the regular charge for electricity and heat, compensation of childcare expenses, monthly compensation payments to employees on childcare leave, etc.). Notably, RusHydro provides employee benefits and guarantees that are higher than those set forth in the Industry Tariff Agreement in terms of both scope and amounts.

Pursuant to the Labor Code of the Russian Federation, specifically article 7 of the Industry Tariff Agreement, employees must be notified in simple written form within at least two months from the date of such material changes in the employment contract. In collective bargaining agreements, Section 4 “Employment” also makes reference to the Industry Tariff Agreement, which reflects duties of employers and trade unions in the event of material changes in employment contracts. [42-44]

RusHydro and its 12 subsidiaries are members of the All-Russian Industry Association of Employers of the Power Sector “ERA of Russia”, while another 3 subsidiaries have joined the Industry Tariff Agreement for the Electric Power Industry of the Russian Federation. The Industry Tariff Agreement provides a standard for regulating social and workers’ rights in the industry and is a step forward in building social partnerships among employers and employees at the levels of industry companies and the Group, enabling RusHydro to compare and assess the level of guarantees provided to employees.

Education
Support for educational institutions transfers itself into technical upgrade initiatives and implementation of educational projects. In 2018, RusHydro provided financial support to 18 kindergartens, 28 secondary schools, 10 music schools and community centers, 13 centers of additional education and leisure for children and youth, and five universities.

RusHydro staged the 10th edition of the Energy for Development contest for undergraduates and postgraduates of technical universities, aiming to put in place a long-term framework for consistent professional training in the energy sector and facilitate industry-specific education. Over the years, some 1,000 undergraduates and postgraduates submitted their applications to take part in the contest, with several dozen winners opting to pursue a career in the energy sector after the competition.

Environment
RusHydro’s environmental initiatives include OBEREGAI, an environmental program designed to clean up the banks of local water bodies, and a project offering students a wide choice of environmental sessions, festivals, contests, and excursions focusing on local history and culture, field schools and classes in the school’s forest and nature reserve facilities during their vacations. The Company provides support to specially protected natural areas (nature reserves, protected areas and national parks) at both the regional and national levels. As part of the Ecological Paths project, an additional tourist route was laid out in the Prielbrusye National Park, with the number of nature trails created in 15 regions of the Company’s operations reaching 23.

Healthcare
Every year, in the run-up to the Energy Worker’s Day, RusHydro holds an Energy Born charity event, aiming to provide maternity hospitals, perinatal care centers and maternity wards from across the Company’s footprint with state-of-the-art medical equipment. In 2018, as part of this initiative, the Group purchased cardiocographs / fetal monitors, neonatal intensive care units, air recirculation and irradiation systems, electrocoagulators and pulse oximeters for 14 healthcare institutions.

The total number of medical organizations benefitting from financial support in 2018 reached 21.

Sports
A total of 26 sports schools and football, basketball, hockey, tennis, chess, water sports and martial arts clubs from the Company’s regions of operation became eligible for charitable assistance, with sports equipment and accessories supplied and support of RusHydro. Moreover, young athletes from the patronized sports schools now have an opportunity to participate in European and international competitions to vie for gold and silver medals.

Financial support was also provided to the Russian Whitewater Slalom Federation, Russian Union of Martial Arts, Russian Judo Federation, Karachayev-Cherkessian Regional Sports Federation of Kyukushin, and Yenisei-STM Rugby Club.

Cultural activities
RusHydro supports football, basketball, hockey, tennis, chess, water sports, martial arts clubs from the Company’s regions of operation becomes eligible for charitable assistance, with sports equipment and accessories supplied and support of RusHydro. Moreover, young athletes from the patronized sports schools now have an opportunity to participate in European and international competitions to vie for gold and silver medals.

Financial support was also provided to the Russian Whitewater Slalom Federation, Russian Union of Martial Arts, Russian Judo Federation, Karachayev-Cherkessian Regional Sports Federation of Kyukushin, and Yenisei-STM Rugby Club.

Support of social institutions and organizations
RusHydro pays close attention to the problems of children without parental care and kids with special needs. In 2018, 18 orphanages and asylums and 9 rehabilitation centers for children and teenagers became eligible for financial support. The Company’s charitable assistance helped upgrade and refurbish the institutions’ facilities, prepare orphan undergraduates for adult life, furnish playgrounds for children with special needs, purchase special educational equipment, set up rehabilitation courses, and organize educational excursions and sports competitions.
Support of charitable foundations and non-profit organizations

Funds were allocated to support 35 charitable foundations and non-profit organizations at the regional and national levels. This financing helped implement significantly significant charitable projects in the Company’s regions of operation, including the Far East, focusing on education, environment, healthcare, sports, culture, support for low-income families and people in need, and initiatives promoting the social and economic development of the Russian regions.

In 2018, charitable foundations benefiting from the Company’s financial assistance included the Vera Hospice Charity Fund, Center for Humanitarian Programs, Russian Children’s Foundation, Live Now Charity Foundation, and Illustrated Books for Little Blind Children, a regional charitable foundation. The financial allocations were used to lend a helping hand to low-income households and distressed families.

Each year, RusHydro’s Board of Directors approves the Company’s Charity and Sponsorship Program. In 2018, the total amount of allocations under the charitable programs stood at RUB 1,240.5 mn, with funds used to support charity and socially significant projects in RusHydro’s regions of operation.

In the Far Eastern Federal District, the social projects of critical importance for the macroregion and its residents are supported by the Far Eastern Energy Company, Far Eastern Generating Company, Far Eastern Distribution Company, Yakutskenergo, Magadanenergo, Sakhenergo, Kamchatkaenergo, Energotransnafta, Teplitsenergoservice, Yakutsk Energy Repair Company, USEK, and Kolymenergo. Boguchanskaya HPP and International Energy Corporation also made significant contributions to the social development in the regions of the Company’s operations. In 2018, RusHydro’s subsidiaries allocated some RUB 500 mn for charitable purposes in addition to the funds earmarked under the Company’s Charity and Sponsorship Program, with support provided to orphanages and asylums, boarding schools, rehabilitation centers for minors, educational and cultural institutions, children’s performance groups, sports clubs and societies, and veteran organizations.

Programs to promote skills and knowledge in the professional community or across the region

As part of RusHydro’s advanced personnel development program – From New School to Workplace, an extensive student and undergraduate engagement exercise has been launched across the Group’s footprint. This effort seeks to raise awareness about the importance of engineering and blue-collar jobs as a prerequisite for the development of the energy sector in the Company’s regions of operation. The central element of RusHydro’s school-based talent pooling exercise comes in the shape of career-oriented educational programs (energy classes) launched in nine regions across the Company’s footprint. In 2018, 670 school students of the ninth to eleventh grades completed training under such programs. 2018 also saw the launch of optional classes in Theory of Inventive Problem Solving and extra-curriculum engineering activities for more than 400 students from the Company’s technical creativity centers (technical workshops).

Each year, the Company holds Energy for Education, an industry-specific school contest which has attracted more than 5,000 students since its kick-off. In 2018, 680 schoolchildren submitted applications to take part in the online competition, with 20 winners admitted to the final stage of the nationwide Energy Sector Hope School contest.

The brightest participants of career guidance projects become eligible to join Energy Summer School, a corporate R&D camp run by RusHydro on an annual basis. In 2018, the summer school was hosted by Novosibirskaya HPP; the event was attended by 32 schoolchildren from 14 Russian regions (including those enlisted in RusHydro’s energy classes) who prepared and presented six team projects focusing on synergies between Novosibirskaya HPP and the nearby megapolis.

In 2018, the Company became a partner of discipline-specific and project-based sessions in the Russian Children’s Education Centers (Sinus, Ocean, Smena, Orlyonok) as part of RusHydro’s career guidance program, with 462 high school students attending the events. In 2018, RusHydro became a theme-based partner of ProEKTORiya, a national career guidance forum, which was attended by students of energy classes from Rybinsk and their mentor. As part of the forum, experts from the Corporate University staged a hydropower case solving competition with online contributions from the employees of Saratovskaya HPP and the laboratory of Moscow Power Engineering Institute.

The key 2018 event in terms of collaboration with professional educational institutions was RusHydro-sponsored opening of the Institute of Hydropower and Renewable Energy Sources (part of Moscow Power Engineering Institute) designed as a single center for education and training of engineers specializing in hydropower and renewables. The training center leverages the capacities of the departments of Hydropower and Renewables, Hydromechanics and Hydraulic Machines, and Innovative Technogenic Safety Solutions, which are responsible for training bachelors, masters and postgraduates in the core specialties of RusHydro.

Volunteering initiatives

RusHydro Group promotes corporate volunteering, encouraging individual and team-based involvement of its employees in socially important projects. RusHydro’s corporate volunteers take an active part in EdEREAG, an environmental program designed to clean up the banks of rivers, reservoirs and lakes in the Group’s regions of operation.

RusHydro employees also participate in blood donation campaigns organized by the Company jointly with the Blood Service, with up to 75% of volunteers foregoing their compensation for charitable purposes.

The institute established a united center for education and training of engineers in hydropower and renewables.

The training center was based on the following departments: Hydropower and Renewables, Hydroenergetics and Hydraulic Machines, Innovative Technologies of Technogenic Safety, which train bachelors, masters and postgraduates in the core specialties of RusHydro.

RusHydro has received numerous corporate awards confirming the Company’s commitment to raising awareness about energy sector jobs and providing training opportunities to students and undergraduates across the regions of its operation:

Young Energy, a program aiming to provide social and professional guidance for children from orphanages, won:

the first place and the Grand Prix in the nomination for Collaboration Synergies of the Enabling Our Future, Russia’s fifth nationwide contest for best employer practices in human capital development.

At Graduate Awards 2018, RusHydro came in the third place in the nomination for the Best Schoolchildren Engagement Program with its project focusing on the implementation of career guidance initiatives at the Information Center for On-site Training in Cheryomushki.

RusHydro won the 2018 Leaders of Russian Business: Dynamics and Responsibility contest sponsored by the Russian Union of Industrialists and Entrepreneurs, receiving an award for its contribution to the social development of the Company’s regions of operation. The key evaluation criteria included contributions to solving economic and social problems, efficiency of proposed projects and initiatives, and replicability of gained experiences outside the company.
Environemntal policy

Environmental impact management

RusHydro Group adheres to environmental protection and sustainable use of natural resources while observing the approved Environmental Policy, which is based on Russia’s national policy for environmentally sustainable development and safety, the Constitution of the Russian Federation, federal laws and regulations, and international treaties of the Russian Federation governing the same.

RusHydro Group also takes into account global standards for environmental management and international best practices applicable to energy projects.

While planning and carrying out its operations, the Group abides by the precautionary approach adopted by the UN Conference on Environment and Development in 1992.1

The integration of RusHydro and RAO ES East had an impact on the Group’s operations, changing the perimeter of its operations and causing the Group to revise its Environmental Policy, which now addresses today’s challenges and trends in environmental protection while taking into account the specific operating environment of RusHydro’s hydropower and heat assets.

The updated Environmental Policy sets out KPI seeking to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions, prevent species elimination as a result of operating activities, additionally train staff in environmental protection, etc.

The plan by 2025 is to increase the installed capacity of low-carbon generation by 632.3 MW and reduce greenhouse gas emissions by more than 6% as compared to 2015. The intensity of CO2 emissions is set to decrease 7.7% in the electricity generation segment and 6.4% in the heat production segment.

The restated Environmental Policy addresses today’s challenges and trends in environmental protection. The document was prepared on the basis of federal government authorities’ proposals, specifically those by the Ministry of Energy, Ministry of Economic Development and the Ministry of Natural energy and innovative development are set to reduce negative environmental footprint and increase the Company’s shareholder value. RusHydro Group is the largest Russian energy holding and a leader in generating renewable energy. RusHydro Group’s operations span most of Russia, making it a major user of national water resources and the largest electricity and heat supplier in the Far East.

Environmental Protection

Environmental friendliness and awareness is a mandatory part of policy for any socially responsible business. Ongoing modernization initiatives together with energy conservation and higher energy efficiency, advancement of renewable

"where there are threats of serious and inevitable damage, lack of all scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.\" (The United Nations Conference on Environment and Development, 1992)
### Key environmental protection initiatives in 2018 as part of the Rehabilitation and Modernization Program

<table>
<thead>
<tr>
<th>Branch/Subsidiary</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Votkinskaya HPP</td>
<td>Downstream water management at earth dam No. 3</td>
</tr>
<tr>
<td>Saratovskaya HPP</td>
<td>Replacement and rehabilitation of overflow dam bars and construction of a transfer platform</td>
</tr>
<tr>
<td>Kamskaya HPP</td>
<td>Repair of drainage systems</td>
</tr>
<tr>
<td>Volzhskaya HPP</td>
<td>Sealing of oil-filled runners of turbines</td>
</tr>
<tr>
<td>Chelobinskaya HPP</td>
<td>Rehabilitation of drainage water treatment facilities adjacent to the HPP building and storm and.</td>
</tr>
<tr>
<td>Kolymskaya HPP</td>
<td>Installation of water meters (as part of hydroelectric unit upgrade) (Kolymskaya HPP)</td>
</tr>
<tr>
<td>Boguchanskaya HPP</td>
<td>Search for latent flaws at ERDSCN-E-200 8kh biological sewage treatment plant of KOS-340 treatment facilities complex at Boguchanskaya HPP</td>
</tr>
<tr>
<td>JSC DRSK</td>
<td>Replacement of oil-filled electrical equipment with vacuum equipment</td>
</tr>
<tr>
<td>PJSC Magadanenergo</td>
<td>Repair of fly-ash collectors at Aragainskaya GRES boilers</td>
</tr>
<tr>
<td>PJSC Mobile Energy</td>
<td>Introduction of gas monitors</td>
</tr>
<tr>
<td>PJSC Kamchatkenergo</td>
<td>Repair and maintenance of waste water treatment facilities at Kamchatskaya CHPP-1 and Kamchatskaya CHPP-2, Central Power Grids, Yuzhno-Sakhalinska CHPP-1</td>
</tr>
</tbody>
</table>

### Enablers of RusHydro’s Environmental Policy

RusHydro approved the implementation Program for the Environmental Policy. As part of the Rehabilitation and Modernization Program, RusHydro procures to upgrade and replace hydropower units and repair HPP turbines, including to prevent environmental contamination in the course of its operations. Bank protection efforts are ongoing to maintain water conservation zones in good repair. RusHydro Group seeks to replace oil-filled electrical equipment with vacuum or SF6 gas, which contains no oil, or with that with lower oil content. RusHydro Group procures to upgrade TPP boilers to feed on natural gas, which helps reduce pollutant emissions into the air and enhance the efficiency of gas purification and dust collecting equipment.

The Company also employs other initiatives to reduce its negative environmental footprint, including:

- Construction of industrial waste landfills;
- Rehabilitation of storm drains and waste water treatment facilities;
- Collection of floating rubbish and transfer to waste disposal facilities;
- Landscaping and planting of greenery;
- Repair of ash and slag disposal facilities.

### 2018 SAW NO INCIDENTS OR ACCIDENTS CAUSING ENVIRONMENTAL DAMAGE WITHIN RUSHYDRO GROUP

RusHydro adheres to a number of technical standards providing for environmental safety. To assess the impact on environment and ensure industrial control, RusHydro introduced corporate standards such as Hydroelectric Power Plants: Environmental Protection, Environmental Impact Assessment. Guidelines and Hydroelectric Power Plants: Industrial Environmental Control. Standards and Requirements. National Standard GOST R 58 224-2018 Hydroelectric Power Plants, Loss Allowance for Turbine Oil While in Operation, Method of Calculation for Turbine Oil Losses While in Operation applies to both the Company’s day-to-day management and state supervision.

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**Resources and the Environment of the Russian Federation as well as the UN Sustainable Development Goals.**

The Environmental Policy won recognition during public hearings attended by representatives of the World Wildlife Fund (WWF), Russian Union of Industrialists and Entrepreneurs, Moscow State University, RUSAL, EuroSibEnergo, Rosseti, etc.

It is worth noting that the Environmental Policy is binding on all companies within RusHydro Group as well as entities that collaborate with the Group on contractual terms.
Environmental impact assessment

RusHydro ensures environmental safety at all stages of the life cycle of its industrial facilities. Prior to starting a new project or modifying the existing facilities (at the project initiation and design stages), the Company procures to assess their impact on environment.

In 2018, there was no need to hold public hearings on environmental impact assessment for projects being designed or constructed.

Assessment and controls over environmental impact at all stages of the project life cycle

<table>
<thead>
<tr>
<th>Stage</th>
<th>Controls over environmental impact</th>
</tr>
</thead>
</table>
| Planning (pre-project stage) | > R&D with a focus on environment  
> Preliminary environmental impact assessment for new construction and rehabilitation planning |
| Design | > Environmental impact assessment: assessment of the facility impact on environment in order to decide whether construction or rehabilitation is feasible  
> Designing initiatives to ensure the required level of environmental safety |
| Construction | > Implementation and follow-up on the initiatives provided for by the project and aimed at ensuring environmental safety  
> Compliance with environmental laws during construction and installation |
| Operation | > Industrial environmental control: initiatives preventing any deviation from the given level of environmental safety  
> Voluntary initiatives to preserve biodiversity and improve environmental awareness among employees and communities |

Ensuring compliance with environmental laws

It is mandatory for the Company to develop draft standards applicable during the construction and operation of its facilities which establish permissible pollutant emission and discharge limits, waste generation and disposal limits as well as design documentation related to environmental protection, including initiatives to reduce negative environmental footprint and preserve biodiversity.

These documents are to be approved by the respective government agencies in charge of environmental protection, including:

> Ministry of Natural Resources and the Environment of the Russian Federation;
> Federal Service for Supervision over Natural Resources Management;
> Federal Agency for Water Resources;
> Federal Fishery Agency;
> Federal Service for Supervision over Consumer Rights Protection and Human Welfare.

The Company relies on the documents approved to carry on its business in compliance with environmental protection standards.

Scientific and Technical Council

The Company has a permanent expert collective body, the Scientific and Technical Council (STC), which provides for a unified system of technical expertise ensuring that R&D solutions, projects and programs are examined for compliance with the Technical Policy and applicable technical regulations.

To ensure environmental safety while developing new technical solutions, the Company established the STC’s task force on water reservoirs and environmental protection. It includes representatives of R&D institutions, the Chair for General Ecology of the Department of Biology at the Moscow State University, the information Fund for Water Resources of the Federal Agency for Water Resources, and the Papanin Institute of Biology of Inland Waters (Russian Academy of Sciences).

Cooperation in environmental protection

RusHydro Group actively cooperates with international organizations on matters of environment protection and conservation of biological diversity: the Company supports industry-specific and international initiatives to reduce the man-made load on the environment and strives to adopt best practices for the successful implementation of its environmental projects.

Prior to March 2018, RusHydro had been a partner of Mainstreaming Biodiversity Conservation into Russia’s Energy Sector Policies and Operations project run by the United Nations Development Program, the Global Environmental Facility and the Ministry of Natural Resources and the Environment of the Russian Federation (the “UNDP Project”). The Project was implemented in Russia between 2012 and 2018. The Project’s objectives were as follows:

> demonstration and introduction of international best practices in the field of biodiversity conservation in Russia’s energy sector;
> conservative and innovative environmental assessment methodology and long-term monitoring program;
improving biodiversity status in industrialized regions of Russia; assistance in the set-up of a monitoring system for biodiversity status and testing of environmental technologies in oil producing, coal mining, and hydropower production; and promoting the adoption of policies and guidelines on biodiversity conservation in the energy sector.

Within the UNDP Project, RusHydro was focusing on: biodiversity conservation; sustainable development of hydropower; and development of guidelines on biodiversity conservation in the hydropower sector.

In 2018, RusHydro continued its membership in international industry associations such as the Centre for Energy Advancement through Technological Innovation (CEATI), the International Hydropower Association (IHA) and the International Commission on Large Dams (ICOLD). Membership in these organizations enables the Company to interact with the world community on the safe, innovative and sustainable development of hydropower. (202-12)

To promote the principles of sustainable development in Russia, the Company contributes to the implementation of the Hydropower Sustainability Assessment Protocol (HSAP) as a statutory instrument.

Cooperation to combat climate change

In late 2015, RusHydro supported an initiative to unite the efforts in Russia to reduce the impact on the environment and prevent climate change, signing the Statement of the Russian Business on the Negotiation Process and Adoption of a New Climate Agreement at the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC). The 24th session of the Conference of the Parties to the UNFCCC was held on December, 2018 in Katowice (Poland), whereby Timur Khazakihmetov, Director of RusHydro’s Department of Development and Standardization of Production Processes, presented his report RusHydro Group’s Low-Carbon Development at the Russian Investments for a Transition to the Low GHG Emission Development round table and spoke on RusHydro’s sustainable development policy at the Day of Sustainable Energy. Both events were sponsored by the Russian Ministry of Energy to discuss sustainable development and Russia’s transition to low-carbon development, improving the greenhouse gas emissions inventory, including the preparation of a national greenhouse gas emissions survey.

The participants included Ruslan Edelgeriyev, special representative of the Russian President on climate issues, as well as representatives of the Ministry of Energy, Ministry of Economic Development of the Russian Federation, Russian Meteorological Service (Roshydromet), RUSAL, EuroSibEnergo, SUEK, etc.

Since 2015, RusHydro has been a member of the Climate Partnership of Russia, which seeks to unite the efforts of businesses in the interests of transition to environmentally friendly technologies.

In 2018, the Company continued to report on greenhouse gas emissions to the CDP (Carbon Disclosure Project), having been its participant since 2015.

In 2018, RusHydro also continued its work, together with EuroSibEnergo and the Association of Hydropower of Russia, within the working group on developing a methodological approach to understanding global climate change processes in terms of greenhouse gas emissions from the surface of HPP freshwater reservoirs and evaluating their absorbing capacity.

In March 2018, RusHydro and the Hydropower of Russia Association held a round table in Moscow “Hydropower in the context of the transition of the energy sector of the Russian Federation to sustainable and low-carbon development” the event discussed a wide range of issues related to the sustainable development of hydropower, existing methodologies for assessing the compliance of hydropower projects with sustainable development criteria, ensuring reliable operation of hydroelectric power plants amid climate change, minimizing the negative impact on biodiversity during construction and subsequent operation of hydroelectric power plants, the impact of hydroelectric power plants and their reservoirs on the balance of greenhouse gases.

B. Bogush, member of the Board, First Deputy General Director - Chief Engineer of RusHydro, representatives of federal authorities, energy companies, the Association of Hydropower of Russia, scientific and environmental organizations took part in the round table.

Based on the results of the round table, a decision was made on the desirability of adapting the existing international and Russian methods of calculating and studying the effect of reservoirs on the greenhouse gas balance in order to properly take into account the natural conditions Russian hydroelectric reservoirs operate in, and the need to develop methodological approaches to ensuring and assessing projects criteria for sustainable development.

Water use and discharge

With most of its operations based around water bodies, RusHydro Group is a major user of national water resources.

RusHydro strictly adheres to the applicable Russian laws and timely obtains all necessary permits and licenses for water use and protection of water bodies from the authorized government agencies. The Company’s water withdrawal activities have no significant impact on water sources. (202-2)

In 2018, RusHydro Group’s water consumption increased by 5.86% y-o-y to 786,864,000 m³, with 97% of water taken for operational purposes. (202-3)

**Impact on water bodies**

The Group’s waste and drainage water is discharged in strict compliance with the applicable Russian laws. The right to use water bodies for such purposes are confirmed by relevant permits and licenses duly issued by the authorized government agencies. The same permits and licenses set out the applicable discharge limits. In 2018, waste water discharges totaled 601,506,000 m³. (202-4)

Waste water discharge by treatment method, ‘000 m³ per annum’ (202-4)

<table>
<thead>
<tr>
<th>Year</th>
<th>No treatment</th>
<th>Insufficiently treated</th>
<th>Clean under statutory requirements</th>
<th>Biological, physical, chemical, mechanical treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>22,461</td>
<td>22,605</td>
<td>22,749</td>
<td>1,578</td>
</tr>
<tr>
<td>2017</td>
<td>216,805</td>
<td>337,160</td>
<td>353,605</td>
<td>9,747</td>
</tr>
<tr>
<td>2018</td>
<td>22,605</td>
<td>22,041</td>
<td>333,466</td>
<td>353,605</td>
</tr>
</tbody>
</table>

**Waste water discharge by treatment method, ‘000 m³ per annum’ (202-4)**

In 2013, the Company began disclosing HPP reservoir level data on a designated web page at: [http://www.rushydro.ru/hydrology/informer/](http://www.rushydro.ru/hydrology/informer/)
Biodiversity conservation

Impact on biodiversity

While none of RusHydro’s power generation facilities is located within specially protected natural areas, RAO ES East’s grid infrastructure does extend to such places, sharing them with rare plant and animal species. As the Group seeks to minimize its impact on biodiversity and protected natural areas, none of its activities cause reduction of species, habitat conversion, or introduction of invasive species, pests or pathogens. (304-2)

Protected species' habitats affected by activities of RusHydro Group (304-4)

The habitat of the mandarin duck (Aix galericulata) in the Amur Region is impounded by the Nizhne-Bureyskaya HPP. As a rare species, the bird is on the Russian Red List and the 1996 IUCN Red List of Threatened Animals, and mentioned in Appendix 2 to the Bonn Convention and migratory bird protecting appendices to bilateral agreements between Russia, Japan, the Republic of Korea and the DPRK. The impoundment area of the dam also covers a primary habitat of Aleuritopteris luhnii, a rare fern listed in Russia as a threatened plant species. The process of impounding Nizhne-Bureyskaya HPP reservoir also affected the habitats of local ungulates. Another rare species affected by the construction of Nizhne-Bureyskaya HPP and activities of JSC DRSK is the Far Eastern stork (Ciconia boyciana). The Far Eastern stork is on the Russian Red List and the 1996 IUCN Red List of Threatened Animals, and mentioned in Appendix 1 to the CITES and migratory bird protecting appendices to bilateral agreements between Russia, Japan, the Republic of Korea and the DPRK.

As the Group seeks to minimize its impact on biodiversity and protected natural areas, none of its activities

Water bodies affected by wastewater discharges of RAO ES East Subgroup: affiliation, volume and biodiversity (206-5)

<table>
<thead>
<tr>
<th>RAO ES East Subgroup Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSC DGK</td>
<td>Kindimayev reservoir</td>
<td>9.6 High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kontovod River</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prometuzhchynaya Bay</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obyasaneniy River</td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liuzo Klyuch Stream</td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Partizanskaya River</td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Olongoro River Reservoir</td>
<td>43.2 High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samyonskoyev Stream</td>
<td>- Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amunnapa River</td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amurskaya Anabranch</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amur River</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lake Khopyr</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Galbon Anabranch (Old Amur)</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zapadnaya Bay</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nante Stream</td>
<td>- Supreme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pravaya Beryozovaya River</td>
<td>- Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chernaya River</td>
<td>- Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polkshaevka Stream</td>
<td>- Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gnilaya Pad Stream</td>
<td>- Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Malaya Sita River</td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rudka Stream</td>
<td>- Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bezmyanny Stream</td>
<td>- Medium</td>
<td></td>
</tr>
</tbody>
</table>

PJSC Kamchatskenergo

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avacha Bay</td>
<td>3,800</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Khalaktyrka River</td>
<td>-</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Lake Halaktyrskoe</td>
<td>11</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Lake Syryukha</td>
<td>-</td>
<td>Supreme</td>
<td></td>
</tr>
</tbody>
</table>

JSC UESK

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bystryaya River</td>
<td>43.2</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Magadanka River</td>
<td>127.5</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Kamenshka River</td>
<td>37.9</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Muaunja River</td>
<td>37.9</td>
<td>Supreme</td>
<td></td>
</tr>
</tbody>
</table>

PJSC Sakhalinenergo

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gulf of Patience (Sea of Okhotsk)</td>
<td>211,250</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Lena River</td>
<td>515,610</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Vilivy River</td>
<td>21,290</td>
<td>Supreme</td>
<td></td>
</tr>
</tbody>
</table>

JSC Chukotenergo

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazachka River</td>
<td>22</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Lake Olohotrichye</td>
<td>0.25</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Chaur Bay</td>
<td>-</td>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

JSC Teplenergoservis

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vilivy River</td>
<td>72,400</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Yana River</td>
<td>29,297</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Aldan River</td>
<td>154,683</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Indigirka River</td>
<td>14,002</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Allah-Yun River</td>
<td>5,550</td>
<td>Supreme</td>
<td></td>
</tr>
<tr>
<td>Ner River</td>
<td>3,658</td>
<td>Supreme</td>
<td></td>
</tr>
</tbody>
</table>

JSC LCM

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Water body ¹</th>
<th>Volume or average discharge, mn m³</th>
<th>Biodiversity value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kontrovod River</td>
<td>-</td>
<td>Supreme</td>
<td></td>
</tr>
</tbody>
</table>

¹ No water body is a protected natural reserve.
Biodiversity conservation

RusHydro Group focuses its biodiversity conservation efforts on five major areas.

RusHydro supports international initiatives in environment protection and biodiversity conservation. As part of Mainstreaming Biodiversity Conservation into Russia’s Energy Sector Policies and Operations, a UNDP-GEF project run by the Ministry of Natural Resources and the Environment of the Russian Federation (“the Project”), RusHydro took a number of biodiversity conservation measures in 2012–2017. In particular, borders of protected natural areas were changed to move them away from the impoundment area of Nizhne-Bureyskaya HPP and lift restrictions on the dam construction.

Potential environmental impact of suitable dam sites in the Amur Region was assessed to proactively evaluate risks of local hydropower projects and plan biodiversity conservation measures. As part of the project “Bureysky Compromise”, a nature park was established to protect local ungulates and move threatened plants from the impoundment area. These activities were financed with the funds of the UNDP Project and, in fact, are compensatory measures provided for by the Nizhne-Bureyskaya HPP construction project. In 2018, two forest guard lodges were built in the Bureysky Nature Park. A plan was developed to minimize the impact on animals during the construction of Nizhne-Zeyskaya HPP.

The Biodiversity Conservation Projects section was added to the corporate website through joint efforts of the Project’s stakeholders. In 2018, effectiveness of RusHydro’s biodiversity conservation initiatives was confirmed by Stewart Williams, an independent UNDP expert, during the final audit of the Project.

Starting from 2016, biodiversity conservation costs have been reported as a separate item and subject to disclosure by the Company.

RusHydro Group’s Environmental Policy (approved by the Board of Directors on August 9, 2018) provides for biodiversity conservation as the Company’s primary goal and sets a zero plant and animal extinction target for 2025.

At present, RusHydro is developing a three-year action plan for biodiversity conservation. It will incorporate approaches of the Project and provide for their roll-out at other facilities of RusHydro. In 2018, a working group was formed at RusHydro for this purpose to include biodiversity conservation experts from the Company and academic community. Fish stocking initiatives were confirmed by Stewart Williams, an independent UNDP expert, during the final audit of the Project.

With most of the Company’s activities centered on rivers, much attention is paid to the restoration of fish populations through voluntary annual stocking initiatives at water reservoirs and rivers since 2003.

In April 2018, RusHydro’s branch of the Bureyskaya HPP released 165,000 juvenile silver carp into the Yegoryk Reservoir. The event was staged on the left bank of the reservoir and supported by the Azov and Black Sea Department of the Federal Fishery Agency.

In July, Votkinskaya HPP released 600 juvenile sterlet, an especially valuable fish species on the Red List, into the Votkinsk Reservoir. In August 2018, Ust-Srednekanskaya HPP and the Okhotsk Department of the Federal Fishery Agency released 300,000 juvenile pike, a commercially valuable fish species, into the Elikchan Lakes of the Kolyma. RusHydro’s Kabardino-Balkaria branch and the West Caspian Department of the Federal Fishery Agency released 74,000 juvenile brown trout, a fish species on the Red List, into the Baksan and its tributaries.

Bureyskaya HPP supported a fish stocking initiative on the Amur’s largest tributary Zeya in the Amur Region. As part of RusHydro’s Clean Energy Program, 3,600 less-than-year-old Amur sturgeon, a very rare and especially valuable fish species, were released into the river near the village of Krasnoyaro. The initiative was aimed at maintaining the fish population upstream and midstream of the Amur.

Additionally, Boguchanskaya HPP monitored and assessed the impact of its water reservoir on the environment and water life in 2018.

RAN IEE and RusHydro’s Persian leopard reintroduction program in Ossetia

The North Ossetia branch of RusHydro supports the Persian leopard reintroduction program initiated by the Russian Academy of Sciences’ Severstov Institute of Ecology and Evolution (RAN IEE) in the Caucasus region. The joint RAN IEE and RusHydro program for the Persian leopard reintroduction in Ossetia provides for comprehensive measures in research, environment protection and awareness building to make the region and communities ready for Persian leopards to be released under the international program run by the Ministry of Natural Resources and the Environment of the Russian Federation.

In 2015, zoologists were totally surprised to see a Persian leopard for the first time in 60 (!) years. It was captured on a CCTV camera near Gizeldonskaya HPP although the species was thought to have been extinct in Russia since the 1950s. An unprecedented reintroduction program was launched in the Caucasus region in 2007. As part of it, a breeding center was established in the Sochi National Park to house rare Persian leopards brought from all over the world. Their offspring are prepared to be released into the wild and repopulate the Caucasus, the animal captured on camera near the HPP in Ossetia shows that the unprecedented reintroduction program is a success.

The joint program of RusHydro and RAN IEE was designed to create necessary conditions for the rare predators to repopulate the region. Entitled Reintroduction of Leopards to Ossetia, the program studied the possibility of releasing leopards...
Rehabilitation of disturbed areas

<table>
<thead>
<tr>
<th>Name</th>
<th>JSC</th>
<th>PJSC DGO</th>
<th>PJSC Magadanenergo</th>
<th>PJSC Sakhalinenergo</th>
<th>PJSC Chukotenergo</th>
<th>JSC LCM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1, 2018</td>
<td>2,300.52</td>
<td>272.00</td>
<td>255.02</td>
<td>174.14</td>
<td>4,027.19</td>
<td>7,028.87</td>
<td></td>
</tr>
<tr>
<td>Total disturbed area, ha</td>
<td>59.00</td>
<td>51.00</td>
<td>3.22</td>
<td>0.50</td>
<td>24.39</td>
<td>138.11</td>
<td></td>
</tr>
<tr>
<td>Topsoil stockpiled, ‘000 m³</td>
<td>275.61</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>578.78</td>
<td>854.39</td>
<td></td>
</tr>
<tr>
<td>Total in 2018</td>
<td>15.00</td>
<td></td>
<td>0.1</td>
<td>0.51</td>
<td>83.60</td>
<td>99.21</td>
<td></td>
</tr>
<tr>
<td>Total disturbed area, ha</td>
<td>0</td>
<td>0</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Total rehabilitation area, ha</td>
<td>0</td>
<td>0</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>December 31, 2018</td>
<td>2,315.52</td>
<td>272.00</td>
<td>255.02</td>
<td>174.66</td>
<td>4,110.79</td>
<td>7,127.99</td>
<td></td>
</tr>
<tr>
<td>Total disturbed area, ha</td>
<td>59.00</td>
<td>51.00</td>
<td>3.22</td>
<td>0.50</td>
<td>24.39</td>
<td>138.11</td>
<td></td>
</tr>
<tr>
<td>Topsoil stockpiled, ‘000 m³</td>
<td>275.61</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>578.78</td>
<td>854.39</td>
<td></td>
</tr>
</tbody>
</table>

Greenhouse gas and air pollutant emissions

RusHydro uses renewables in its operation. HPPs produce no greenhouse gas emissions.

Still, emissions of greenhouse gas by the facilities of RAES East Subgroup were calculated in accordance with Order No. 300 issued by the Ministry of Natural Resources and the Environment of the Russian Federation on June 30, 2015, Guidelines for Calculation of Gross Carbon Dioxide Emissions by TPPs and Boilers (RD 153-34.0-02.318-2001), and data from the Carbon Fund. Greenhouse gas emissions were calculated per facility based on the fuel consumption of each facility.

In 2018, emissions of greenhouse gas went up 1.4% driven by higher power output at the facilities of RAES East Subgroup and an increase in reference fuel consumption.

Direct greenhouse gas emissions by RAES East Subgroup (scope 1), ‘000 tonnes [201-1]

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2016/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ emissions, ‘000 tonnes</td>
<td>34,096.5</td>
<td>34,627.1</td>
<td>34,942.3</td>
<td>1.4</td>
</tr>
<tr>
<td>N₂O emissions, ‘000 tonnes CO₂-eq.</td>
<td>191.5</td>
<td>117.1</td>
<td>120.2</td>
<td>2.7</td>
</tr>
<tr>
<td>CH₄ emissions, ‘000 tonnes CO₂-eq.</td>
<td>14.4</td>
<td>13.9</td>
<td>14.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Total emissions</td>
<td>34,229.9</td>
<td>34,588.2</td>
<td>35,077.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Natural gas combustion</td>
<td>9,956.0</td>
<td>10,101.5</td>
<td>10,147.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Fuel oil combustion</td>
<td>693.5</td>
<td>712.0</td>
<td>723.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Solid fuel combustion</td>
<td>23,600.4</td>
<td>23,774.6</td>
<td>24,206.1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Intensity of greenhouse gas emissions by RAES East Subgroup, tonnes [308-4]

Intensity of greenhouse gas emissions from power generation, tonnes CO₂-eq.
Intensity of greenhouse gas emissions from heat production, tonnes CO₂-eq.

*Net of Cascade of Viluysky HPPs and solar power plants producing no greenhouse gas emissions.*

Intensity of CO₂ emissions from power generation, tonnes CO₂-eq.
Waste

Most wastes from RusHydro Group’s generating assets are wastes belonging to hazardous classes IV and V. They include low-hazard wastes, such as soil stripped during coal mining, bottom coal ashes, and waste from construction and repairs. Accumulated waste is collected by specialized contractors duly licensed to collect, transport and treat such waste.

Total waste by hazard class in 2018, tonnes

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2018/2017, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>RusHydro Subgroup</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste class I and II</td>
<td>21</td>
<td>31</td>
<td>18</td>
<td>-42</td>
</tr>
<tr>
<td>Hazardous waste class III, IV and V</td>
<td>29,179</td>
<td>29,191</td>
<td>23,178</td>
<td>-21</td>
</tr>
<tr>
<td>Total</td>
<td>29,200</td>
<td>29,222</td>
<td>23,196</td>
<td>-21</td>
</tr>
<tr>
<td>RAO ES East Subgroup</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste class I and II</td>
<td>33</td>
<td>39</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>Hazardous waste class III, IV and V</td>
<td>24,717,629</td>
<td>24,570,307</td>
<td>29,596,949</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>24,753,462</td>
<td>24,569,612</td>
<td>29,596,995</td>
<td>11</td>
</tr>
<tr>
<td>RusHydro Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste class I and II</td>
<td>54</td>
<td>70</td>
<td>63</td>
<td>-10</td>
</tr>
<tr>
<td>Hazardous waste class III, IV and V</td>
<td>24,702,608</td>
<td>24,599,498</td>
<td>29,620,137</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>24,757,216</td>
<td>24,599,498</td>
<td>29,620,190</td>
<td>11</td>
</tr>
</tbody>
</table>

2.1% drop in CO₂ specific emissions associated with electricity generation

A 11% year-on-year increase in wastes is mostly attributable to an increase in wastes belonging to hazardous class V due to:

- more bottom ash produced as a result of higher coal consumption at DGK, PJSC Sakhalinenergo, PJSC Kamchatskenergo, and PJSC Magadanenergo; and
- more overburden resulting from larger-scale stripping operations at JSC LCM.

Air pollutant emissions

Air pollution is monitored at all production facilities of RusHydro Group. In 2018, SOx emissions increased by 11% on the back of a higher power output at gas-fired thermal power plants.

Air pollutant emissions, tonnes

![Air pollutant emissions chart]

The Expansion of Installed Low-Carbon Capacity target is planned to be achieved with the Comprehensive Modernization Program (Long-Term Development Program for 2012–2020 with an outlook until 2025) providing for retrofit of RusHydro’s generating facilities. RusHydro is also heavily engaged in renewable energy projects.

In particular, the Company builds smaller HPPs in Northern Caucasus. In November 2018, Rus-hydro commissioned a 900 kW wind power plant in the Arctic settlement of Tiks in the Republic of Sakha (Yakutia).

In 2018, measures were taken at the Company’s subsidiaries in the Far East to reduce air pollutant emissions:

- minor and major repairs at dust collecting equipment, aspiration bunkers and scrubbing towers to maintain the flue gas quality at the required level. Such measures were taken at Blagoveschenskaya CHPP, Raychikhinskaya CHPP; Primorskaya GRES, Neryungirinskaya GRES, Artyomovskaya CHPP; Vladivostokskaya CHPP-2; Partizanskaya GRES, Amurskaya CHPP, Komsomolskaya CHPP-2; Magiskaya GRES, Khabarovskaya CHPP-1, Khabarovskaya CHPP-3, Urgalskaya boiler plant, and Arkagalinskaya GRES;
- rehabilitation of Khabarovskaya CHPP-1 and Khabarovskaya CHPP-3 to upgrade boilers and hot-water peaking boiler plant to feed on natural gas;
EVEN MORE SUSTAINABLE

CORPORATE GOVERNANCE

RusHydro Group’s corporate governance aims to protect the rights and interests of the shareholders, build and maintain trusted relationships between the Company and its investors, and grow the Company’s value and dividend yields.

It complies with applicable laws and reflects today’s trends and best practices, while fulfilling the requirements associated with the listing of shares on the Moscow Exchange and of depositary receipts on the London Stock Exchange and on the U.S. OTCQX over-the-counter market.

RusHydro Group has the state as its controlling shareholder, which has, due to its majority stake in the authorized capital, significant power with respect to corporate governance. However, this power is corporate rather than administrative by nature. Certain procedures for the state to exercise its rights as a shareholder are stipulated by law, setting out the process for the government to make decisions as regards the Company using its corporate rights.

The Group’s corporate governance principles and procedures are laid out in the Company’s Charter and internal regulations. The corporate practices are formalized in the Corporate Governance Code.

Its adoption confirms the Company’s commitment to complying with the best corporate governance practices, including the recommendations of the Bank of Russia’s Corporate Governance Code.

Key principles

Equitable and fair treatment of all shareholders

Professionalism, responsibility and accountability of the Board of Directors to the Company’s shareholders

Transparency and accessibility of information about the Company

Effective system of internal control and risk management

Exercise by all shareholders, the Company, its management bodies, officers and other stakeholders of their rights in good faith, prevention of abuse of rights

Prevention of any shareholder actions aimed at causing harm to other shareholders or the Company

Continuous improvement of corporate governance practices

CORPORATE GOVERNANCE STRUCTURE

General Meeting of Shareholders

(Approximately 350,000 shareholders exercising their rights at annual and extraordinary general meetings of shareholders)

External auditor: PricewaterhouseCoopers

The Board of directors

(13 members)

Chairman of the Board of Directors: Yury Trutnev

Committees under the Board of Directors:

Strategy Committee

Nomination and Compensation Committee

Investment Committee

Committee on Energy Development of the Far East

Audit Committee

Committee on Reliability, Energy Efficiency and Innovation.

The Company’s position on other important matters

1  Decides on matters involved in the supreme governing bodies of the subsidiaries where the Company exercises the rights of the sole shareholder (participant).
Subsidiary management

RusHydro (including indirectly through subsidiaries) has stakes in authorized capital of companies engaged in electricity and heat generation and distribution, energy facilities design, construction, repair, maintenance, rehabilitation and modernization, and other activities.

The Company contributes to subsidiaries’ strategy delivery, stable economic growth and investment appeal, and protection of rights and interests of the shareholders of both the Company and its subsidiaries.

The Company manages its subsidiaries by being represented at general meetings of shareholders/participants, on boards of directors and supervisory bodies of the subsidiaries.

Deciding on matters reserved to supreme governing bodies of the subsidiaries where the Company exercises the rights of the sole shareholder (participant) falls within the remit of the Management Board. Establishing the Company’s position on key matters regarding subsidiaries (reorganization, liquidation, increase of the authorized capital, approval of major transactions, participation of the subsidiary in other energy organizations, disposal of energy assets) falls within the remit of the Board of Directors. The Company’s position on other important matters regarding subsidiaries (IFR approval (adjustment), participation of the subsidiary in non-energy organizations, nomination of candidates to the subsidiary’s management and supervisory bodies, etc.) is established by the Management Board.

In 2018, aiming to improve the quality and transparency of the corporate governance with respect to subsidiaries, the Company’s internal regulations were amended to provide members of RusHydro’s Board of Directors with the right to access documents and make inquiries as regards subsidiaries and to go into matters relating to material aspects of their business.

Improving the corporate governance system

In 2018, the Company continued to implement the standards set forth in the Code and aimed at corporate governance improvement by consistently amending the internal regulations and applying the standards in the day-to-day operations.

The following key actions were taken in 2018:

- the Company’s internal regulations were amended to include standards on:
  - development of an onboarding program for first-time elected members of the Board of Directors;
  - prevention and resolution of conflicts of interest on the Board of Directors;
  - engagement by the Board of Directors of independent external experts (advisors) to work on matters within its remit;
  - improvement of the Board of Directors’ performance through offering educational and professional development opportunities for its members;

- recommendations regarding material corporate actions by independent directors before their approval by the Board of Directors;
- access by the Company’s shareholders and members of the Board of Directors to the documents containing information on the Company’s subsidiaries;
- candidates to the Board of Directors were assessed with respect to necessary experience and knowledge, good reputation and absence of conflict of interest, with the results of the assessment included in the materials for the Annual General Meeting of Shareholders;
- the Board of Directors’ performance was independently assessed, with the results reviewed by the Board of Directors at a meeting held in person;
- the number of meetings of the Board of Directors held in person was increased;
- the quality and level of detail of information disclosed in the Company’s annual report and on the Company’s website were improved;
- the information Policy Regulations were updated to reflect global and Russian best practices;
- policy on Rotation of Auditors and Policy on the Ownership of Shares in PJSC RusHydro and Shares (Interests) in PJSC RusHydro’s Subsidiaries by Members of the Board of Directors and Management Board were approved by the Board of Directors.

In addition, the Company was fully committed to compliance with the Corporate Governance Code over the reporting period: Senior Independent Director was elected; performance of the Company’s risk management and internal control system was assessed; corporate governance practices in the Company were discussed; report on the implementation of the Company’s Information Policy Regulations was reviewed; etc.

Compliance with the Corporate Governance Code

As a result of corporate governance improvement efforts and implementation of the standards set forth in the Code, RusHydro came to observe 92% of the principles in 2018, compared to 63% in 2016.

For a detailed report on the Company’s compliance with the Corporate Governance Code, see Appendix № 1.
Corporate governance quality assessment

In 2018, corporate governance quality was externally assessed by the Russian Institute of Directors (RID).

In September 2018, the RID increased RusHydro's corporate governance rating according to the National Corporate Governance Rating (NCGR) scale from level 7++ to level 8 “Advanced Corporate Governance Practice”.

The Company’s corporate governance practices were assessed based on four components, each including a set of criteria to reflect corporate governance policies, procedures and structures as required by applicable Russian laws, the Moscow Exchange’s Listing Rules, recommendations of the Russian Corporate Governance Code and global best practices.

The RID has concluded that the Company complies with the Russian legislative requirements with respect to corporate governance and observes many of the recommendations of the Russian Corporate Governance Code. In addition, the Company runs a rather low risk of losses to owners due to corporate governance issues.

THE COMPANY INTENDS TO FURTHER IMPROVE ITS CORPORATE GOVERNANCE RATING

Corporate governance improvement prospects

Key areas for improvement as regards the Company’s corporate governance in 2019 include the following:

• Amend the Company’s Charter and internal regulations to reflect corporate governance components, each including a set of criteria to reflect corporate governance policies, procedures and structures as required by applicable Russian laws, the Moscow Exchange’s Listing Rules, recommendations of the Russian Corporate Governance Code and global best practices.

• The RID has concluded that the Company complies with the Russian legislative requirements with respect to corporate governance and observes many of the recommendations of the Russian Corporate Governance Code. In addition, the Company runs a rather low risk of losses to owners due to corporate governance issues.

Shareholders and investors

RusHydro’s authorized capital

The authorized capital of the Company amounts to 426,288,813,551 ordinary shares, each with a par value of RUB 1.

Additional share issuance

On June 1, 2018, the Board of Directors resolved to increase the authorized capital by RUB 14,013,888,828 with an additional placement via open subscription. The decision to issue additional shares was registered by the Bank of Russia on August 27, 2018, with the issuance being assigned the registration number of 1-01-55038-E-043D.

The proceeds from the additional issue are going to the construction of 110 kV Pevek-Bilibino high-voltage power lines in Chukotka and to the upcoming refurbishment of the Chaun and Bilibino energy hub following the transformation of the power units at Bilibino NPP, which has reached the end of its service life.

Information on the Company’s shares

• the governing bodies of the Russian Federation have no special right to participate in the management of the Company (“golden share”);
• the executive bodies have no information on any interests in the share capital of over 5%, apart from those already disclosed by the Company;
• the total number of voting shares with breakdown by categories (types): 426,288,813,551 ordinary registered shares. the Company did not issue preferred or ordinary shares with differing par values;
• the Company does not hold any of its own shares;
• Company’s subsidiaries hold 3,852,259,680 shares, or 0.9% of the Company’s authorized capital.1

The number of shares at the disposal of the Company’s subsidiaries

Name | Number of shares, pcs | Share in authorized capital, %
--- | --- | ---
JSC Hydroinvest | 3,430,091,314 | 0.804640
JSC Zaramagnskiy HPP | 271,302,097 | 0.063643
PJSC DEK | 73,093,031 | 0.017146
JSC RAO ES East | 48,511,987 | 0.011380
JSC ChirkeyGESstroy | 29,205,310 | 0.006851
PJSC Yakutskenergo | 55,941 | 0.00013

1 As at December 31, 2018
3 RusHydro’s shares held by the Company’s subsidiaries were not used in voting at the Annual General Meeting of Shareholders that took place on June 27, 2018.
Shareholders

The Company’s shares are held by around 350,000 Russian and foreign investors. The Russian Federation owns the controlling stake of 258,161,535,606 shares, or 60.56% of the Company’s authorized capital.

As at December 31, 2016

<table>
<thead>
<tr>
<th>Name of the registered entity</th>
<th>Percentage share in the authorized capital as at July 25, 2016</th>
<th>Percentage share in the authorized capital as at December 31, 2016</th>
<th>Percentage share in the authorized capital as at December 31, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Russian Federation as represented by the Federal Agency for State Property Management</td>
<td>58.6</td>
<td>60.56</td>
<td>60.6</td>
</tr>
<tr>
<td>Gazprombank (joint-stock company)</td>
<td>3</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>JSC Hydroinvest</td>
<td>3</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>The Company’s other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2%</td>
<td>27</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

Changes in the shareholding structure by shareholder category, %

<table>
<thead>
<tr>
<th>Name of the registered entity</th>
<th>Percentage share in the authorized capital as at May 23, 2016</th>
<th>Percentage share in the authorized capital as at December 31, 2016</th>
<th>Percentage share in the authorized capital as at December 31, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Russian Federation as represented by the Federal Agency for State Property Management</td>
<td>58.6</td>
<td>60.56</td>
<td>60.6</td>
</tr>
<tr>
<td>Gazprombank (joint-stock company)</td>
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</tr>
<tr>
<td>JSC Hydroinvest</td>
<td>3</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>The Company’s other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2%</td>
<td>27</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

Changes in the group of persons with the right to execute, directly or indirectly, at least 2% of the voting rights attached to the Company’s voting shares, %

As at December 31, 2016

<table>
<thead>
<tr>
<th>Name of the registered entity</th>
<th>Percentage share in the authorized capital as at May 23, 2016</th>
<th>Percentage share in the authorized capital as at December 31, 2016</th>
<th>Percentage share in the authorized capital as at December 31, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Russian Federation as represented by the Federal Agency for State Property Management</td>
<td>58.6</td>
<td>60.56</td>
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</tr>
<tr>
<td>Gazprombank (joint-stock company)</td>
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<td>JSC Hydroinvest</td>
<td>3</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>The Company’s other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2%</td>
<td>27</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

Outstanding shares

The Company’s shares have been traded on the Moscow Exchange (formerly MICEX Stock Exchange) since February 4, 2008 (ticker: HYDR). The securities are listed in Level 1, the Exchange’s top quotation list.

The Russian Federation’s subsidiary, VTB Bank (public joint-stock company), holds 3.1% of the Company’s authorized capital as at September 28, 2018. In addition, VTB Bank (Public Joint-Stock Company) holds 0.8% of the Company’s authorized capital as at December 31, 2017 as a result of the sale of shares to VTB Bank (Public Joint-Stock Company). As at September 28, 2018, Hydroinvest held 0.8% in RusHydro’s authorized capital following the incorporation of EZOP and Energy Index – HydroOGK.

Notifications on concluded shareholder agreements received by RusHydro

<table>
<thead>
<tr>
<th>Date of the shareholder agreement</th>
<th>Parties to the shareholder agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 7, 2017</td>
<td>The Russian Federation as represented by the Federal Agency for State Property Management</td>
</tr>
<tr>
<td>June 23, 2016</td>
<td>The Russian Federation as represented by the Federal Agency for State Property Management</td>
</tr>
<tr>
<td>March 7, 2017</td>
<td>RusHydro’s subsidiaries: Hydroinvest, EZOP, Energy Index – HydroOGK</td>
</tr>
</tbody>
</table>

Moscow Exchange listing

The Company’s shares have been listed on the Moscow Exchange (formerly MICEX Stock Exchange) since February 4, 2008 (ticker: HYDR). The securities are listed in Level 1, the Exchange’s top quotation list.

Share of securities in free float

<table>
<thead>
<tr>
<th>Date</th>
<th>Free-float factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last trading day of 2016</td>
<td>0.23</td>
</tr>
<tr>
<td>Last trading day of 2017</td>
<td>0.25</td>
</tr>
<tr>
<td>Last trading day of 2018</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Shareholder agreements

RusHydro’s shares can enter into shareholder agreements, including those that afford them an extent of control disproportionate to their contribution to the authorized capital.

Portions of securities in free float

<table>
<thead>
<tr>
<th>Date</th>
<th>Free-float factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last trading day of 2016</td>
<td>0.23</td>
</tr>
<tr>
<td>Last trading day of 2017</td>
<td>0.25</td>
</tr>
<tr>
<td>Last trading day of 2018</td>
<td>0.19</td>
</tr>
</tbody>
</table>

For information on the ability of certain shareholders to obtain or actual cases of them obtaining an extent of control disproportionate to their contribution to the authorized capital, including through shareholder agreements, and their impact on the trading activity of ordinary and preferred shares with differing par values, please see the website at: http://www.rushydro.ru/upload/iblock/65a/.

In accordance with the Moscow Exchange’s methodology for calculating the free-float factor published at http://www.moex.com/ru/index/MICEXINDEXCF/constituents/
Share performance on the Moscow Exchange

GDR and ADR program structure as at December 31, 2018

<table>
<thead>
<tr>
<th>Type</th>
<th>Start of trading</th>
<th>Depositary bank</th>
<th>Ratio</th>
<th>Ticker</th>
<th>Quantity as at December 31, 2018, pcs</th>
<th>Trading platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule 144A GDRs</td>
<td>June 17, 2008</td>
<td>The Bank of New York Mellon</td>
<td>1 GDR = 100 ordinary shares</td>
<td>HYDR</td>
<td>78,273</td>
<td>London Stock Exchange (Main Market – IOB)</td>
</tr>
<tr>
<td>Level I ADRs</td>
<td>August 7, 2009</td>
<td>The Bank of New York Mellon</td>
<td>1 ADR = 100 ordinary shares</td>
<td>RSHYY</td>
<td>116,318,249</td>
<td>OTCQX</td>
</tr>
</tbody>
</table>

Share performance over the last three years

2016

In 2016, the MOEX Russia Index added 27%, the MOEX Electric Utilities Index – 110%, and RusHydro shares grew by 36%. The domestic market was buoyed by the expected recovery of the Russian economy and ruble appreciation in the second half of the year. RusHydro shares grew on the back of high dividend payments, full liberalization of the HPP capacity market in Siberia, as well as overall strong hydro performance thanks to higher water levels. An additional boost to shares was provided by measures to optimize operating and investment expenses, decisions on refinancing the debt of RAO ES East Subgroup by signing a forward contract for RUB 55 bn in equity capital with VTB Bank (PSC), and full consolidation of the RAO ES East shares for 100% ownership. The shares also benefited from the disposal of major assets by the Company for a total amount of over RUB 15 bn.

2017

In 2017, the MOEX Russia Index was down 11.4%, with shares in RusHydro losing 33.4%. In 2018, the market value of RusHydro shares decreased against a backdrop of the general lack of investor interest in the electric power industry. In Q2 2018 onwards, the Russian market and RusHydro shares were under pressure from sanctions on RUSAL Group, the biggest power consumer in Siberia and the Group’s partner on the BEMO project, geopolitical risks, including talks on introducing new sanctions by the US (DASKA, August 2018), as well as lower interest in emerging market companies on the part of global investors with no USD-denominated export revenue on the part of global investors while the US was tightening its monetary policy. Starting mid-October, RusHydro’s shares began dropping in price due to investor and analyst expectation of MSCI excluding the Company from its Russia index, which it did in late November 2018.

2018

In 2018, the MOEX Russia Index was up 7.8% year-on-year, while the Moscow Stock Exchange Power Index was up 110%, and RusHydro shares grew against a backdrop of the general lack of investor interest in the electric power industry. In Q2 2018, RusHydro’s shares traded in line with the market. From Q2 2018 onwards, the Russian market and RusHydro shares were under pressure from sanctions on RUSAL Group, the biggest power consumer in Siberia and the Group’s partner on the BEMO project, geopolitical risks, including talks on introducing new sanctions by the US (DASKA, August 2018), as well as lower interest in emerging market companies with no USD-denominated export revenue on the part of global investors while the US was tightening its monetary policy. Starting mid-October, RusHydro’s shares began dropping in price due to investor and analyst expectation of MSCI excluding the Company from its Russia index, which it did in late November 2018.

ADR performance on the London Stock Exchange

Share traded on the global market

As at December 31, 2018, the number of shares traded outside of the Russian Federation in the form of ADRs and GDRs stood at 11,639,652,200, or 2.73% of the Company’s authorized capital.

ADR trading on the London Stock Exchange

<table>
<thead>
<tr>
<th>Trading platforms</th>
<th>Level 1 ADRs</th>
<th>Level 1 GDRs</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Stock Exchange (Main Market – IOB)</td>
<td>RSHYY</td>
<td>HYDR</td>
</tr>
</tbody>
</table>

Capitalization

RusHydro’s market capitalization, RUB mn

THE COMPANY’S SHARES HAVE BEEN TRaded ON THE MOSCOW EXCHANGE SINCE 2008 AND ARE LISTED IN LEVEL 1, THE EXCHANGE’S TOP QUOTATION LIST.

Source: The official website of the securities market operator PJSC Moscow Exchange: http://www.moex.com/s26 Market capitalization is calculated as the number of shares of the respective category type multiplied by the market price of one share as disclosed by the market operator.
Dividends

RusHydro’s dividend policy is focused on supporting the Company’s strategic development for the benefit of its shareholders by striking an optimal balance between dividend payouts and profit capitalization.

To ensure transparency in determining the amount of dividends and dividend payments, the Company has Regulations on the Dividend Policy in place, which was approved by the resolution of RusHydro’s Board of Directors (minutes No. 195 dated March 28, 2014). When determining the recommended amount of dividends and submitting it to the General Meeting of Shareholders for approval, the Board of Directors considers the Company’s net profit in accordance with the consolidated financial statements of RusHydro Group in accordance with the International Financial Reporting Standards (IFRS) and the Russian Accounting Standards (RAS), as well as the Company’s need to finance the investment program. The Company allocates no less than 5% of its profit under the IFRS consolidated financial statements of RusHydro Group to pay dividends at the end of the period (http://www.eng.rushydro.ru/investors/Dividends/).

The Development Strategy of RusHydro Group until 2020 with an outlook for 2025 sets the dividend payout ratio of at least 50% of net profit, and the Company is always going to target the maximum level of dividend yield for its shareholders. [102]

Based on RusHydro’s performance in 2017, the Annual General Meeting of Shareholders on June, 27, 2018 resolved to pay out dividends on the ordinary shares in the amount of RUB 11.23 bn, or 50% of the IFRS net profit.

Over the last three years, the Company has paid out a total of RUB 46.1 bn in dividends.

Information on payment of declared (accrued) dividends on the Company’s shares in 2017

As at December 31, 2018, the Company had paid out RUB 11.19 bn in dividends, with unpaid dividends amounting to RUB 38.9 mn. The latter was due to reasons beyond the Company’s control: the Company or the Registrar (nominal holder) did not have the exact and necessary address details or bank details.

The Company made the dividend payments to the federal budget in full, in the amount of RUB 6.8 bn. The Company has no dividends to the federal budget that are in arrears.

Dividend yield, %

<table>
<thead>
<tr>
<th>Year</th>
<th>Dividends yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>5.73%</td>
</tr>
<tr>
<td>2017</td>
<td>5.63%</td>
</tr>
<tr>
<td>2018</td>
<td>3.67%</td>
</tr>
</tbody>
</table>

Total shareholder return

Since 2016, total shareholder return (TSR), the Company’s central KPI metric, has been assessed by comparing the actual TSR values delivered by RusHydro against changes in the MOEX Russia Index, the key composite index of the Moscow Exchange (IMOE), previously MlCEX Index). Changes in the MOEX Russia Index are calculated as a relation between changes in the average Index value over the last 22 trading days of the reporting year and the average Index value of the last 22 trading days in the year preceding the reporting year. The KPI is deemed to be achieved (100% match) if the Company’s actual TSR grew faster than the MOEX Russia Index in the reporting period. In 2018, the TSR was -32.8%, while the MOEX Russia Index grew by 12.2% over the same period.

![Graph](image-url)

ON APRIL 19, 2019, RUSHYDRO’S BOARD OF DIRECTORS APPROVED AN AMENDED VERSION OF THE DIVIDEND POLICY SETTING THE BASE VALUE FOR CALCULATING THE AMOUNT OF DIVIDENDS IN THE AMOUNT OF 50% OF RUSHYDRO GROUP’S NET PROFIT FOR THE RELEVANT REPORTING YEAR UNDER IFRS AND THE MINIMUM DIVIDEND (LOWER THRESHOLD) AT THE LEVEL OF AVERAGE DIVIDEND FOR THE PREVIOUS THREE YEARS

Shareholder and investor relations

During the reporting period, the Company focused closely on maximizing engagement with participants of the exchange market and improving efficiency of information disclosures.

As part of the investor engagement exercise, the Company held:

- more than 100 one-on-one and group meetings with the managers of major international and Russian investment funds;
- four quarterly conference calls for analysts, investors and rating agencies with the participation of the Company’s management;
- a visit to the Zaramagskaya HPP-1 construction site for analysts and investors.

The meetings focused on discussing RusHydro Group’s strategic priorities and plans, including its dividend policy, implementation of the Value Growth Plan, management efforts aimed at improving operational efficiency, and plans for asset modernization. In 2018, the Company also closely engaged with the leading global analytical agencies seeking to enforce compliance with the sustainable development criteria. Those agencies included:

- CDP (Carbon Disclosure Project);
- Sustainalytics;
- MSCI-ESG;
- FTSE Russell;
- Vigeo Eiris;
- Robeco-SAM;
- Trucost;
- Energy Intelligence.

Share of IFRS net profit allocated for dividends, %

<table>
<thead>
<tr>
<th>Year</th>
<th>Share of IFRS net profit allocated for dividends</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>50%</td>
</tr>
<tr>
<td>2017</td>
<td>50%</td>
</tr>
<tr>
<td>2018</td>
<td>50%</td>
</tr>
</tbody>
</table>

Dividends paid by RusHydro over the past three years

<table>
<thead>
<tr>
<th>Year</th>
<th>Dividends paid, RUB bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>15.011,046</td>
</tr>
<tr>
<td>2017</td>
<td>19.875,503</td>
</tr>
<tr>
<td>2018</td>
<td>11.225,676</td>
</tr>
</tbody>
</table>

Dividend history for the five years preceding the reporting year

<table>
<thead>
<tr>
<th>Reporting period for which the dividends were paid</th>
<th>Total amount of declared (accrued) dividends, RUB ’000</th>
<th>Amount of dividends declared per share, RUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>5,248,250</td>
<td>0.01358751</td>
</tr>
<tr>
<td>2014</td>
<td>6,032,750</td>
<td>0.0154855</td>
</tr>
<tr>
<td>2015</td>
<td>15,011,046</td>
<td>0.038863</td>
</tr>
<tr>
<td>2016</td>
<td>19,875,503</td>
<td>0.0466245</td>
</tr>
<tr>
<td>2017</td>
<td>11,225,676</td>
<td>0.0263335</td>
</tr>
</tbody>
</table>

For more details on RusHydro’s Dividend Policy see http://www.rushydro.ru
GOVERNING BODIES

General Meeting of Shareholders

The General Meeting of Shareholders is the supreme governing body of the Company, which operates in accordance with the laws of the Russian Federation, the Company’s Charter and the Regulations on the Procedure for Convening and Holding General Meetings of Shareholders of RusHydro.

On June 27, 2018, the Annual General Meeting of Shareholders was held in Moscow (Minutes No. 17 of June 28, 2018) and was attended by 501 shareholders, as well as media representatives, nominees to the governing and supervisory bodies of the Company, and other invitees. The meeting quorum stood at 87%.

No Extraordinary General Meetings of Shareholders were held in 2018.

Board of Directors

The Board of Directors is a governing body that sets the priorities of the Company’s activities, approves its development strategy and determines the core principles and approaches to the organization of the Company’s internal control and risk management functions. The Board of Directors also supervises the Company’s executive bodies and performs other key functions, including such as investment and business planning, performance management, innovative development, risk management, and sustainable development, including social policy, charity and business responsibility.

Independent Directors and their role

Independent directors bring in well-balanced opinions and exercise unbiased judgment based solely on their experience and expertise. Independent directors and their input to the work of the Board of Directors enhance the trust and confidence of shareholders and the financial market in the Board of Directors’ decisions and promote compliance with corporate governance principles.

Composition of the Board of Directors

The Board of Directors consists of 13 members, 11 of whom were re-elected. In 2018, there were two Boards of Directors: one elected by the Annual General Meeting of Shareholders on June 26, 2017 and the other elected on June 27, 2018.

Regulations on the Procedure for Convening and Holding the Board of Directors’ meetings of RusHydro are available on the Company’s website at: http://www.rushydro.ru
The balance of the Board of Directors is achieved through a high level of professional knowledge and expertise, sufficient time for performing the duties of a member of the Board of Directors, and absence of a conflict of interest, all of which contribute to effective decision-making.

Experience and competencies of the Board of Directors members

<table>
<thead>
<tr>
<th>Full name</th>
<th>Energy</th>
<th>Finance and audit</th>
<th>Management</th>
<th>Production</th>
<th>Research and development</th>
<th>Other competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artem Avetisyan</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td>Promotion of entrepreneurship</td>
</tr>
<tr>
<td>Maxim Bystrov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>Global economics</td>
</tr>
<tr>
<td>Pavel Grachev</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Law, Doctor of Law</td>
</tr>
<tr>
<td>Sergey Ivanov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>Nuclear Physics, Professor, corresponding member of the Russian Academy of Sciences, Doctoral Degree in Economics</td>
</tr>
<tr>
<td>Vyacheslav Kranchenko</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Law</td>
</tr>
<tr>
<td>Pavel Livinsky</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>Economics</td>
</tr>
<tr>
<td>Vyacheslav Pirovanov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>Global Economics, Applied Economics, MBA</td>
</tr>
<tr>
<td>Mikhail Rasputin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>Economics</td>
</tr>
<tr>
<td>Nikolay Rogalev</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td>Doctoral Degree in Technical Sciences, Professor</td>
</tr>
<tr>
<td>Yury Trutnev</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sergey Shishin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Doctoral Degree in Economics</td>
</tr>
<tr>
<td>Andrey Shishkin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nikolay Shulginov</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>PhD in Technical Sciences</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>11</td>
<td>12</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Induction program

A newly elected member of the Board of Directors takes an induction program, including introduction to the members of the Management Board and familiarizing with:

- the Company’s by-laws;
- the Company’s key performance indicators;
- RusHydro Group Development Strategy and RusHydro Group’s Long-term Development Program;
- the specifics of the Company's operations as a joint-stock company with a majority government stake and other specific aspects;
- the software and technical facilities used in the work of the Board of Directors.

Independent directors also acquaint themselves with additional rights and obligations of independent directors, their functions and roles in the Company’s corporate practice.

In addition, the Corporate Secretary arranges for the newly elected members of the Company’s Board of Directors to receive answers to their questions and sets up meetings with the Company’s officers.

Education and further professional training

To improve its overall performance, the Board of Directors may decide to send its individual members for training and further professional development programs at the Company’s expense within the limits of the Company’s budget allocated for these purposes.

The training and further professional development programs for Board of Directors members are subject to approval by the Nomination and Compensation Committee.

Short biographies of the Board of Directors members

**YURY TRUTNEV**
Chairman of the Board of Directors
Non-Executive Director
Representative of the Russian Federation, public officer

- **Born in 1956**
- **Education, academic degree, academic rank:**
  - Graduated from the Perm National Research Polytechnic University with a degree in Mining Engineering
- **Experience over the last 5 years:**
  - 2013–present: Deputy Prime Minister of the Russian Federation and Presidential Plenipotentiary Envoy to the Far Eastern Federal District
- **Positions held in collective governing bodies as of December 31, 2018:**
  - member of the Supervisory Board of Rosatom State Corporation
  - Chairman of the Supervisory Board of the Far Eastern Federal University
  - Co-Chairman of the Russian Union of Martial Arts

**ARTEM AVETISYAN**
Non-Executive Director
Representative of the Russian Federation

- **Born in 1976**
- **Education, academic degree, academic rank:**
  - Graduated from the Financial University under the Government of the Russian Federation with a degree in Finance and Lending
  - Postgraduate studies at the Financial University under the Government of the Russian Federation
  - Audit retraining program at Moscow State University
- **Experience over the last 5 years:**
  - 2011–present: Head of New Business at the Agency for Strategic Initiatives
  - 2012–present: Chairman of the Leaders Club
  - 2014–2016: Vice President of the NEO Centre
- **Positions held in collective governing bodies as of December 31, 2018:**
  - Chairman of the Board of Directors of Vostochny Bank
  - Chairman of the Board of Directors of Modulbank
MAXIM BYSTROV
Non-Executive Director
Independent Director

Born in 1964

Education, academic degree, academic rank:
Graduated from the National Research Moscow State University of Civil Engineering with a degree in Hydraulic Engineering and Power Plant Construction
Graduated from the Russian Foreign Trade Academy with a degree in International Economics

Experience over the last 5 years:
- 2016–present: Chairman of the Management Board of NP Market Council
- 2014–present: Chairman of the Management Board of JSC ATS

Positions held in collective governing bodies as of December 31, 2018:
- member of the Supervisory Board of the NP Market Council
- member of the Board of Directors at JSC ATS
- member of the Board of Directors at JSC SO UES

PAVEL GRACHEV
Non-Executive Director
Independent Director

Born in 1973

Education, academic degree, academic rank:
Graduated from the Saint Petersburg State University and the University of Trieste (Italy) with degrees in Law, Doctor of Law

Experience over the last 5 years:
- 2013–present: General Director of MC Polyus LLC
- 2014–present: Chief Executive Officer of PJSC Polyus
- 2014–2016: President of JSC Polyus Krasnoyarsk
- 2013–2016: Interim Chief Executive Officer, Chief Executive Officer of Polyus Gold International Limited

Positions held in collective governing bodies as of December 31, 2018:
- Chairman of the Board of Directors at SL Gold
- Member of the Board of Directors of PJSC Polyus
- Member of the Board of Directors at PJSC FGSC UES

SERGEY IVANOV
Non-Executive Director
Independent Director

Born in 1961

Education, academic degree, academic rank:
Graduated from the National Research Nuclear University with a degree in Theoretical Nuclear Physics PhD in Economics, Professor
Corresponding member of the Russian Academy of Natural Sciences

Experience over the last 5 years:
- 2016–2018: General Director at RT-Capital
- 2015–2016: General Director of Nechernozemagropromstroy Corporation
- 2012–2015: General Director of LENSENT
- 2011–2016: General Director of Energetic Russian Company (ERCO)
- 2007–2014: Chairman of the Presidium of the National Institute of Energy Security

VIACHESLAV KRAVCHENKO
Non-Executive Director
Representative of the Russian Federation

Born in 1967

Education, academic degree, academic rank:
Graduated from the Moscow State University with a degree in Law

Experience over the last 5 years:

Positions held in collective governing bodies:
- State representative in the Supervisory Board of the NP Market Council
- Chairman of the Board of Directors at JSC SO UES
- member of the Board of Directors of Rosseti

1 Maxim Bystrov was recognized by the Board of Directors as an Independent Director because at the date of recognition he met the formal criteria of being related to the Company’s substantial counterparties, including JSC ATS, JSC SO UES, JSC FSС and NP Market Council. The abovementioned relation is formal and does not affect Maxim Bystrov’s ability to act as a member of the Board of Directors in the best interests of the Company and all of its shareholders.

2 Sergey Ivanov was elected Senior Independent Director by the Nominations and Compensation Committee of the Board of Directors of RusHydro.

3 Sergey Ivanov was elected Senior Independent Director by the Nominations and Compensation Committee of the Board of Directors of RusHydro.

For more information, see the Company’s website at: http://www.eng.rushydro.ru/upload/iblock/fe6/Extract-from-the-minutes-June-1-2018--271.pdf
PAVEL LIVINSKY
Non-Executive Director
Representative of the Russian Federation

Born in 1980

Education, academic degree, academic rank:
- Graduated from the Moscow State University with a degree in Economics in 2001
- Graduated from the Moscow State University with a Master’s degree in Management in 2003

Experience over the last 5 years:
- 2017–present: General Director, Chairman of the Management Board at Rosseti
- 2013–2017: Head of the Moscow Department of Fuel and Energy, in 2017: Head of the Moscow Department of Housing, Utilities and Amenities

Positions held in collective governing bodies:
- Chairman of the Board of Directors at PSC FGC UES
- member of the Board of Directors of Rosseti
- member of the Board of Directors at JSC SO UES
- member of the Management Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
- President of the Sport Federation of Firefighters and Rescuers

MIKHAIL RASSTRIGIN
Representative of the Russian Federation, public officer
Non-Executive Director

Born in 1983

Education, academic degree, academic rank:
- Graduated from Ivanovo State Power Engineering University
  - Degree in Heat Power Station Engineering, 2005;
  - Bachelor of Economics, 2005.

Experience over the last 5 years:
- 2017–present: Deputy Minister of Economic Development
- 2017: Assistant Minister of Economic Development
- 2011–2017: Head of Electric Power, Natural Resources Directorate, Research Department, VTB Capital

Positions held in collective governing bodies:
- member of the Board of Directors of Rosseti
- member of the Board of Directors at JSC SO UES
- member of the Management Board of the Federal Antimonopoly Service

VYACHESLAV PIVOVAROV
Non-Executive Director
Representative of the Russian Federation

Born in 1972

Education, academic degree, academic rank:
- Graduated from the Sergo Ordzhonikidze State Academy of Management with a degree in International Economics
- Graduated from the American University of Paris with a degree in Applied Economics
- Received MBA from Stanford University

Experience over the last 5 years:
- 2017–present: President of Altera Capital1
- 2011–2017: President of Altera Capital2

Positions held in collective governing bodies:
- member of the Board of Directors at GeoProMining Investment Ltd (Cyprus)

NIKOLAY ROGALEV
Non-Executive Director
Representative of the Russian Federation

Born in 1962

Education, academic degree, academic rank:
- Graduated from the Moscow Power Engineering Institute (heat power stations), Professor

Experience over the last 5 years:
- 2016–present: President of NP Scientific and Technical Council of the Unified Energy System
- 2015–present: Head of Department at the Moscow Power Engineering Institute (part-time)
- 2013–present: Dean of the Moscow Power Engineering Institute

Positions held in collective governing bodies:
- member of the Board of Directors of Rosseti
- member of the Board of Trustees of the Energy Without Borders foundation

1 INN: 771461756
2 INN: 7722713291
Short biographies of members of the Board of Directors prior to June 27, 2018

SERGEY SHISHIN
Non-Executive Director
Representative of the Russian Federation

Born in 1963

Education, academic degree, academic rank:
Graduated from the KGB Moscow Higher Frontier Guards Command Academy
KGB Military School
Russian Presidential Academy of National Economy and Public Administration, degree in Public and Municipal Administration
PhD in Economics

Experience over the last 5 years:
» 2007–present: Senior Vice President at VTB Bank

NIKOLAY SHULGINOV
Executive Director
Representative of the Russian Federation

Born in 1951

Education, academic degree, academic rank:
Sergo Ordzhonikidze Novocherkassk Polytechnic Institute awarded the Order of the Red Banner of Labor; holds a PhD degree in Technology

Experience over the last 5 years:
» 2015–present: Chairman of the Management Board – General Director of RusHydro
» 2009–2015: First Deputy Chairman of the Management Board of JSC SO UES

Positions held in collective governing bodies:
» member of the Board of Directors of Global Sustainable Energy Partnership
» member of the Board of Directors of Rosseti
» chairman of the Supervisory Board of Association Hydropower of Russia
» member of the Management Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
» member of the Board of Trustees of the National Research University Moscow Power Engineering Institute
» deputy Chairman of the Supervisory Board of NP Scientific and Technical Council of the Unified Energy System

ANDREY SHISHKIN
Non-Executive Director

Born in 1959

Education, academic degree, academic rank:
Graduated from the Gubkin Moscow Institute of Petrochemical and Gas Industry with a degree in Industrial Heat and Power Engineering

Experience over the last 5 years:
» 2016–present: President, Chairman of the Management Board at Bashneft
» 2015–present: General Director at RN-Assets
» 2012–present: Vice President for Energy, Localization and Innovation; since 2015: member of the Management Board at Rosneft

Positions held in collective governing bodies:
» member of the Board of Directors at RN-Assets
» deputy Chairman of the Board of Directors at Bashneft
» chairman of the Board of Directors at Okha CHP

ALEXEI CHEKUNKOV
Non-Executive Director
Representative of the Russian Federation

Born in 1980

Education, academic degree, academic rank:
Graduated from Moscow State Institute of International Relations with a degree in Economics

Experience over the last 5 years:
» 2014–present: Chief Executive Officer of the Far East and Baikal Region Development Fund
» 2013–2014: First Deputy CEO at Kada-Neftegaz

Positions held in collective governing bodies:
» member of the Board of Directors at Skolkovo Ventures
» member of the Board of Directors at Yoolshod
» member of the Supervisory Board at ALROSA
» chairman of the Supervisory Board at the Far East Investment and Export Agency
The Board of Directors was reported.

The independence of the members of the Board of Directors is defined in section 5.2.1 of the Company’s quarterly report for Q4 2018 on the Company’s website at: www.rushydro.ru

In 2018, the Board of Directors held 18 meetings, including seven meetings in person, and considered 169 matters. In 2018, the attendance at meetings of the Board of Directors stood at 90% of all meetings held during the year.

Breakdown of items considered by the Board of Directors, %

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<td>Developed a set of measures aimed at scheduled step-by-step substitution of imported products with those of Russian origin having similar specifications and usability.</td>
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<td>Approval of Ruhystro’s Policy on Rotation of Auditors</td>
<td>The Policy on Rotation of Auditors governs the auditor selection procedure and the rules for altering the composition of the audit team.</td>
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<td>Approval of the termination of Ruhystro and its subsidiaries’ participation in the authorized capital of PSC Inter RAO UES</td>
<td>Approved the sale of 5,131,669,622 shares of PSC Inter RAO UES (4.915% of the authorized capital) to JSC Inter RAO Capital at the price of RUB 3.3463 per share.</td>
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<td>Dividends for 2017</td>
<td>The Board recommends paying out dividends in the amount of RUB 0.026335 per share, or 50% of the IFRS net profit for 2017.</td>
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<td>Stable development of the Company</td>
<td>The Group’s investment program for 2019-2023 provides for an estimated RUB 382.9 bn to be spent on commissioning around 1.4 GW of new power capacity, 565 Gcal/heat capacity, as well as on building and refurbishing more than 130 km of heat and 7,600 km of electric power supply networks.</td>
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<tr>
<td>Approval of Ruhystro Group’s New Environmental Policy through 2025</td>
<td>Set new KPIs, including those seeking to increase the installed capacity of low-carbon generation, reduce direct and per unit greenhouse gas emissions, and prevent species elimination.</td>
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<td>Development of the Far Eastern energy sector</td>
<td>Key projects under the Program include the construction of Artyomovskaya TPP-2, Khabarovskaya TPP-4, the second stage of Yakutskaya GRES-2, a TPP in Pevek, the upgrade of Vladivostokskaya TPP-2 and Komomolskaya TPP-2, and commissioning of the fourth hydropower unit of Ust-Srednekanjskaya HPP.</td>
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<td>Approval of the contributions to JSC Chukotenergo’s authorized capital for the implementation of the initial construction stage of two 110 kV high-voltage power lines Pevek – Bilibino</td>
<td>The construction of high-voltage power lines in Chukotka due to the decommissioning of the power units at Bilbino NPP, which has reached the end of its service life. Financing is expected to be provided in the amount of RUB 13 bn from the federal budget and RUB 6.3 bn from the Company’s funds.</td>
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As at December 31, 2018, the directors held (directly or indirectly) no shares of the Company or shares/stakes Company’s subsidiaries. In the reporting year, members of the Board of Directors did not buy or sell the Company’s shares.

Additional information on the members of the Board of Directors

As at December 31, 2018, the directors held (directly or indirectly) no shares of the Company or shares/stakes Company’s subsidiaries. In the reporting year, members of the Board of Directors did not buy or sell the Company’s shares.

No loans were issued by the Company or Ruhystro Group to any members of the Board of Directors.


The independence of the members of the Board of Directors is defined in line with the independence criteria of the Moscow Exchange and the Corporate Governance Code recommended by the Bank of Russia.

As at the date of appointment and during 2018, no conflicts of interest (including participation in the governing bodies of the Company’s competitors) of any member of the Board of Directors was reported.

NIKOLAY PODGUZOV
Non-Executive Director
Representative of the Russian Federation

Positions held in collective governing bodies:
- member of the Supervisory Board at VTB Bank
- member of the Supervisory Board at Post Bank
- member of the Board of Directors at Rosseti
- member of the Board of Directors at the Deposit Insurance Agency

The independence of the members of the Board of Directors is defined in section 5.2.1 of the Company’s quarterly report for Q4 2018 on the Company’s website at: www.rushydro.ru

In 2018, the attendance at meetings of the Board of Directors stood at 90% of all meetings held during the year.

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Board of Directors’ report

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THE RESULTS OF THE INDEPENDENT ASSESSMENT

The Company largely complies with the principles and recommendations of both the Russian and British corporate governance codes. There are some key strengths of RusHydro’s Board of Directors:

- collectively, the members of the Board of Directors possess a strong set of competencies, expertise, skills and leadership qualities that contribute to their efficient performance.
- the Board of Directors and the Audit Committee include a director with experience and expertise in preparation, analysis, assessment and audit of accounting (financial) statements.
- the Board of Directors includes the main stakeholders of the Company. The Board of Directors also maintains a balance between ensuring succession and systematically bringing in new members.
- the meetings of the Board of Directors feature active discussions on the agenda items and resolutions where new ideas and diverse opinions are welcome.
- attendance of the Board of Directors meetings is high.
- the most important matters pertaining to the operations of the Company and its subsidiaries are normally discussed at the meetings of the Board of Directors that are held in person.
- the directors ask the management hardball questions and provide constructive criticism on proposed resolutions, which enables well-informed decision-making.
- independent directors play an important and active role in the work of the Board of Directors and its Committees.
- the Committees of the Board of Directors review the agenda items in more depth and contribute to the overall efficiency of the Board of Directors.

Self-assessment

RusHydro conducted an annual assessment of the Board of Directors performance to evaluate the contribution of the Russian Federation representatives to the Company’s operations and to the implementation of the development strategy. The assessment was based on the methodology for individual assessment of the Board of Directors members in joint-stock companies partially owned by the government, as approved by the Federal Agency for State Property Management (Rosimushchestvo), and was carried out in the Company’s personal account on Rosimushchestvo’s inter-agency portal using questionnaires for members of the Board of Directors. As a result, duly supervision by the federal executive body over the state representatives’ work on the Board of Directors was confirmed.

Areas for development

In order to continue improving its efficiency, the Board of Directors is going to take the following key actions based on the assessment results:
- hold a strategic session with external experts to discuss the strategy, its implementation and possible updates (in light of systematic renewal of the Board of Directors, as well as changes in the business landscape since the approval of the strategy);
- expand the list of speakers invited to the meetings of the Board of Directors with members of the Company’s management and external experts;
- hold comprehensive Board of Directors discussions addressing the matters of risk appetite and key risk management as they pertain to the Company’s operations;
- maintain and expand the practice of the Board of Directors members and independent directors in particular attending the most important investor and analyst engagement events.

Liability insurance

Since 2007, RusHydro has provided liability insurance for the members of the Board of Directors and the Management Board, as well as for the persons in the capacity of sole executive bodies at the Company's subsidiaries and branches and for those managing the Company's units and subsidiaries. In a tender to select a provider of directors and officers (D&O) civil liability insurance for 2018, JSC SOGAZ was chosen based on its ability to provide the most reliable and comprehensive coverage when it comes to this type of insurance. The insurer selection process complied with the requirements of the Company’s by-laws and Federal Law of the Russian Federation No. 223-FZ On Procurement of Goods, Works, Services by Certain Types of Legal Entities dated July 18, 2011.

The amount of coverage is RUB 10,604,715,160 (USD 178,100,000 at the rate of the Bank of Russia as at July 31, 2017). In addition, the independent directors’ liability is insured for RUB 136,950,280 (USD 2,300,000 at the rate of the Bank of Russia as at July 31, 2017). The insurance premium amounted to RUB 15,552,825.97 (USD 227,611.80 at the rate of the Bank of Russia as at July 31, 2017).

The insurance policy covers:
- property interests of the insured related to other persons’ claims for damages arising from the insured person's claim (alleged, supposed) wrongdoing (error, omission, improper performance, etc.);
- property interests of the Company and/or any subsidiary related to any claims made by other persons that were initially brought against the insured;
- property interests of the Company and/or any subsidiary related to any claims in respect of securities brought against the Company and/or any subsidiary.

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- property interests of the Company and/or any subsidiary related to any claims in respect of securities brought against the Company and/or any subsidiary.
Committees of the Board of Directors

RusHydro’s Board of Directors has six committees:

- **Audit Committee**;
- **Nomination and Compensation Committee**;
- **Strategy Committee**;
- **Investment Committee**;
- **Committee on Energy Development of the Far East**;
- **Committee on Reliability, Energy Efficiency and Innovation**.

**Audit Committee**

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</table>

**Committee competencies**

The Committee is designed to assist the Board of Directors in exercising control over the Company’s financial and business operations, with its key responsibilities including oversight of the financial statements, internal controls, risk management, corporate governance, and misconduct reporting systems, and ensuring independence and impartiality of the internal and external audit functions.

**Key performance results and recommendations issued to the Board of Directors**

- Reviewed the Company’s auditor candidacy and recommended it for approval.
- Recommended approval of a standard to control implementation of the Group’s Long-Term Development Program.
- Recommended approval of RusHydro’s Insurance Program for 2019.
- Approved a methodology for Assessment of RusHydro’s Corporate Governance Framework.
- Provided corporate governance assessment results with a focus on internal audit review.
- Recommended approval of the annual report.
- Recommended approval of the annual financial (accounting) statements.
- Assessed the internal audit system.
- Assessed the efficiency of external audit for 2017.
- Recommended approval of the Report on Compliance with the Company’s Information Policy.

**Nomination and Compensation Committee**

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**Committee competencies**

The Committee is designed to provide recommendations on composition and set of skills of the Company’s governing bodies, and recommend tools to enhance efficiency and transparency of the remuneration system. Its primary objective is to review relevant items on a preliminary basis and draft recommendations on matters reserved to the remit of the Board of Directors.

- Reviewed report on achievement of the Management Board’s KPI for 2017.
- Reviewed KPI targets for the Management Board for 2018 and 2019, and KPI targets under the Company’s Long-Term Incentive Plan.
- Analyzed qualifications of nominees to the Board of Directors and vetted them for potential conflicts of interest.
- Assessed nominees to the Board of Directors and independent directors for compliance with the independence criteria.
- Oversaw external independent assessment of the Board of Directors’ performance.
- Reviewed draft internal regulations on the assessment of performance of the Board of Directors and its committee.

(1) *RusHydro’s Board of Directors has six committees:* Audit Committee, Nomination and Compensation Committee, Strategy Committee, Investment Committee, Committee on Energy Development of the Far East, Committee on Reliability, Energy Efficiency and Innovation.

(2) *Independent members of the Board of Directors:*
- Vyacheslav Pivovarov (Chairman of the Committee) – 19/19
- Sergey Ivanov – 14/19
- Maxim Bystrov – 18/19

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(3) *Opposite the name of the members of the Committee, information on his personal attendance of the Committee’s meetings is presented in the format – number of meetings attended / total number of meetings of the Committee in 2018.*

(4) *Vyacheslav Pivovarov has extensive experience and knowledge in preparation, analysis, assessment and audit of financial (accounting) statements.*
Strategy Committee

Members of the Board of Directors

- Members of the Board of Directors
  - Andrey Kazachenkov
  - George Rizhinashvili

- Members of the Executive Bodies
  - Andrey Gabov
  - Yevgeniy Stolyarov
  - Pavel Snikkars
  - Yevgeniy Olkhovich
  - Vasiliy Nikonov
  - Boris Livshits
  - Dmitriy Denisov
  - Dmitriy Denisov
  - Igor Zakirov
  - Sergey Ivanov
  - Pavel Grachev
  - Vyacheslav Pivovarov
  - Sergey Ivanov
  - Vyacheslav Pivovarov

- Committee Members
  - Viktor Khemarin
  - Denis Mylyukov
  - Pavel Snikkars

- Members of the Executive Bodies
  - George Richzhinshli
  - Andrey Kazachenkov
  - Nikolay Shulginov

Committee competencies

The Committee is designed to ensure efficient performance of the Board of Directors in strategic areas. The Committee determines the Group’s strategic development priorities, approves the Company’s development strategy and long-term development program (including review of the strategy implementation reports), provides recommendations on the dividend policy, makes decisions on the Company’s investments in and divestments from other organizations, considers authorized capital increases and other share offering and purchase matters, and reviews the Group’s financial and valuation models.

Key performance results and recommendations issued to the Board of Directors

- Recommended approval of a resolution to divest from PJSC Inter RAO.
- Recommended approval of the property disposal deal between JSC RAO ES East and PJSC Salihalmenergo.
- Set preliminary additional terms and conditions for participation in the construction of Taysht Aluminium Smelter (the project was put on hold due to the US sanctions).
- Provided recommendations on report regarding the finalization of initiatives to refinance the debt of JSC RAO ES East.
- Provided recommendations on information about the efficiency of forward contracting and progress against Rushydro’s Value Growth Plan through 2021.
- Recommended approval of an investment project to construct two 110 kV single-circuit Pevek-Bilibino power lines.
- Provided recommendations on a report comparing the technological advancement and innovation KPI of RusHydro Group against the leading peers.
- Recommended approval of a resolution to divest from Boguchanskaya HPP Construction Organizer, Boguchanskaya HPP Construction Customer, Small HPPs of Altai, Verkhne-Nar.
- Approved the amount of dividends paid for the Company’s ordinary shares for 2017 at RUB 0.0263335 per share.

Investment Committee

Members of the Board of Directors

- Independent members of the Board of Directors
  - Maxim Bystrov (Chairman of the Committee)
  - Vyacheslav Pivovarov
  - Sergey Ivanov
  - Nikolay Rogalev
  - Alexei Chakunkov
  - Andrey Kazachenkov
  - Sergey Kiriev
  - Viktor Khemarin
  - Mikhail Bychko
  - Andrey Gabov
  - Denis Mylyukov
  - Pavel Snikkars

- Members of the Executive Bodies
  - Victor Khemarin
  - Denis Mylyukov
  - Pavel Snikkars

Committee competencies

The Committee is designed to preview new investment projects and programs, and contribute to the enhancement of the Company’s investment policy.

Key performance results and recommendations issued to the Board of Directors

- Approved Rushydro’s draft investment program for 2019–2028 and draft amendments to Rushydro’s investment program for 2018–2027.
- Pre-approved the Group’s Consolidated Business Plan (including consolidated investment program) for 2018–2022.
- Pre-approved KPI targets for the Management Board for 2018, and KPI targets under the second cycle of the Company’s Long-Term Incentive Plan for 2018–2020.
- Pre-approved distribution of the Company’s profit (loss) for 2017 and recommended that the Annual General Meeting of Shareholders approve the same.
- Approved the amount of dividends paid for the Company’s ordinary shares for 2017 at RUB 0.0263335 per share.
- Pre-approved updated versions of the Company’s Business Plan and investment program for 2018.
- Pre-approved the updated version of the Company’s Consolidated Business Plan (including consolidated investment program) for 2018.
- Pre-approved updated KPI targets for the Company’s Management Board for 2018.
- Recommended approval of Rushydro’s business plan and Consolidated Business Plan for 2019, including Rushydro’s investment program and consolidated investment program.
Committee on Energy Development of the Far East

Members of the Board of Directors

- Pavel Grachev
  Independent member of the Board of Directors
  7/7
- Members of the Board of Directors
  Yury Titnev (Chairman of the Committee)
  0/7
- Vyacheslav Kravchenko
  3/7
- Alexei Chulkunov
  7/7
- Members of the executive bodies
  Sergey Vasilyev
  (since April 4, 2018)
  4/7
- Andrey Kasachenkov
  (since August 9, 2018)
  2/7
- Sergey Tolstoguzov
  (until April 4, 2018)
  0/7
- Committee members
  Igor Zadvornov
  (since August 9, 2018)
  7/7
- Aleksandr Piyatogor
  (since August 9, 2018)
  2/7
- Vladimir Tupikin
  (until December 6, 2018)
  1/7
- Sergey Tyrtsev
  (since August 9, 2018)
  2/7
- Mikhail Kolesnikov
  (until August 9, 2018)
  3/7
- Sergey Lebedev
  (since December 6, 2018)
  1/7
- Leonid Pakshin
  (since December 6, 2018)
  1/7

Committee competencies

- The Committee is designed to ensure the efficient performance of the Board of Directors in developing the power industry of the Far Eastern Federal District of Russia within the scope of responsibility of the Company and its subsidiaries. Among other things, the Committee is responsible for determining the Company’s priority areas in the Far East, including by considering matters related to the consolidation of power assets in the Far East, growth of energy exports to the Asia-Pacific, and power supply to the consumers in the Far East.

Key performance results and recommendations issued to the Board of Directors

- Pre-approved the loan agreement between RusHydro and the Far East and Baikal Region Development Fund in the amount of RUB 5 bn to finance the construction of off-site facilities of SakhalinSKaya GRES-2 for a period of eight years and an interest rate of 5% per annum.
- Approved an increase in the price of capital of RusHydro.

Members of the Board of Directors

- Nikolay Rogalev
  (Chairman of the Committee)
  9/7
- Vyacheslav Kravchenko
  4/7
- Alexei Chulkunov
  3/7

Committee members

- Oleg Barkin
  (since April 6, 2018)
  6/7
- Yuriy Vyshtirevsky
  6/7
- Dmitriy Gvozdev
  (since August 9, 2018)
  4/7
- Sergey Zhukarev
  (since August 9, 2018)
  4/7
- Mikhail Fedorov
  3/7
- Elena Belchenko
  (until August 9, 2018)
  3/7
- Roman Gromov
  (until April 4, 2018)
  1/7

Members of the executive bodies

- Boris Bogus
  7/7
- George Rotimashvili
  7/7
- Kirill Frolov
  7/7
- Dmitriy Gvozdev
  (since April 4, 2018)
  5/7
- Sergey Tolstoguzov
  (until April 4, 2018)
  0/7
- Nikolay Karaskhin
  (until August 7, 2018)
  1/7

Corporate Secretary

**Natalya Kovaleva**

**Born in 1972**

**Education, academic degree:**

In 1996, graduated from Irkutsk State University with a degree in Law

**Experience over the last 5 years:**

- 2016–present: Corporate Secretary, RusHydro
- 2016–present: Deputy Head of Corporate Governance and Property Management, RusHydro
- 2010–2015: Head of Corporate Governance, PJSC MOESK

**Positions held in collective governing bodies as of December 31, 2018:**

- member of the Board of Directors at Blagoveschenskaya CHPP
- member of the Board of Directors at Boguchanskiy Aluminum Smelter
- member of the Board of Directors at PJSC DEK
- member of the Board of Directors at Malaya Dmitrovka
- member of the Board of Directors at SNNG
- member of the Board of Directors at JSC Chuvashskaya Electricity Sales Company

Natalya Kovaleva has no stake in RusHydro’s authorized capital. She does not hold, either directly or indirectly, any ordinary shares of RusHydro and, consequently, did not buy or sell the Company’s shares during the reporting year, holds no shares in RusHydro’s subsidiaries.

No loans were issued by PJSC RusHydro or RusHydro Group companies to Natalya Kovaleva, Corporate Secretary of RusHydro.

The Corporate Secretary has no conflict of interest (including participation in the governing bodies of the Company’s competitors).

Opposite the name of the members of the Committee, information on his personal attendance of the Committee’s meetings is presented in the format - number of meetings attended / total number of meetings of the Committee in 2018.
EXECUTIVE BODIES

The Management Board

Executive bodies are in charge of the day-to-day operations of the Company.

Powers of the Management Board and the Chairman of the Management Board – General Director are defined by Articles 18 and 19 of the Company’s Charter, respectively. Executive bodies’ competence include matters that are not reserved to the Company’s General Meeting of Shareholders and the Board of Directors.

The number of the Management Board members is determined by the Board of Directors. In 2018, the Management Board consisted of six members, including the Chairman of the Management Board – General Director.

On December 24, 2018, the Board of Directors elected Victor Khmarin, Deputy General Director for Resources and Prospective Development, as a new member of the Management Board.

Victor Khmarin took office on January 16, 2019. His election was in line with the Company’s focus on resources and future development of RusHydro Group, including the implementation of the Long-Term Program for Replacement of Retired Capacities and Energy System Development in the Far East.

The Management Board’s powers include developing the Company’s business priorities and respective implementation plans and submitting them to the Board of Directors for review, reporting on KPI achievement and business plan implementation, approving budget parameters as regards income and expenditures, deciding on matters reserved to supreme governing bodies of the subsidiaries where the Company exercises the rights of the sole shareholder (participant), as well as approving (adjusting) KPI of the Company’s employees, and reviewing relevant implementation reports.

Powers of the Chairman of the Management Board – General Director include managing the Company’s day-to-day operations, approving internal regulations that are mandatory for all the Company’s employees, exercising employer functions, approving regulations on the Company’s branches and representative offices and appointing heads thereof, making transactions on behalf of the Company within the scope set out in laws and the Charter, arranging for accounting and reporting, arranging operations of the Management Board, as well as addressing other matters of the Company’s day-to-day operations that do not fall within the remit of the General Meeting of Shareholders, Board of Directors or Management Board.

SERGEY KIROV
Member of the Management Board, First Deputy General Director

BORIS BOGUSH
Member of the Management Board, First Deputy General Director – Chief Engineer

NIKOLAY SHULGINOV
Chairman of the Management Board – General Director

ANDREY KAZACHENKOV
Member of the Management Board, First Deputy General Director

GEORGE RIZHINASHVILI
Member of the Management Board, First Deputy General Director

VICTOR KHMARIN
Member of the Management Board, Deputy General Director
Information on the Management Board members

NIKOLAY SHULGINOV
Chairman of the Management Board – General Director

Born in 1951

Education, academic degree, academic rank:
Sergo Ordzhonikidze Novocherkassk Polytechnic Institute awarded the Order of the Red Banner of Labor; holds a PhD in Engineering

Experience over the last 5 years:
- 2015–present: Chairman of the Management Board – General Director of JSC SO UES
- 2009–2015: First Deputy Chairman of the Management Board of JSC SO UES

Positions held in collective governing bodies as of December 31, 2018:
- member of the Board of Directors of Global Sustainable Energy Partnership
- member of the Board of Directors at Rosseti
- Chairman of the Supervisory Board of Association Hydropower of Russia
- member of the Supervisory Board of the Market Council Non-Profit Partnership
- member of the Executive Board of the Russian Union of Industrialists and Entrepreneurs (RSPP)
- member of the Board of Trustees of the National Research University Moscow Power Engineering Institute
- Deputy Chairman of the Supervisory Board of NP Scientific and Technical Council of the Unified Energy System

Year of election to the Management Board: 2015

Participation in the Board of Directors’ committees:
Strategy Committee of the Board of Directors of RusHydro (until August 7, 2018)

BORIS BOGUSH
Member of the Management Board, First Deputy General Director – Chief Engineer

Supervised units:
Production unit

Born in 1952

Education, academic degree, academic rank:
Graduated from Saratov State Technical University with a degree in Mechanical Engineering; Graduated from Russian Presidential Academy of National Economy and Public Administration with a degree in Management of Business / Organization Development

Experience over the last 5 years:
- 2009–present: Managing Director, Head of Business Unit “Production”; member of the Management Board; member of the Management Board – Chief Engineer; member of the Management Board, First Deputy General Director – Chief Engineer

Positions held in collective governing bodies as of December 31, 2018:
- member of the Supervisory Board of Association Hydropower of Russia
- member of the Board of Trustees of Soprichastnost charitable fund
- member of the Board of Directors of JSC Hydroproject Institute

Year of election to the Management Board: 2010

Participation in the Board of Directors’ committees:
Committee on Reliability, Energy Efficiency and Innovation of the Board of Directors of RusHydro

ANDREY KAZACHENKOV
Member of the Management Board, First Deputy General Director

Supervised units:
Unit of financial and corporate law management

Born in 1980

Education, academic degree, academic rank:
Graduated from Saint Petersburg State University of Engineering and Economics with a degree in Economics and Management at Mechanical Engineering Enterprises; Has an MBA from the University of Wisconsin-Madison, USA

Experience over the last 5 years:
- 2015–present: Advisor for the Chairman of the Management Board – General Director; member of the Management Board and First Deputy General Director of RusHydro
- 2012–2015: First Deputy Chairman of the Management Board, Deputy Chairman of the Management Board of PJSC FGC UES

Positions held in collective governing bodies as of December 31, 2018:
- Chairman of the Board of Directors at JSC RAO ES East
- member of the Board of Directors of JSC Hydroproject Institute
- member of the Board of Directors at JSC Far East Energy Management Company

Year of election to the Management Board: 2016

Participation in the Board of Directors’ committees:
Committee on Energy Development of the Far East of the Board of Directors of RusHydro, Investment Committee of the Board of Directors of RusHydro, Strategy Committee of the Board of Directors of RusHydro and Committee on Reliability, Energy Efficiency and Innovation of the Board of Directors of PJSC ROSSETI

SERGEY KIROV
Member of the Management Board, First Deputy General Director

Supervised units:
Unit of financial and corporate law management

Born in 1976

Education, academic degree, academic rank:
Graduated from Penn State Agro-Technological University with a degree in Economics and Agricultural Production Management; Graduated from the Regional Interdisciplinary Retraining Center of Perm National Research Polytechnic University with a degree in Economics and Management

Experience over the last 5 years:
- 2010–present: Director of Economic Affairs; Deputy General Director on Economics, Investment and Procurement; member of the Management Board and First Deputy General Director
- 2010–2014: General Director of LLC RusHydro IT Service

Positions held in collective governing bodies as of December 31, 2018:
- member of the Board of Directors of JSC Hydroproject Institute
- member of the Board of Directors at JSC Far East Energy Management Company

Year of election to the Management Board: 2015

Participation in the Board of Directors’ committees:
Investment Committee of the Board of Directors of RusHydro

1 As at December 31, 2018
Changes in the Management Board composition after the reporting date

GEORGE RIZHINASHVILI
Member of the Management Board, First Deputy General Director

Supervised units:
Strategy and innovation unit

Born in 1981

Education, academic degree, academic rank:
Graduated from Moscow State University with a degree in Economics; holds a PhD in Economics

Professional experience over the last five years:
» 2009–present: member of the Management Board and Deputy Chairman of the Management Board; member of the Management Board and First Deputy General Director of RusHydro
» 2016–present: Chairman of the Management Board of the Moscow State University Faculty of Economics Development Fund

Positions held in collective governing bodies:
» member of the Board of Trustees of Moscow State University Faculty of Economics
» member of the Board of Trustees of Soprichastnost charitable fund
» member of the Board of Directors of JSC Hydropower Institute

Year of election to the Management Board: 2009

Participation in the Board of Directors’ committees:
Committee on Reliability, Energy Efficiency and Innovation of the Board of Directors of RusHydro, Strategy Committee of the Board of Directors of RusHydro and Strategy Committee the Board of Directors of Rosseti

VLADIMIR MARKIN
Member of the Management Board, First Deputy General Director

Supervised units:
Administrative unit

Born in 1956

Education, academic degree, academic rank:
Graduated from Moscow State University with a degree in Journalism; Graduated from the Institute of Economics and Culture with a degree in Law

Professional experience over the last five years:
» 2011–2016: Head of Media Relations Directorate of the Investigative Committee of Russia
» 2016: First Deputy General Director; member of the Management Board and First Deputy General Director of RusHydro

Positions held in collective governing bodies:
» Head of Security and Fan Relations Committee of Football Union of Russia

Year of election to the Management Board: 2017

VICTOR KHMARIN
Member of the Management Board, Deputy General Director

Supervised units:
Resources and future development unit

Born in 1978

Education, academic degree, academic rank:
Graduated from Saint Petersburg State University with a degree in Law

Professional experience over the last five years:
» 2014: Deputy Director for Business Development, LLC Vita-X
» 2014–2015: Advisor to the First Deputy President – Chairman of the Management Board – Vice President, Department for work with clients of market sectors, PJSC VTB Bank
» 2015–present: Deputy General Director on Economics, Investment and Procurement, Deputy General Director for Resources and Prospective Development, member of the Management Board, Deputy General Director at RusHydro

Year of election to the Management Board: 2019

Participation in the Board of Directors’ committees:
Investment Committee of the Board of Directors of RusHydro

Changes in the Management Board composition after the reporting date

Additional information on the members of the Management Board

In the reporting period, RusHydro’s executive bodies had no conflict of interest (including participation in the governing bodies of the Company’s competitors).

No decisions on the early termination of powers of the Management Board members were made in the reporting period. Nikolay Shulginov’s appointment terminates on September 14, 2020, in accordance with his employment contract. Other RusHydro’s Management Board members have no fixed terms of appointment.

In the reporting period, members of the Management Board received no loans from the Company or RusHydro Group.

Boris Bogush (the Management Board member) holds 0.003843% of RusHydro’s ordinary shares.

George Rizhinashvili (the Management Board member) no longer holds 0.01286% of RusHydro’s ordinary shares.

Members of the Management Board do not indirectly hold any of RusHydro shares or own shares/stakes in any of RusHydro’s subsidiaries.
Management Board performance

The Board of Directors evaluates the performance of the Management Board and its Chairman by reviewing the following matters:

- the Company's business plan implementation;
- the Company's Consolidated Business Plan implementation;
- RusHydro’s KPI achievement;
- corporate governance assessment;
- the report on the Management Board’s performance.

In 2018, RusHydro’s corporate governance system for 2017 was assessed, including the executive bodies’ performance. The assessment report included the following recommendations:

- develop and approve by the Board of Directors the Company’s executive management succession plan;
- consider including into the contracts signed with members of the executive bodies and other key officers the provision which will enable the Company to reclaim funds wrongfully obtained by members of the executive bodies and other key officers in case they commit financial statement fraud or other misconduct aimed at formal achievement of the Company’s KPI and performed to the detriment of the shareholders’ long-term interests.

In 2018, RusHydro managed to secure strong progress, which helped underpin its solid performance. RusHydro achieved its target KPI thanks to the Company’s team governed by the Management Board in close cooperation with the Board of Directors.

To protect the rights of investors and shareholders, the Company continued to implement its key strategic goals, including safe operation of the Company’s production facilities, value growth and investment returns to the shareholders, as well as the enhancement of corporate governance and social and environmental responsibility mechanisms.

In 2018, the Company approved a number of internal regulations on Company’s governing bodies and other by-laws (regulations and policies).

In 2018, the Management Board held 68 meetings, including 22 in person, and reviewed 454 matters on the day-to-day operations of the Company, including preliminary consideration of the matters submitted for the Board of Directors’ review.

Items reviewed by RusHydro’s Management Board in 2018, %

- Subsidiary management: 25.0
- Implementation of the Company’s projects: 19.6
- Business planning and investment: 12.5
- Approval of by-laws: 4.0
- Performance management and KPI: 3.5
- Other: 25.6

AUDIT AND CONTROL

RusHydro controls its financial and business operations by using a combination of internal regulations, operational practices, procedures, and methodologies involving the following key parties: Internal Audit Commission; Independent Auditor; Audit Committee of the Board of Directors of RusHydro; Internal Audit Service.

The key principles, goals, objectives, methods, and processes of the control framework are set forth in the following documents approved by RusHydro’s General Meeting of Shareholders and Board of Directors:

- Regulations on Internal Audit Commission;
- Corporate Governance Code;
- Internal Control and Risk Management Policy;
- Internal Audit Policy;
- Regulations on the Audit Committee of the Board of Directors;
- Code of Corporate Ethics;
- Anti-Corruption Policy.

RusHydro’s Code of Corporate Ethics sets forth the ethical standards and rules of conduct for employees and members of the Company’s Board of Directors and seeks to improve their job performance. The key principles and ethical standards that employees, managers, and members of the Board of Directors must comply with are outlined in Clauses 2 and 4 of the Code. Provisions of the Code are introduced through the adoption and implementation of in-house rules and regulations, including:

- Anti-Corruption Policy;
- Conflict of Interest Regulations.

The documents approved by general meeting of shareholders are available on the Company’s website at www.rushydro.ru

The documents approved by Board of directors are available on the Company’s website at www.rushydro.ru

The Company’s Internal Audit Commission reports to the General Meeting of Shareholders. The Internal Audit Commission’s opinion is submitted to the Audit Committee of the Board of Directors of RusHydro. The Internal Audit Commission’s opinion issued after the audit of the annual report, RAS financial statements and report on the Company’s related-party transactions is a mandatory document that must be submitted to the General Meeting of Shareholders.

An Auditor’s opinion is submitted to the Board of Directors’ Audit Committee and to the Internal Audit Commission. The Audit Committee discusses the auditor’s plan of annual audits of RusHydro Group.

The Board of Directors represented by its Audit Committee is responsible for the functional management of the Internal Audit Service, including approval of the annual schedule of control activities and quarterly reports on adherence to that schedule.

Approved by Board of Directors resolution of April 7, 2016.
# Internal Audit Commission

The Internal Audit Commission is a permanent body responsible for the monitoring of the Company’s financial and business operations. The Commission consists of five elected members. The Commission’s opinion on the audit results was submitted to the Annual General Meeting of Shareholders. The audit confirmed that the data contained in the reports and financial documents of the Company were reliable, the accounting and financial reporting functions were performed in compliance with applicable laws and internal regulations, and financial and business operations were conducted in the best interests of the Company and its shareholders. The opinion also confirms the accuracy of data contained in the Company’s Annual Report and report on interested-party transactions consummated in 2018.

There were no changes in the composition of the Internal Audit Commission in 2018.

For the full text of Internal Audit Commission’s opinion on the audit of financial and business operations for 2018, see Appendix No. 17.


## Members of the Internal Audit Commission

<table>
<thead>
<tr>
<th>Members</th>
<th>Primary employment</th>
<th>Nominated by</th>
<th>Shareholding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tatiana Zolotkova</td>
<td>Deputy Director of the Department of Corporate Governance, Price Environment and Control in the Energy Sector of the Russian Ministry of Energy</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Natalia Annikova</td>
<td></td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Igor Repin</td>
<td>Deputy Executive Director, Association of Institutional Investors</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Marina Kostina</td>
<td>Deputy Director of the Corporate Governance Department of the Russian Ministry of Economic Development</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
<tr>
<td>Dmitriy Simochkin</td>
<td>Head of Department, Federal Agency for State Property Management</td>
<td>Russian Federation in 2018</td>
<td>None</td>
</tr>
</tbody>
</table>

## Auditor

RusHydro’s accounts (financial statements) prepared in accordance with Russian and international standards are audited on an annual basis. The auditor responsible for the independent audit of RusHydro’s RAS and IFRS accounts (financial statements) for 2018 was selected through an open tender process.

RusHydro’s auditor was selected in a competitive process pursuant to Article 5 of Federal Law No. 307-FZ of December 30, 2008 On Auditing, Federal Law No. 44-FZ of April 5, 2013 On the Contract System in the Federal and Municipal Procurement of Goods, Works and Services, the Charter, and internal documents of RusHydro. Following the tender procedures, AO PricewaterhouseCoopers Audit (PwC Audit; 10, Butyrsky Val, 125047, Moscow) was declared the preferred bidder as was approved by resolution of RusHydro’s General Meeting of Shareholders of June 27, 2018.

PwC Audit is a member of self-regulating organization of auditors Russian Union of Auditors (Association). Number in the Register of Auditors: principal number of registration entry 11603505047.

No consulting services were rendered by PwC Audit to the Company.

For details of the independent auditor’s remuneration, see the Report on remuneration of the governing and control bodies.

## Internal Audit Service

The key objective of RusHydro’s internal audit function is to assist the Board of Directors and executive bodies of RusHydro Group in enhancing the Group’s management efficiency and improving its operations, including by adopting a systematic and consistent approach to the analysis and evaluation of the risk management, internal control and corporate governance systems.

The Internal Audit Service is RusHydro’s standalone business unit that reports to the Board of Directors through the Audit Committee and has an administrative reporting line to the Chairman of the Management Board – General Director of RusHydro. The Head of the Internal Audit Service was approved by resolution of RusHydro’s Board of Directors.

The Internal Audit Service has the following objectives and functions:

- to conduct regular audits of business units, Company’s branches/ subsidiaries, processes, lines of business, projects of the Company/ subsidiaries, collect and analyze audit evidence for an independent assessment and expression of opinion on the reliability and effectiveness of the:
  - internal control system;
  - risk management system;
  - corporate governance system;
  - to liaise with the Audit Committee of the Company’s Board of Directors;
  - to liaise with local executive authorities of the Russian Federation, Accounts Chamber of the Russian Federation, the Company’s Internal Audit Commission, and other supervisory bodies in connection with internal control issues and in the course of audits and inspections of the Company or its subsidiaries conducted by such bodies.

The general principles of, and approaches to the Company’s internal audit system are set forth in the Internal Audit Policy approved by RusHydro’s Board of Directors. The Policy is aligned with RusHydro’s Corporate Governance Code, Methodological Guidelines and Instructions of the Federal Agency for State Property Management and is designed, inter alia, to contribute to the compliance of RusHydro’s Internal Audit Service with the International Professional Standards of Internal Audit. In 2018, the Internal Audit Service worked to update internal regulations applicable to the Internal Audit Service and Audit Committee, and to this end:

- updated the Regulations on the Audit Committee of the Board of Directors;
- updated the Regulations on the planning and implementation of control activities of the Internal Audit Service;
- updated the Regulations on the Internal Audit Service;
- developed and implemented the methodology of annual independent assessment of the corporate governance system by the Company’s Internal Audit Service.

For the full text of Internal Audit Policy, see Appendix No. 17.

The Internal Audit Service has an administrative reporting line to the Chairman of the Management Board – General Director of RusHydro. The Head of the Internal Audit Service is approved by the Board of Directors and reports to the Chairman of the Management Board.

The Head of the Internal Audit Service has an administrative reporting line to the Chairman of the Management Board. The Head of the Internal Audit Service is a permanent body responsible for the monitoring of the Company’s financial and business operations. The Commission consists of five elected members. The Commission’s opinion on the audit results was submitted to the Annual General Meeting of Shareholders. The audit confirmed that the data contained in the reports and financial documents of the Company were reliable, the accounting and financial reporting functions were performed in compliance with applicable laws and internal regulations, and financial and business operations were conducted in the best interests of the Company and its shareholders. The opinion also confirms the accuracy of data contained in the Company’s Annual Report and report on interested-party transactions consummated in 2018.

There were no changes in the composition of the Internal Audit Commission in 2018.
The control activities involved an assessment of effectiveness of internal controls over RusHydro Group’s activities aimed at ensuring reliable and safe operation of RusHydro Group’s facilities and the stable development of electricity generation, including:

- implementation efficiency of investment projects involving construction of new generation facilities;
- R&D efficiency of the Company’s subsidiaries (RusHydro Group institutes).

In 2018, the Internal Audit Service assessed the Company’s system of internal control, risk management, corporate governance, and non-core asset management. The Board of Directors reviewed the Internal Audit Service’s assessment of the internal control risk management and corporate governance systems of the Company and recommendations on their improvement.

The Internal Audit Service submits its quarterly report on the control activities to the Audit Committee of the Company’s Board of Directors. The report describes key/system weaknesses identified in RusHydro Group’s internal control system and gives recommendations on possible improvements.

The results of the control activities carried out by the Internal Audit Service are used by RusHydro Group’s management to design and roll out a corrective action plan to address the identified gaps, improve the internal control system efficiency, and avoid repeated violations. The Internal Audit Service is also involved in the coordination and follow-up control of corrective actions. Corrective actions taken after inspections by supervisory authorities are monitored in a similar manner.

The Internal Audit Service is also responsible for the liaison with supervisory authorities, if and when examinations and inspections are carried out at RusHydro Group. In 2018, the Internal Audit Service worked with supervisory authorities (Accounts Chamber of the Russian Federation, Prosecutor General’s Office, and Russia’s Ministry of Energy) in the course of nine audits conducted by them.

In accordance with the approved Internal Audit Quality Assurance and Improvement Program, in order to ensure adequate control and assessment of the internal audit function and to identify improvement areas, the Internal Audit Service conducted an annual self-assessment of the internal audit function based on which the Audit Committee recognized that the internal audit function performed by the Company’s Internal Audit Service “meets the relevant requirements”.

Based on the management’s feedback on the results of control activities, the internal audit function was highly effective in 2018 in terms of identifying gaps to be resolved in order to reduce or eliminate any negative factors impairing the efficiency of RusHydro’s and its subsidiaries’ operations.

Internal audit system development plans

In 2019, further steps will be taken to enhance the Company’s internal audit function, including:

- update of the regulatory framework of the Internal Audit Service in compliance with the International Professional Practices Framework (IPPF);
- further automation of RusHydro’s internal audit function, including in terms of follow-up control of corrective actions based on internal or external audits.

A third-party independent assessment of the Company’s internal audit system is planned to be held in 2019–2020 to ensure its compliance with the International Professional Practices Framework governing internal auditing.

Assessment of the efficiency of internal and external audit by the Audit Committee of RusHydro Board of Directors

On a quarterly basis, the Audit Committee reviews the report on the implementation of the schedule of control activities prepared by Head of the Internal Audit Service. Report describes material violations, flaws and gaps identified in the operations of RusHydro and its subsidiaries, includes information on substantial risks and issues of controls and corporate governance, and provides recommendations on remedial actions and improvement of internal controls.

According to feedback received on control activities, the internal audit function performed very effectively in 2018 in terms of identifying matters to be resolved in order to mitigate or eradicate any negative factors impairing the efficiency of RusHydro and its subsidiaries.

Throughout 2018, the Company’s auditor regularly reported to the Audit Committee on plans and results of the audits, shared its vision on important qualitative aspects of RusHydro’s accounting practices, including its accounting policy, estimates, and disclosures in financial statements, and raised matters that based on the auditor’s professional judgment are important for the oversight over the financial reporting process.

In 2018, The Audit Committee assessed the performance of the Company’s auditor (including the auditor’s reports) and the effectiveness of external audit as a process. Based on the assessment, the Audit Committee found the process to be effective. The Company’s auditor is unbiased and independent from RusHydro, has no conflict of interest or any circumstances that might challenge its independence. Materials that the external auditor prepares and presents to the Audit Committee are informative and enable the Audit Committee to control the quality of the auditor’s performance.
Anti-corruption efforts

RusHydro Group’s anti-corruption framework is aligned with the laws of Russia in order to reflect the national policy in internal measures that the Group takes to combat corruption, minimize corruption risks, provide for transparent and honest operations, improve corporate culture, follow best practices of corporate governance, and maintain strong business reputation.

RusHydro and its subsidiaries use a system of corporate policies and standards to regulate anti-corruption measures and define the main objectives, goals and focus areas of activities aimed at preventing and combating corruption. These documents include the Code of Corporate Ethics, Anti-Corruption Policy, Regulations on the Prevention and Management of Conflicts of Interest, Regulations on the Procedure to Report Reports Received by RusHydro’s Employees, RusHydro’s Regulations on the Committees for Compliance with the Corporate Ethics Standards and Management of Conflicts of Interest.

In order to improve the performance of RusHydro’s anti-corruption efforts, the Group has developed and approved the Comprehensive Program of Anti-Corruption Activities for 2016–2019 (the “Program”) to define the focus objectives, goals and focus areas of anti-corruption efforts of RusHydro and its subsidiaries.

The following information is published on RusHydro’s website and intranet portal by the Company’s local internal documents on combating corruption and preventing wrongdoings and conflicts of interest designed to prevent the substantial shareholders’ misconduct in connection with the Company’s transactions involving a conflict of interest, as well as mitigating the effects of such misconduct (the Board of Directors minutes No. 281 of December 27, 2018); Amendment of RusHydro’s Regulations on the Prevention and Management of Conflicts of Interest in terms of the procedure for considering notices of potential conflicts of interest of employees holding positions named in the list approved by Resolution of the Government of the Russian Federation No. 413 of July 22, 2013 and clarified by the Executive Office of the Government of the Russian Federation (Order No. 44 of January 29, 2019).

Documents are available online at: http://www.rushydro.ru

Comprehensive Program of Anti-Corruption Activities

In 2018, the Company rolled out a number of anti-corruption initiatives in accordance with the approved action plan for implementing the Comprehensive Program of Anti-Corruption Activities for 2018–2019.

Program workstreams

<table>
<thead>
<tr>
<th>What we did in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing and updating the Company’s anti-corruption regulations and by-laws</td>
</tr>
<tr>
<td>Approval of a new Regulation on RusHydro Group’s Line of Trust (Order No. 689 of September 12, 2018) updating the procedure for processing and responding to the reports received through the Line of Trust.</td>
</tr>
<tr>
<td>Amendment of the Rules of RusHydro’s Line of Trust Operation to change the 24/7 hotline number (Order No. 1018 of December 27, 2018);</td>
</tr>
<tr>
<td>Amendment of the Code of Corporate Ethics in terms of the measures designed to prevent the substantial shareholders’ misconduct in connection with the Company’s transactions involving a conflict of interest, as well as mitigating the effects of such misconduct (the Board of Directors minutes No. 281 of December 27, 2018);</td>
</tr>
<tr>
<td>Update of the Regulations on the Procedure to Report Reports Received by RusHydro’s Employees (Order No. 60 of February 5, 2019);</td>
</tr>
</tbody>
</table>

Providing transparency and availability of information on the Company’s anti-corruption policy and ensuring employees’ awareness of anti-corruption legislation

<table>
<thead>
<tr>
<th>What we did in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following information is published on RusHydro’s website and Intranet portal and updated on a timely basis:</td>
</tr>
<tr>
<td>the company’s local internal documents on combating corruption and preventing wrongdoings and conflicts of interest;</td>
</tr>
<tr>
<td>action plans and reports on the implementation of the Comprehensive Program of Anti-Corruption Activities;</td>
</tr>
<tr>
<td>information, effective laws and regulations, and guidance on combating corruption.</td>
</tr>
</tbody>
</table>

Providing for investigations into any reports of wrongdoings

<table>
<thead>
<tr>
<th>What we did in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2018, the Company considered 195 reports received through the Line of Trust, of which 67 (34%) were confirmed to be true and involve violations of rights and/or other wrongdoings. The Company took measures to eliminate all verified violations.</td>
</tr>
</tbody>
</table>

References:
1. Transactions involving a conflict of interest are the Company’s transactions with persons affiliated with (related to) substantial shareholders of RusHydro (other than the Russian Federation) aimed at receiving unjustified profit (enrichment) at the Company’s expense.
Cooperating with the state regulatory bodies and law enforcement authorities responsible for combating corruption

- In 2018, the areas of the Company’s cooperation with government authorities (the Government of the Russian Federation, the Ministry of Energy of Russia, etc.) included:
  - disclosure of information upon an authorized request;
  - reporting on the Company’s anti-corruption practices;
  - filing queries for the clarification of anti-corruption law enforcement practices;

Measures to prevent wrongdoings by the Company’s employees

- In 2018, following the amendments of legislation and RusHydro’s internal local documents, the Company updated its corporate distance learning courses: Combating Fraud at RusHydro and Combating Procurement Fraud.
- In December 2018, the employees of the Headquarters, branches and subsidiaries of RusHydro holding positions exposed to corruption risks1 were tested to check their knowledge of Russian anti-corruption laws and the Company’s local internal documents on combating corruption.
- In 2018, as part of the effort to identify and resolve conflicts of interest, the Company collected and checked 2017 income records of 387 employees (the top management of RusHydro and its subsidiaries). As a result, 40 officers failed to comply with the relevant requirements.
- In response to all 40 cases of non-compliance, RusHydro’s Central Ethics Committee, after reviewing the results of the declaration for 2017, issued recommendations on the elimination of the identified gaps and violations, prevention or resolution of actual and/or potential conflicts of interest and use of disciplinary action.

Enhancing internal control system

- RusHydro develops, updates and implements internal control improvement plans on an annual basis. For more information on relevant initiatives, see Risk management section of this report.

Anti-corruption awareness program and training [203-2]

The Company promotes awareness and educates employees on anti-corruption practices. The Company’s anti-corruption measures include, among other things:
- distance learning induction for new (newly hired) employees of the Company, featuring information on this Policy;
- regular training on preventing and combating corruption in the Company;
- individual consultations for the Company’s employees regarding the application of anti-corruption standards and procedures.

RusHydro conducts annual assessment of employees in the positions with high exposure to corruption risk in order to test their knowledge of the anti-corruption laws.

Employee training in the existing anti-corruption policies in 2018

<table>
<thead>
<tr>
<th>Region</th>
<th>Top management</th>
<th>Middle management</th>
<th>Junior management</th>
<th>White-collar employees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of people</td>
<td>% of employees</td>
<td>Number of people</td>
<td>% of employees</td>
</tr>
<tr>
<td>Moscow</td>
<td>14</td>
<td>11.67</td>
<td>30</td>
<td>25.00</td>
</tr>
<tr>
<td>Republic of Dagestan</td>
<td>3</td>
<td>27.27</td>
<td>3</td>
<td>27.27</td>
</tr>
<tr>
<td>Kabardino-Balkarian</td>
<td>1</td>
<td>14.29</td>
<td>6</td>
<td>85.71</td>
</tr>
<tr>
<td>Republic of North Ossetia</td>
<td>1</td>
<td>11.11</td>
<td>2</td>
<td>22.22</td>
</tr>
<tr>
<td>Amur Region</td>
<td>8</td>
<td>36.36</td>
<td>10</td>
<td>45.45</td>
</tr>
<tr>
<td>Volgograd Region</td>
<td>3</td>
<td>37.50</td>
<td>4</td>
<td>50.00</td>
</tr>
<tr>
<td>Perm Territory</td>
<td>6</td>
<td>28.57</td>
<td>10</td>
<td>47.62</td>
</tr>
<tr>
<td>Samara Region</td>
<td>4</td>
<td>30.77</td>
<td>4</td>
<td>30.77</td>
</tr>
<tr>
<td>Moscow Region</td>
<td>5</td>
<td>55.56</td>
<td>3</td>
<td>33.33</td>
</tr>
<tr>
<td>Yaroslavl Region</td>
<td>5</td>
<td>55.56</td>
<td>2</td>
<td>22.22</td>
</tr>
<tr>
<td>Stavropol Territory</td>
<td>5</td>
<td>62.50</td>
<td>2</td>
<td>25.00</td>
</tr>
<tr>
<td>Nizhny Novgorod Region</td>
<td>5</td>
<td>50.00</td>
<td>4</td>
<td>40.00</td>
</tr>
<tr>
<td>Novosibirsk Region</td>
<td>3</td>
<td>21.43</td>
<td>7</td>
<td>50.00</td>
</tr>
<tr>
<td>Saratov Region</td>
<td>3</td>
<td>37.50</td>
<td>3</td>
<td>37.50</td>
</tr>
<tr>
<td>Republic of Khakassia</td>
<td>4</td>
<td>36.36</td>
<td>6</td>
<td>34.55</td>
</tr>
<tr>
<td>Chuvash Republic</td>
<td>4</td>
<td>36.36</td>
<td>5</td>
<td>45.45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>75</strong></td>
<td><strong>24.6</strong></td>
<td><strong>110</strong></td>
<td><strong>36.1</strong></td>
</tr>
</tbody>
</table>
Key developments in 2018

In order to keep the Company’s anti-corruption regulations updated, RusHydro undertook the following in 2018:
- approved a new Regulation on the Procedure for Accepting, Processing and Responding to the Reports received through RusHydro Group’s Line of Trust; including the following additions and amendments:
  - adding and modifying terms and definitions;
  - updating a list and responsibilities of the officers and divisions in charge of receiving and considering reports received through the Line of Trust;
- amended the Rules of RusHydro’s Line of Trust; to change the dial-in hotline number;
- amended the Code of Corporate Ethics in terms of the measures designed to prevent the substantial shareholders’ misconduct in connection with the Company’s transactions involving a conflict of interest, as well as mitigating the effects of such misconduct;
- approved the Regulations on the Procedure to Report Presents Received by RusHydro’s Employees; updating the reporting procedure and the criteria, limits and restrictions for giving presents and using of representation allowances and hospitality expenses;

Providing for transparency and availability of information


Anti-corruption program implementation roadmap for 2019

In 2019, the Company will continue rolling out the Comprehensive Program of Anti-Corruption Activities, which will include:
- developing and updating the Company’s anti-corruption regulations and by-laws;
- providing for transparency and availability of information on the Company’s anti-corruption policy and ensuring employees’ awareness of anti-corruption legislation;
- providing for investigations into any reports of wrongdoings;
- Cooperating with the state regulatory bodies and law enforcement authorities responsible for combating corruption;
- measures to prevent wrongdoings by the Company’s employees;
- other measures for improving efficiency of anti-corruption efforts.

The information on the ways to file a report is available on notice boards and information screens in the offices of RusHydro Group companies.

Information contained in 67 (34%) was confirmed to be true and involve violations of rights and/or other wrongdoings. The Company took measures to eliminate the verified violations:
- based on three reports, disciplinary action (reprimand, censure) was taken against five employees (managers) of RusHydro Group, who committed violations;
- two reports resulted in the managers being stripped of their bonuses;
- Two employees (one of them being a manager) faced termination of their employment contracts by mutual consent;
- organizational measures, including:
  - preventive discussions;
  - necessary employee training;
  - amendments made to procurement documents, cancellation/postponement of procurement procedures;
- payment adjustments;
- other measures aimed at eliminating identified gaps and violations.

Reports by topic, pcs

- Sales 85
- Procurement 26
- HR/payroll 21
- Abuse of power 13
- Other 38

There are several ways to file a report via the Line of Trust

Email: ld@rushydro.ru
Hotline answer phone (service available 24/7): +7 495 785 0937
In-person meeting with the Internal Control and Risk Management Director – Chief Auditor

Reports by topic, pcs

Number of reports considered, pcs

2016 2017 2018
195 106 53

Control over major transactions and interested-party transactions

RusHydro has a transaction control system in place. RusHydro’s Regulations on Contracts and Agreements govern a common procedure for negotiating, concluding and executing contracts on behalf of the Company. Draft contracts are subject to review to ensure compliance with Russian laws.

Depending on transaction value, the review is done by legal departments of the Company’s branches or at the Company’s Headquarters.

For the list of interested-party transactions concluded by RusHydro in 2018, including the subject of the transaction, interested parties involved and approval details, see Appendix No.2 to the annual report. All the transactions requiring approval by the Company’s governing bodies were approved. Consequently, none of them involved conflict of interest.

In 2018, RusHydro made no major transactions.

Preventing the use of insider information

RusHydro has put in place Regulations on insider information to secure compliance with laws and regulations of the Russian Federation in terms of prevention of unauthorized use of insider information and market manipulation. The Regulations are in line with the world’s best corporate governance practices, including Disclosure and Transparency Rules of the Financial Conduct Authority.

The Regulations specify the persons that are included in the Company’s list of insiders, the rules of access to the insider information and its confidentiality protection, as well as restrictions on the use of insider information in transactions with the Company’s financial instruments and disclosure thereof to the third parties.

The list of insider information is made in Russian and English and published on the Company’s website. In Q2 2018, the Company approved a new revised list of insider information.

The data that constitutes the Company’s insider information is also published in Russian in the news feed of an authorized news agency Interfax Corporate Information Disclosure Center (for more information, see www.e-disclosure.ru) and in English in the London Stock Exchange’s News Monitoring Service (for more information, see https://www.londonstockexchange.com/exchange/prices-and-markets/stocks/exchange-insight/company-news.html?fourWayKey=US7821834048USUSDIOBE).

RusHydro’s list of insiders is updated upon inclusion or exclusion of insiders. As at December 31, 2018, the Company’s list of insiders included 18 legal entities and 86 individuals. During 2018, six legal entities and 16 individuals were added to the list, while four individuals and one legal entity were excluded.

RusHydro sends proper inclusion/exclusion notifications to the insiders. In 2018, 27 notifications were sent.

In response to the requests of security market operator (PISC Moscow Exchange), RusHydro provided it with 12 lists of insiders as of the respective dates of the requests.

In 2018, RusHydro received two notifications from its insider George Rizhinashvili, the member of the Management Board, First Deputy General Director of the Company, regarding the sale of his ordinary registered shares in RusHydro through organized trading.

The member of the Management Board and First Deputy General Director in charge of the unit of financial and corporate law management supervises the Company’s compliance with the laws on insider information and submits quarterly reports to the Audit Committee of the Board of Directors of RusHydro. The Audit Committee includes the information on the Company’s compliance with these requirements into its annual report.

RISK MANAGEMENT

System of internal control and risk management

RusHydro’s operations are subject to a number of risks that, in certain circumstances, may have an adverse impact on the Company’s operating and financial performance and its social and environmental footprint. The Company has a risk management system in place to mitigate negative effects of potential threats while capturing favorable opportunities in line with the Development Strategy of RusHydro Group until 2020 with an outlook for 2025.
The Company’s risk management processes are coordinated by the Control and Risk Management Department set up as part of the internal control and risk management unit. Its headcount as at 31 December 2018 was 26 employees.

The Control and Risk Management Department is responsible for:
- maintaining an effective internal control and risk management framework at RusHydro Group,
- coordinating risk identification, assessment and management at RusHydro Group,
- carrying out centralized day-to-day control over RusHydro Group’s operations, including assessment of the management’s performance in relation to internal control function;
- maintaining an effective anti-corruption framework and coordinating RusHydro Group’s anti-corruption activities.

### Risk management: methods and approaches

The Company applies the following set of risk management methods and approaches in line with its Internal Control and Risk Management Policy:
- risk management is an integral part of all organizational processes: it is not segregated from the Company’s key business activities and processes;
- risk management is an integral part of decision-making: it helps the decision makers to make informed choices, prioritize initiatives and find the best solutions among alternatives;
- risk management is essential to RusHydro’s continuous improvement: the Company refines and enhances its corporate system of internal control and risk management to raise the level of its risk management maturity;
- the Company fosters a risk-focused organizational culture;
- the top management sets risk management as a priority, makes sure that risk management knowledge and skills are shared throughout the Company and the Group, promotes learning of the basics of risk management and advances the corporate culture centred around the risk-based approach to management;
- the Company’s management ensures effective information exchange and setting of communication standards as part of corporate risk management.

Pursuant to RusHydro’s Strategic Management Regulations, the Company maintains a strategic risk register which identifies risk owners and is reviewed annually and approved by the Management Board. Strategic risks that are deemed critical or material are addressed in the risk mitigation plan which identifies action owners, deadlines and deliverables and is approved by the Management Board. Performance against the risk mitigation plan is measured when determining employees’ bonus awards. The implementation of the risk mitigation plan and its progress are monitored and overseen by the Company’s risk managers.

### Internal regulations

The key regulation defining the goals, objectives and principles of the Company’s corporate system of internal control and risk management is RusHydro’s Internal Control and Risk Management Policy.

### Strategic risk management cycle

1. **Approval of the strategic risk register and the associated risk mitigation plan**
2. **Implementation of the risk mitigation plan**
3. **Report on the implementation of the risk mitigation plan**

### Independent assessment of the corporate system of internal control and risk management

**External assessment of the corporate system of internal control and risk management**

The Audit Committee of the Board of Directors or the Chairman of the Management Board – General Director may seek an external independent assessment of the corporate system of internal control and risk management by independent third-party experts.

In 2018, RusHydro’s Board of Directors performed an assessment of the corporate system of internal control and risk management.

The assessment relied on the methodology agreed with the Audit Committee of the Board of Directors and designed to assess the current state of the corporate system of internal control and risk management against its target state set by the methodology.

The assessment results were presented in a follow-up report on the operation of the corporate system of internal control and risk management that was reviewed by the Company’s Board of Directors at a meeting held in person and approved by resolution of the Board of Directors on June 21, 2018.

The report revealed that the Company’s corporate system of internal control and risk management had a moderate level of maturity, with elements of both systems being generally in line with the target state set by the assessment methodology as approved by the Audit Committee of the Company’s Board of Directors.

### Internal assessment of the corporate system of internal control and risk management

The internal assessment of the corporate system of internal control and risk management is performed annually by the Company’s Internal Audit Service to provide the Company’s Board of Directors and the Group’s executive bodies with independent and objective information about the current state of the corporate system of internal control and risk management against its target state and to identify areas for its improvement.

In 2018, RusHydro’s Board of Directors approved by resolution of the Board of Directors on June 21, 2018.

The priority areas for the improvement of the corporate system of internal control and risk management identified by the Board of Directors based on the report findings include updating the model of the Company’s business processes, benchmarking, and revising the Company’s approach to further development of the corporate system of internal control and risk management.
Improvement of the corporate system of internal control and risk management

The Company implemented a set of key initiatives listed below to improve its corporate system of internal control and risk management.

- In 2018, the Company reorganized its internal control and risk management unit. As a result, the unit successfully managed a transition to a new organizational structure and the Company approved new internal regulations governing the activities of the structural units within the internal control and risk management unit.
- In 2018, the Company started drafting internal regulations governing the operation of the corporate system of internal control and risk management at the Group level along with the methodology for supporting the internal control and risk management process.
- RusHydro’s subsidiaries were assessed and prioritized by risk level and progress in implementing risk management processes with a view to developing a risk-based approach to building the 2018 internal control action plan and assess the efficiency and form of control activities.
- The implementation of improvements in internal control over RusHydro’s key business processes is monitored on a systemic basis, with more proposals developed for introducing new or strengthening the existing business process controls.
- RusHydro’s subsidiaries were assessed and prioritized by risk level and progress in implementing risk management processes with a view to developing a risk-based approach to building the 2018 internal control action plan and assess the efficiency and form of control activities.

<table>
<thead>
<tr>
<th>Critical risks</th>
<th>Significant risks</th>
<th>Low priority risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Delayed commissioning of new facilities</td>
<td>2. Cost overruns for investment projects</td>
<td>3. Revenue shortfalls from the sale of electricity (capacity) and heat against the business plan</td>
</tr>
<tr>
<td>4. Adverse changes / breaches of the law</td>
<td>5. Industrial disasters and accidents</td>
<td>6. Lack of funds, including those sources externally</td>
</tr>
<tr>
<td>7. Risk of non-delivery / efficiency losses associated with production programs</td>
<td>8. Terrorism and cyber terrorism</td>
<td>9. Failure to achieve project targets by engineering companies (project companies, institutes, repair companies)</td>
</tr>
<tr>
<td>13. Corruption risk</td>
<td>14. Increase in receivables for electricity (capacity) and heat supplied and for transmission services rendered</td>
<td>15. Inefficient integration of companies merged into RusHydro Group</td>
</tr>
</tbody>
</table>

In 2018, the risk management activities centered around the critical risks associated with key construction projects, including:

- delayed commissioning of new facilities at Zaramagskie HPP (346 MW, under capacity sale agreements for new NPPs/HPPs); Sakhalininskaya GRES-2 (120 MW);
- cost overruns for investment projects at Verkhnebalkarskaya SHPP, Zagorskaya PSPP-2 (first stage of switchgear construction), GTP-CHPP at the central steam and water boiler site in Vladivostok.

During 2018, the risk management activities centered around the critical risks associated with key construction projects, including:

- delayed commissioning of new facilities at Zaramagskie HPP (346 MW, under capacity sale agreements for new NPPs/HPPs); Sakhalininskaya GRES-2 (120 MW);
- cost overruns for investment projects at Verkhnebalkarskaya SHPP, Zagorskaya PSPP-2 (first stage of switchgear construction), GTP-CHPP at the central steam and water boiler site in Vladivostok.

In 2018, measures were taken to mitigate these risks to an acceptable level.

### Risk management report for 2018

Risks and opportunities are prioritized according to their impact on key financial, environmental and social aspects of the Company’s operations, with the strategic targets, development priorities and the Company’s mission factored in. In 2018, RusHydro Group’s register consisted of 15 risks, with no changes taking place throughout the year.

### RusHydro Group’s strategic risk radar for 2018–2019

Delays in commissioning and project cost overruns were caused by the need to specify and amend the design and cost estimate documents, coupled with low financial stability and qualification of contractors, as well as contractors’ errors during the pre-commissioning stage.

In 2018, measures were taken to mitigate these risks to an acceptable level.
## Risk management report for 2018

### Strategic risk management at RusHydro Group

#### Economic aspect

<table>
<thead>
<tr>
<th>Risk and its priority</th>
<th>Impact on Long-term Development Program KPI</th>
<th>Stakeholders</th>
<th>Key risk mitigants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Delayed commissioning of new capacities</strong>&lt;br&gt;<strong>Critical risk</strong></td>
<td>RusHydro Group’s investment program implementation&lt;br&gt;<strong>Direct</strong>&lt;br&gt;Adherence to the capacity commissioning schedules, funding and spending plan&lt;br&gt;Roes&lt;br&gt;EBITDA</td>
<td>Shareholders and investors&lt;br&gt;Employees&lt;br&gt;Federal government authorities&lt;br&gt;Regional and municipal government authorities&lt;br&gt;Suppliers and contractors</td>
<td>Data systematization for designed facilities; developing a corporate project management system to systematize data on the existing and designed facilities. Building internal capabilities for expert review of design and detailed design documents; improving efficiency of design institutes and procurement processes to strengthen in-house capabilities for performing expert review of design and detailed design documents; formulating activities involving in-house expert review of design documents. Control over the quality, timing and cost of works; keeping a blacklist of unreliable designers, participating in selecting subcontractors; keeping a Register of contractors’ failures to meet deadlines under contracts for new construction projects and rehabilitation &amp; modernization (TM&amp;I) projects; streamlining insurance and procurement processes as applicable to construction and installation (reducing the risk of project cost overruns due to the facility damage or “loss caused by design or construction deficiencies or external impact); drafting internal regulations for the performance of certain types of work and introducing a work permit system for such works enabling employee suspension from further projects in case of material violations; developing a quality control system for the supplied equipment (including its production and shipment/delivery); monitoring the progress of building grid infrastructure; using a system for supervising and monitoring the timing and cost of new construction projects based on the SAP permanent facilities construction management system; as part of the 2018–2023 investment program review, the Company measured the risk-adjusted rate of return on investment projects for permanent facilities construction; taking a more stringent stance on the contractors’ compliance with the terms of contracts; filing complaints and claims.</td>
</tr>
<tr>
<td><strong>2. Project cost overruns for permanent facilities construction</strong>&lt;br&gt;<strong>Critical risk</strong></td>
<td>RusHydro Group’s investment program implementation&lt;br&gt;<strong>Direct</strong>&lt;br&gt;Free cash flow (FCF)</td>
<td>Shareholders and investors&lt;br&gt;Employees&lt;br&gt;Federal government authorities&lt;br&gt;Regional and municipal government authorities&lt;br&gt;Suppliers and contractors</td>
<td>Direct&lt;br&gt;Adherence to the capacity commissioning schedules, funding and spending plan&lt;br&gt;Roes&lt;br&gt;EBITDA&lt;br&gt;ROE&lt;br&gt;Labor productivity&lt;br&gt;Free cash flow (FCF)</td>
</tr>
</tbody>
</table>

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1. In the section, EBITDA refers to the indicator used for KPI calculations.
<table>
<thead>
<tr>
<th>Risk and Its Priority</th>
<th>Impact on Long-Term Development Program KPI</th>
<th>Stakeholders</th>
<th>Key Risk Mitigants</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Risk of non-delivery / efficiency losses associated with production programs</td>
<td>Production program implementation Direct</td>
<td>Shareholders and investors</td>
<td>Prompt filing of complaints and claims with regard to the poor quality of repairs, delivery of substandard equipment and violation of delivery deadlines</td>
</tr>
<tr>
<td></td>
<td>Meeting the accident prevention target</td>
<td>Employees</td>
<td>Setting up production programs based on recommendations of the analytical center</td>
</tr>
<tr>
<td></td>
<td>Providing the necessary equipment</td>
<td>Suppliers and contractors</td>
<td>Streamlining the contract approval process, amending the company’s internal regulations governing the contracting process</td>
</tr>
<tr>
<td></td>
<td>Maintaining control over the implementation of rehabilitation and modernization projects in compliance with the company’s standards</td>
<td></td>
<td>Cutting costs (in line with the value growth plan)</td>
</tr>
<tr>
<td>Significant risk</td>
<td>Total shareholder return (TSR)</td>
<td></td>
<td>Maintaining control over the implementation of rehabilitation and modernization projects in compliance with the company’s standards</td>
</tr>
<tr>
<td></td>
<td>Labor productivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Terrorism and cyber terrorism</td>
<td>Improving the counter-terrorism and information security system</td>
<td>Shareholders and investors</td>
<td>Improving armed protection of the company’s facilities by engaging the private guarding units of the national guard of Russia (Rosgvardia), guard federal state unitary enterprise of Rosguardia, and departmental protection federal state unitary enterprise of the ministry of energy of Russia</td>
</tr>
<tr>
<td>Significant risk</td>
<td>Meeting the accident prevention target</td>
<td>Employees</td>
<td>Amending and maintaining up-to-date plans for the interaction with law enforcement agencies to protect the company’s facilities in case of threatened or attempted terrorist attacks</td>
</tr>
<tr>
<td></td>
<td>Adherence to the capacity commissioning schedules, funding and spending plan</td>
<td>Suppliers and contractors</td>
<td>Improving access and on-site security control systems at the company’s facilities</td>
</tr>
<tr>
<td></td>
<td>Adherence to the capacity commissioning schedules, funding and spending plan</td>
<td>Federal government authorities</td>
<td>Planning and taking measures to identify, prevent, and suppress acts of unlawful interference against the company’s facilities in cooperation with law enforcement agencies</td>
</tr>
<tr>
<td></td>
<td>Adherence to the capacity commissioning schedules, funding and spending plan</td>
<td>Regional and municipal government authorities</td>
<td>Identifying the most probable threats and developing response plans to remedy acts of unlawful interference against the company’s facilities in cooperation with the local bodies of the ministry of the Russian federation for civil defence, emergencies and elimination of consequences of natural disasters in the regions of operation of the company’s operations</td>
</tr>
<tr>
<td></td>
<td>Decrease in operating expenses (costs)</td>
<td></td>
<td>Improving security of the company’s facilities by speaking up for the protection of the state and public property</td>
</tr>
<tr>
<td></td>
<td>Total shareholder return (TSR)</td>
<td></td>
<td>Improving security of the company’s facilities by speaking up for the protection of the state and public property</td>
</tr>
<tr>
<td>7. Failure to achieve project targets by engineering companies (subsidiary engineering design institutes)</td>
<td>Rehabilitation and modernization program Direct</td>
<td>RusHydro Group’s investment program implementation</td>
<td>Setting up a single engineering design complex of RusHydro through reorganization of subsidiary engineering design companies</td>
</tr>
<tr>
<td>Significant risk</td>
<td>Integrated innovative KPI</td>
<td>Suppliers and contractors</td>
<td>Implementing a development program for subsidiary engineering design companies</td>
</tr>
<tr>
<td></td>
<td>EBITDA</td>
<td></td>
<td>Implementing international experience exchange programs at subsidiaries engaged in repairs and engineering design</td>
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<td></td>
<td>Shareholders and investors</td>
<td></td>
<td>Organizing personnel development and training of scientific staff</td>
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<td></td>
<td>Total shareholder return (TSR)</td>
<td></td>
<td>Developing standard repair scope sheets for equipment and hydraulic structures</td>
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<td></td>
<td>Labor productivity</td>
<td></td>
<td>Creating and maintaining a database of advanced and innovative technologies</td>
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<td></td>
<td>Mitigating the risks associated with inefficient management of non-core activities by their consolidation in specialized service subsidiaries</td>
</tr>
<tr>
<td>8. Management system deficiencies and errors</td>
<td>Improving the corporate governance system</td>
<td>Shareholders and investors</td>
<td>Exercising control over the implementation of directives of the federal government authorities</td>
</tr>
<tr>
<td>Significant risk</td>
<td>Adherence to the capacity commissioning schedules, funding and spending plan</td>
<td>Employees</td>
<td>Monitoring, analysis, and control of document management procedures</td>
</tr>
<tr>
<td></td>
<td>Share of procurement from SMEs</td>
<td>Suppliers and contractors</td>
<td>Ensuring civil liability insurance of the members of the company’s management bodies and its officers, including liability to third parties and the company</td>
</tr>
<tr>
<td></td>
<td>Labor productivity</td>
<td></td>
<td>Using an automated procurement management system</td>
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<tr>
<td></td>
<td>EBITDA</td>
<td></td>
<td>Exercising coordination and control of work on formalizing the activities of structural units and officers</td>
</tr>
<tr>
<td></td>
<td>Total shareholder return (TSR)</td>
<td></td>
<td>Implementing the company’s it strategy</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>Ensuring support and maintenance of the company’s information systems</td>
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<td></td>
<td></td>
<td></td>
<td>Improving the formalization of activities and business process management</td>
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<td></td>
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<td></td>
<td>RusHydro introduces corporate management standards in all its newly acquired or newly established subsidiaries and rolls out systems for managing organizational projects, employee grading, management personnel certification and individual employee development plans</td>
</tr>
<tr>
<td>9. Increase in receivables for electricity (capacity) and heat supplied and for transmission services rendered</td>
<td>Managing receivables</td>
<td>Shareholders and investors</td>
<td>Monitoring data on suppliers’ and contractors’ financial health to prevent the risk of counterparty bankruptcy</td>
</tr>
<tr>
<td>Significant risk</td>
<td>Free cash flow (FCF)</td>
<td>Federal government authorities</td>
<td>Filing complaints and claims other than through the authorized credit institution on the wholesale electricity and capacity market in accordance with the agreement for access to the wholesale market trading system</td>
</tr>
<tr>
<td></td>
<td>Total shareholder return (TSR)</td>
<td>Suppliers and contractors</td>
<td>Claims and complaints management, settlements other than through the authorized credit institution on the wholesale electricity and capacity market in accordance with the agreement for access to the wholesale market trading system</td>
</tr>
</tbody>
</table>
### Corporate Governance

#### Environmental aspect

<table>
<thead>
<tr>
<th>Risk and its priority</th>
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<th>Stakeholders</th>
<th>Key risk mitigants</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Adverse changes / breaches of the law</td>
<td></td>
<td>Shareholders and investors</td>
<td>Ongoing monitoring and review of changes to the law that may affect the company's operations.</td>
</tr>
<tr>
<td>Critical risk</td>
<td></td>
<td>Consumers</td>
<td>Monitoring and reviewing the existing technical oversight standards and regulations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employees</td>
<td>Participating in any relevant activities related to legislative changes and amendments by legislative, executive and judicial bodies, public associations, professional legal unions and associations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trade unions</td>
<td>Conducting regular environmental audits and implementing recommendations received in follow-up recommendations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Federal government authorities</td>
<td>Participating in working groups of the ministry of energy of Russia on technical regulation matters; filing and managing complaints and claims.</td>
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<td>Regional and municipal government authorities</td>
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#### Social aspect

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<tbody>
<tr>
<td>13. Reputational risks</td>
<td>Improving the corporate governance system</td>
<td>Shareholders and investors</td>
<td>Ensuring compliance with the company's regulations, governing information activities, participation in public events and information disclosure.</td>
</tr>
<tr>
<td></td>
<td>Improving the corporate system of internal control and risk management</td>
<td></td>
<td>Engaging with stakeholders across the company's core operations, including through joint public events.</td>
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<tr>
<td></td>
<td>Improving the economic and information security system</td>
<td></td>
<td>Distributing regular press releases to share the company's operations, including through joint public events.</td>
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<td>Non-profit organizations</td>
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<tr>
<td>14. Corruption risk</td>
<td>Improving the corporate governance system</td>
<td>Shareholders and investors</td>
<td>Developing, implementing and monitoring the company's anti-corruption procedures.</td>
</tr>
<tr>
<td></td>
<td>Improving the corporate system of internal control and risk management</td>
<td></td>
<td>Coordinating activities aimed at preventing corruption.</td>
</tr>
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<td></td>
<td>Improving the economic and information security system</td>
<td></td>
<td>Developing and promoting activities aimed at assessing and mitigating corruption risks.</td>
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<tbody>
<tr>
<td>11. Industrial environmental aspect</td>
<td>Risk and its priority</td>
<td>Shareholders and investors</td>
<td>Upgrading centralized automatic emergency response systems to the most advanced standards.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumers</td>
<td>Implementing civil defense and emergency prevention measures.</td>
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<td></td>
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<td>Employees</td>
<td>Carrying out research and development in the field of remote monitoring of thermoelectric facilities and operational modes.</td>
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<td>Federal government authorities</td>
<td>Ensuring compliance with and maintaining a production control system based on the Russian industrial safety laws.</td>
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<td>12. Corruption risks</td>
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REPORT ON REMUNERATION OF THE GOVERNING AND CONTROL BODIES

Remuneration of the Board of Directors and Board committees

Remuneration of the Board of Directors is based on the following principles approved by the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors:

- the Regulations are not applicable to the members of the Board of Directors who act (during their term in office as members of the Board of Directors whether partial or entire) as members of the Company’s collegial executive body or as the Company’s sole executive body;
- remuneration is not set or paid to restrictions or bans on receiving any payments from business entities in accordance with the applicable Russian laws;
- the base remuneration of a member of the Board of Directors is RUB 3.51 mn;
- the remuneration depends on the number of meetings attended;
- the remuneration is increased if the member of the Board of Directors is Chairman of the Board of Directors (by 30%), Chairman of a Board committee (by 20%), Senior Independent Director (by 15%), or member of a Board committee (by 10%);

The Board of Directors annually takes a decision on the Recommendations to the Annual General Meeting of Shareholders Regarding Payment of Remuneration to Members of the Board of Directors who are not Public Officers in the amount set by the Internal Regulations as provided for in the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors (the “Remuneration Regulations”). The remuneration is paid to the members of the Board of Directors for the period from their appointment as members of the Board of Directors to the election of a new Board of Directors.

On June 27, 2018, RusHydro’s General Meeting of Shareholders resolved to approve the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors as amended. The remuneration is increased (by 10%); remuneration of the Board of Directors who act (during their term in office as members of the Board of Directors whether partial or entire) as chairperson of the Board of Directors of RusHydro (by 15%), member of a Board committee (by 20%), Senior Independent Director (by 10%), or member of a Board committee (by 10%);

The Board of Directors annually takes a decision on the Recommendations to the Annual General Meeting of Shareholders Regarding Payment of Remuneration to Members of the Board of Directors who are not Public Officers in the amount set by the Internal Regulations as provided for in the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors (the “Remuneration Regulations”). The remuneration is paid to the members of the Board of Directors for the period from their appointment as members of the Board of Directors to the election of a new Board of Directors.

On June 27, 2018, RusHydro’s General Meeting of Shareholders resolved to pay remuneration to the members of the Board of Directors for their services for the period from June 26, 2017 to June 27, 2018 in the amount, within the timeframes, and in accordance with the procedure, set out in the Remuneration Regulations.

The Board of Directors’ remuneration policy was revised after Ernst & Young (CIS) B.V. conducted research on board remuneration policies at Russian companies of comparable scale in 2016. The research results were used to develop a new calculation methodology setting a base remuneration of each member of the Board of Directors at RUB 3.51 mn, which is in line with the market average. This approach allowed the Company to retain and attract professionals to the Company’s Board of Directors.

Board of Directors’ remuneration, ‘000 RUB 1

<table>
<thead>
<tr>
<th>Type of remuneration</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration for membership in governing bodies</td>
<td>5,561.5</td>
<td>7,472.3</td>
<td>27,945.0</td>
</tr>
<tr>
<td>Salary</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bonus</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Commissions</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Other types of remuneration</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>5,561.5</td>
<td>7,472.3</td>
<td>27,945.0</td>
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</tbody>
</table>

Costs related to services of members of governing bodies compensated by the issuer 52.5 0 0

Personal remuneration of the Board of Directors in 2018, ‘000 RUB

<table>
<thead>
<tr>
<th>Full name</th>
<th>Meetings held</th>
<th>Meetings attended</th>
<th>Senior Independent Director</th>
<th>Member of a Board committee</th>
<th>Multiplier</th>
<th>Remuneration</th>
<th>Bonus</th>
<th>Total remuneration</th>
<th>Remuneration payable</th>
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<tbody>
<tr>
<td>Artem Avelian 20</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>1,755</td>
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<td>1,755</td>
<td>1,526.9</td>
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<tr>
<td>Maxim Bystrov 20</td>
<td>18</td>
<td>60</td>
<td>60</td>
<td>2,430</td>
<td>972</td>
<td>3,402</td>
<td>2,959.7</td>
<td></td>
<td></td>
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<tr>
<td>Pavel Gachev 20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>2,700</td>
<td>540</td>
<td>3,240</td>
<td>2,818.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sergey Ivanov 20</td>
<td>18</td>
<td>55</td>
<td>55</td>
<td>2,430</td>
<td>1,080</td>
<td>3,510</td>
<td>3,053.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vyacheslav Pivovarov 20</td>
<td>18</td>
<td>50</td>
<td>50</td>
<td>2,430</td>
<td>1,215</td>
<td>3,645</td>
<td>3,171.2</td>
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<tr>
<td>Nikolay Rogalev 20</td>
<td>20</td>
<td>40</td>
<td>40</td>
<td>2,700</td>
<td>1,080</td>
<td>3,780</td>
<td>3,288.6</td>
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<tr>
<td>Alexei Chekunov 20</td>
<td>20</td>
<td>30</td>
<td>30</td>
<td>2,700</td>
<td>810</td>
<td>3,510</td>
<td>3,053.7</td>
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<td></td>
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<tr>
<td>Sergey Shishin 20</td>
<td>19</td>
<td>10</td>
<td>10</td>
<td>2,565</td>
<td>256.5</td>
<td>2,821.5</td>
<td>2,456.7</td>
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<td></td>
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<tr>
<td>Andrey Shishin 20</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>2,025</td>
<td>0</td>
<td>2,025</td>
<td>1,761.8</td>
<td></td>
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<tr>
<td>Total</td>
<td>21,735</td>
<td>6,210</td>
<td>27,945</td>
<td>24,312.2</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Board of Directors is available on the Company’s website at: http://www.rushydro.ru


2 Minutes No. 17 of June 28, 2018.

3 Excluding personal income tax.

4 Including personal income tax.
Remuneration of the Management Board

Remuneration to members of the Management Board, including Chairman of the Management Board – General Director in 2018, was paid in accordance with the employment contracts and the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Management Board approved by the Company’s Board of Directors on November 11, 2016 (Minutes No. 243 of November 14, 2016).

In 2016, the Company engaged Ernst & Young (CIS) B.V. (Moscow branch), a global consultancy firm, to conduct large-scale research on top management remuneration policies at Russian companies of comparable scale. The research results were used to revise the methodology for calculating remuneration of the Management Board.

Since January 1, 2017, the remuneration is directly dependent on the achievement of the Company’s short- and long-term KPI recommended by the Nomination and Compensation Committee and approved by the Board of Directors.

The current incentive system relies on the following principles: transparency, balanced approach (interests of shareholders are aligned with the management’s interests), impartiality (the remuneration depends on the RusHydro’s performance and outcomes from the implementation of significant projects).

The current remuneration system includes a Long-Term Incentive Plan for the Management Board linked to the growth in share price and KPI set by the Company’s Board of Directors. The Plan aims to ensure closer alignment of interests of the management and shareholders in delivering consistent growth of the company’s value and developing the business. The key objectives and principles underpinning the Plan are to motivate the Company’s management to achieve strategic objectives and pursue openness to shareholders as remuneration is dependent on the achievement of the KPI, is calculated using the unified methodology and is based on equal payment conditions.

The amount and terms of payment of remuneration to the members of the Management Board, including Chairman of the Management Board – General Director, is determined in the regulation on payment of remuneration and compensation to RusHydro’s Management Board approved by the Board of Directors. The Company does not make “golden parachute” payouts for early termination. The maximum compensation paid to members of the Management Board upon early termination of employment is limited to three average monthly salaries as provided for by the Russian legislation.

For more information on the Management’s KPI and performance, see the Key Performance Indicators section on p. 36.

The remuneration of the members of the Management Board, including Chairman of the Management Board – General Director, is disclosed on the Company’s website in quarterly reports www.rushydro.ru

Remuneration of the Internal Audit Commission

Remuneration to members of the Internal Audit Commission in 2018 was paid for the period determined in the Regulations on Payment of Remuneration and Compensation to Members of RusHydro’s Internal Audit Commission amended to clarify the calculation methodology.

There are no agreements in place on the amount of remuneration to members of the Internal Audit Commission.

Remuneration of the Internal Audit Commission, '000 RUB

<table>
<thead>
<tr>
<th>Type of remuneration</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration for membership in a control body overseeing the Company’s financial and business activities</td>
<td>629.5</td>
<td>530.5</td>
<td>370.8</td>
</tr>
<tr>
<td>Total</td>
<td>629.5</td>
<td>530.5</td>
<td>370.8</td>
</tr>
<tr>
<td>Expenses related to duties in the control body overseeing the Company’s financial and business activities and compensated by the Company</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Individual disclosure of remuneration for work in RusHydro’s Internal Audit Commission, ‘000 RUB

<table>
<thead>
<tr>
<th>Internal Audit Commission members</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natalia Annikova</td>
<td>163.1</td>
</tr>
<tr>
<td>Igor Repin</td>
<td>207.6</td>
</tr>
<tr>
<td>Tatiana Zobkova (Chairman of the Internal Audit Commission)</td>
<td>–</td>
</tr>
<tr>
<td>Marina Kostina</td>
<td>–</td>
</tr>
<tr>
<td>Dmitry Simochkin</td>
<td>–</td>
</tr>
</tbody>
</table>

Auditor’s fee

The auditor’s fee is determined by the Board of Directors based on the results of competitive bidding and after prior consideration of the matter by the Audit Committee under the Board of Directors of PISC RusHydro.

Auditor’s fee, RUB mn

<table>
<thead>
<tr>
<th>Audited reporting year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit of the annual RAS financial (accounting) statements and IFRS consolidated statements, including review of the consolidated statements for six months</td>
<td>120.0</td>
<td>138.1</td>
<td>84.2</td>
</tr>
<tr>
<td>Non-audit services</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
</tr>
</tbody>
</table>

1 Including personal income tax.

2 Including VAT.

The auditor’s fee for 2017 includes the review of the consolidated statements for nine months ended September 30, 2017.
APPENDICES

Vostochnaya CHPP with an electric capacity of 139.5 MW and heat capacity of 632 Gcal/h is the first large energy-producing facility in 45 years, which was commissioned in the principal city of the Far Eastern Federal District. Vostochnaya CHPP has set up a heat capacity allowance for the fast-growing city, and using natural gas is beneficial for the environment.
Independent Limited Assurance Report to the Management of
Public Joint Stock Company Federal Hydro-Generating
Company – RusHydro (PJSC RusHydro)

Introduction
We have been engaged by management of PJSC RusHydro to provide limited assurance on the selected
information described below and included in the Annual report (including information on Sustainable
Development) of PJSC RusHydro (“Report”) for the year ended 31 December 2018.

The selected subsidiaries (“RusHydro Group”) are listed in the Group structure section of the Report.

Selected Information
We assessed the qualitative and quantitative information that is included in the «GRI Standards
Compliance Tables» for standard disclosures in environmental, workforce, safety and socio-economic
areas in the reporting scope (the “Selected Information”). The scope of our limited assurance
procedures was limited to Selected Information for the year ended 31 December 2018.

Reporting Criteria
We assessed the Selected Information using Sustainability Reporting Guidelines of the Global
Reporting Initiative (GRI) and GRI Electric Utilities Sector Supplement (collectively, GRI Standards).
We believe that these criteria are appropriate given the purpose of our limited assurance engagement.

Management responsibilities
Management of PJSC RusHydro is responsible for:
• designing, implementing and maintaining internal systems, processes and controls over
information relevant to the preparation of the Selected Information that is free from material
misstatement, whether due to fraud or error;
• establishing objective reporting criteria for preparing the Selected Information;
• measuring and reporting the Selected Information based on the Reporting Criteria; and
• ensuring that the Selected Information is accurate, complete and fairly presented.

Our responsibilities
We are responsible for:
• planning and performing the engagement to obtain limited assurance about whether the
Selected Information is prepared in accordance with the Reporting Criteria;

1 The term “RusHydro Group” in this Report relates only to PJSC RusHydro and its selected subsidiaries included in the Report and is not
equivalent to the similar term used in the Consolidated IFRS financial statements.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a
comprehensive system of quality control including documented policies and procedures
founded on fundamental principles of integrity, objectivity, professional competence and due care,
confidentiality and professional behaviour, together with the ethical requirements of the Auditor’s
Code and Auditor’s Independence Rules that are relevant to our limited assurance procedures in the Russian Federation.

Our Independence and Quality Control
We have complied with the independence and other ethical requirements of the Code of Ethics for
Professional Accountants issued by the International Ethics Standards Board for Accountants, which is
founded on fundamental principles of integrity, objectivity, professional competence and due care,
confidentiality and professional behaviour, together with the ethical requirements of the Auditor’s
Professional Ethics Code and Auditor’s Independence Rules that are relevant to our limited assurance procedures in the Russian Federation.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a
comprehensive system of quality control including documented policies and procedures
regarding compliance with ethical requirements, professional standards and applicable legal and regulatory
requirements.

Work done
We are required to plan and perform our work in order to consider the risks of material misstatement
of the Selected Information. For this purpose, our procedures included:
• enquiries of PJSC RusHydro’s management;
• interviews of RusHydro Group’s officials responsible for the preparation of the Selected
Information and collection of underlying data;
• analysis of the Reporting Criteria and gaining an understanding of the design of the key systems,
processes and controls for preparing and reporting the Selected Information; and

2 PJSC RusHydro’s management is responsible for placing information on PJSC RusHydro’s website and for accuracy of such information. The
scope of our performed work does not include reviewing these matters; consequently, we do not assume any responsibility for any amendments
that might have been made to the related information underlying the Independent Limited Assurance Report or any differences between
the report issued by us and the information presented on the PJSC RusHydro’s web-site.

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TRANSLATOR’S EXPLANATORY NOTE: This version of our report and accompanying documents is a translation from the original, which was prepared in Russian. All
possible care has been taken to ensure that the translation is an accurate representation of the original. However, in all matters of interpretation of information, views or
opinions, the original language version of our report takes precedence over this translation.

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limited substantive testing of the Selected Information on a sample basis to verify that data have been appropriately measured, recorded, collated and reported in line with the Reporting Criteria.

We have not performed any audit or review procedures in accordance with International Standards on Auditing or International Standards on Review Engagements on the underlying data based on which the Selected Information was prepared.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

**Reporting and measurement methodologies**

There are no globally recognised and established practices for evaluating and measuring the Selected Information. The range of different, but acceptable, techniques can result in materially different reporting outcomes that may affect comparability with other organisations. The Reporting Criteria used as a basis of RusHydro Group sustainability reporting should therefore be read in conjunction with the Selected Information and associated statements reported on PJSC RusHydro’s web-site.

**Limited assurance conclusion**

Based on the procedures we have performed and the evidence we have obtained:

- nothing has come to our attention that causes us to believe that the Selected Information for the year ended 31 December 2018 has not been prepared, in all material respects, in accordance with the requirements of GRI Standards; and
- nothing has come to our attention that causes us to believe that the Selected Information does not meet the Core requirements in accordance with the Guidelines of GRI Standards.

30 April 2019

Moscow, Russian Federation

A. S. Ivanov, certified auditor (licence no. 01-0005531),

AO PricewaterhouseCoopers Audit

**Engaging party:** Public joint stock company Federal Hydro-Generating Company – RusHydro

Record made in the Unified State Register of Legal Entities on 28 February 1992 under No. 008.890

Auditors and Audit Organizations – 11603050547

Registered by the Government Agency Moscow Registration Chamber on 22 August 2002 under State Registration Number 1027700148431

Member of Self-regulated organization of auditors «Russian Union of Auditors» (Association)

Audit organization: AO PricewaterhouseCoopers Audit

Record made in the Unified State Register of Legal Entities on 26 December 2004 under State Registration Number 1042401810494

Principal Registration Number of the Record in the Register of Auditors and Audit Organizations – 11603070547

**TRANSLATOR’S EXPLANATORY NOTE:** This version of our report/the accompanying documents is a translation from the original, which was prepared in Russian. All possible care has been taken to ensure that the translation is an accurate representation of the original. However, in all matters of interpretation of information, views or opinions, the original language version of our report takes precedence over this translation.
Subject and Basis of Assurance

PJSC RusHydro (hereinafter – the Company) invited us to evaluate the disclosures made in RusHydro Group’s Annual Report (including information on sustainable development) for 2018 (hereinafter - the Report).

The scope of evaluation during this public assurance covered the materiality and completeness of the information disclosed in the Report, as well as the Company’s response to the proposals of stakeholders.

We did not receive any remuneration from RusHydro for participation in the public assurance procedure.

We are unanimous in the opinion that this Report contains information on core aspects of RusHydro Group’s activities (hereinafter - the Group), with an emphasis being put on sustainable development activities. Disclosures made in the Report allow for a comprehensive assessment of the Group’s performance as of the end of the reporting year, which makes it a valuable source of information for stakeholders.

In preparing the Report, the Company focused on the best disclosure practices, as well as Russian and international corporate reporting standards, including: Global Reporting Initiative Sustainability Reporting Standards, International Integrated Reporting Standard (<IR>), Standards on AA1000 Institute of Social and Ethical Accountability (AA1000AP and AA1000SES). In addition, the Company’s priorities are aligned with the Sustainable Development Goals until 2030 adopted by the United Nations. This is evidenced by, inter alia, an open procedure for identifying material topics, which includes both an assessment of topics relevant to the Company and the possibility to propose for disclosure additional topics relevant to stakeholders. Some of these proposals are reflected in the Report.

In general, we believe that the scope of information presented on all significant topics is sufficient.

Another advantage of the Report is a detailed schematic description of the Group’s business model, which gives an understanding of the structure of the Group’s key business processes, and also demonstrates that the Company’s activities involve the full range of both financial and non-financial indicators.

We highly appreciate the Company’s initiative aimed at interacting with stakeholders in the preparation of annual reports, and recommend the Company to continue close cooperation on this issue with representatives of the target audiences of the Report.

Considering stakeholders’ Proposals and Recommendations

As part of interaction with the Company during preparation of the Report, a number of suggestions were made by the Company and other representatives of stakeholders, which were fully or partially included in the final version of the Report. Information relating to the consideration of stakeholders’ proposals following the questionnaire surveys and public hearings on the draft Report, as well as obligations to review and accept comments when preparing the 2019 Report are presented in Appendix No. 19 to the Report.

Summing up, we cannot fail to note a gradual improvement in the quality and accessibility of reporting disclosures. We hope RusHydro will continue to follow best practices in reporting and improve mechanisms for interaction with stakeholders.

Director of the Center for Systemic Transformations of Faculty of Economics at Lomonosov Moscow State University
M. Kuznetsov

Deputy Director - Head of the Expert Center of the Russian Institute of Directors
E. Nikolaichanova

Deputy Director of the Department of Social Partnership, Analytics and Professional Qualifications of the Association “ERA of Russia”
A. Pavlov

Advisor to the Office of Corporate Responsibility, Sustainable Development and Social Entrepreneurship at Russian Union of Industrialists and Entrepreneurs
M. Ozeryanskaya

Chief Analyst of the Federal State Budgetary Institution “Information and Analytical Center to Support the Reserve Management and Studies”
S. Sheinfeld

Head of the Electric Power Department of JSC VTB Capital
V. Sklyar
DEFINING
MATERIALITY AND CREATING
A MATERIALITY MATRIX

Material topics were defined while preparing this annual report to ensure its compliance with international standards—the International Integrated Reporting Framework (IIR®), GRI SRS, and AAIT00SES (the “applicable standards”).

In 2018, the Company used an updated step-by-step methodology for defining material topics that involved the following stages:
1. the Annual Report Working Group prepared a master list of material topics (based on the analysis of the operational context of RusHydro Group’s business in the reporting year and analysis of best public reporting practices, including peer analysis both in Russia and globally);
2. RusHydro’s management verified the proposed list of topics, updating content and wording;
3. stakeholders assessed the significance of the topics submitted (with the possibility of adding topics significant for specific stakeholders);
4. stakeholders’ proposals were analyzed with additional material topics defined;
5. the final materiality matrix (matrix of material topics, or aspects of operations) was created.

List of material topics (102-47, 102-49)

<table>
<thead>
<tr>
<th>№</th>
<th>Material topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensuring reliable and safe operation of RusHydro Group’s facilities</td>
</tr>
<tr>
<td>2</td>
<td>Investment program implementation: new construction and replacement of retiring capacities and power facilities</td>
</tr>
<tr>
<td>3</td>
<td>RusHydro Group’s role in developing the Far Eastern energy sector</td>
</tr>
<tr>
<td>4</td>
<td>Ensuring financial strength and improving operational efficiency of RusHydro Group</td>
</tr>
<tr>
<td>5</td>
<td>Innovative development of RusHydro Group</td>
</tr>
<tr>
<td>6</td>
<td>Improving procurement excellence and countering unfair competition</td>
</tr>
<tr>
<td>7</td>
<td>Renewable energy promotion</td>
</tr>
<tr>
<td>8</td>
<td>Business process digitalization at RusHydro Group</td>
</tr>
<tr>
<td>9</td>
<td>Improving energy efficiency</td>
</tr>
<tr>
<td>10</td>
<td>Efforts to reduce GHG emissions</td>
</tr>
<tr>
<td>11</td>
<td>Efforts to reduce discharges and emissions of pollutants and waste</td>
</tr>
<tr>
<td>12</td>
<td>Saving rare species and other efforts to conserve biodiversity</td>
</tr>
<tr>
<td>13</td>
<td>Good working conditions and respect for employees’ rights</td>
</tr>
<tr>
<td>14</td>
<td>Personnel development</td>
</tr>
<tr>
<td>15</td>
<td>Occupational health and safety</td>
</tr>
<tr>
<td>16</td>
<td>Contribution to the social and economic development of regions where RusHydro Group operates (including charity projects)</td>
</tr>
<tr>
<td>17</td>
<td>Transparent operations and stakeholder relations</td>
</tr>
<tr>
<td>18</td>
<td>Anti-corruption initiatives</td>
</tr>
</tbody>
</table>

As required by applicable standards, stakeholders defined the materiality of relevant topics using the following two criteria:
1. significant economic, environmental, and social impacts of RusHydro Group on stakeholders (102-47);  
2. impact on RusHydro Group’s ability to create value (IIR®).

Besides, based on the results of a stakeholder survey, as resolved by the Annual Report Working Group, the list of material topics was expanded to include the following topics:
- performing obligations under collective bargaining agreements and the Industry Tariff Agreement;  
- RusHydro Group’s policy of long-term fuel contracts;  
- RusHydro Group’s dividend policy;  
- introducing long-term tariff regulation in the Far East.

THE COMPANY DECIDED TO FOCUS ON ENERGY INFRASTRUCTURE EXPANSION AS AN IMPETUS TO REGIONAL DEVELOPMENT AS THE CENTRAL TOPIC OF THIS REPORT AS IT COVERS MATERIAL TOPICS 1, 2 AND 3, AND OFFERS AN OPPORTUNITY TO DISCUSS RUSHYDRO GROUP’S CONTRIBUTION TO THE ENERGY INFRASTRUCTURE EXPANSION ACROSS ITS FOOTPRINT.
### GRI SRS

#### CONTENT INDEX

<table>
<thead>
<tr>
<th>No.</th>
<th>Disclosure</th>
<th>Page</th>
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<tbody>
<tr>
<td>GRI 102. Standard elements</td>
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<td>Activities, brands, products, and services</td>
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<td>102-4</td>
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<td>102-9</td>
<td>Supply chain</td>
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</tr>
<tr>
<td>102-10</td>
<td>Significant changes to the organization and its supply chain</td>
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<tr>
<td>102-11</td>
<td>Precautionary Principle or approach</td>
<td>131</td>
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<td>102-12</td>
<td>External initiatives</td>
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<tr>
<td>102-13</td>
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<td>102-14</td>
<td>Statement from senior decision-maker</td>
<td>6–9</td>
</tr>
<tr>
<td>102-15</td>
<td>Key impacts, risks, and opportunities</td>
<td>203</td>
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<tr>
<td>102-16</td>
<td>Values, principles, standards, and norms of behavior</td>
<td>168</td>
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<tr>
<td>102-17</td>
<td>Governance structure</td>
<td>149</td>
</tr>
<tr>
<td>102-18</td>
<td>Role of highest governance body in setting purpose, values, and strategy</td>
<td>160</td>
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<tr>
<td>102-19</td>
<td>Highest governance body’s role in sustainability reporting</td>
<td>5</td>
</tr>
<tr>
<td>102-20</td>
<td>List of stakeholder groups</td>
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<tr>
<td>102-21</td>
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<td>102-22</td>
<td>Identifying and selecting stakeholders</td>
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</tr>
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<td>Key topics and concerns raised</td>
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<td>222</td>
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<td>222–223</td>
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<tr>
<td>102-30</td>
<td>Reporting period</td>
<td>4</td>
</tr>
<tr>
<td>102-31</td>
<td>Date of most recent report</td>
<td>4</td>
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<tr>
<td>102-32</td>
<td>Reporting cycle</td>
<td>4</td>
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<tr>
<td>102-33</td>
<td>Contact information</td>
<td>232</td>
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<td>102-34</td>
<td>Claims of reporting in accordance with the GRI Standards</td>
<td>5</td>
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<tr>
<td>102-35</td>
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<td>224</td>
</tr>
<tr>
<td>102-36</td>
<td>External assurance</td>
<td>5</td>
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</tbody>
</table>

No significant changes were reported in 2018.

### Standard elements of electric utilities sector disclosures

<table>
<thead>
<tr>
<th>No.</th>
<th>Disclosure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
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<td>EU1</td>
<td>Installed capacity</td>
<td>74</td>
</tr>
<tr>
<td>EU2</td>
<td>Net supply by primary energy source and by regulatory regime</td>
<td>76–77</td>
</tr>
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Glossary

Wind power plant: A power plant consisting of two or more wind power installations designed to convert wind energy into electrical energy and transmit it to the consumer.

Day-ahead market: The competitive selection of suppliers and consumers price bids by JSC ATS a day before the actual delivery of electricity with the determination of prices and delivery volumes for each hour of the day.

Energy efficiency: Effective (rational) use of energy resources. Use less energy to provide buildings or production processes with the same level of energy.

Generating companies (OGKs) of the wholesale electricity and capacity market: Electricity and power suppliers who received the status of wholesale market entities entered into contracts binding on wholesale market participants and made other actions necessary for trading in electricity and capacity on the wholesale market in accordance with the agreement on joining the wholesale market trading system.

Gigacalorie: A unit of measurement for heating energy.

Gigacalorie-Hour: A unit of measurement for heating power.

Hydroelectric power plant: The power plant as a single production and technological complex, including hydro-technical facilities and equipment that converts mechanical energy of water into electrical energy. In the annual report, unless otherwise noted, HPPs and PSPP are also classified as hydroelectric power plants.

Hydro-technical facilities: Dams, buildings of hydroelectric power stations, water discharge, drainage and outlet structures, tunnels, channels, pumping stations, shipping locks, ship elevators; structures designed to protect against floods and destruction of the banks of reservoirs, banks and the bottom of river beds; structures (dams) enclosing liquid waste storage facilities of industrial and agricultural organizations; facilities against washing-away in channels, as well as other structures designed to use water resources and prevent the harmful effects of water and liquid waste.

Installed capacity: Total nominal active capacity of generators at electric power plants which are part of the Group’s structure.

Kilowatt-Hour: A unit of measurement of generated electrical energy.

Megawatt: A unit of measurement for electrical capacity.

Net electricity delivered: Electricity received by consumers.

Net heat delivered: Heat energy delivered to the consumer (consumers) at the boundary of operational responsibility (balance sheet attribution).

Pumped storage power plant: Power plant working by transforming electricity from other power plants into the potential energy of water; during reverse transformation, accumulated energy is contributed to the energy system primarily to cover deficits that may occur during peak load periods.
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<td>FEC</td>
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### FEEDBACK QUESTIONNAIRE

Dear reader,

You are now familiar with PJSC RusHydro’s annual report. When drafting it, we tried to take note of all suggestions on disclosing material information. Please help us improve 2019 annual report by selecting the most relevant topics in the questionnaire. We value the opinion of every client, shareholder, contractor, and employee. The results of the stakeholder questionnaires are published in every annual report and on the Company’s website.

Please follow the link to fill in the questionnaire ar2018.rushydro.ru/en/

See the list of important matters for the previous periods here: http://www.eng.rushydro.ru
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