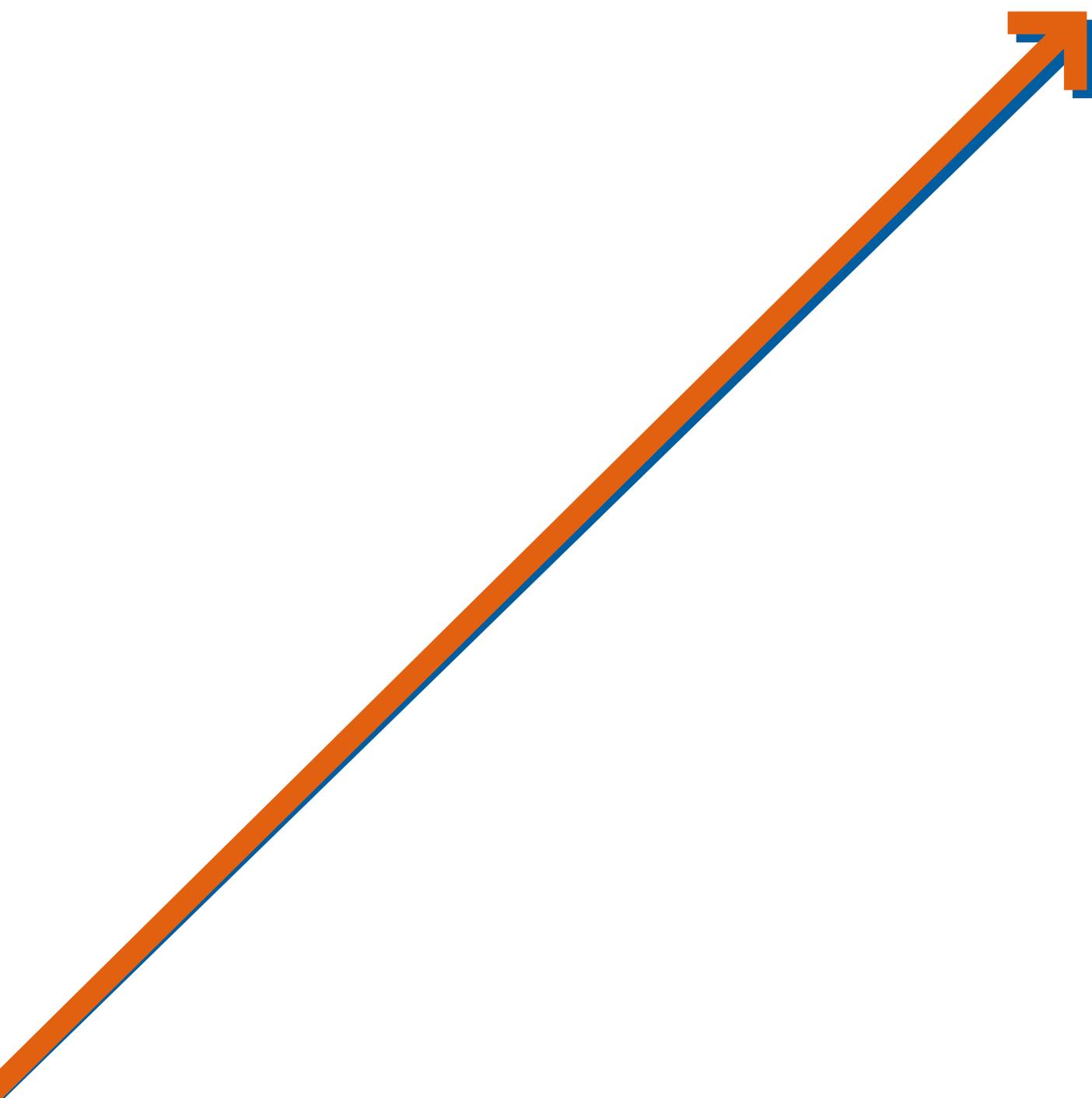




RusHydro

# UNITING ↑ THE ENERGY

2018 Annual report



**ANNUAL REPORT 2018 OF PSJC FEDERAL  
HYDROGENERATING COMPANY –  
RUSHYDRO, INCLUDING INFORMATION  
ON SUSTAINABLE DEVELOPMENT**

This Annual Report is preliminary approved by the Board of Directors on May 24, 2019,  
approved by decision of the Annual General Meeting of Shareholders on June 28, 2019



# 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.

## Comparability with the previous annual reports

In 2018, there were no significant changes in the scale 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]

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. [102-32]



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

- RusHydro's Information Policy Regulations;
- the International Integrated Reporting Framework (<IR>);
- the GRI Standards: Core option; [102-54]
- the GRI Electric Utilities Sector Supplement (GRI G4 – Electric Utilities (EU));
- specific provisions of the AA1000 Institute of Social and Ethical Accountability Series of Standards (AA1000AP and AA1000SES).

## Content and boundaries of the report

The content of this report has been determined in accordance with the requirements of the applicable regulations and standards, with the Group's stakeholders being engaged in the process. For more information on the content determination process and the materiality matrix, see page 222. The report has been prepared in accordance with the GRI SRS: Core option. [102-54]

The operational results of RusHydro Group (including financial and production ones) have been disclosed in line with the IFRS reporting boundaries<sup>1</sup>, unless otherwise specified in the notes to the disclosure.

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

In 2018, the consolidation 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 GRI SRS disclosure are indicated in the GRI Index on page 224.

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.

## Assurance of the report [102-56]

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

Reliability of qualitative and quantitative information prepared in accordance with the GRI SRS (Selected Information) has been verified in line with the Assurance Engagements Other than Audits or Reviews of Historical Financial Information of International Standard for Assurance Engagements (ISAE) 3000 (revised). The auditor's report on the independent audit results, which provides limited assurance regarding the Selected Information, can be found on page 216. The independent audit was performed by AO PricewaterhouseCoopers Audit.

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 RSPP Committee on Social Responsibility.

# INFORMATION ON THE REPORT

The annual report of Public Joint-Stock Company Federal Hydro-Generating Company RusHydro ("PJSC RusHydro" or the "Company") for 2018 [102-5] [102-50] 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<sup>1</sup> (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. [102-52]

Paper and electronic versions of the 2017 annual report were published at the Company's website on July 2, 2018. [102-51]



» See PJSC RusHydro's annual reports for the previous years here: <http://www.eng.rushydro.ru>



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

<sup>1</sup> For the purpose of this report, RusHydro Group means a group of companies which include PJSC RusHydro and its subsidiaries. The control is determined in accordance with Article 2 of Federal Law No. 39-FZ On Securities Market dated April 22, 1996.

<sup>1</sup> The report also covers information on PJSC Boguchanskaya HPP, which is not a subsidiary or part of RusHydro Group, but a joint venture of RusHydro Group and UC.RUSAL.

# MESSAGE

## FROM THE CHAIRMAN OF THE BOARD OF DIRECTORS



### Dear shareholders,

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 CHPP 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 CHPP 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 CHPP 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 2015, 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

# MESSAGE

## FROM THE CHAIRMAN OF THE MANAGEMENT BOARD – GENERAL DIRECTOR

### 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 to 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 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 centres 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 the utilities 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 Sovetskaya Gavan, Nizhne-Bureyskaya HPP, Zaramagskaya 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 Pevek-Bilibino power line. 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 Khabarovskaya CHPP-4, Artemovskaya CHPP-2 and the second stage of Yakutskaya 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 5.1% 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



// COMPANY PROFILE

# EVEN MORE POWER ↑FUL

RUSHYDRO GROUP ANNUALLY COMMISSIONS NEW GENERATION FACILITIES AND UPGRADES 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.



# ABOUT COMPANY

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. [102-1], [102-2]

The Company is registered in Krasnoyarsk and headquartered in Moscow. [102-3] 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-based Sevan-Hrazdan Cascade HPPs [102-4].

In accordance with the Russian President's Order No. 1009 dated August 4, 2004, PJSC RusHydro has been included in the list of strategic enterprises and joint stock companies since 2012.

Currently, RusHydro Group comprises over 400 power generation facilities, including Russia's largest Sayano-Shushenskaya HPP named after P. S. Neporozhniy (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), Zeyskaya HPP (capacity of 1,330 MW), Novosibirskaya HPP (capacity of 480 MW), several dozen hydroelectric power plants in the North Caucasus and highly maneuverable capacities of pumped storage power plants (PSPP). 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.

Installed electrical capacity of RusHydro Group is<sup>1</sup>

**39.4**  
GW

Installed heat capacity of RusHydro Group is

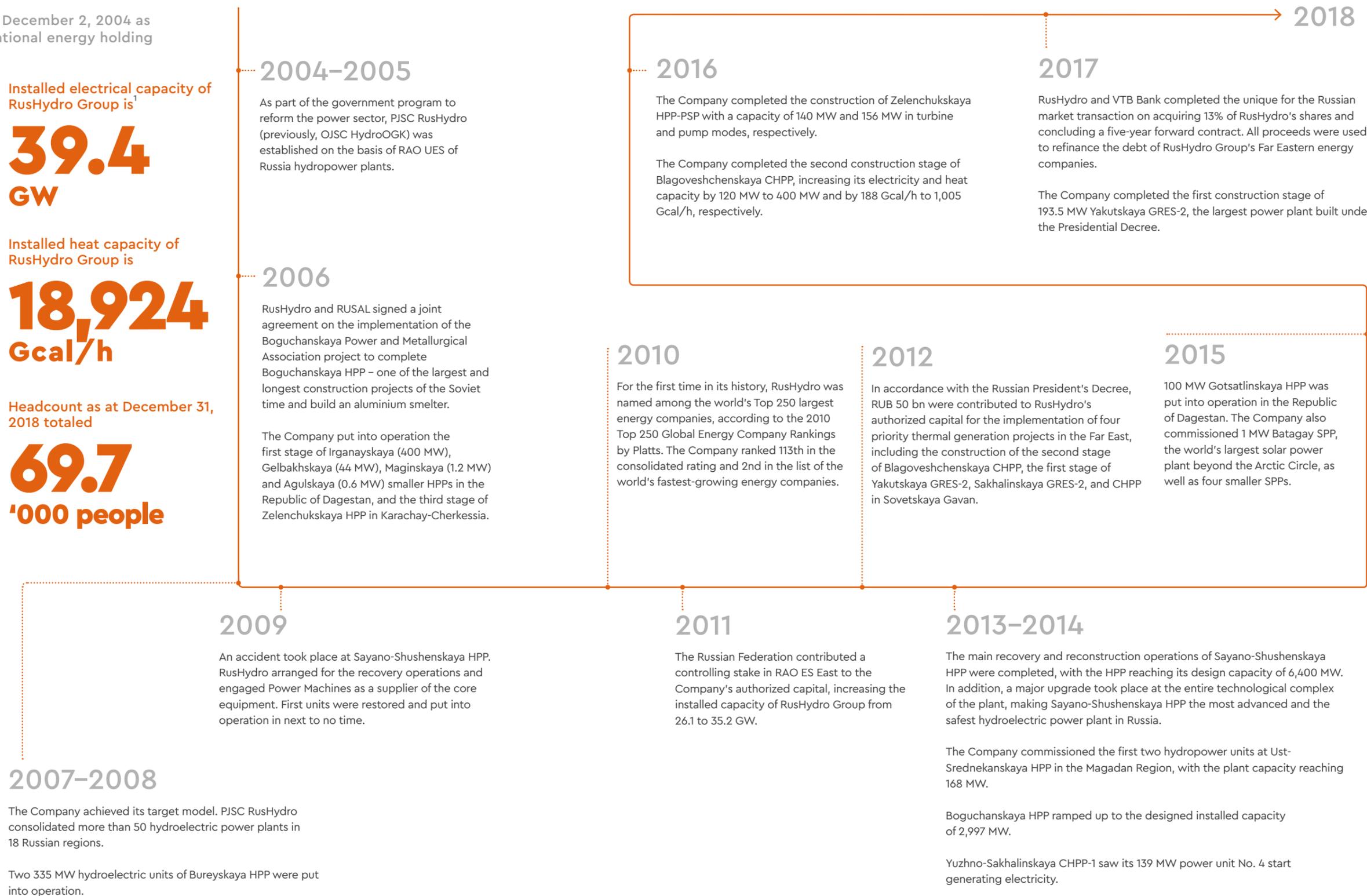
**18,924**  
Gcal/h

Headcount as at December 31, 2018 totaled

**69.7**  
'000 people

<sup>1</sup> The indicator includes the electric capacities of RAO ES East Subgroup and Boguchanskaya HPP built and jointly operated with UC RUSAL.

# RUSHYDRO'S HISTORY



# 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.<sup>1</sup>
- The Group's financial debt went down by RUB 26 bn following exclusion of guarantee obligations between RusHydro and Vnesheconombank on PJSC Boguchanskaya 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).

## 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.

## May

- RusHydro's Dagestan branch commissioned Miatlinskaya HPP's hydropower unit No. 2. Now all HPP's turbines were replaced as part of the Comprehensive Modernization Program.

## August

- The Company paid out RUB 11.2 bn as dividends for 2017.<sup>1</sup>
- 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-Sakhalinskaya CHPP-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 14 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 – Bilibino 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).

## 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.

## 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.
- 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.
- Cheboksarskaya HPP put into operation hydropower unit No. 14 as part of the Comprehensive Modernization Program, which included the recovery of the adjustable blade pitch and the replacement of the generator stator.

## 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 Mullalaksкая 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.

<sup>1</sup> 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.

<sup>1</sup> 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 CNH 1.5 bn. The issue is the largest public financing transaction denominated in CNH by a Russian borrower. The coupon rate was set at 6.125% 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.

## February

- 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).

## March

- RusHydro and RUSAL commissioned, within two start-up complexes, the first series of the Boguchansky Aluminum Smelter 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 Novosibirskaya HPP, the hydraulic unit No. 9 was commissioned at the Saratovskaya HPP, and a hydraulic unit with SS No. 3 and a new hydrogenerator was commissioned at the Volzhskaya HPP, a hydraulic unit with SS No. 3 was commissioned at the Cheboksarskaya HPP.
- RusHydro joined the leaders in the indices of the Russian Union of Industrialists and Entrepreneurs "Responsibility and transparency" and "Sustainability Vector".

# 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 AAA(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

### Cbonds 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.

### Events after the reporting date

## December

- RusHydro's Board of Directors adopted the resolution to begin the levelling of Zagorskaya PSPP-2 building. The works will kick off in 2019 and will take some 2.5 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. PJSC Yakutskenergo, a subsidiary of PJSC RusHydro, transferred the supervision and control over the territory to the System Operator.

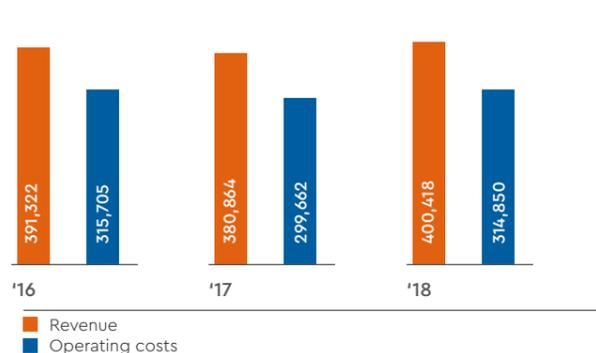
## April

- RusHydro held a public hearing on the 2018 annual report draft involving the representatives of the main groups of stakeholders.
- The Board of Directors approved the new edition of the Regulations on the Dividend Policy of RusHydro. The basic scenario is the payment of 50% of RusHydro Group's profit under IFRS. The minimum dividend payout is the average amount of dividends paid for the previous 3 years. The validity period of the Regulations is 3 years.

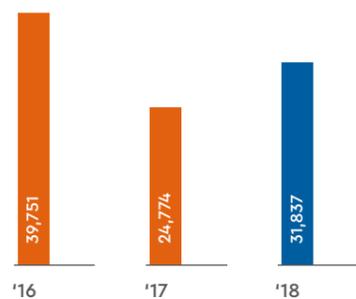
# KEY FIGURES [102-7]

## Financial data in accordance with IFRS<sup>1</sup>

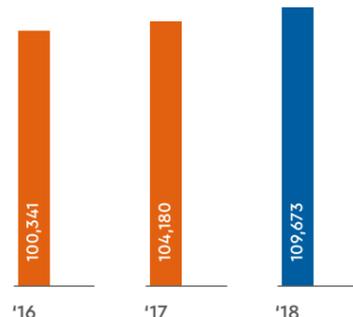
Revenue and operating costs<sup>2</sup>, RUB mn



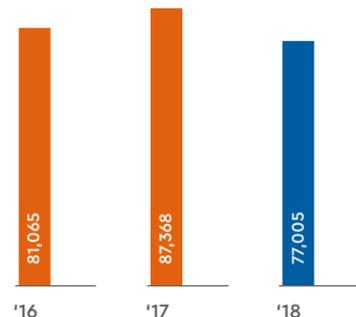
Net income, RUB mn



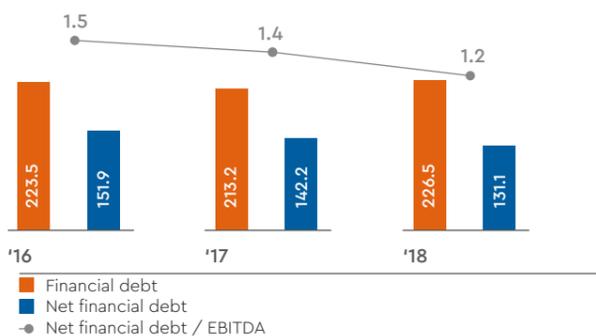
EBITDA, RUB mn



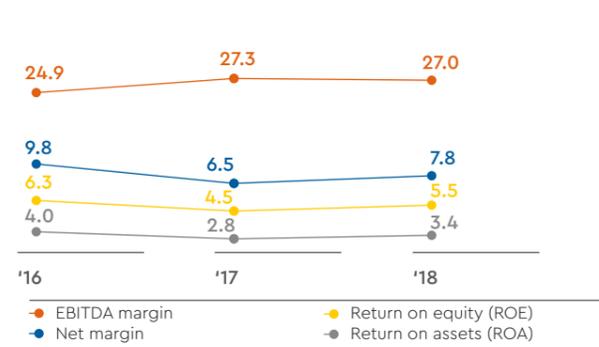
CAPEX<sup>3</sup>, RUB mn



Total and net financial debt, RUB bn, leverage as at the year-end<sup>4</sup>

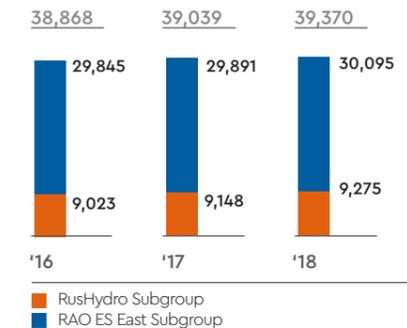


Margin performance<sup>5</sup>, %

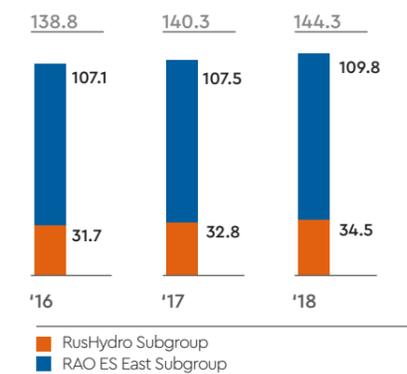


## Operational performance

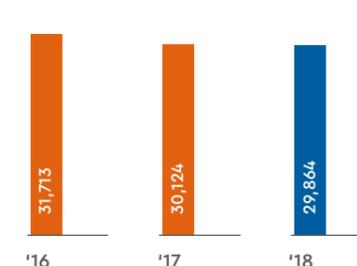
Installed capacity<sup>1</sup>, MW



Electricity generation<sup>1</sup>, bn kWh



Heat supply, '000 Gcal



IN 2018, RUSHYDRO DEMONSTRATED POSITIVE DYNAMICS OF CONSOLIDATED FINANCIAL INDICATORS, EBITDA HIT A RECORD HIGH

<sup>1</sup> Hereinafter, operating costs, profit, 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.

<sup>2</sup> Revenue includes government grants. Revenues and operating expenses for 2016 and 2017 are reported without effect of the new IFRS 15 "Revenue from contracts with customers". The Group has been applying IFRS 15 requirement prospectively since January 1, 2018.

<sup>3</sup> Excl. VAT. <sup>4</sup> Financial debt is calculated as the sum of long-term and short-term liabilities (less accrued interest payable as at the reporting date), liabilities on the 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 at the end of 2016-2017. Net financial debt is calculated as financial debt less cash and cash equivalents (including bank deposits for up to one year). Therefore, the data for 2016-2017 may differ from the data included in the Company's annual report for 2017.

<sup>5</sup> 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.

<sup>1</sup> Including PJSC Boguchanskaya HPP (a joint venture of PJSC RusHydro and RUSAL) and HPP-2 of PJSC KamGEK and excluding HPP-1 and HPP-3 of PJSC KamGEK, assets held in trust.



# STRUCTURE OF RUSHYDRO GROUP [102-45]

- 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 Dagestan branch
- PJSC RusHydro's branch Zhigulevskaya HPP
- PJSC RusHydro's branch Zagorskaya PSPP
- PJSC RusHydro's branch Zeyskaya HPP
- PJSC RusHydro's Kabardino-Balkaria branch
- PJSC RusHydro's branch Kamskaya HPP
- PJSC RusHydro's Karachay-Cherkessia branch
- PJSC RusHydro's branch Cascade of Verkhnevolzhskiy HPPs
- PJSC RusHydro's branch Cascade of Kubanskiye HPPs
- PJSC RusHydro's branch Nizhegorodskaya HPP
- PJSC RusHydro's branch

- Novosibirskaya HPP
- PJSC RusHydro's branch Saratovskaya HPP
- PJSC RusHydro's branch Sayano-Shushenskaya HPP named after P. S. Neporozhniy
- PJSC RusHydro's North Ossetia branch
- PJSC RusHydro's branch Cheboksarskaya HPP
- PJSC RusHydro's branch CorUnH

## Subsidiaries combining generation, transfer and sales of electricity

- PJSC Yakutskenergo
- JSC Sakhaenergo
- PJSC Kamchatskenergo
- JSC SENK
- PJSC Magadanenergo
- JSC Chukotenergo
- PJSC Sakhalinenergo
- PJSC Peredvizhnaya Energetika

## Subsidiaries - management companies

- AJSC MC HydroOGK
- JSC ESC RusHydro

## Electricity retail subsidiaries

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

## Generating subsidiaries

- JSC FEGC
- JSC Geotherm
- PJSC KamHEC
- CJSC MEC
- JSC NDES
- PJSC Kolymaenergo

## Electric grid subsidiary

- JSC DRSK

## Other specialized companies

- JSC Teploenergoservis
- JSC LCM

## Subsidiaries that are customer-developers

- JSC CHPP at Sovetskaya Gavan
- JSC Sakhalinskaya SDPP-2
- JSC Nizhne-Bureyskaya HPP
- JSC Leningradskaya PSHP
- JSC Zagorskaya PSHP-2
- LLC SHPPs of Stavropol Krai and Karachay-Cherkessia
- LLC Verkhnebalkarskaya SHPP
- JSC Zaramagskiye HPPs
- JSC Dyakov Ust-Srednekanskaya HPP

## Subsidiaries engaging in construction and repairs

- JSC Hydroremont – VCC
- JSC ChirkeiHPPstroy
- JSC Ust-Srednekan HPPstroy
- JSC KhPRC
- JSC KhRAC
- JSC Neryungrienergoremont
- JSC KhETC

- JSC YaERC
- JSC Magadanenergoremont
- JSC Magadanelectrosetremont
- LLC HYDROPROJECT-SERVIS

## Subsidiaries that are service providers

- JSC RHS
- RusHydro CAC JSC
- LLC RusHydro IT Service
- JSC SSHPP SC
- JSC Transport Company RusHydro
- RusHydro International India Private Limited
- JSC Vehicle Fleet Operator LuTEC
- LLC DUZ
- JSC SNRG
- JSC Rodnik Zdorovya
- JSC VOSTEC
- JSC Energotransnab
- RusHydro International B.V.
- RusHydro International A.G.

## Subsidiaries that are institutes

- JSC Vedeneyev VNIIG
- JSC NIIES
- JSC Lenhydroproject
- JSC Mosoblhydroproject
- JSC Hydroproject Institute
- LLP VNIIG

## Companies within the structure of BEMO

- PJSC Boguchanskaya HPP<sup>1</sup>
- JSC BoAP
- JSC BoHPP Holding Company
- HYDROOGK ALUMINIUM COMPANY LIMITED
- HYDROOGK POWER COMPANY LIMITED

- BOGES LIMITED
- BALP LIMITED
- JSC Boguchanskiy Aluminum Smelter Construction Customer
- JSC Boguchanskaya HPP Construction Organizer
- CJSC Boguchanskaya HPP Construction Customer
- CJSC Boguchanskiy Aluminum Smelter Construction Organizer
- LLC CKHK BoGES

## Subsidiaries that do not have any relevant activities or the liquidation (preparation for liquidation) of which is in progress

- JSC RHBE
- JSC Karachay-Cherkessia Hydrogeneration company
- JSC HydroEngineering Siberia
- CJSC Verkhne-Naryn HPPs
- JSC Technopark Rumyantsevo
- JSC FEETC
- JSC Small HPPs of Altai
- JSC HUA
- JSC ESKO UES
- JSC Engineering Center for Renewable Energy
- JSC AvtotransportEnergo
- JSC KRK

## Holding companies and asset holders

- JSC RAO ES East
- JSC Hydroinvest
- JSC Malaya Dmitrovka»
- JSC Blagoveshchenskaya CHPP
- JSC Yakutskaya SDPP-2
- JSC MGES CBR
- JSC Sulaksky HydroCascade

## Other investments ranging from 1 to 50%

- LLC Transbaikal Development Corporation
- JSC Magadanelectroset
- JSC IEGC
- LLC VolgaHydro
- JSC CEK
- JSC ENIN
- LLC INTERNATIONAL INSTITUTE OF GEOMECHANICS AND HYDRAULIC STRUCTURES
- JSC Krasnoyarsk Krai Development Corporation
- JSC SKK
- JSC NGES
- JSC Shakhta Ugolnaya
- JSC Okhinskaya TPP
- CJSC Verkhne-Narynskie HPPs

<sup>1</sup> PJSC Boguchanskaya HPP is a joint venture of RusHydro Group and RUSAL Group, not part of RusHydro Group.

# // GEOGRAPHICAL SPREAD

RUSHYDRO GROUP COMPRISES MORE THAN 70 HYDROPOWER PLANTS IN RUSSIA AND ABROAD, THERMAL GENERATION, RENEWABLES, ELECTRIC GRIDS IN THE FAR EAST, ENERGY RETAIL, CONSTRUCTION AND SERVICE COMPANIES, AND RESEARCH AND DESIGN ORGANIZATIONS.



⊗ Territories of the Russian Federation where Rushydro Group conducts energy sales activities

**32**  
regions of presence



### HPPs

1. Boguchanskaya HPP
2. Byreyskaya HPP
3. Cascade of Verkhnevolzhskiy HPPs
4. Cascade of Viluyuskiy HPPs
5. Volzhskaya HPP
6. Votkinskaya HPP
7. HPP's of Dagestan branch
8. Zhigulevskaya HPP
9. Zagorskaya PSPP
10. Zeyskaya HPP
11. Zelenchukovskaya PSPP
12. HPP's of Kabardino-Balkarian Branch
13. Kamskaya HPP

14. Kolymskaya HPP
15. Cascade of Kubanskiy HPPs
16. Nizhegorodskaya HPP
17. Novosibirskaya HPP
18. Saratovskaya HPP
19. Sayano-Shushenskiy Branch
20. Sevan-Hrazdan Cascade HPPs
21. HPPs of the Northern Ossetian Branch
22. Tolmachyovskiy HPPs
23. Cheboksarskaya HPP



### HPPs under construction

24. Zaramagskaya HPP-1

25. Zagorskaya PSPP
26. Nizhne-Bureyskaya HPP
27. Ust-Srednekanskaya A. F. Dyakova HPPa
28. Verkhnebalkarskaya SHPP
29. Ust-Dzhegutinskaya SHPP
30. Barsuchkovskaya SHPP



### Thermal PPs

31. Amurskaya CHPP
32. Anadyrskaya Gas Engine CHPP
33. Anadyrskaya CHPP
34. Artyomovskaya CHPP
35. Birobidzhanskaya CHPP
36. Blagoveshenskaya CHPP

37. Vladivostokskiy CHPPs
38. Kamchatskiy CHPPs
39. Komsomolskiy CHPPs
40. Kyzym (Mobile PP)
41. Labytnangi (Mobile PP)
42. Magadanskaya CHPP
43. Nerunginskaya GRES
44. Nikolaevskaya CHPP
45. Partizanskaya GRES
46. Primorskaya GRES
47. Raychikhinskaya GRES
48. Sakhalinskaya GRES
49. Urengoy (Mobile PP)
50. Khabarovskiy CHPPs
51. Chulmanskaya CHPP
52. Egvekinotskaya GRES-1

53. Yuzhno-Sakhalinskaya CHPP-1
54. Yakutskaya GRES
55. Arkagalinskaya GRES
56. Mayskaya GRES
57. Chaunskaya CHPP
58. Yakutskaya CHPP
59. Yakutskaya GRES-2
60. Vostochnaya CHPP



### Thermal PPs under construction

61. Sovetskaya Gavan CHPP
62. Sakhalinskaya GRES-2



### GeoPPs

63. Verkhne-Mutnovskaya GeoPP
64. Mutnovskaya GeoPP
65. Pauzhetskaya GeoPP



### Solar PP

SPP in the Republic of Sakha (Yakutia), 19 power plants



### Tidal PP

66. Kislogubskaya Tidal PP



### Retail companies

67. Far-Eastern energy company (DEK)
68. Krasnoyarskenergosbyt
69. Ryazan retail energy company
70. Chuvash retail energy company



### Wind PPs

71. WPP in Ust-Kamchatskiy
72. WPP in Nikolskoye
73. WPP in Novikovo
74. WPP in Tiksy



### Research and design organizations

75. Vedeneyev VNIIG
76. Hydroproject institute
77. Lenhydroproject institute
78. Mosoblhydroproject
79. NIIES
80. Khabarovsk Energy Technological Company



### Electric grid company

81. Far Eastern distribution company (DRSK)

# BUSINESS MODEL

## Incoming Capital Assets<sup>1</sup>

### Financial capital

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

**586** <sup>+3%</sup> <sub>y-o-y</sub>  
RUB bn  
own fund

**196.8** <sup>+16%</sup> <sub>y-o-y</sub>  
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** <sup>+0.5%</sup> <sub>y-o-y</sub>  
'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** <sup>+5.9%</sup> <sub>y-o-y</sub>  
mn cu m  
water used

**17.5** <sup>+4.2%</sup> <sub>y-o-y</sub>  
mn tonnes  
coal used in 2018

**6.4** <sup>+24.2%</sup> <sub>y-o-y</sub>  
bn cu m  
gas used in 2018

**239** <sup>+3.0%</sup> <sub>y-o-y</sub>  
'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

**Russia's leader**  
in renewable energy recovery

### Intellectual capital

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

**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

**Corporate University of Hydropower**

## Results for Stakeholders<sup>1</sup>

### Financial capital

**109.7** <sup>+5.3%</sup> <sub>y-o-y</sub>  
RUB bn  
EBITDA

**5.5%** <sup>4.5%</sup> <sub>in 2017</sub>  
return on Equity (ROE)

**1.2** <sup>1.4</sup> <sub>in 2017</sub>  
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** <sup>+5%</sup> <sub>y-o-y</sub>  
RUB bn  
environmental costs

**769.6** <sup>-2.1%</sup> <sub>y-o-y</sub>  
in tonnes of CO<sub>2</sub>-eq  
reducing specific GHG emissions from TPP

**63** <sup>-10.3%</sup> <sub>y-o-y</sub>  
tonnes  
total hazardous waste class I and II

### Property plant and equipment

**331** <sup>+0.8%</sup> <sub>y-o-y</sub>  
MW  
growth of installed electricity capacity

**426.9** <sup>+2.3%</sup> <sub>y-o-y</sub>  
Gcal/h  
growth of installed heat capacity

**-11.5%** <sub>y-o-y</sub>  
accident reduction

**144.3** <sup>+2.8%</sup> <sub>y-o-y</sub>  
bn kWh  
electric power generation

**29,864** <sup>-0.9%</sup> <sub>y-o-y</sub>  
'000 Gcal  
foe output

**884** MW  
providing an option for grid connection of consumers to the maximum capacity

### Intellectual capital

**3.04** RUB bn  
innovative Development Program financing

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

### Social and reputational capital

**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

### Human capital

**339** RUB mn  
training costs

**36,537** training courses  
RusHydro Group's employees attended

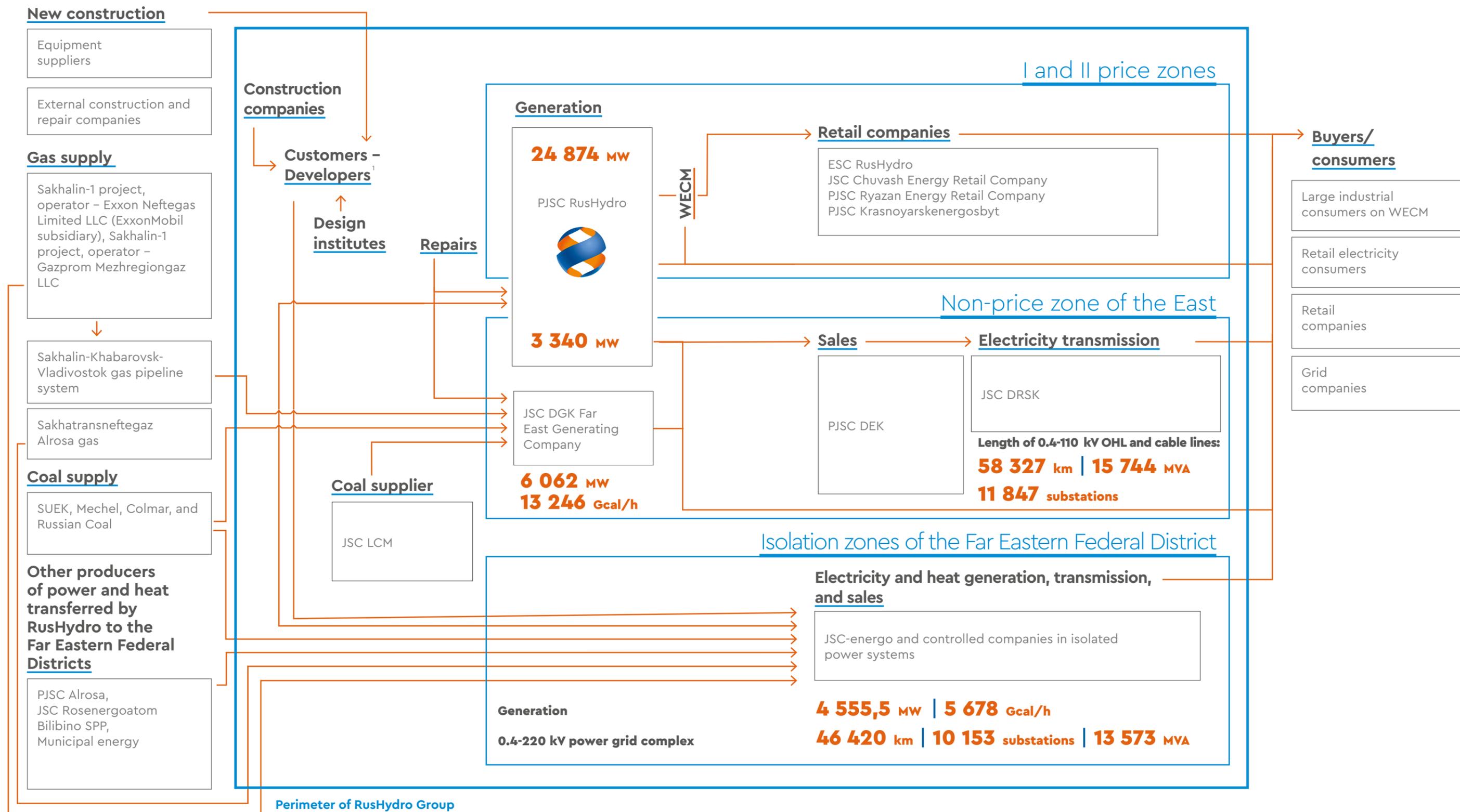
**Contribution to the safety**  
of water bodies (anti-flood function and participation in emergency response)

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

<sup>1</sup> The figures are as of December 31, 2018.

<sup>1</sup> The figures are as of December 31, 2018.

# RusHydro Group's Production Chains



<sup>1</sup> Transfer the commissioned power facilities to operating utility companies according to a territorial logic.

// STRATEGIC REVIEW

**EVEN MORE**  
**ENVIRON**  
**MENTALLY**  
**FRIENDLY**

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 [102-6]

## 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 CO<sub>2</sub> 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.

### RusHydro's share in Russia's electric power market<sup>1</sup>

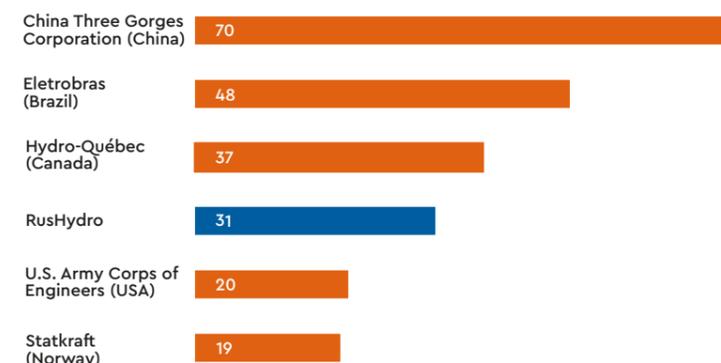
Year	Electricity			Capacity		
	Output in Russia	Output by RusHydro	Share	Total installed capacity, Russia	Total installed capacity, RusHydro	Share
	mn kWh	mn kWh	%	MW	MW	%
2016	1,071,800	138,405	12.91	244,100	38,309	15.69
2017	1,073,700	139,820	13.02	246,868	38,479	15.59
2018	1,091,700	143,853	13.18	250,400	38,803	15.50

<sup>1</sup> Excluding International Energy Corporation.

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

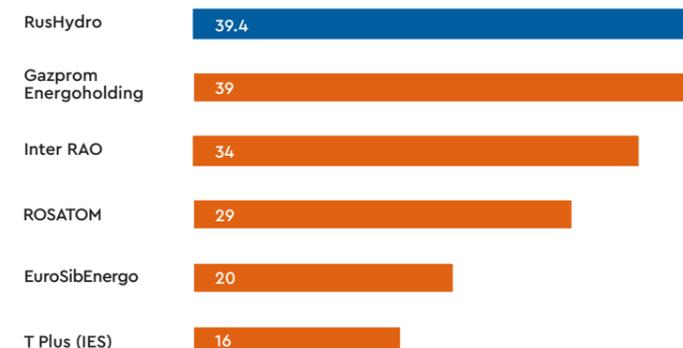


## Competitive landscape

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



THE GROUP'S ELECTRICITY GENERATION MADE UP 13.2% OF THE RUSSIAN TOTAL POWER GENERATION

# 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<sup>1</sup> 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

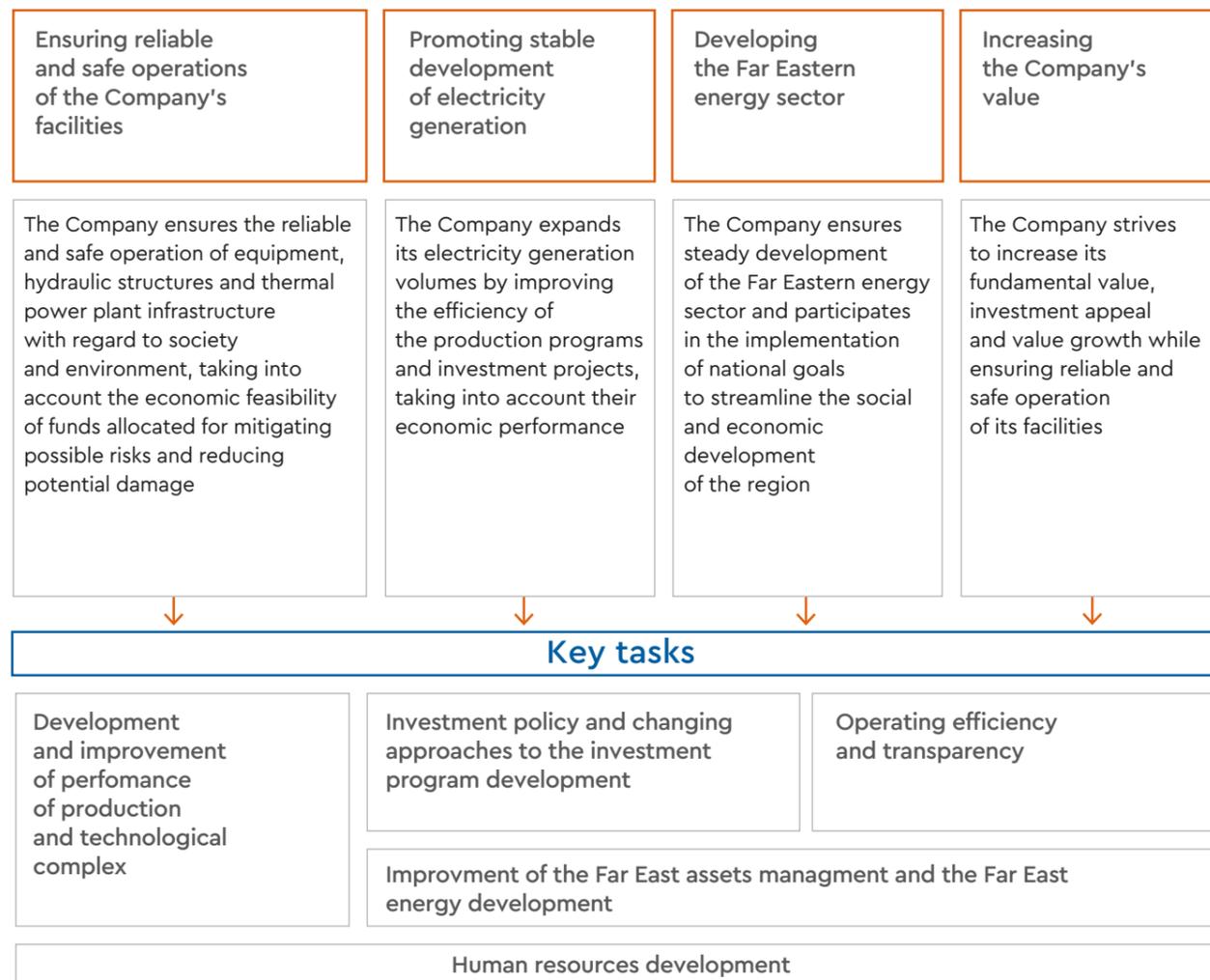
strategy seeks to implement the tasks outlined in the draft energy strategy of the Russian Federation until 2035.

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



### Strategic management system

The Company has a strategic management system in place<sup>2</sup>, 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

Strategy Implementation Plan outlining the Company's development priorities, objectives and indicators aimed at achieving its strategic goals, as well as 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<sup>3</sup> and the Russian Government<sup>4</sup>.

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.

<sup>1</sup> RusHydro Group's strategy was drafted in line with the following documents:

- Concept of long-term social and economic development of the Russian Federation until 2020;
- National Security Strategy of the Russian Federation;
- Long-term forecast of economic development of the Russian Federation until 2030;
- Draft energy strategy of the Russian Federation until 2035;
- Scheme and program for the development of Russia's Unified Energy System;
- General layout of power generation facilities until 2020;
- Regional social and economic strategies, energy strategies;
- Industry strategies.

<sup>2</sup> The system factors in the recommendations of the Federal Agency for State Property Management on the development of key strategic documents (Recommendations of the Federal Agency for State Property Management No. OD-11/18576 of April 29, 2014).

<sup>3</sup> Instruction No. Pr-3086 of December 27, 2013.

<sup>4</sup> Minutes No. 3 of January 30, 2014, Directive No. 4955p-P13 of the Russian Government of July 17, 2014.



RusHydro Group's Long-term Development Program<sup>1</sup> 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<sup>2</sup> and the Terms of Reference for auditing the implementation of the Long-term Development Program<sup>3</sup> developed in line with the recommendations of the Russian government<sup>4</sup>.

### Value Growth plan

RusHydro Group's Value Growth Plan through to 2021 was approved by RusHydro's Board of Directors on October 27, 2017<sup>5</sup> 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 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 activities for the sale of non-core assets, the resulting effect has already exceeded RUB 55 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.

» 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

Goal	Progress
Ensuring reliability of existing assets and their upgrade, enhancing management efficiency with respect to the production complex	<ul style="list-style-type: none"> <li>➤ 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.</li> <li>➤ RusHydro Group's Environmental Policy has been approved, which, along with the principles of environmental protection and safety, sets out key tasks aimed at improving the environmental management system.</li> </ul>
Enhancing the operating performance and transparency	<ul style="list-style-type: none"> <li>➤ Cost optimization plan is being implemented based on the results of the external independent cost audit of RusHydro and its subsidiaries.</li> <li>➤ 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.</li> </ul>
Improving the efficiency of the Far Eastern asset management system and developing the Far Eastern energy sector	<ul style="list-style-type: none"> <li>➤ The Company is preparing a development strategy for its scientific and engineering design complex.</li> </ul>
Increasing the competitive edge of the engineering design complex	<ul style="list-style-type: none"> <li>➤ The Group's Long-Term Development Program for 2018–2022 has been updated.</li> <li>➤ 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.</li> </ul>
Drafting the Company's strategic documents	<ul style="list-style-type: none"> <li>➤ 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%.</li> </ul>
Improving the corporate governance system	<ul style="list-style-type: none"> <li>➤ The Action Plan for the Introduction of Professional Standards into RusHydro's Operations is being implemented, including 33 standard training programs for the professional development and retraining of facility personnel at the Corporate Hydropower University based on the professional standards framework.</li> <li>➤ RusHydro Group's employees completed 36,537 training courses.</li> <li>➤ 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.</li> </ul>
Expanding the talent pool	

<sup>1</sup> Minutes No. 271 of the Board of Directors of 01.06.2018, taking into account changes approved by the Minutes No. 279 of the Board of Directors of October 26, 2017.

<sup>2</sup> Minutes No. 281 of the Board of Directors of December 27, 2018.

<sup>3</sup> Minutes No. 279 of the Board of Directors of October 26, 2018.

<sup>4</sup> Instruction No. ISH-P13-2583 of the Russian Government of April 15, 2014.

<sup>5</sup> Minutes No. 259 of the Board of Directors of October 30, 2017.

# KEY PERFORMANCE INDICATORS<sup>1</sup>

The system of key performance indicators ("KPI") for RusHydro's management is based on national statutory requirements<sup>2</sup> 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<sup>3</sup>, 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<sup>4</sup>) for the Management Board's KPI<sup>5</sup> and the calculation and evaluation methodology for the KPI of RusHydro's Long-Term Incentive Plan<sup>6</sup>.

## 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<sup>7</sup>.

### Target and actual KPI of RusHydro's Management Board members

KPI	Period	Target	Actual	Target KPI achievement	Weight, %	KPI achievement in 2018, %
EBITDA <sup>1</sup> , RUB mn	2017	97,993	110,323	Achieved	15	100
	2018	170,932	181,526	Achieved	15	100
ROE, %	2017	6.10	10.13	Achieved	15	100
	2018	15.86	23.88	Achieved	15	100
Share of procurement from small and medium businesses, %	2017	≥18	85	Achieved	10	100
	2018	≥18	76	Achieved	10	100
including: based on procurement from small and medium businesses only, %	2017	≥10	38	Achieved	10	100
	2018	≥15	46	Achieved	10	100
Accident prevention	2017	0	0	Achieved	20	100
	2018	0	0	Achieved	20	100
number of production-related accidents	2017	≤ 5-year average <sup>2</sup>	14	Achieved	20	100
	2018	≤ 5-year average <sup>3</sup>	9	Achieved	20	100
number of major accidents	2017	0	0	Achieved	20	100
	2018	0	0	Achieved	20	100
Adherence to the capacity commissioning schedule, funding and spending plan, %	2017	85	92.8	Achieved	20	100
	2018	85	92.8	Achieved	20	100
Labor productivity, RUB '000/man-hour	2017	4.74	5.20	Achieved	10	100
	2018	5.30	6.12	Achieved	10	100
Decrease in operating expenses (costs), %	2017	2	2.26	Achieved <sup>4</sup>	10	100
	2018	2	2.69	Achieved <sup>5</sup>	10	100

<sup>1</sup> In the Key Performance Indicators section, a special methodology is used to calculate KPIs, and therefore the values of indicators with the same name may differ in other sections of the report. The methodology for calculating the KPI of the Long-term Development Program is disclosed in Appendix No. 9 to the Report.

<sup>2</sup> Clause 4 of the List of Russian President's Instructions No. Pr-1474 of July 5, 2013, Instruction of the Russian Government No. ISH-P13-2043 of March 27, 2014, and Directives of the Russian Government No. 2579p-P13 of April 25, 2014, No. 7558p-P133 of November 12, 2014, in accordance with Methodological Guidelines of the Federal Agency for State Property Management.

<sup>3</sup> Recommendations of an independent advisor (Ernst & Young (CIS) B.V.) on the methodology for the Management Board's remuneration system were approved by the Board of Directors (Minutes No. 241 of September 23, 2016).

<sup>4</sup> Minutes No. 245 of December 26, 2016.

<sup>5</sup> As amended (Minutes No. 251 of April 18, 2017 and No. 269 of April 25, 2018).

<sup>6</sup> The latest version approved by the Board of Directors (Minutes No. 283 of February 21, 2019).

<sup>7</sup> Minutes No. 264 of December 28, 2017 as amended by resolutions of the Board of Directors (Minutes No. 269 of April 25, 2018, No. 276 of October 4, 2018, and No. 283 of February 21, 2019).

<sup>1</sup> 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 + non-cash expenses - non-cash revenue + interest payable + fuel cost. 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 Note 6 to the IFRS consolidated financial statements of RusHydro Group, EBITDA is calculated as operating profit/loss net of 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.

<sup>2</sup> 25.2.

<sup>3</sup> 22.8.

<sup>4</sup> Subject to factors beyond control of the management. Resolution of the Board of Directors of April 24, 2018 (Minutes No. 269).

<sup>5</sup> Subject to factors beyond control of the management. Resolution of the Board of Directors of April 4, 2019 (Minutes No. 286).

### 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<sup>1</sup>.

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<sup>2</sup>

KPI	Target
Total shareholder return (TSR), %	100
Integrated innovative KPI, %	85
Free cash flow (FCF), RUB mn	-138,601
Earnings per share (EPS), RUB/share	0.85

#### Target KPI for the second LTIP cycle for 2018-2020<sup>2</sup>

KPI	Target
Total shareholder return (TSR), %	100
Integrated innovative KPI, %	85
Free cash flow (FCF), RUB mn	-92,284
Earnings per share (EPS), RUB/share	0.81

### 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

(including the consolidated investment program) and subject to the activities stipulated in 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. [\[103\]](#)

### Target and actual KPI for the Long-Term Development Program<sup>1</sup>

KPI	2018		Progress	2019	2020	2021	2022
	Target	Actual		Target			
EBITDA <sup>2</sup> , RUB mn	170,932	181,526	Achieved	175,629 <sup>3</sup>	193,795	209,894	207,698
ROE, %	15.86	23.88	Achieved	16.36 <sup>3</sup>	16.12	16.70	16.03
Share of procurement from small and medium businesses, %	18	76	Achieved	18	18	18	18
including procurement from small and medium businesses only, %	15	46	Achieved	15	15	15	15
Accident prevention:	0	0	Achieved	0	0	0	0
number of production-related accidents	≤ 5-year average	≤ 5-year average	Achieved	≤ 5-year average	≤ 5-year average	≤ 5-year average	≤ 5-year average
number of accidents	0	0	Achieved	0	0	0	0
Adherence to the capacity commissioning schedule, funding and spending plan	85	92.8	Achieved	85	85	85	85
Labor productivity, RUB '000/man-hour	5.30	6.12	Achieved	5.72 <sup>3</sup>	5.31	5.60	5.75
Decrease in operating expenses (costs), %	2	2.69	Achieved <sup>4</sup>	2	2	2	2
Integrated innovative KPI, %	85	96	Achieved	85	85	85	85
Total shareholder return (TSR) <sup>5</sup> , %	100	0	Not achieved	100	100	100	100
Free cash flow (FCF), RUB mn	-66,079	-41,789	Achieved	11,704	25,498	54,277	56,424

<sup>1</sup> Approved by resolution of the Interagency Working Group for Implementing the Innovative Development Priorities of the Presidium of the Russian President's Council for Modernization of the Economy and Innovative Development of Russia (Minutes No. AD-P36-247pr of December 17, 2015). The integrated innovative KPI is listed among KPI in compliance with Directives No. 1427p-P13 of the Russian Government of March 3, 2016 and Resolution of the Board of Directors (Minutes No. 242 of October 10, 2016).

<sup>2</sup> Pursuant to Resolution No. 282 of the Company's Board of Directors of December 25, 2018 amending target performance indicators for the first cycle of RusHydro's Long-Term Incentive Plan for 2017-2019 and the second cycle of the Plan for 2018-2020, and Resolution No. 283 of February 21, 2019 approving the target KPI "Earnings per share (EPS), RUB/share".

<sup>1</sup> 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).

<sup>2</sup> The methodology of calculating EBITDA for the purpose of the LTDP KPI is similar to that for EBITDA of the Management Board's KPI.

<sup>3</sup> As resolved by the Company's Board of Directors (Minutes No. 282 of December 27, 2018).

<sup>4</sup> As resolved by meeting of the Board of Directors of April 5, 2019 (Minutes No. 286).

<sup>5</sup> The TSR in 2018 was down by 32.8%, while the MOEX Russia Index grew by 12.2% over the same period. In 2018, the MOEX Russia Index was up 7.8% y-o-y, while the Moscow Stock Exchange Power 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, as evidenced by the Power Index downward trend. RusHydro shares were under pressure from sanctions imposed on RUSAL and geopolitical risks, including the proposed new US sanctions (DASKA, August 2018). The exclusion of the Company from the MSCI Russia Index in late November 2018 was the strongest contributor to the decline.

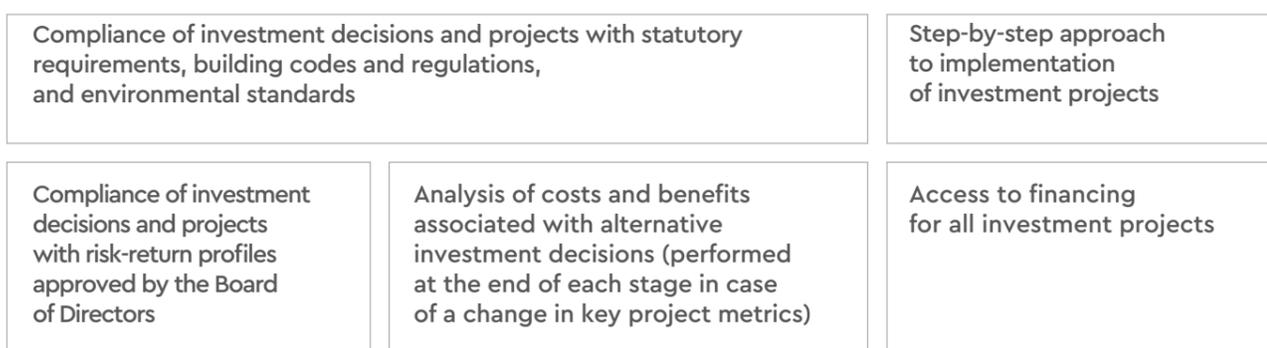
THE KPI SYSTEM IS DESIGNED TO IMPROVE THE COMPANY'S PERFORMANCE AND ACHIEVE THE GOALS SET BY ITS SHAREHOLDERS

# INVESTMENT ACTIVITIES

## Investment policy and its principles [103-2]

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

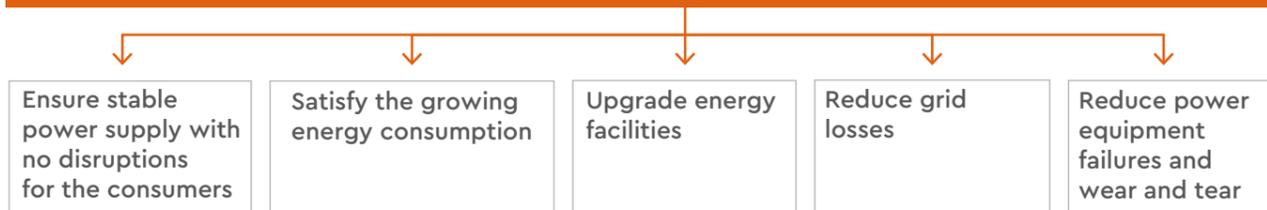


Investment programs are approved by the respective boards of directors within RusHydro Group, with the programs of members involved in the electricity sector additionally reviewed by the authorized government

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 after being reviewed by their boards of directors.

### Investment objectives



## Role of federal and regional governments in the investment program development [EU19]

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.



RUSHYDRO GROUP'S INVESTMENTS IN 2018 TOTALED RUB 82.8 BN

## 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<sup>1</sup>.

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;
- 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) CHPP to be commissioned in Pevek (36 MW);
- Yakutskaya GRES-1 to be decommissioned (368 MW) The second stage of Yakutskaya GRES-2 to be commissioned (226 MW);

- Ust-Srednekanskaya HPP to be commissioned (260 MW, the fourth hydropower unit, new runners);
- Khabarovskaya CHPP-1 to be decommissioned (435 MW) Khabarovskaya CHPP-4 to be commissioned (320 MW);
- Artyomovskaya CHPP to be decommissioned (400 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 Kozak, Deputy Chairman of the Government of the Russian Federation (Minutes No. DK-P9-250pr (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.

## 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. 6@ 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.

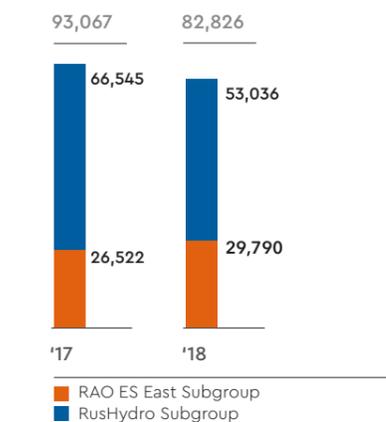
### Implementation of RusHydro Group's consolidated investment program<sup>1</sup>

Spending on the consolidated investment program in 2018 totaled RUB 82.8 bn, including RUB 53.0 bn for RusHydro Group's investment projects (without JSC RAO ES East Subgroup's) and RUB 29.8 bn for JSC RAO ES East Subgroup.



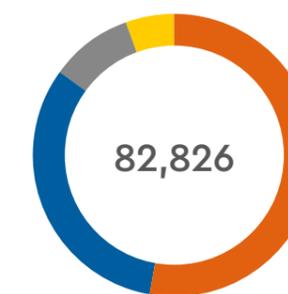
**NEW CAPACITIES WERE COMMISSIONED, INCLUDING 345.2 MW IN POWER GENERATION, 442.47 GCAL/H IN HEAT, 972.23 MVA OF TRANSFORMER CAPACITIES, AND 1,336.15 KM OF POWER LINES.**

### Actual spending in 2017–2018, RUB mn (incl. VAT)



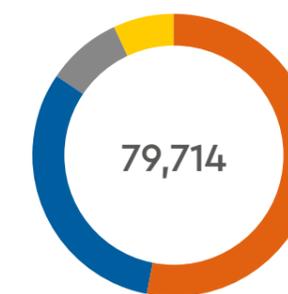
### Key investment areas under RusHydro Group's consolidated investment program in 2018<sup>2</sup>

#### Spending, RUB mn (incl. VAT)



Construction of new facilities	43,829
Rehabilitation and modernization	26,600
Utility connection	7,986
Other	4,411

#### CAPEX, RUB mn (excl. VAT)



Construction of new facilities	42,343
Rehabilitation and modernization	25,186
Utility connection	6,741
Other	5,443

<sup>1</sup> The Long-term Program for Replacement of Retiring Capacities was reviewed at RusHydro's Board of Directors meeting on October 25, 2018 (Minutes No. 279 of October 26, 2018).

<sup>1</sup> Includes RusHydro's subsidiaries covered by the Consolidated Business Plan for the period, such as SHPPs of Stavropol Krai and Karachay-Cherkessia, Smaller HPPs of Kabardino-Balkaria, Verkhnebalkarskaya SHPP, RusHydro's R&D institutes, Leningradskaya PSHPP, Puzhetskaya GeoPP, NDES, Verkhne-Mutnovskaya GeoPP, Montazhenergo, Agroenergo, and Rodnik Zdorovya.

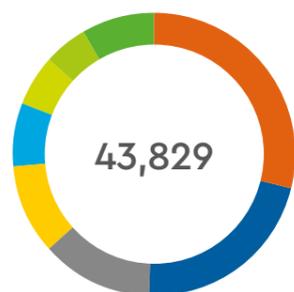
<sup>2</sup> Under the management accounting standards adopted,

• investment program spending means the total amount spent by the members of RusHydro Group to implement investment projects, including disbursements to suppliers and contractors and project administrators' expenses; and

• CAPEX mean the capital investments recognized on the basis of amounts specified in delivery and acceptance certificates signed with suppliers and contractors and accounted for as the respective project administrators' expenses.

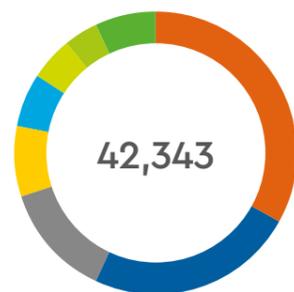
**Investments in construction of new facilities in 2018**

**Spending, RUB mn (incl. VAT)**



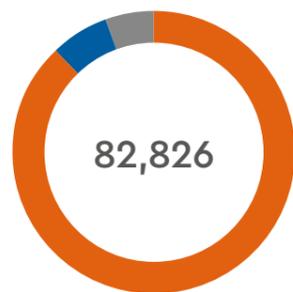
Priority projects in the Russian Far East	12,704
Zaramagskiye HPPs	9,468
Off-site infrastructure for priority projects in the Russia Far East	5,658
Ust-Srednekanskaya HPP	4,519
Nizhne-Bureyskaya HPP	3,200
Vostochnaya CHPP	2,451
SHPPs in the North Caucasian Federal District	2,220
Other	3,610

**CAPEX, RUB mn (excl. VAT)**



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

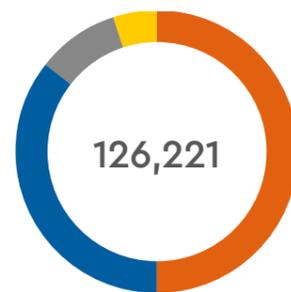
**Spending by source of funds in 2018, RUB mn (incl. VAT)**



Own	72,886
Raised	5,516
Federal	4,424

**Investment plans for 2019**

**Planned financing in 2019, RUB mn (incl. VAT)**



Construction and modernization	63,240
Rehabilitation and modernization	44,911
Utility connection	11,810
Other	6,260

**Capacity commissioning in 2018**

Type	Russian Far East		European part of Russia and Siberia	
	Target	Actual	Target	Actual
Power generation, MW	285.29	289.45	52.75	55.75
Heat, Gcal/h	442.33	442.47	-	-
Power lines, km	1,378.93	1,336.15	-	-
Transformer capacities, MVA	1,100.74	972.23	-	-

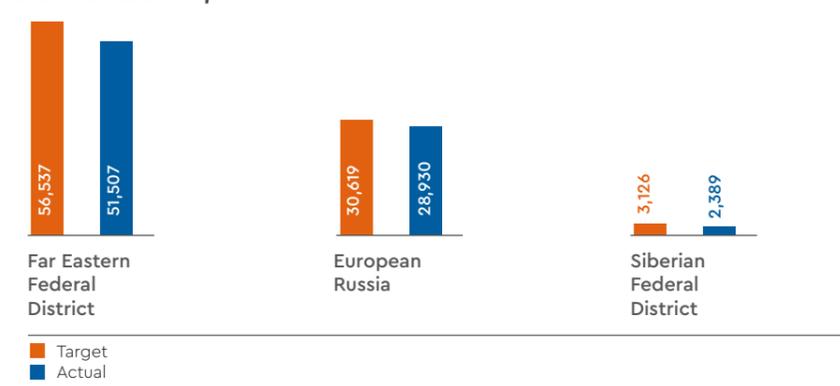
**Targets for capacity commissioning**

Type	2019
Power generation, MW	982.4
Heat, Gcal/h	529.6
Transformer capacities, MVA	548.0
Power lines, km	1,647.7

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).

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



**Construction of energy facilities**

**Key investment projects and their impact on local economies across the Group's footprint<sup>1</sup> [203-2]**

Project	Indirect economic impact
<b>Zaramagskiye HPP</b> Installed capacity 356 MW Average annual output 842 mn kWh Year of commissioning 2019	<b>Social and economic effects</b> Higher tax revenues at every government level.  <b>Supply stability effects</b> 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.
<b>Nizhne-Bureyskaya HPP</b> Installed capacity 320 MW Average annual output 1,670 mn kWh Year of commissioning 2019	<b>Social and economic effects</b> 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.  <b>Supply stability effects</b> Managing load irregularities of Bureyskaya HPP, contributing to power generation and supply within the Unified Energy System of the East, and ensuring flood control.
<b>Ust-Srednekanskaya HPP</b> Installed capacity 570 MW (142.5 MW third stage commissioned in 2018) Average annual output 2,555 mn kWh Year of commissioning 2022	<b>Social and economic effects</b> Generates power for Matrosov Mine (the Natalka gold deposit) to support the mining industry in driving the region's economic growth. Higher tax revenues at every government level.  <b>Supply stability effects</b> Making the isolated Magadan energy system more reliable.

<sup>1</sup> In 2018, no economic migration came as a result of building RusHydro Group's new facilities. [EU22]

Project	Indirect economic impact
<b>Sakhalinskaya GRES-2</b> Installed capacity 120 MW Average annual output 840 mn kWh Year of commissioning 2019	<b>Social and economic effects</b> ➤ Sakhalinskaya GRES-2 should have a positive social and economic effect on Sakhalin's west coast by creating new jobs and driving housing and social infrastructure development. It should also provide a capacity margin for connecting new customers.  <b>Supply stability effects</b> ➤ Making the isolated Sakhalin energy system more reliable. ➤ Replacing retiring capacities at the existing Sakhalinskaya GRES.
<b>CHPP in Sovetskaya Gavan</b> Installed capacity 126 MW, 200 Gcal/h Average annual output 630 mn kWh Year of commissioning 2019	<b>Social and economic effects</b> ➤ Satisfying the rising local demand for electricity as a result of the sea port expansion, the construction of the the Russian Far East's largest coal terminal and the town's development as a transport hub. ➤ Providing for centralized heat supply to Sovetskaya Gavan. ➤ Higher tax revenues at every government level.  <b>Supply stability effects</b> ➤ Replacing retiring capacities and inefficient equipment at Mayskaya GRES. ➤ Making the Sovetskaya Gavan energy hub more reliable.
<b>CHPP Vostochnaya in Vladivostok</b> Installed capacity 139.5 MW, 432 Gcal/h Average annual output 792 mn kWh Year of commissioning 2018	<b>Social and economic effects</b> ➤ Reducing the load of Vladivostokskaya CHPP-2 will make it possible to supply heat to new customers, including those in the Patroclus and Zeleny Ugol districts. ➤ Creating a heat capacity margin should support the city's further development. ➤ The hot gases discharged by the plant's three modern gas turbine units are used to heat water in waste heat boilers. This improves the overall fuel efficiency and makes pollutant emissions three to four times lower than the maximum permissible rates.  <b>Supply stability effects</b> ➤ Absorbing the heat load from the now connected adjacent area previously serviced by the central steam and water boiler facility. ➤ Addressing shortages with a more reliable energy system in the south of the Primorye Territory.
<b>The second stage of gasification at Anadyr CHPP</b> Year of commissioning 2020	<b>Social and economic effects</b> ➤ Allowing a slowdown in tariff increases and making power generation in Anadyr more sustainable.  <b>Supply stability effects</b> ➤ Ensuring stable power and heat supply for the Anadyr energy hub and improving the power generation efficiency at Anadyr CHPP by using a cheaper fuel.
<b>Connecting the 220 kV Orotukan-Palatka-Tsentralnaya power line</b> Year of commissioning 2019	<b>Supply stability effects</b> ➤ The line will be connected to PJSC Magadanenergo's electrical grids under Contract No. 797/20-2016 of July 29, 2016.
<b>Construction of two single-circuit 110 kV Pevek-Bilibino power lines</b> Grid length, transformer substations capacity 490.59 km 12.6 MVA Year of commissioning 2022	<b>Social and economic effects</b> ➤ Supporting the development of the mining and metals cluster within the Chaun and Bilibino energy hub.  <b>Supply stability effects</b> ➤ Allowing the Chaun and Bilibino energy hub to carry out power exchange for the construction of a floating nuclear power plant and making the local energy system more reliable.

## 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

#### Results, pcs

Type of equipment	2018	2019 E
Turbines	7	10
Generators	8	10
Transformers	6	3
High-voltage circuit breakers	76	12
Hydraulic structures	25	22
Secondary switches	342	191
Secondary equipment	360	178

#### Additions to installed capacity, MW

HPP	2018	2019 E
Zhigulevskaya HPP	10.5	10.5
Saratovskaya HPP	12.0	12.0
Novosibirskaya HPP	5.0	5.0
Votkinskaya HPP	15.0	15.0
Cascade of Verkhnevolzhskiy HPPs	10.0	0.0
Nizhegorodskaya HPP	3.0	0.0
<b>Total</b>	<b>55.5</b>	<b>42.5</b>

### Technical condition index of RusHydro's core equipment in 2018, %

Equipment	%
Turbines	78.41
Generators	76.15
Transformers	67.50

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, Volzhskaya 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. 7. The upgrade will boost Novosibirskaya HPP's installed capacity by 5 MW.

Cheboksarskaya HPP put into operation 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-Ozernoye field, which is operated by Sibneft-Chukotka.

RusHydro's Dagestan branch commissioned Miatlinskaya HPP's hydropower unit No. 2. Now all HPP's turbines were replaced (hydropower unit No. 1 was upgraded in 2015).

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 -50°C and withstand winds of up to 70 m/s. Manufactured by Japan's Komaihaltec, 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 R51238-98). 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.

## Program for the development of energy based on renewables<sup>1</sup>

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<sup>2</sup>.

Given the local specifics, none of the projects are standard by design, the 1 MW northernmost SPP in Batagay is not 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

### Ongoing RES projects

Project	RES	Capacity, MW	Year of commissioning	Indirect economic impact
900 kW wind power plant in Tiksi, Bulunsky District	Wind	0.9	2019	Replacing the output of a local diesel power plant (operated by JSC Sakha Energy's Bulun Electric Power Grids) 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.
Krasnogorskaya SHPP	Water	24.9	2021	Addressing shortages within the energy system of Karachay-Cherkessia.
Pravokubanskaya SHPP	Water	24.9	2022	
Verkhnebalkarskaya SHPP	Water	10	2019	Enhancing the power supply to the Balkarian hub.
Ust-Dzhegutinskaya SHPP	Water	5.6	2019	Alleviating electricity shortages in Karachay-Cherkessia and enhancing the power supply by using water flows from the Ust-Dzhegutinskiy Main Hydrotechnical Complex.
Barsuchkovskaya SHPP	Water	5.25	2019	Creating new generating capacities in the North Caucasian Federal District.

<sup>1</sup> Any renewable energy sources specified in Article 3 of Federal Law No. 35-FZ On Electric Power Industry dated March 26, 2003, excluding HPPs with an installed capacity of over 30 MW

<sup>2</sup> Including the WPP in Tiksi, which is under pre-commissioning.

## RusHydro Group construction quality assurance [103-2]

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<sup>1</sup>, 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 in Construction (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 Mosenergo) 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
  - contractors (JSC Ust-SrednekanGESstroy, 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.
- For Zagorskaya PSPP-2, Nizhne-Bureyskaya HPP, Ust-Srednekanskaya HPP and Zaramagskiye HPP, the respective project administrators have developed deliverable acceptance regulations and quality assurance systems.
- For the SHPPs in the Stavropol Krai and Karachay-Cherkessia, the respective project administrators have adopted construction and installation quality assurance guidelines for building control.
- Both JSC Chirkeigesstroy and JSC Ust-SrednekanGESstroy have developed and implemented quality management systems for all hydropower facilities they have been assigned to as the general contractor. The systems are now certified under ISO 9001:2008 and ISO 14001:2004 (GOST R ISO 14001-2007).

# 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.

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.

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.



**RUSHYDRO GROUP CONTRIBUTES TO THE DEVELOPMENT OF ITS PRESENCE REGIONS THROUGH NEW JOBS AND TAX LIABILITIES, CHARITABLE ACTIVITIES**

<sup>1</sup> The Urban Development Code and the Russian Government's Resolution No. 468 of June 21, 2010 On the Procedure for Building Control during Construction, Modernization and Renovation of Immovable Property.

## 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<sup>1</sup>, 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

CSR area	Internal regulations
Sustainable production	<ul style="list-style-type: none"> <li>➤ RusHydro Group's Development Strategy until 2020 with an outlook until 2025;</li> <li>➤ RusHydro's Long-term Development Program for 2018–2022;</li> <li>➤ RusHydro's Regulations on the Working Group on Technical Standards;</li> <li>➤ Regulations on Managing Investing Activities Performed in the Form of Capital Investments;</li> <li>➤ RusHydro's Regulations on the Standardization System;</li> <li>➤ RusHydro's Regulations on Internal Controls.</li> </ul>
Procurement	<ul style="list-style-type: none"> <li>➤ 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.</li> </ul>
Corporate ethics and anti-corruption	<ul style="list-style-type: none"> <li>➤ RusHydro's Code of Corporate Ethics;</li> <li>➤ RusHydro's Anti-Corruption Policy;</li> <li>➤ RusHydro's Regulations on the Prevention and Management of Conflicts of Interest;</li> <li>➤ Regulations on the Procedure to Report Presents Received by RusHydro's Employees during Official Events, Business Trips, etc.;</li> <li>➤ RusHydro's Regulations on the Committees for Compliance with the Corporate Ethics Standards and Management of Conflicts of Interest;</li> <li>➤ Rules of RusHydro's Line of Trust Operation;</li> <li>➤ RusHydro's Comprehensive Program of Anti-Corruption Activities for 2016–2019.</li> </ul>
Environmental impact	<ul style="list-style-type: none"> <li>➤ RusHydro Group's Environmental Policy;</li> <li>➤ RusHydro's Program of Energy Saving and Increased Energy Efficiency through to 2020;</li> <li>➤ RAO ES East Subgroup's Energy Saving and Energy Efficiency Improvement Policy.</li> </ul>
Health and safety	<ul style="list-style-type: none"> <li>➤ RusHydro's Health and Safety Policy;</li> <li>➤ Policies on occupational health and safety of RusHydro's subsidiaries.</li> </ul>
Charity	<ul style="list-style-type: none"> <li>➤ The Company's Charity and Sponsorship Policy;</li> <li>➤ Charity and Sponsorship Policy of the Company's Subsidiaries.</li> </ul>
Innovative development	<ul style="list-style-type: none"> <li>➤ Innovative Development Program of RusHydro Group for 2016–2020 with an outlook until 2025;</li> <li>➤ RAO ES East's Innovative Development Program for 2016–2020 with an outlook until 2025;</li> <li>➤ Regulations on Design and Implementation of RusHydro's Innovative Development Program;</li> <li>➤ Regulations on R&amp;D Management Process in RusHydro's Operations;</li> <li>➤ Regulations on the Intellectual Property Management Process in RusHydro Group;</li> <li>➤ Regulation on Planning and Monitoring the Progress of Activities as Part of the Innovative Development Programs of RusHydro Group and RAO ES East;</li> <li>➤ Regulation on Preparation, Adjustment and Monitoring of Implementation of Procurement Plans for Innovative and/or High-Tech Products;</li> <li>➤ 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.</li> </ul>
Personnel management	<ul style="list-style-type: none"> <li>➤ RusHydro's Social Policy;</li> <li>➤ Regulations on RusHydro's Employee Training;</li> <li>➤ Regulations on Personnel Certification at RusHydro's Branches;</li> <li>➤ Regulations on the Database Formation of Candidates to Be Recruited at RusHydro's Branches;</li> <li>➤ Regulations on RusHydro's Talent Pool;</li> <li>➤ Concept of advanced human resource development From School to Workplace.</li> </ul>

THE COMPANY IS COMMITTED TO INCREASING THE SHARE OF RENEWABLES IN THE COUNTRY'S ENERGY MIX

<sup>1</sup> On Distribution of Tasks, Powers and Responsibilities Among RusHydro's Managers.

# 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<sup>1</sup>. 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

### Goals and objectives Programs, projects and initiatives

#### ECONOMIC TARGETS



Regulatory framework of water regimes and protection of territories and population from floods.

Affordable energy.

Increasing the share of renewables in the energy mix.

Maximization of value for the state, shareholders, the Company and its employees.

Innovative development.

Energy conservation and efficiency.

- 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.
- 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 4,3 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.
- Launching new energy facilities (including HPPs and renewables).
- Implementing RusHydro Value Growth Plan through to 2021 aimed at increasing the Company's fundamental and market value.
- Implementing Innovative Development Program of RusHydro Group for 2016–2020 an outlook until 2025.
- Implementing the Concept for Reforming RusHydro's Scientific and Design Capacities.
- Implementing the Program of Energy Saving and Increased Energy Efficiency of RusHydro and RAO ES East through to 2020.
- Achieving and improving ratings from the leading ratings agencies as recognition of socially responsible investments.
- Implementing charity programs of the Company and its subsidiaries.

### Goals and objectives

### Programs, projects and initiatives

#### SOCIAL TARGETS



Reducing the risks of injuries and occupational diseases.

Ensuring availability of qualified personnel.

Fighting corruption and promoting efficient procurement.

Joining international initiatives and non-financial disclosures.

- Carrying out initiatives to improve industrial safety and reduce injuries of RusHydro Group's employees, contractors and third parties.
- Insuring employees against industrial accidents.
- Implementing programs for advanced personnel development (system of corporate elevators: supporting future specialists from school to RusHydro's facilities).
- Signing partnership and cooperation agreements with specialized universities.
- Implementing the Anti-Corruption Policy and Conflict of Interest Management Policy. Initiatives to ensure compliance with the Code of Corporate Ethics.
- Complying with and improving regulations on procurement of RusHydro Group and its subsidiaries.
- Joining the UN Global Compact.
- Annual sustainable development and CSR disclosures in accordance with GRI (as part of the integrated report since 2018).

#### ENVIRONMENTAL TARGETS



Contributing to low-carbon development.

Preserving biodiversity.

Conserving and restoring fish reserves in water bodies.

Promoting efficient water use.

- Implementing the Environmental Policy in terms of ensuring low-carbon development.
- Developing target indicators to reduce greenhouse emissions, and mechanisms for their achievement.
- Developing and implementing a biodiversity conservation program.
- Carrying out initiatives aimed at restoring fish reserves. Installing fish protection equipment.
- Implementing RusHydro Group's programs in terms of rational use of water resources.
- Carrying out the oBEREGAi annual program for cleaning up rivers and reservoirs.
- Creating tourist route in protected natural areas.

<sup>1</sup> 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. [102-42]

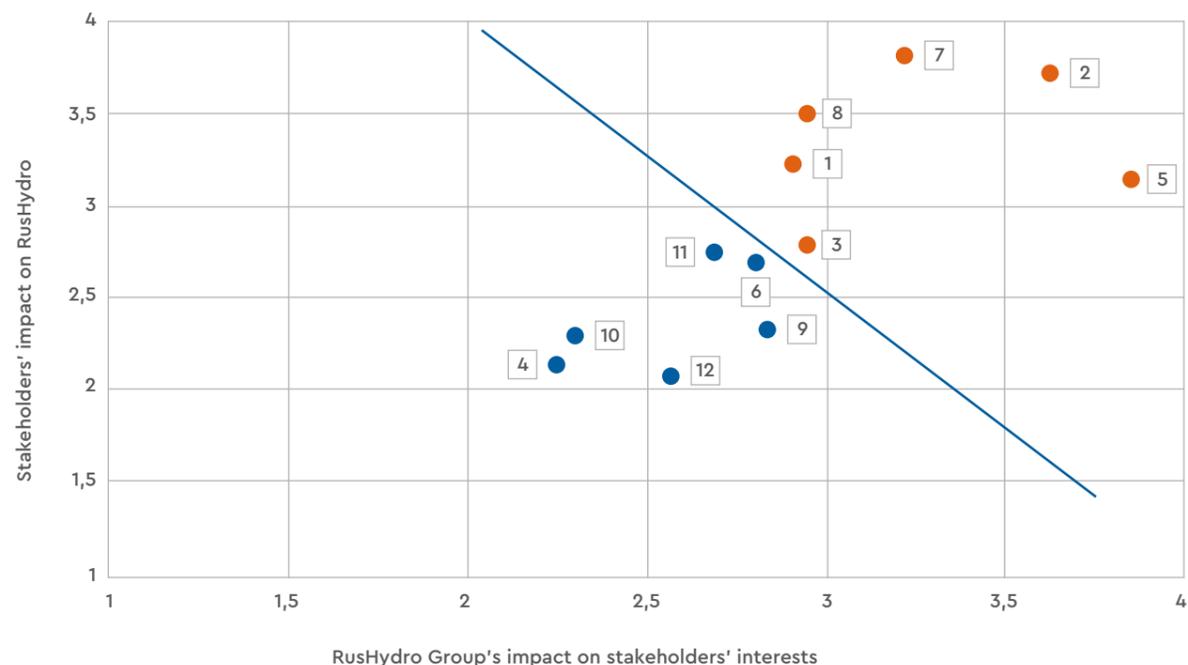
In building a framework for successful relations with stakeholders, RusHydro Group follows four fundamental principles of the AA1000 [102-43]<sup>1</sup> Series of Standards:

- **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 sustainable 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.

## Stakeholder map [102-40]



- |  |   |
|--|---|
| 1 Shareholders and investors                     | 8 Regulators and infrastructure organizations |
| 2 Customers and consumers                        | 9 Educational institutions                    |
| 3 Business partners, suppliers and contractors   | 10 Local communities                          |
| 4 Environmental organizations                    | 11 Media                                      |
| 5 Employees and trade unions                     | 12 Public social and charitable organizations |
| 6 Professional associations and expert community | ● Key stakeholders                            |
| 7 Government authorities                         |   |

## RusHydro Group's stakeholder relations in 2018 [102-43], [102-44]

Key mechanisms	Responses to requests and relations stakeholders in 2018
<b>1. Shareholders and investors</b>	
<b>Stakeholders' interests:</b> 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 Disclosing information on the Company and its subsidiaries' websites in accordance with the disclosure rules as per resolutions of the Government of the Russian Federation The Investors section is available on the Company's website at <a href="http://www.eng.rushydro.ru/investors/">http://www.eng.rushydro.ru/investors/</a>	➤ The meetings focused on discussing RusHydro Group's strategic priorities and plans, including those related to the dividend policy, implementation of the Value Growth Plan, management efforts aimed at improving operational efficiency, and plans for asset modernization. ➤ Feedback from the investment community, including weekly analytical coverage of RusHydro and the industry's other companies, was communicated to the Company's management.
» For more information, see the Shareholder and Investor Relations section on p. 159.	
<b>2. Customers and consumers</b>	
<b>Stakeholders' interests:</b> 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 More information for potential energy-intensive consumers is available on the Company's website at: <a href="http://www.rushydro.ru/activity/elektrosnabzhenie-krupnykh-potrebiteley/">http://www.rushydro.ru/activity/elektrosnabzhenie-krupnykh-potrebiteley/</a> Single information and settlement centers	➤ Carrying out activities to change the tariff system in the Far East in order to switch to long-term tariff regulation methods. ➤ Implementing agreements related to regional energy development, ensuring sustainable power and heat supply to consumers, as well as social and economic activities.
» For more information, see the Production and sales section on p. 74.	
<b>3. Business partners, suppliers and contractors</b>	
<b>Stakeholders' interests:</b> fair competition and responsible market behavior; transparent operations, including procurement	
Forums, exhibitions, conferences, dialogues Open and competitive procurement procedures Joint projects	➤ In 2018, RusHydro became a partner of the Eastern Economic Forum and took part in the Russian Energy Week international forum and the St. Petersburg International Economic Forum. ➤ 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.

<sup>1</sup> AA1000AP (2018) Standard.

Key mechanisms	Responses to requests and relations stakeholders in 2018
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4. Environmental organizations	
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**Stakeholders' interests:** environmental protection

<p>Environmental impact assessments</p> <p>Environmental projects in the regions of operations</p>	<ul style="list-style-type: none"> <li>➤ Development and approval of low-carbon development goals as part of RusHydro Group's Environmental Policy.</li> <li>➤ Improvement of the volunteer movement and initiatives aimed at environmental protection.</li> <li>➤ Environmental awareness raising.</li> <li>➤ Implementation of biodiversity protection programs.</li> </ul> <p>»»   For more information, see the Environmental Protection section on p. 131.</p>
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5. Employees and trade unions	
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**Stakeholders' interests:** professional and career development; safe working conditions; solid remuneration

<p>Personnel training</p> <p>Social support of employees</p> <p>Communication through internal channels</p> <p>Interaction with trade unions</p>	<ul style="list-style-type: none"> <li>➤ 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.</li> <li>➤ 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 Electrounion in the Far Eastern Federal District.</li> <li>➤ 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.</li> <li>➤ RusHydro has a corporate newsletter and runs an intranet portal.</li> </ul> <p>»»   For more information, see the HR and Social Policy section on p. 117.</p>
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6. Professional industry associations and expert community	
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**Stakeholders' interests:** energy science development; development of innovative technologies; partnership prospects; transparent operations

<p>Forums, conferences, exhibitions</p> <p>Joint programs</p> <p>Public reporting</p> <p>Implementation/association programs</p>	<ul style="list-style-type: none"> <li>➤ RusHydro's participation in committees and working groups of a number of non-profit partnerships and international organizations, including:                         <ul style="list-style-type: none"> <li>➤ Global Sustainable Energy Partnership;</li> <li>➤ International Hydropower Association;</li> <li>➤ International Commission on Large Dams;</li> <li>➤ World Energy Council.</li> </ul> </li> </ul>
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Key mechanisms	Responses to requests and relations stakeholders in 2018
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7. Federal and local executive authorities	
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**Stakeholders' interests:** ensuring reliable and uninterrupted power supply and heat supply; tax revenues; development regions of presence; improvement of the regulatory framework for energy based on renewable energy sources

<p>Agreements on social and economic cooperation with regions of the Russian Federation</p> <p>Public hearings on plant construction projects</p> <p>Engagement in joint committees, commissions, and expert groups on energy sector development</p> <p>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.</p>	<ul style="list-style-type: none"> <li>➤ As part of cooperation with federal authorities, the management of RusHydro took part in commissions and working groups under the President and the Government of the Russian Federation on development of the energy sector and social economic development of Russian regions, including development of proposals and updates for the Schemes and Programs to Develop Regional Energy Systems, heating layouts for Russian cities and towns, the general layout of power generation facilities in Russia, and the territorial planning layout for the Russian power industry.</li> <li>➤ RusHydro works with committees of the Federal Assembly of the Russian Federation on matters related to the Company's operations. RusHydro is actively involved in the preparation and holding of the round table session Development of Hydropower in Russia: Prospects and Challenges arranged by the State Duma Committee on Energy.</li> <li>➤ In promoting development of Russian regions, RusHydro and government authorities are governed by agreement on social and economic cooperation with regional and a number of municipal governments. As at December 31, 2018, agreements and memoranda were signed with government authorities of the following regions: Republic of Dagestan, Republic of Sakha (Yakutia), Republic of Tatarstan, Republic of Khakassia, Kamchatka Territory, Chukotka Autonomous Area, Volgograd Region, Magadan Region, Moscow Region, and Sverdlovsk Region.</li> <li>➤ Preparation of proposals for facilities to be included in RusHydro's Long-term Program for Replacement of Retiring Capacities, primarily of the government program of the thermal power plants modernization with a return on invested capital of at least 14% (the cost of projects is determined based on design and cost estimate documents), with all consumers of the wholesale market paying for the cost of new projects.</li> <li>➤ Calculation of a possible option to complete the construction of Cheboksarskaya HPP at the full reservoir level of 63.0 m as per instruction by RusHydro for the Analytical Center for the Government of the Russian Federation was carried out. The calculation served as the basis for the decision of the Government of the Russian Federation (No. DK-P9-179pr of October 1, 2018) on maintaining the full reservoir level of Cheboksarskaya HPP at 63.0 m.</li> </ul>
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8. Regulators and infrastructure organizations	
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**Stakeholders' interests:** compliance with Russian and international laws

<p>Reporting</p> <p>Development of proposals to improve legislation</p>	<ul style="list-style-type: none"> <li>➤ Disclosure of information in accordance with the requirements of the Bank of Russia and other regulators.</li> </ul>
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Key mechanisms	Responses to requests and relations stakeholders in 2018
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### 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<br>Training, retraining, and skills improvement for employees<br>Orders for R&D projects | <ul style="list-style-type: none"> <li>➤ 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 (Sirius, Ocean, Smena, Orlyonok).</li> <li>➤ Energy for Development contest for university undergraduates.</li> </ul> |
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»» 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

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| Conducting public hearings on energy construction projects<br>Providing good working conditions and solid remuneration | <ul style="list-style-type: none"> <li>➤ 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.</li> <li>➤ RusHydro helps develop social infrastructure in the regions where it operates. As one example, construction of the new department of the Srednekansk Central Hospital supported by RusHydro Group makes free medical care more available to people and creates additional jobs for healthcare professionals.</li> <li>➤ 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.</li> </ul> |
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»» 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

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|--|---|
| Preparing and providing the media with press releases, statements, and comments of the Company<br>Publishing information on the corporate website and social media<br>Preparing background materials, presentations, and other information<br>Organizing and holding briefings, press conferences, interviews, media scrums, press tours and other media events<br>Providing information in a timely manner in response to media inquiries | <ul style="list-style-type: none"> <li>➤ 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 Ust-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.</li> <li>➤ Information support for events in the financial sector: the first offshore renminbi-denominated offering among Russian corporates and Eurobonds offerings in rubles.</li> <li>➤ Information support during the engineering and blasting works for clearing a landslide at the Bureyskoye water reservoir.</li> <li>➤ 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.</li> </ul> |
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Key mechanisms	Responses to requests and relations stakeholders in 2018
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### 12. Public social and charitable organizations

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

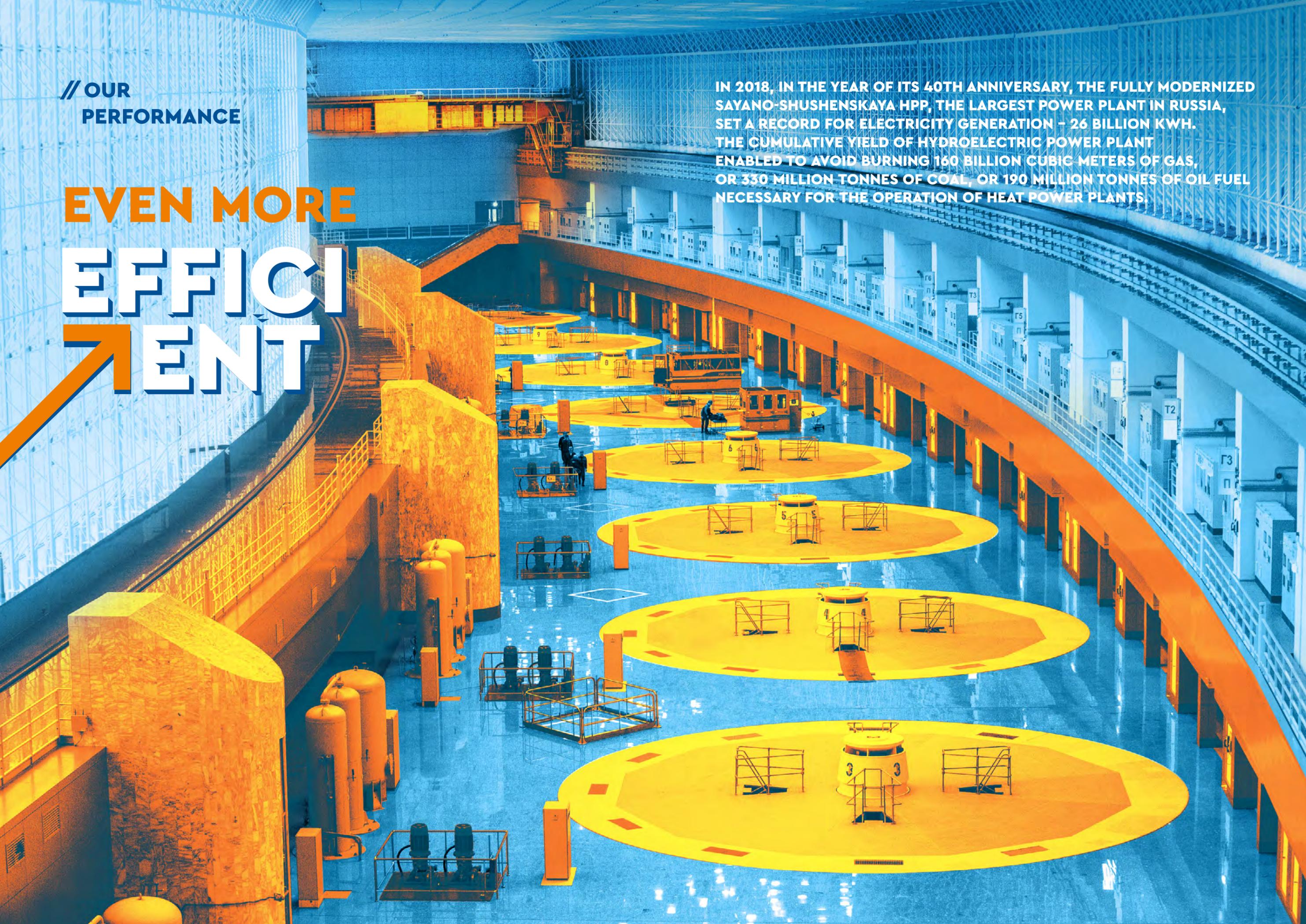
- |  |  |
|--|--|
| Social and charitable programs<br>Public reporting<br>Social events and initiatives<br>Regular meetings with charitable foundations and non-governmental organizations | <ul style="list-style-type: none"> <li>➤ In 2018, RusHydro provided support across all the focus areas outlined by the Company's Charity and Sponsorship Policy. 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 5 universities. As part of the Ecological Paths project, an additional tourist route was laid out in the Prielbrusye National Park, RusHydro continued working on a joint project with Severtsov Institute of Ecology and Evolution (Russian Academy of Sciences) to recover the population of Persian leopards in North Ossetia, having released two animals of this rare species in the Alaniya National Park (Republic of North Ossetia) in summer 2018. As part of the Energy Born charity event, RusHydro provided medical equipment for 14 healthcare facilities. A total of 26 sports schools and clubs in the Company's regions of presence received charitable assistance. Financial support was also provided to the Russian Whitewater Slalom Federation, the Russian Union of Martial Arts, the Russian Judo Federation, the Karachayev-Cherkessian Regional Sports Federation of Kyokushin, and the Yenisei-STM Rugby Club. Last year, the Company provided financial assistance for the Russian Geographical Society to put in place a grant fund designed to encourage research on natural disasters and rare animal species, while also supporting the organization's publishing activities and environmental and geographical expeditions. Financing was also allocated to ensure the preservation of cultural and historical heritage by upgrading a wide range of cultural institutions, including museums, community centers, and libraries. In 2018, 18 orphanages and asylums and nine rehabilitation centers for children and teenagers became eligible for financial support. Funds were allocated to support 35 charitable foundations and non-profit organizations at the regional and national levels. 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.</li> </ul> |
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»» For more information, see the HR and Social Policy section on p. 117.

// OUR  
PERFORMANCE

EVEN MORE  
EFFICIENT

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.



# ECONOMICS AND FINANCE

## Key financial results<sup>1</sup>

### Income indicators

	2017	2018	2018-2017
EBITDA, RUB mn	104,180	109,673	5,493
EBITDA margin <sup>2</sup> , %	27.3	27.0	-0.3 p.p.
Net income, RUB mn	24,774	31,837	7,063
Net margin <sup>2</sup> , %	6.5	7.8	1.3 p.p.
Earnings per share (EPS), RUB	0.0656	0.0739	0.0083
Return on assets (ROA), %	2.8	3.4	0.6 p.p.
Return on equity (ROE) <sup>3</sup> , %	4.5	5.5	1.0 p.p.
Adjusted net income, RUB mn	65,738	70,757	5,019

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

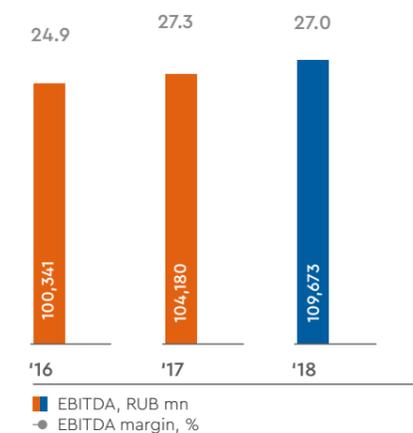
RusHydro Group's net income in 2018 grew by 28.5% to RUB 31,837 mn. Adjusted net income in the reporting period totaled RUB 70,757 mn, up 7.6% compared to 2017.

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

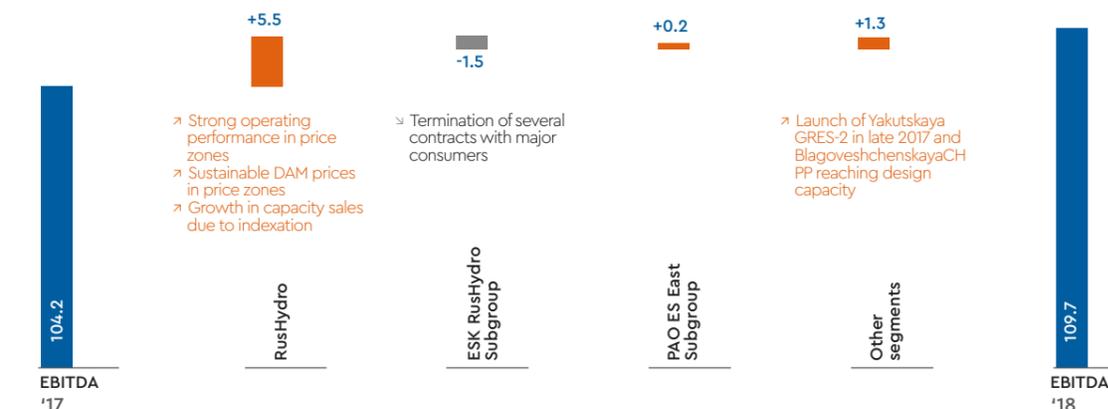
- recognition of RUB 3,845 mn gain on financial assets at fair value through profit or loss (PJSC Inter RAO shares);

- recognition of RUB 24,221 mn loss from impairment of fixed assets and construction in progress, mostly connected with Ust-Srednekanskaya HPP and Vostochnaya CHPP commissioned in 2018;
- 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.

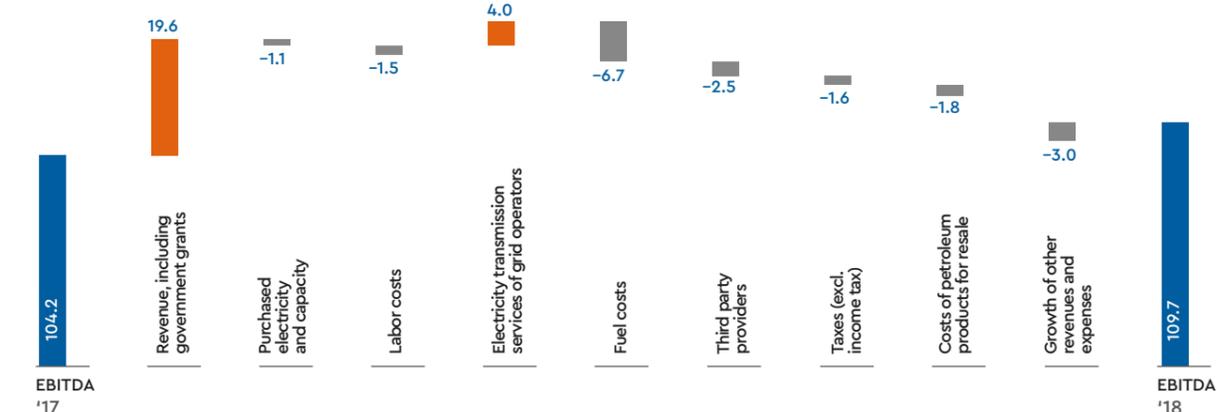
EBITDA, RUB mn and EBITDA margin, %



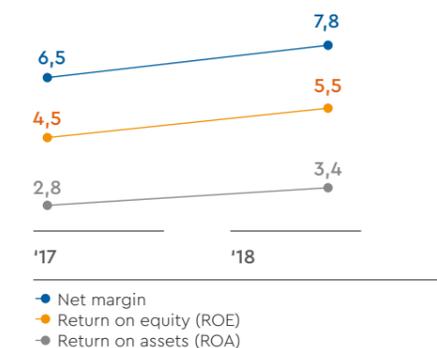
Factor analysis of EBITDA by segment, RUB bn



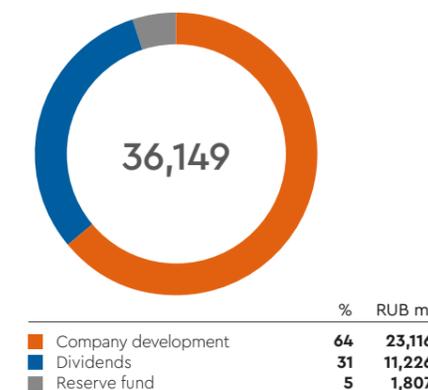
Factor analysis of EBITDA (expenses), RUB bn



Margin performance, %



Profit distribution for 2017<sup>1</sup>, %



Detailed information on the distribution of profit allocated, inter alia, to the Company's development is disclosed on its website at: <http://www.rushydro.ru>

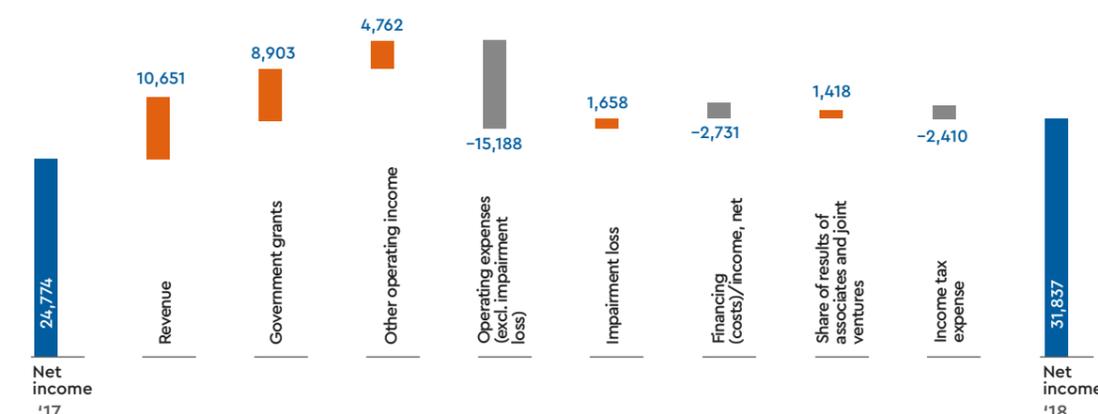
<sup>1</sup> This section provides data in line with 2018 RusHydro Group's IFRS consolidated statements incorporating the changes in Group's accounting policy.

<sup>2</sup> This indicator factors in other operating income generated by RusHydro Group in 2017 (RUB 0.7 bn) and in 2018 (RUB 5.5 bn) and is calculated as profits from sales and from changes in the value of financial assets at fair value through profit or loss, dividends received, and income from court rulings awarded.

<sup>3</sup> ROE is calculated as net income to the year's average equity.

<sup>1</sup> Net income is as per RAS.

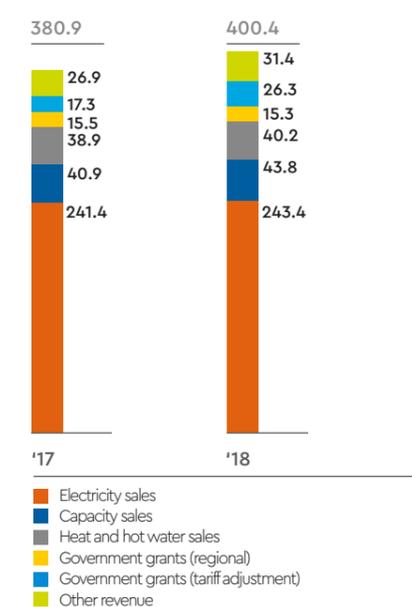
Factor analysis of net income, RUB mn



Revenue

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

Total revenue performance and breakdown, RUB bn



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 DEK;
- increase of RUB 1,448 mn in ESK RusHydro Subgroup revenue from the sale 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. [102-48]

Government grants [201-4]

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.

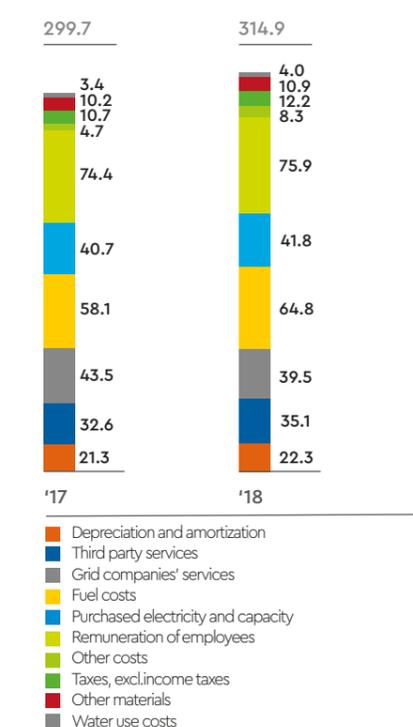
The total grants received by the Group's guaranteed suppliers under Russian Government Decree No. 895 On the establishment of base rates (tariffs) for electricity (capacity) in the Far Eastern Federal District grew to RUB 26,300 mn in 2018, a 52.4% increase from the previous year due to tariff adjustment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

Operating costs

Total operating costs of the Group incurred from day-to-day operations increased by 5.1% to RUB 314,850 mn with revenue up 5.1% in 2018 year-on-year. This is mainly driven by:

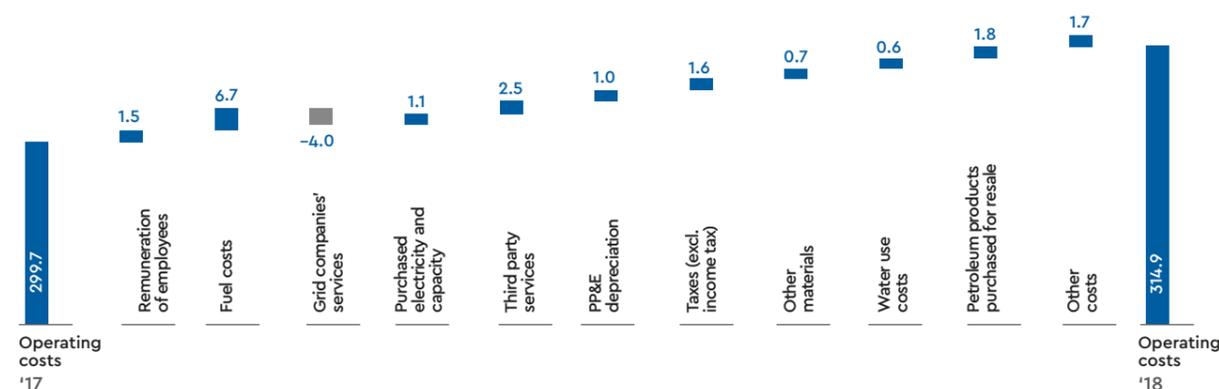
- a rise in fuel costs due to increased electricity and heat generation by JSC DGK's stations, a higher price of coal and higher purchase prices of petroleum products at PJSC Kamchatskenergo in H2 2018;
- an increase in labor costs due to indexation of rates and salaries according to the effective collective bargaining agreements;
- a rise in costs for third party services as a result of growing repair and maintenance expenses, primarily at PJSC Yakutskenergo and PJSC 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

Operating costs by year and type (excluding impairment losses), RUB bn



- to a new settlement system at PJSC 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.

Operating costs, RUB bn



Direct economic value generated and distributed [201-1]

Metrics, RUB mn	2017	2018
<b>Economic value generated</b>	<b>383,534</b>	<b>402,123</b>
Operating profit after impairment loss on receivables	342,162	353,391
Government grants	32,745	41,648
Interest income and dividends received	9,575	8,879
(Losses)/gains from sale of assets	(948)	(1,795)
<b>Economic value distributed</b>	<b>300,789</b>	<b>316,509</b>
Operating costs	190,539	201,270
Salaries, allowances and other benefits	74,390	75,876
Payments to capital providers	10,430	11,908
Payments to government	23,666	26,098
Investments in communities	1,764	1,357
<b>Economic value retained</b>	<b>82,745</b>	<b>85,614</b>

Assets, equity and liabilities

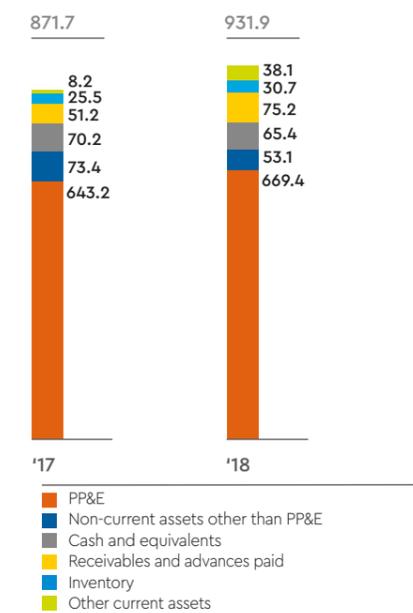
As at December 31, 2018, the Group's assets grew by 6.9% (RUB 60,228 mn) to RUB 931,931 mn year-on-year. The change is mainly driven by:

- 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.

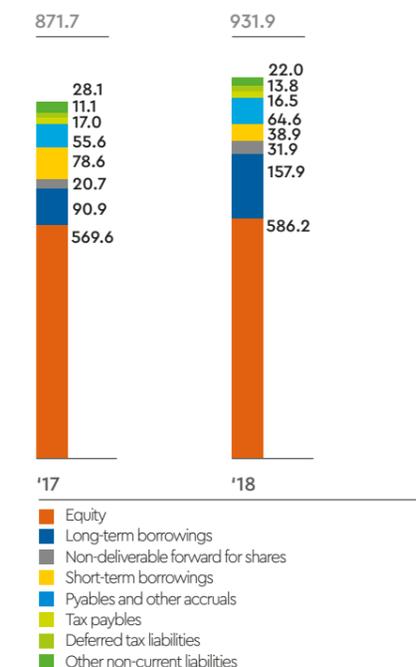
As at December 31, 2018, the Group's liabilities grew by 14.4% (RUB 43,617 mn) to RUB 345,712 mn year-on-year. The Group's liabilities changed as follows: non-current liabilities rose by RUB 74,787 mn due to an increase in long-term borrowings, while current liabilities declined by RUB 31,170 mn mainly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

Assets, RUB bn



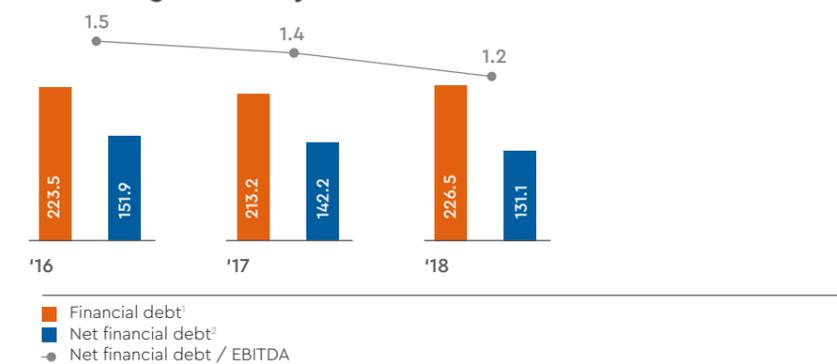
Fair value of the non-deliverable forward for the Group's shares recognized in accordance with the terms of the transaction with VTB Bank (PJSC) increased from RUB 20,716 mn (as at December 31, 2017) to RUB 31,896 mn (as at December 31, 2018). The change in fair value of the non-deliverable forward is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

Equity and liabilities, RUB bn



Debt portfolio management

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



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 and net financial debt stood at RUB 226.5 bn and RUB 131.1 bn, respectively. Given higher consolidated operating income in 2018 and smart instesting 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<sup>3</sup> placed in February and two issues worth RUB 15 bn and 1.5 bn offshore Chinese renminbi 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.

<sup>1</sup> Financial debt is calculated as the sum of long-term and short-term liabilities (less accrued interest payable as at the reporting date), liabilities on the 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 at the end of 2016-2017.  
<sup>2</sup> Net financial debt is calculated as financial debt less cash and cash equivalents (including bank deposits for up to one year). Therefore, the data for 2016-2017 may differ from the data included in the Company's annual report for 2017.  
<sup>3</sup> The issue won annual Cbonds Award 2018 as Best Primary Eurobond Deal.

In 2018, the Group was also bringing down its short-term debt. In February 2018, RusHydro repurchased its series 07 and 08 ruble bonds<sup>1</sup> under the put option for a total of about RUB 18 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

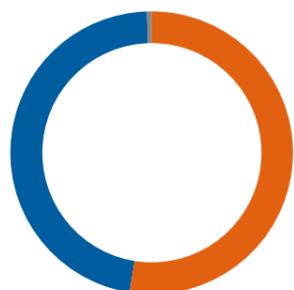
obligations of PJSC Boguchanskaya HPP under a loan agreement with VEB worth RUB 25.9 bn as at December 31, 2017, which also helped reduce leverage.

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.

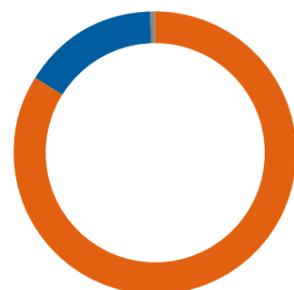
**Structure of the long-term debt (to be redeemed after twelve months from the reporting date), %**



Bonds (including Eurobonds (LPN))	52.7
Loans and borrowings	46.9
Other long-term borrowings	0.4

In 2018, the long-term part of the Group's borrowings surged by RUB 67.036 bn (73.7%) to RUB 157.9 bn, mainly driven by long-term financing raised through three Eurobond issues in 2018 (two denominated in rubles and one – in offshore Chinese renminbi) and bilateral loan agreements.

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



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 2018, the short-term part of the Group's borrowings dropped by RUB 39.7 bn (50.5%) to RUB 38.9 bn, primarily due to the maturity of long-term loans and bonds (including exchange and local bonds totaling about RUB 15 bn and about RUB 18 bn, respectively). As the remaining



**FINANCIAL RISKS ARE CONSIDERED AS INSIGNIFICANT**

drawdown for the Group's current loan agreements amounted to more than RUB 191 bn at the end of 2018 and substantially exceeds the need for short-term debt refinancing, financial risks are considered as insignificant.

## Bonds

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

### Key parameters of RusHydro's bond issues

Issue parameters			Series 01 and 02 bonds	Series 07 and 08 bonds	Series 09 bonds	Series BO-P04 exchange bonds	Series BO-P05 exchange bonds
Bond type	Non-convertible certificated interest-bearing bearer bonds with mandatory centralized custody	State registration number	4-01-55038-E 4-02-55038-E	4-07-55038-E 4-08-55038-E	4-09-55038-E	4B02-04-55038-E-001P	4B02-05-55038-E-001P
Face value	RUB 1,000	Registration date	23.09.2010	27.12.2012	27.12.2012	01.04.2016	09.06.2017
Nominal amount of each issue	Series 01 – RUB 10 bn Series 02 – RUB 5 bn Series 07, 08, 09 – RUB 10 bn each Series BO-P04 – RUB 15 bn Series BO-P05 – RUB 10 bn	Placement date	25.04.2011	14.02.2013	28.04.2015	07.04.2016	16.06.2017
		Offer date	22.04.2016	13.02.2018	27.10.2017 21.04.2023		
		Maturity date	12.04.2021	02.02.2023	15.04.2025	04.04.2019	12.06.2020
Offering price	100%	Coupon rate	Coupons 1-10 – 8.0% p.a. Coupons 11-20 – 9.5% p.a.	Coupons 1-10 – 8.5% p.a. Coupons 11-20 – 0.1% p.a.	Coupons 1-5 – 12.75% p.a. Coupons 6-16 – 7.5% p.a. Coupons 6-16 – coupon rate to be determined by the issuer	Coupons 1-6 – 10.35% p.a.	Coupons 1-6 – 8.2% p.a.
Form of offering	Open subscription, bookbuilding	Yield	8.16%	8.68%	13.16%	10.62%	8.37%
Coupon payments	semi-annual	Last trade yield as at December 28, 2018, % p. a.	Series 01 – 7.75% Series 02 – 8.19%	Series 07 – 8.1% Series 08 – 8.93%	Series 09 – 8.22%	Series BO-P04 – 7.69%	Series BO-P05 – 7.75%

### 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.

<sup>1</sup> In February 2018, the holders of RusHydro's series 07 and 08 ruble bonds issued in February 2013 for a total amount of RUB 20 bn, partially used their put option for securities. Bonds that were not put by the holders for early redemption, with the nominal value of RUB 2,196 mn will be floating before the maturity date in 2023.

## Key parameters of Eurobond issues

Offering date	Maturity date	Issue currency	Amount, bn	Coupon rate, %	Coupon payments	ISIN
28.09.2017	28.09.2022	RUB	20.0	8.125	Semi-annual	XS1691350455
15.02.2018	15.02.2021	RUB	20.0	7.4	Semi-annual	XS1769724755
21.10.2018	21.11.2021	CNH	1.5	6.125	Semi-annual	XS1912655054
27.10.2018	27.01.2022	RUB	15.0	8.975	Semi-annual	XS1912654677

## 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

Rating agency	Long-term credit rating	Credit rating outlook	Changed/ reaffirmed
STANDARD & POOR'S	"BBB-"	Stable	April 27, 2018
MOODY'S	"Baa3"	Stable	February 12, 2019
FitchRatings	"BBB-"	Stable	August 1, 2018
AKPA	"AAA(RU)"	Stable	June 29, 2018

IN THE REPORTING PERIOD,  
THE COMPANY ENJOYED THE  
TOP CREDIT RATING

## 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.

In 2018, RusHydro Group for the first time generated positive free cash flow sufficient to fund dividend payments.

## Cash flows, RUB mn

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

## 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<sup>1</sup>

Level of budget	RusHydro Subgroup			JSC RAO ES East Subgroup			RusHydro Group		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Federal	17,093	22,026	29,432	19,873	20,878	16,736	36,966	42,904	46,168
including insurance contributions	4,302	4,494	4,954	11,404	11,469	11,910	15,706	15,963	16,864
Regional	21,647	23,578	23,971	8,992	10,075	10,304	30,639	33,653	34,275
Local	434	424	403	371	364	330	805	788	733
<b>Total</b>	<b>39,174</b>	<b>46,028</b>	<b>53,806</b>	<b>29,236</b>	<b>31,317</b>	<b>27,370</b>	<b>68,410</b>	<b>77,345</b>	<b>81,176</b>

<sup>1</sup> International scale foreign currency credit ratings by S&P, Moody's, and Fitch.

<sup>1</sup> 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

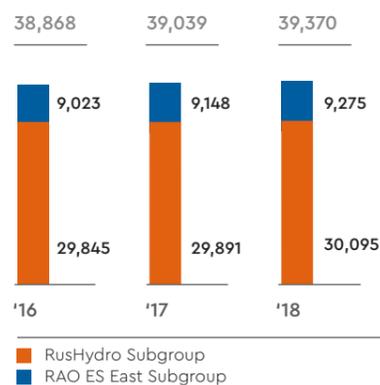
## Key production assets

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. As at January 1, 2019, the installed capacity of RusHydro power plants, including Boguchanskaya HPP, totaled 39,370 MW<sup>1</sup>, up 331 MW year-on-year. The installed heat capacity increased to 18,924 Gcal/h, up 426.9 Gcal/h.

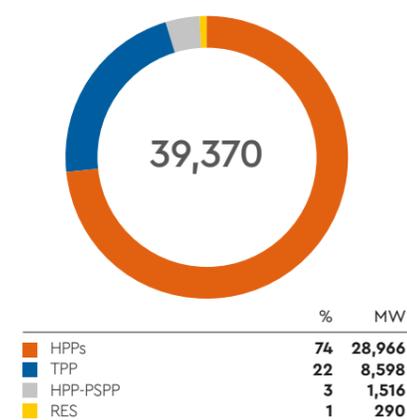
The growth in the installed capacity of the Group's facilities was driven also by the commissioning of Vostochnaya CHPP (139.5 MW, 432.6 Gcal/h) in Vladivostok and hydroelectric unit No. 3 at Ust-Srednekanskaya HPP (142.5 MW) as well as the implementation of the Comprehensive Modernization Program at 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 28,966 MW<sup>2</sup>, or 74% of the total installed capacity, while 8,598 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 Zagorskaya 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.

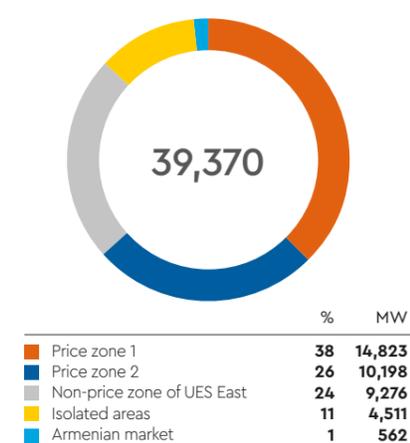
### Installed capacity<sup>1</sup>, MW



### Installed capacity structure by generation type [EU1]



### Installed capacity structure by regulatory regime [EU1]



### RAO ES East electrical grids

The businesses of JSC 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-2) 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 construction of 110, 35 kV approach lines to the 220 kV Maya substation was completed that helped integrate the Central and Western energy hubs of Yakutia into UES East.

The number of utility connection contracts executed during the year rose by 1% (to 22,500). 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]

### Length of transmission and distribution power lines by regulatory regime, km [EU4]

Length of transmission power lines <sup>1</sup>			
Grid class	2017	2018	2018–2017
<b>WECM</b>			
<b>Overhead power lines</b>			
110 kV	7,940	7,975	35
35 kV	8,807	8,856	49
<b>Cable power lines</b>			
110 kV	40	40	0
35 kV	84	92	8
<b>REM</b>			
<b>Overhead power lines</b>			
220 kV	5,180	5,180	0
110 kV	5,904	5,898	-6
35 kV	6,997	6,917	-80
<b>Cable power lines</b>			
110 kV	2	5	3
35 kV	4	4	0
<b>Total transmission power lines</b>	<b>34,958</b>	<b>34,967</b>	<b>9</b>
<b>Length of distribution power lines<sup>1</sup></b>			
<b>WECM</b>			
<b>Overhead power lines</b>			
6 (10) kV	20,540	20,622	82
0.4 kV	20,532	20,503	-29
<b>Cable power lines</b>			
6 (10) kV	1,120	1,120	0
0.4 kV			
<b>REM</b>			
<b>Overhead power lines</b>			
6 (10) kV	10,957	11,025	68
0.4 kV	11,459	11,677	218
<b>Cable power lines</b>			
6 (10) kV	2,041	2,085	44
0.4 kV	1,451	1,480	29
<b>Total distribution power lines</b>	<b>69,256</b>	<b>69,780</b>	<b>524</b>
<b>Total length of power lines</b>	<b>104,214</b>	<b>104,747</b>	<b>533</b>

<sup>1</sup> Including PJSC Boguchanskaya HPP (a joint venture of PJSC RusHydro and RUSAL) and HPP-2 of PJSC KamGEK, and excluding HPP-1 and HPP-3 of PJSC KamGEK, assets held in trust.

<sup>2</sup> Large HPPs are those with the capacity of over 30 MW that do not fall into the category of small HPPs.

<sup>1</sup> Measured by chain.

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

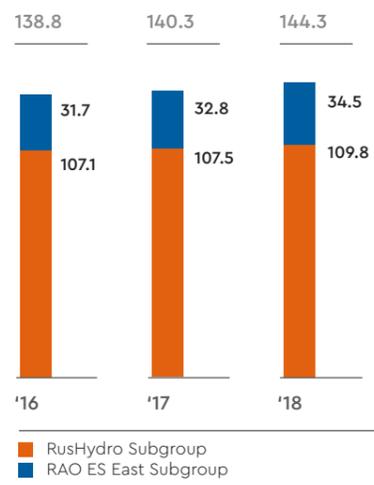
	Unit	2017	2018	2018–2017
<b>WECM</b>				
Number of 220 kV transformer substations	pcs	1	1	0
Capacity of 220 kV transformer substations	MVA	80	80	0
Number of 110 kV transformer substations	pcs	242	246	4
Capacity of 110 kV transformer substations	MVA	7,370.8	7,667.4	296.6
Number of 35 kV transformer substations	pcs	476	479	3
Capacity of 35 kV transformer substations	MVA	4,380.8	4,445.9	65.1
Number of 6 (10) kV transformer substations	pcs	10,943	11,121	178
Capacity of 6 (10) kV transformer substations	MVA	3,511.8	3,565.1	53.3
<b>REM</b>				
Number of 220 kV transformer substations	pcs	28	27	-1
Capacity of 220 kV transformer substations	MVA	3,652.3	3,351	-301.3
Number of 110 kV transformer substations	pcs	140	139	-1
Capacity of 110 kV transformer substations	MVA	4,496.3	4,694	197.7
Number of 35 kV transformer substations	pcs	383	386	3
Capacity of 35 kV transformer substations	MVA	1,613	1,715.2	102.2
Number of 6(10) kV transformer substations	pcs	9,451	9,601	150
Capacity of 6(10) kV transformer substations	MVA	3,672.3	3,798.7	126.4
<b>Total substations</b>	<b>pcs</b>	<b>21,664</b>	<b>22,000</b>	<b>336</b>
<b>Total capacity of substations</b>	<b>MVA</b>	<b>28,777</b>	<b>29,317</b>	<b>540</b>

**Operating performance**

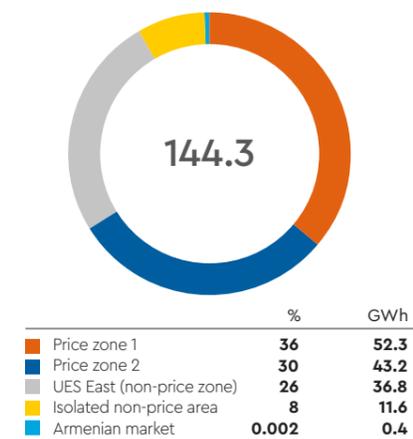
**Electricity and heat generation**

2018 saw a new record for the Group's electricity generation. In the reporting period, the Group's power generation, including Boguchanskaya 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.

**Electricity generation, bn kWh**



**Generation structure by regulatory regime, GWh [EU2]**



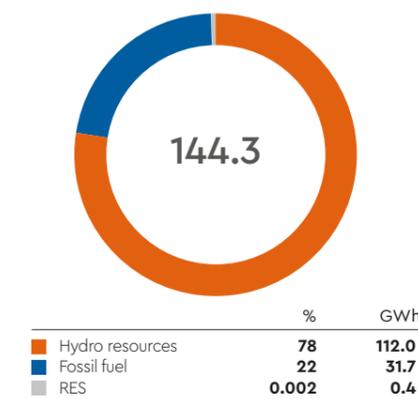
In 2018, the electricity generation at the Group's HPPs, PSPPs, and geothermal power plants increased by 2% year-on-year, reaching 109.8 bn kWh. During the same period, the electricity generation at the Sevan-Hrazdan Cascade HPPs in Armenia fell by 11.5%, accounting for 412 mn kWh.

The Group's thermal power plants in the Far East demonstrated a positive trend with their generation of 31.7 bn kWh, up 3.9% 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; water inflow to HPPs in the South of Russia at a level equal to 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;

**Generation structure by primary energy source, GWh [EU2]**



- heat output of 29.650 mn Gcal, down 0.9% year-on-year, by the Group's power plants and boiler houses in the Far Eastern Federal District due to higher actual outdoor temperatures across the Far East but for the Kamchatka Territory.

**Measures for simplifying utility connection to electrical grids [EU23]**

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-r On target models

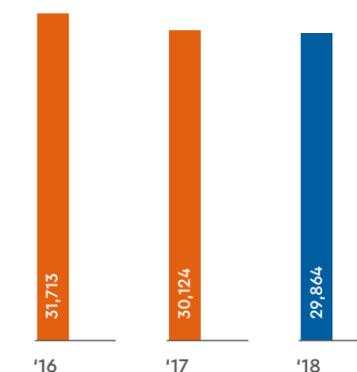
for simplifying business procedures and enhancing investment appeal of the Russian regions dated January 31, 2017 (the "Program").

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.

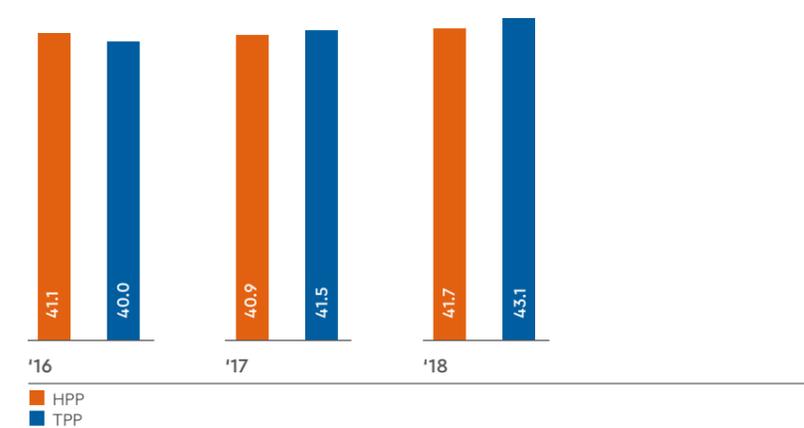
The Program made it possible to introduce an online service to the energy companies' websites featuring personal accounts for the applicant to interact with the grid company and to make preliminary calculations of the UC cost (UC tariff calculator), apply for a UC, receive a UC contract and sign the necessary UC documents, including their electronic versions.

The applications filed by the applicant through the Personal Account differ in their share, with, for example, 1% at JSC Chukotenergo, 17% at JSC DRSK and 44% at PJSC Sakhalinenergo.

**Heat supply, '000 Gcal [EU2]**



**HPP and TPP installed capacity utilization factor (ICUF), %<sup>1</sup>**



<sup>1</sup> Excluding RES ICUF.

## 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 HPPs (PSPPs) and NPPs (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 8.393% 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.

### WECM price zones



■ First price zone  
 ■ Second price zone  
 ■ Non-price zones and isolated energy systems

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 TSA) 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 (FGC UES), 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 Russian Government's Resolution No. 1172 On Approval of Rules for the Wholesale Electricity and Capacity Market and on Amendments to Certain Acts of the Government of the Russian Federation Concerning Organization of the Wholesale Electricity and Capacity Market dated December 27, 2010 establishes the legal framework governing the wholesale electricity and capacity market.

The procedure and timing for financial settlements and approval of electricity and capacity 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.

### 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 abolished in 2015 to be succeeded by FAS).

The primary tariff calculation methodology for the WECM generating facilities (including those located in the non-price zone) is the one based on indexation. It

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.

### Average tariffs under regulated contracts (RC) and gross revenue requirement (GRR) for electric power generation

Item	2017	2018	2018-2017	2018/2017, %
Average tariff under RC, RUB / '000 kWh	340.67	357.39	16.72	4.9
GRR, RUB '000	23,050	23,131	81	0.4

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;

- RusHydro's Sales Policy Regulations;
- Regulations for Developing Annual and Forward-Looking Long-Term Balance Projections for Production and Consumption of Electricity and Capacity and Heat in the Areas outside of the Price Zones of the Wholesale Market;
- Regulations on RusHydro's Sales Management;
- Regulations for Interaction between RusHydro's Business Units Following up on Contracts Related to Electricity and Capacity Sales.

### Sendout of electricity and capacity by RusHydro (branches)

Item	2017	2018	2018/2017, %
Output, mn kWh	91,146	92,927	2.0
Sendout (excluding electricity purchases), mn kWh	89,887	91,684	2.0
Electricity purchased, mn kWh	9,192	10,116	10.1
Total sales, mn kWh	96,350	99,093	2.8
Capacity, MW	21,645	21,423	-1.0

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%)

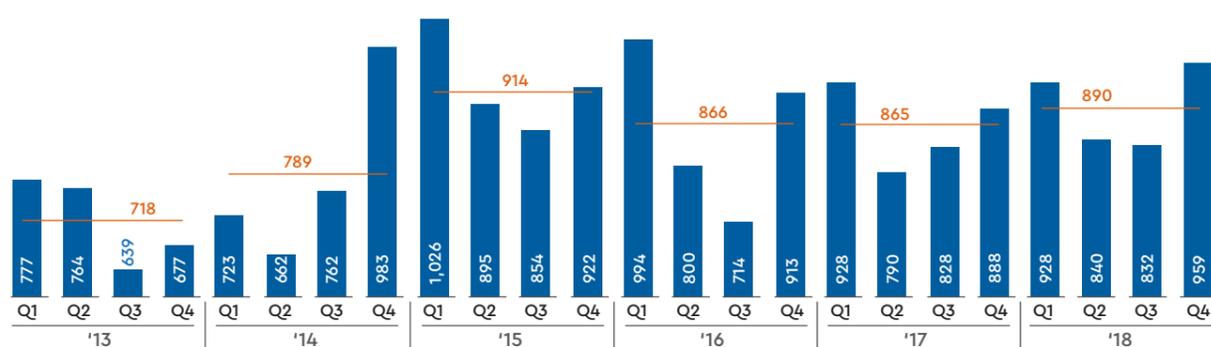
for the European part of Russia and RUB 825 per MWh (-3.6%) for Siberia.

### Electricity prices, RUB/MWh<sup>1</sup>

#### The first price zone



#### The second price zone



■ Average quarterly DAM price  
— Average annual DAM price

### RusHydro's electricity and capacity sales prices

	2014	2015	2016	2017	2018	2018-2017	2018/2017, %
DAM price, RUB/MWh	1,072.9	1,096.0	1,080.0	1,094	1,114	20	1.8
1 PZ DAM price, RUB/MWh	1,226.9	1,207.1	1,267.2	1,224	1,285	61	5.0
2 PZ DAM price, RUB/MWh	776.8	882.5	793.3	824	825	1	0.1
KOM price, RUB / MW per month	116,190.6	127,564.1	139,780.8	580,558	783,822	203,264	35.0
1 PZ KOM price, RUB / MW per month	140,566.7	125,524.0	111,627.7	3,212,516	4,312,779	1,100,263	34.2
2 PZ KOM price, RUB / MW per month	68,492.8	131,695.6	178,724.1	283,873	342,675	58,802	20.7

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.

Capacity sales price changes were mainly attributable to rising KOM (capacity auction) prices.

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 (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 [EUS]

Consumer	Active contracts for electricity
Manufacturing industry	3,761
Transport and communications	1,135
Agriculture	2,282
State-financed	5,628
Management companies, condominiums, housing associations, etc.	1,864
Resource providers	75
Housing and utilities	908
Heat suppliers	89
Other	41,146
Households on direct contracts	1,786,334
<b>Total accounts</b>	<b>1,843,222</b>

<sup>1</sup> Trading System Administrator data.

JSC ESC 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 Russia, establish a center of excellence for retail sales;
- minimize costs through centralization of certain functions of acquired retail companies within ESC RusHydro as RusHydro's specialized subsidiary;
- increase margins for RusHydro Group through vertical integration; and

- acquire guaranteed consumers for electricity produced by RusHydro's HPPs.

The companies selling electricity to retail consumers in the Far East are:

- PJSC DEK acting as a guaranteed supplier in UES East's non-price zone.
- In the Far East, retail sales of electricity and heat in isolated energy systems are covered by PJSC Yakutskenergo, PJSC Sakhalinenergo, PJSC Magadanenergo, JSC Chukotenergo, PJSC Kamchatskenergo, and JSC UESK.

DGK, JSC Teploenergoservis and JSC Sakhaenergo supply retail consumers with heat only.

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 mn kWh, 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)<sup>1</sup> from January 1, 2018 to December 31, 2018 [EU3]**

Consumer	Active contracts	
	Electricity	Heat
Manufacturing industry	3,169	436
Transport and communications	2,137	59
Agriculture	1,655	32
State-financed	11,179	3,308
Management companies, condominiums, housing associations, etc.	12,154	2,497
Resource providers	24	2
Housing and utilities	957	23
Heat suppliers	-	8
Other	55,780	13,995
Households	2,478,200	864,182
<b>Total accounts</b>	<b>2,565,255</b>	<b>884,542</b>

<sup>1</sup> Data provided for retail subsidiaries.

**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 65,147 mn.

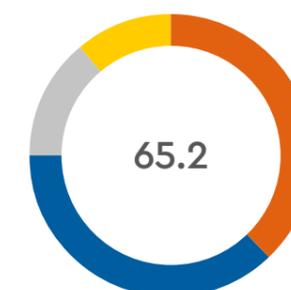
As at December 31, 2018, payments received by RusHydro for electricity supplies to WECM stood at 99.1%. In the same period, payments received for electricity supplies to retail markets of the European part of Russia and Siberia stood at 100.2% at PJSC Krasnoyarskenergosbyt (RUB 41,820 mn, incl. VAT), 98.3% at JSC Chuvashskaya Electricity Sales Company (RUB 13,143 mn, incl. VAT), 99.3% at PJSC Ryazanenergosbyt (RUB 12,034 mn, incl. VAT), and 99.4% at JSC ESC RusHydro (RUB 5,963 mn, incl. VAT).

At JSC RAO ES East Subgroup, as at December 31, 2018, total payments received for electricity and heat in the retail market totaled 97.2%, with receivables of RUB 33,869 mn (incl. VAT). The company received 97.6% of payments for electricity and 96.4% for heat in the retail market. The receivables for electricity and heat amounted to RUB 15,148 mn (incl. VAT) and RUB 18,721 mn (incl. VAT), respectively.

RusHydro Group companies use the following three approaches to improve debt recovery:

- interacting with consumers and executive authorities and introducing outreach measures aimed at improving payment discipline;
- recovering debt through court;
- disconnecting the electricity supply for non-payment.

**Receivables from buyers and consumers, RUB bn**



On time	24.7
Overdue for over one year	24.3
Three months to one year overdue	9.0
Overdue for under three months	7.2

**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 fulfil 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 DGK 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 4,514 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 454 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 12,144 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 disconnection, including RUB 73 mn by households. Total number of consumers disconnected in 2018 amounted to 66,577, 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. 1172 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. 1496 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 PJSC 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 ROIC 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.

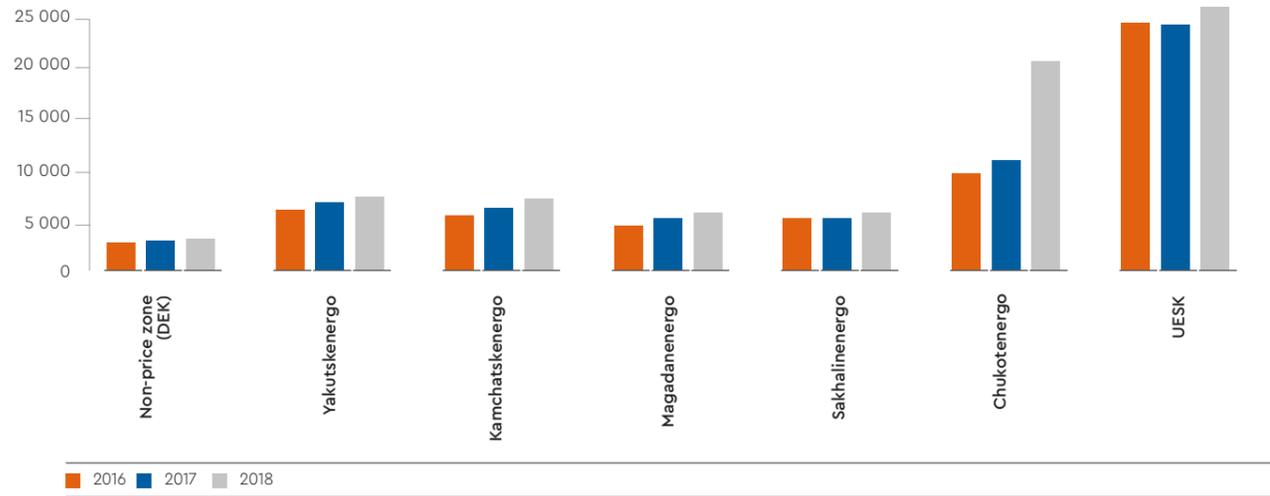
For South-Yakutsk Power System, 2018 was the last year of the long-term regulation period, with tariffs for 2014–2018 set using the long-term indexation method.

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 costs growing by 19.06%. 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.

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

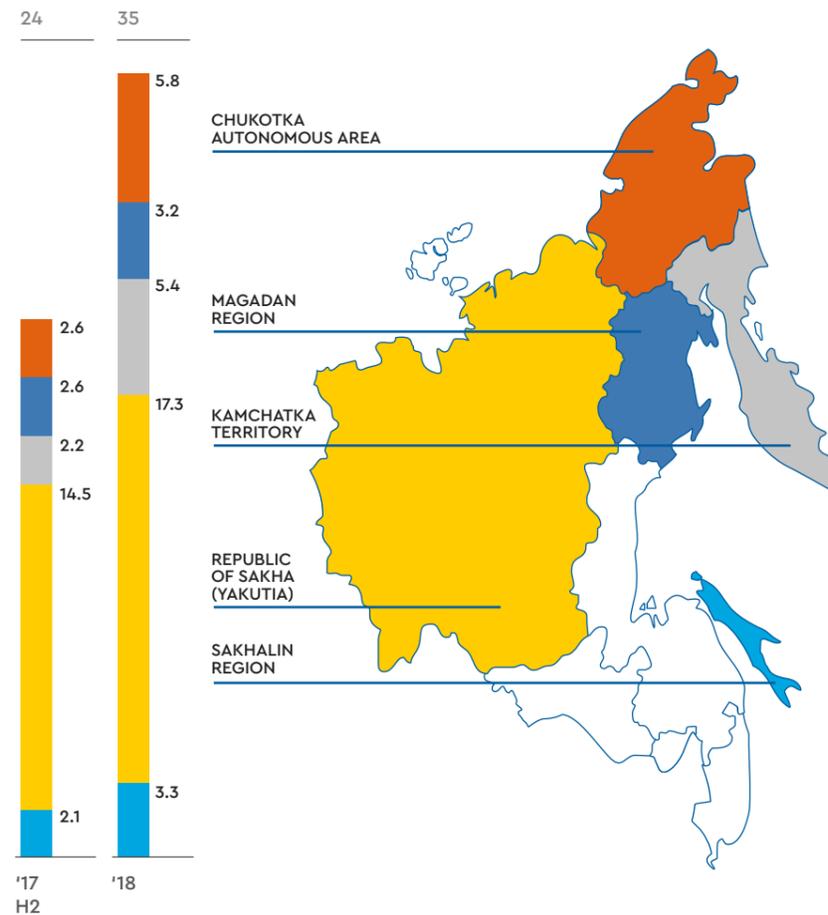


**Alignment of tariffs in the Far Eastern Federal District with national averages: impact on the regions and RusHydro [EU23]**

Federal Laws No. 508-FZ dated December 28, 2016 and No. 129-FZ dated June 30, 2017 On Amendments to the Federal Law On Electric Power Industry introduced a surcharge to the capacity price in the first and second price zones, helping to bring tariffs in the Far East down to the Russian base (average) rate.

These amendments provide for a surcharge to be applied to the capacity price in the WECM

**The amount of the surcharge with a breakdown by regions of the Far Eastern Federal District, RUB bn**



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.

Electricity sales stood at 11,157 mn kWh in the WECM (besides, the company sells electricity in the retail market). DEK's commercial sales of electricity and capacity in the WECM amounted to RUB 20,198 mn 2018.



**IN 2018 THE TARIFF ADJUSTMENT MECHANISM WAS IMPLEMENTED IN FIVE REGIONS OF THE FAR EASTERN FEDERAL DISTRICT**

**WECM electricity sales in non-price zone**

Item	2017	2018	2018/2017, %
WECM electricity purchases by PJSC DEK, mn kWh	30,738	30,998	1
Cost of WECM electricity (capacity) purchases by PJSC DEK, RUB mn	50,388	51,646	2
WECM electricity sales by PJSC DEK, mn kWh	8,229	11,157	36
Cost of WECM electricity (capacity) sales by PJSC DEK, RUB mn	15,202	20,198	33
Supply of electricity by DGK, mn Wh	21,388	22,391	5
Cost of WECM electricity (capacity) supplied by DGK, RUB mn	48,445	49,711	3

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 Rusenergoby LLC building up purchases for JSC Russian Railways in the Amur Region.

In 2018, PJSC DEK supplied 22,391 mn kWh in the non-price zone of the Far East's wholesale electricity (capacity) 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.

Unless stipulated otherwise, sale of heat is fully regulated under the Russian law.

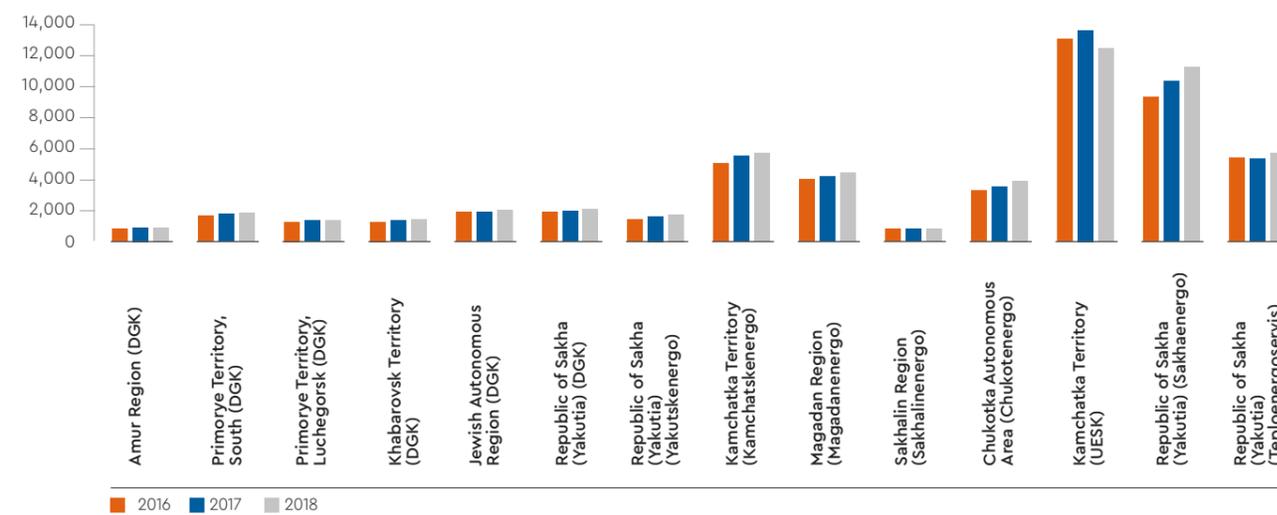
Federal Law No. 190-FZ On Heat Supply dated July 27, 2010 sets out the basic price (tariff) regulation principles for heat supply and the scope of authority of regulators in charge of heat supply price (tariff) regulation. The Russian Government's Resolution No. 1075 On Pricing in the Field of Heat Supply dated October 22, 2012 outlines the main regulation principles and procedures for

calculating and approving heat tariffs.

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.

In the Far East, heat tariffs in 2018 were set using the long-term indexation method in line with the Guidelines for Calculation of Regulated Prices (Tariffs) for Heat Supplies approved by FTS Order No. 760-e dated June 13, 2013.

**Consumer tariffs for heat supplies in the Far Eastern Federal District, RUB/Gcal<sup>1</sup>**



The average tariff in DGK zones of operation rose by 4.44%, with the smallest increase (2.74%) registered by LuTEK in the Primorye Territory and the largest increase (56.97%) recorded by Volochayevskaya boiling station in the Khabarovsk Territory (due to revenue adjustment to account for the discrepancy

between the actual tariff calculation metrics and the metrics used for setting the 2016 tariff).

In the isolated zones, average consumer tariffs for heat supplies added 5.57%, with the smallest increase (4.24%) recorded by PJSC Kamchatskenergo and the largest increase (11.4%) registered by

JSC Chukotenergo. JSC UESK reported an average tariff decline of 8.17% compared to the rate approved for 2017 due to the exclusion of RUB 72.2 mn excess fuel income received in 2016 from the required gross revenue for Penzhinsky Municipal District. Tariffs set for PJSC Sakhalinenergo for 2018 were the same as in 2017.

<sup>1</sup> Sakhalinenergo and Chukotenergo supply heat from power plants and boiling stations to the wholesale reselling consumers.

## Reliability and safety of production facilities

### RusHydro Group's reliability and safety policy [103-2]

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. 190 of March 11, 2015;
- RusHydro's In-Process Monitoring Information System ("IPMIS") commissioned by RusHydro's Order No. 1170 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. 467r of December 8, 2015 On Using a Data Reporting Form – Integrated

Recorder for the Analytical Database of Supervisory Activities. Decree No. 157r 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 (Rostekhnadzor) as compliant with Russian industrial safety laws (Rostekhnadzor 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. 515 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

Functions	Responsible
<ul style="list-style-type: none"> <li>➤ General control of compliance with industrial safety requirements at hazardous production facilities of RusHydro and production subsidiaries;</li> <li>➤ Methodological support and coordination of industrial safety efforts at the Company's hydropower facilities, including recording of violations, emergency prevention and response;</li> </ul>	Boris Bogush, Member of the Management Board, First Deputy Director General — Chief Engineer
<ul style="list-style-type: none"> <li>➤ 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;</li> <li>➤ Coordination and control of HQ units, branches and subsidiaries as regards in-process monitoring and compliance with industrial safety requirements;</li> <li>➤ 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;</li> <li>➤ 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.</li> </ul>	Industrial and Fire Safety Office of the Industrial and Occupational Safety Department
<ul style="list-style-type: none"> <li>➤ Ensuring operation of hazardous production facilities as required by the Russian laws and RusHydro Group's internal regulations;</li> <li>➤ In-process monitoring along with the development and implementation of industrial safety efforts.</li> </ul>	Industrial and occupational safety functions in branches and subsidiaries

All of RusHydro Group's production facilities have put in place regulations on in-process monitoring of compliance with industrial safety requirements

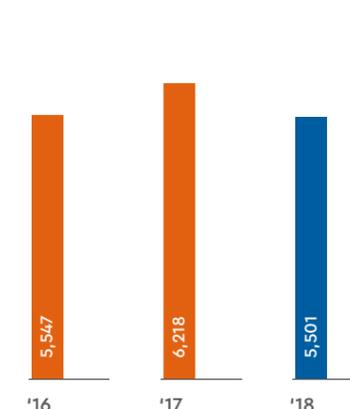
at hazardous production facilities. RusHydro Group has 478 hazardous production facilities registered in the State Register of Hazardous Production

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.

### Number of accidents across RusHydro Group



### Causes of accidents in 2018, %



**System Average Interruption Frequency Index (SAIFI)<sup>1</sup> [EU28]**

Grid subsidiaries	2016	2017	2018
JSC UESK	0.31	0.20	0.35
PJSC Kamchatskenergo	0.557	2.05	1.318
JSC Sakhaenergo	12.9	11.43	11.79
PJSC Yakutskenergo	4.726	3.26	3.76
PJSC Sakhalinenergo	31.955	12.84	6.21
PJSC Magadanenergo	2.60	1.83	2.30
Far Eastern Distribution Company	3.70	6.39	6.22
JSC Geoterm	6.70	9.00	1.23
JSC Chukotenergo	4.72	6.99	5.26
PJSC Mobile Energy	0.005	0.0043	0.0054

**System Average Interruption Duration Index (SAIDI)<sup>2</sup> [EU29]**

Grid subsidiaries	2016	2017	2018
JSC UESK	2.14	2.14	1.31
PJSC Kamchatskenergo	3.25	5.08	1.86
JSC Sakhaenergo	45.54	44.90	35.88
PJSC Yakutskenergo	4.93	8.91	9.05
PJSC Sakhalinenergo	18.34	39.30	20.97
PJSC Magadanenergo	7.83	4.33	5.45
Far Eastern Distribution Company	9.19	13.22	26.03
JSC Geoterm	10.80	7.20	0.48
JSC Chukotenergo	60.06	52.51	50.17
PJSC Mobile Energy	2.5	1.9	2.6

**Program of Stable Power Grid Operation in the Sakhalin Region**

- 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-P9-13 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.

**Preparedness for natural disasters and emergencies**

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 Headquarters. 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 of documentation for 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.

<sup>1</sup> The System Average Interruption Frequency Index (SAIFI) is calculated using the formula  $(\sum_i l_i \cdot N_i) / NT$ , where  $l_i$  is the failure rate,  $N_i$  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.

<sup>2</sup> The System Average Interruption Duration Index (SAIDI) is calculated using the formula 1), where  $N_i$  is the number of customers and  $U_i$  is the annual outage time for location  $i$ , and  $NT$  is the total number of customers served. The index is calculated for the entire location served.

**Functional subsystem of the National Emergency Management System**

In pursuance of the Order of the Russian Ministry of Energy<sup>1</sup>, RusHydro Group established functional subsystem of the National Emergency Management System (NEMS).

The Company's emergency prevention and response and fire safety commission (the "Commission") is the supervisory body of the subsystem responsible for the timely situation assessment and decision-making on emergency prevention.

The Commission's annual action plans stipulate efforts to facilitate the safe passage of flood water during the spring and summer period, prepare for the fall and winter peak loads, and secure the stable operation during the fire and storm seasons. The Commission manages and coordinates the operations of permanent bodies and management bodies responsible for day-to-day operations of the functional subsystem.

Permanent bodies of the Company's functional subsystem management – the Situation Analysis Center's team specializing in civil defense, emergency prevention and response, and civil defense and emergency engineers at generating branches and subsidiaries – are responsible for the planning of emergency prevention and response, coordination of emergency prevention 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 shift 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 [EU25]**

- 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 [103-2]**

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 20, 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 [403-1] 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 [103-2]**

Member of the Management Board, First Deputy General Director – Chief Engineer	Industrial and Occupational Safety Department	Health and safety functions at branches and subsidiaries
<ul style="list-style-type: none"> <li>➤ Management of health and safety activities at hydropower facilities</li> <li>➤ Setting up and ensuring oversight over health and safety activities, including preventive measures to minimize operational risks and protect employee health</li> </ul>	<ul style="list-style-type: none"> <li>➤ Development, oversight and control of occupational health and industrial safety measures at the Company level</li> </ul>	<ul style="list-style-type: none"> <li>➤ Development, oversight and control of occupational health and industrial safety measures directly at branches and subsidiaries</li> </ul>

<sup>1</sup> Order of the Russian Ministry of Energy No. 222 On the Functional Emergency Management Subsystem at Organizations (Facilities) of the Energy Industry and Organizations (Facilities) Subordinate to the Russian Ministry of Energy dated June 9, 2011.

**Key focus areas in occupational health and safety management for 2018**

**Occupational safety training and knowledge assessment**

- 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;
- Thematic events, including those aimed at:
  - venting injuries in electrical installations, work at height, confined spaces, pressure equipment, construction work, loading and unloading operations, lifting equipment, appliances and mechanisms;
  - enhancing workplace culture;
  - promoting traffic safety;
  - training staff for winter seasons;
- 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**

- 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).
- Staff interviews and meetings. [403-1]
- 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 employee authorized bodies aimed at improving working conditions and occupational safety. [403-1]
- Occupational health and safety provisions in formal agreements with trade unions. [403-1]

**Employee health screening and voluntary health insurance for the working environment and operating process**

- 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, stationary, 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.

**Health and safety measures [103-2]**

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.

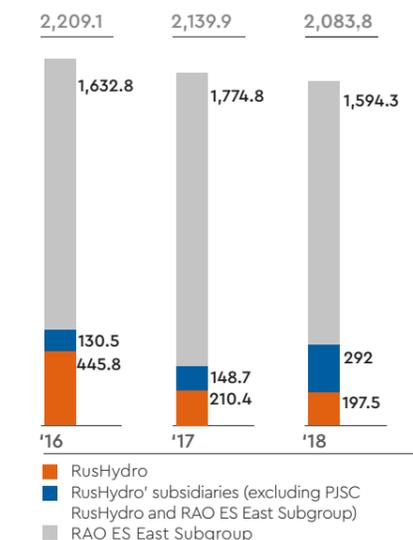
**Assessment of workplace conditions and identification of occupational hazards**

[403-2], [403-3]

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**



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

Hazard	Number of severe injuries and occupational diseases caused by an occupational hazard	Action taken
Mechanical hazards	5	The Company has taken urgent preventive measures and developed an action plan to eliminate the impact on others
Electrical hazards	1	
Thermal hazards	1	Control over medical examinations, PPE availability and use, supervision of weight lifting in excesses of approved limits
Labor severity and intensity hazards	2	
Noise hazards	2	
Other	1	Control of medical examinations

**Injuries and occupational diseases [403-2], [403-3]**

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**

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

**PLANS FOR IMPROVING HEALTH AND SAFETY IN 2019 [103-2]**

- 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.

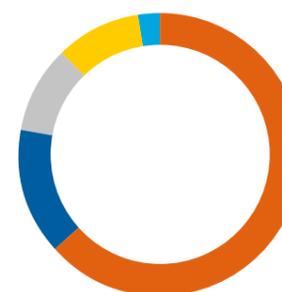
In 2018, RusHydro Group recorded five occupational diseases. Occupational diseases (hazards) are caused by noise and labor severity.

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.

The following measures were taken to prevent occupational diseases:

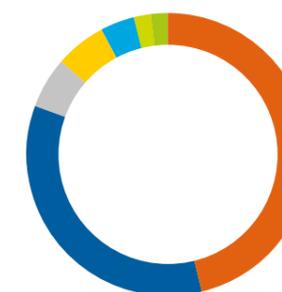
- providing milk or equivalent products to employees working in hazardous conditions;
- supplying effective individual hearing protection means;
- reimbursing for costs related to additional medical check-ups;
- organizing health resort treatment and sports activities;
- educating on how to prevent infectious diseases;
- personnel preventive vaccination;
- restocking first aid kits;
- supply of potable water and vitamins;
- supply of detergents and decontaminants.

**Categories of injured employees in 2018**



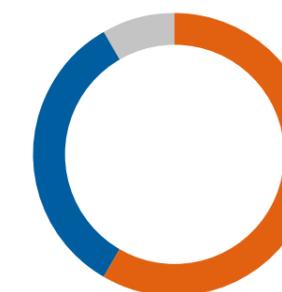
Workers (m)	26
Managers (m)	6
Skilled employees (m)	4
Workers (f)	4
Skilled employees (f)	1
Managers (f)	0

**Number and types of injuries in 2018**



Bone fracture	24
Bruising	18
Thermal burns	3
External blows	3
Electric shock	2
Jamming/pinching	1
Ligament rupture	1

**Categories of employees with fatal and severe injuries in 2018**



Severe injuries to workers (m)	7
Fatal injuries to workers (m)	4
Fatal injuries to managers (m)	1

<sup>1</sup> 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. 261-FZ On Energy Saving and Improving Energy Efficiency and Amendments to Certain Legislative Acts of the Russian Federation dated November 23, 2009 and the respective programs of energy saving and increased energy efficiency.

HPPs have their own specifics, 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 to 2020 (ESIEEP) 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<sup>1</sup> 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 530 mn kWh in 2018 through the following initiatives:

- RusHydro, JSC SO UPS 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 3.5 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 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 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.

<sup>1</sup> DGK, JSC DRSK, PJSC Kamchatskenergo, PJSC Magadanenergo, PJSC Mobile Energy, PJSC Sakhalinenergo, JSC Sakhaenergo, JSC Teploenergoservis, JSC Chukotenergo, JSC UESK, PJSC Yakutskenergo.

### Energy efficiency of heating grids

- rehabilitation of heat pipelines using heat proof materials.
- generation. By contrast, HPPs rarely consume more than 1.5%.

Key ESIEE initiatives in 2018:

- comprehensive equipment modernization at heat substations; and
- TPPs heavily rely on electricity for own consumption accounting for a hefty 10–16% of RusHydro Group's electricity

### Efficiency of energy utilization

#### Own consumption by energy resource in 2018 [302-1]

Non-renewables	In-kind	RUB mn
Electricity consumption, mn kWh	6,579	1,624.48
Heat consumption, Gcal	716,422	142.16
Boiler and furnace fuels, tonnes	17,687,304	63,771.16
Motor gasoline, l	5,619,939	224.20
Diesel fuel, l	23,566,189	1,069.68
Natural gas, cu m	6,365,269	6,555.12

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.

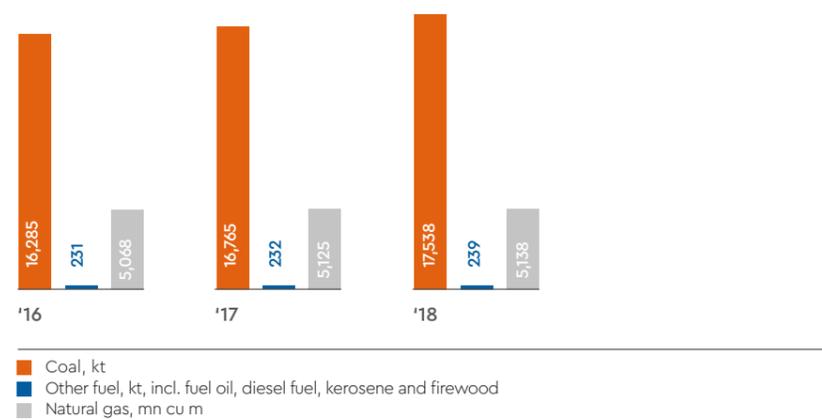
The fuel mix of JSC RAO ES East's TPPs remained virtually unchanged. Gas consumption also remains flat over the years, which contributes to better environmental conditions across its footprint, including lower greenhouse gas emissions as well as ash and slag waste.

In 2018, RAO ES East's TPPs produced more electricity as compared to 2017 marginally increasing their consumption, with DGK accounting for the bulk of electricity generation. In 2018, its electricity output rose by 4.4% y-o-y, or 1,099 mn kWh (2017: 24,758 mn kWh).

In 2018, the ESIEE helped RusHydro and its subsidiaries (HPPs) save 41,443,000 kWh on own consumption and additionally generate 56,915,000 kWh, having spent RUB 2,874 mn on energy saving and energy efficiency initiatives.

RAO ES East Subgroup's companies<sup>1</sup> spent RUB 2,153 mn in 2018 under their respective programs for energy saving and improving energy efficiency, with annual economic benefits amounting to RUB 444 mn, or 59,303 tonnes of equivalent fuel.

#### Fuel consumption in 2016–2018



#### RAO ES East Subgroup's consumption per unit of equivalent fuel [302-3]

Indicator	2016	2017	2018
Consumption per unit of equivalent fuel for electricity generation, g/kWh	385.319	385.174	385.858
Consumption per unit of equivalent fuel for heat generation, kg/Gcal	161.216	159.867	160.084

#### Energy savings by RAO ES East Subgroup's [302-4]

Energy resource saved	2016	2017	2018
Natural gas, '000 cu m	446	270	4,328
Diesel fuel, tonnes of natural fuel	7	45	46
Other fuel, tonnes of equivalent fuel	18,045	27,467	29,322
Heat, Gcal	19,482	27,868	28,443
Electricity, '000 kWh	70,610	87,151	91,099

### Plans to improve energy efficiency in 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.

RAO ES East Subgroup's companies<sup>1</sup> plan to spend RUB 2,262.75 mn under their updated ESIEEs for 2019–2024, which is set to bring RUB 519.06 mn of annual benefits.

### Energy saving initiatives in cooperation with stakeholders in 2018

In 2018, RusHydro held energy audits at 12 branches: Volzhskaya HPP, Votkinskaya HPP, Dagestan branch, Zhigulevskaya HPP, Kamskaya HPP,

Kabardino-Balkaria branch, Cascade of Verkhnevolzhskiy HPPs, Cascade of Kubanskiye HPPs, Karachay-Cherkessia branch, Nizhegorodskaya HPP, Novosibirskaya HPP, Saratovskaya HPP and two power generating subsidiaries (Geoterm and HPP-3 of PJSC KamGEK).

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, PJSC Yakutskenergo's integrated management system was recertified for compliance with four international standards, including ISO 50001. No material inconsistencies were identified by the audit which confirmed the continuous success of its energy management system. PJSC Yakutskenergo's certificate

No. RU229041EN for compliance with ISO 50001:2011 issued by Bureau Veritas Certification Rus on August 24, 2016 was extended until August 23, 2019.

### Building a lean consumer behavior model

RusHydro Group promotes energy saving awareness arranging for training events at schools.

In line with the national policy for energy saving and improving energy efficiency, RusHydro's PJSC Ryazanenergosbyt assists the Ryazan Region in implementing the Development of Utilities Infrastructure, Energy Saving and Improving Energy Efficiency for 2015–2020 state program approved by Resolution No. 314 of the Government of the Ryazan Region of October 29, 2014.

<sup>1</sup> DGK, JSC DRSK, PJSC Kamchatskenergo, PJSC Magadanenergo, PJSC Mobile Energy, PJSC Sakhalinenergo, JSC Sakhaenergo, JSC Teploenergoservis, JSC Chukotenergo, JSC UESK, PJSC Yakutskenergo.

<sup>1</sup> DGK, JSC DRSK, PJSC Kamchatskenergo, PJSC Magadanenergo, PJSC Mobile Energy, PJSC Sakhalinenergo, JSC Sakhaenergo, JSC Teploenergoservis, JSC Chukotenergo, JSC UESK, PJSC Yakutskenergo.

# INNOVATIONS

## Innovative Development Program of RusHydro Group for 2016–2020 with an outlook until 2025<sup>1</sup>

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-DO1 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, the final quality assessment of RusHydro's Innovative Development Program was 95.2% (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 hydropower potential in certain regions of Russia;
  - development of RES-based alternative energy infrastructure (geothermal power generation); and
  - analysis and development of mini-hydro solutions.

### KPI for the Innovative Development Program of RusHydro Group

KPI	Target			Result	
	2018	2019	2020	2018	Delivered or not
R&D expenses, % of revenue	0.25	0.25	0.25	0.28	Delivered
Growth in the quantity of IP assets on the balance sheet, %	5.5	6.5	7	6.7	Delivered
Efficiency of hydropower capacity management, employees per 100 MW	20.52	20.36	20.13	21.19	96.9% delivered
Innovative products purchased, % of total volume	1.21	1.33	1.46	1.21	Delivered
HPP repair expenses, '000 RUB/MW (at 2000 prices)	19.9	19.8	19.6	12.86	Delivered <sup>1</sup>

## 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 in the reporting period, %; 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.



**THE INNOVATIVE DEVELOPMENT PROGRAM OF RUSHYDRO GROUP IS FUNDED SOLELY WITH ITS OWN CAPITAL.**

<sup>1</sup> Approved by RusHydro's Board of Directors on November 22, 2016 (Minutes No. 244 of November 23, 2016).

<sup>1</sup> 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/PSPP 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.
- 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.
- 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.
- 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 "Comparison") 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

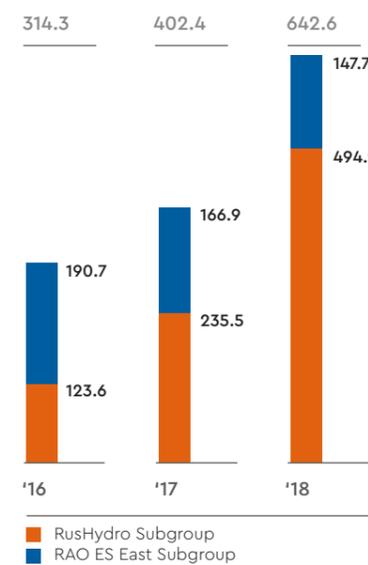
of Directors approving the Program for Intellectual Property Rights Management within RusHydro Group along with a corresponding action plan.

## R&D projects

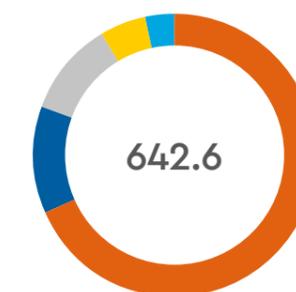
RusHydro Group is committed to ramping up its R&D investments. In 2018, they grew by 59.7% to RUB 642.6 mn (incl. VAT).

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.

R&D spending, RUB mn (incl. VAT)



R&D spending by area in 2018, RUB mn (incl. VAT)



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

Description	Progress in 2018
<b>Pilot testing of the digital testing complex at Nizhegorodskaya HPP</b>	
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ to increase the guaranteed measurement accuracy; ensure high electromagnetic immunity and low susceptibility to vibration and temperature fluctuations;</li> <li>➤ to improve the electromagnetic compatibility of modern protective relaying equipment with automated process control systems by using optical fibers;</li> <li>➤ to prevent saturation, ferroresonance and undesirable transient events; and</li> <li>➤ to perform self-diagnosis and online monitoring.</li> </ul> <p><b>Solution:</b></p> <ul style="list-style-type: none"> <li>➤ to install optical and electronic measuring devices.</li> </ul>	<p>Pilot testing of the digital complex followed integrated tests in 2018 as part of the Development and Implementation of an Automated Protection and Management System for Next-Generation Electrical Substations national project, which had been initiated by the Russian Ministry of Energy. Results will be used to draft recommendations on a further rollout across RusHydro Group.</p>

**Description** **Progress in 2018**

**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**

**Objective:**  
 ➤ 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 exploring 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.

**Solution:**  
 ➤ to apply specialty epoxy coating (BLOKOR-MKK115).

Epoxy coating (BLOKOR-MKK115) 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 CHPP-3.

**Design of avalanche-resistant pylons and foundations for 220 kV power lines**

**Objective:**  
 ➤ to cut operating costs for overhead power lines by reducing expenses associated with emergency recovery operations to fix pylons damaged by avalanches.

**Solution:**  
 ➤ to design special avalanche-resistant pylons and foundations compliant with building codes and regulations, including seismic performance requirements.

Detailed design drawings of pylons and foundations made along with a prototype of an avalanche-resistant angle pylon for overhead power lines.

Following utility models obtained:  
 ➤ multisided steel pole for overhead power line pylons; and  
 ➤ reinforced cast-in-place concrete foundation.

**Design of a composite power line conductor core based on thermoplastic resins**

**Objectives:**  
 ➤ 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).  
 ➤ 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  
 ➤ 15% to 40% lower costs of building new crossings as fewer pylons will be required).

**Solution:**  
 ➤ to design a composite power line conductor core based on thermoplastic matrices along with manufacturing equipment.

Manufacturing equipment engineering and production documentation drafted. Patents for composite cores and corresponding production processes explored. 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.

**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;
- building 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.

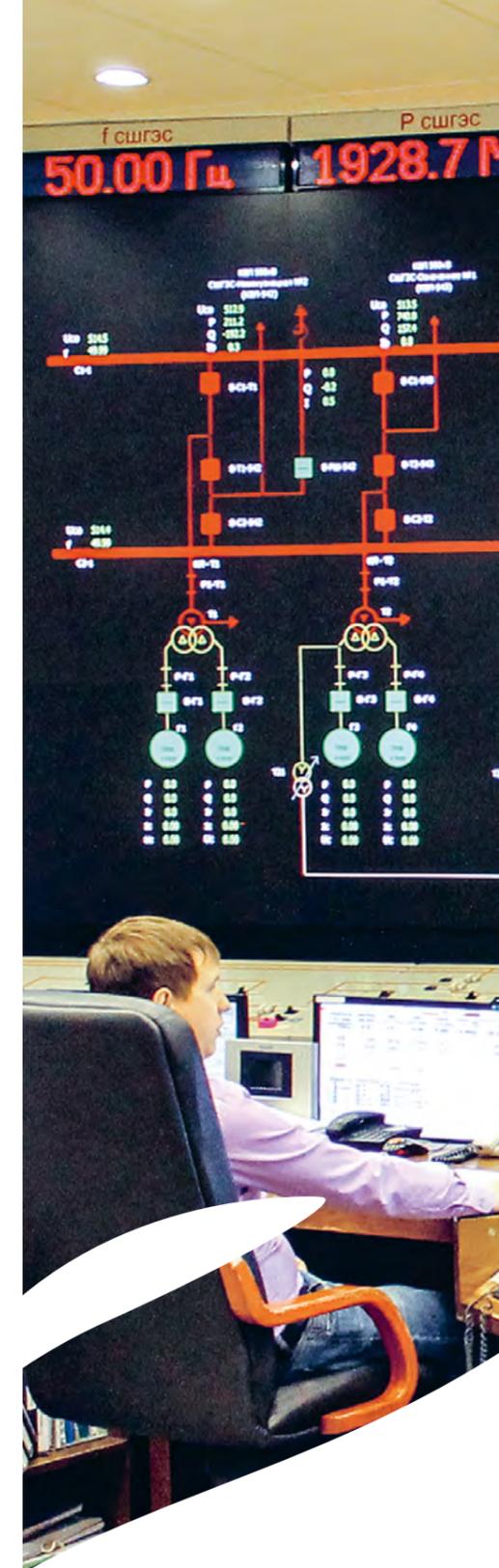
- using analytical systems to process Big Data to support decision-making; and
- relying on cross-industry cooperation to build shared services in support of governance models.

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.

Key milestones:

- building advanced integrated multi-service information and telecommunications infrastructure;
- transforming production chains and processes, governance models and planning procedures;



**RUSHYDRO'S DIGITALIZATION PROGRAM INCLUDES 22 PROJECTS**

# 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 Company's Board of Directors oversees procurement management, approves the annual comprehensive procurement program and its progress report.
- the Central Procurement Commission (CPC) is a permanent collective body which shapes and carries out the uniform procurement policy as well as exercises control and coordination of procurement activities. The CPC Chairman is responsible for procurement management within RusHydro.

- 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 well 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](http://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. [103-2]



Essential conditions in competitive procurement and other information on RusHydro procurement can be found on the official website of the Russian Federation: [www.zakupki.gov](http://www.zakupki.gov)



And also on the electronic trading platform: <https://rushydro.roseltorg.ru>.

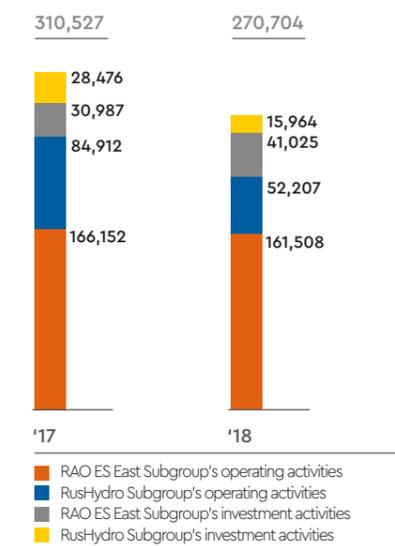
## Implementation of the annual comprehensive procurement program

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, RUB mn (incl. VAT)



Procurement by method, %

Type of procurement	2017		2018	
	RusHydro Subgroup	RAO ES East Subgroup	RusHydro Subgroup	RAO ES East Subgroup
Electronic procurement	87.95	99.40	98.62	99.77
Procurement through open bidding	67.79	42.37	52.69	48.31
Single-source procurement	32.09	57.10	45.95	50.03
Procurement through closed bidding	0	0	0.29	0.82

Procurement is mostly (in money terms) for works and services related to repair and investment programs (upgrade, capital construction projects) of the companies within RusHydro Group.

The procurement items include goods usually purchased by energy companies (core equipment (boilers and turbines), transformers, switchgear cells, package transformer substations, isolation valves, control valves, line accessories, cable fittings, pipelines, steam pipelines and spare parts, cabling and wiring, electrical appliances, metal goods, insulators, heat insulators, etc.).

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. [103]

## 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.

## Procurement from small and medium-sized businesses (SMEs)

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/D28i 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.



» Partnership program is publicly available and published on RusHydro's website: <http://zakupki.rushydro.ru>



» The list of goods, works and services purchased from SMEs can be found on the website: <http://zakupki.gov.ru>

### Procurement from SMEs in 2018, %

Indicator		Target	Actual
Procurement through businesses including SMEs, % of annually awarded contracts	RusHydro	18	70.77
	RusHydro Group	18	77.86
Procurement only through SMEs, % of annually awarded contracts	RusHydro	15	42.15
	RusHydro Group	15	28.03

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

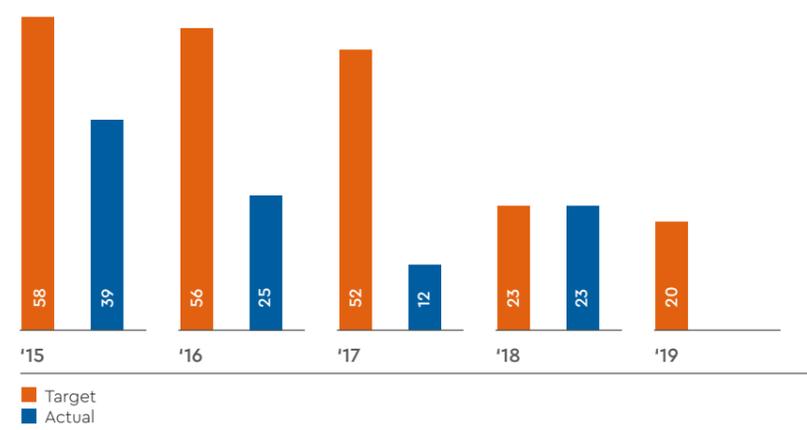
- As part of the Comprehensive Modernization Program for RusHydro's generating facilities, the Company plans to increase supplies from domestic machinery producers given that, among other things, certain types of equipment and components will be produced in Russia.
- To increase supplies from local manufacturers 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<sup>1</sup>, the Company approved the Regulations on Registering Investment Projects Included in the List of RusHydro Group's Investment Projects<sup>2</sup>, 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<sup>3</sup>. 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%.

- 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).

Share of imported equipment, %



## PROCUREMENT IMPROVEMENT IN 2019

- 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

<sup>1</sup> On Approval of Procedure for Registering Investment Projects Included in the List of Investment Projects

<sup>2</sup> Resolution of RusHydro's Board of Directors dated May 31, 2016 (Minutes No. 237)

<sup>3</sup> Established by Russian Government's Resolution No. 785 On the Government Commission on Import Substitution dated August 4, 2015

# 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.

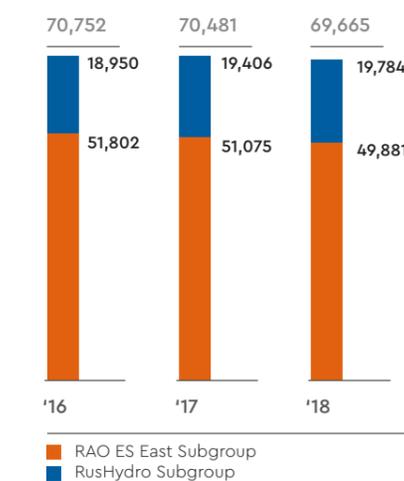
The employees of RusHydro Group are the Company's key asset. The Group's power facilities in Russia and abroad are staffed with professionals with extensive operational experience and superior technical expertise. The HR policy of RusHydro seeks to unlock the potential of its people and use it to deliver 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.

### Employee overview

As at December 31, 2018, RusHydro Group employed 69,665 people (including RAO ES East Subgroup, facilities in Russia and abroad), down by 816 employees, or 1.2%, compared to the previous reporting period.

Most of RusHydro employees work full-time (98.6% for RusHydro Subgroup and 99.6% for RAO ES East Subgroup) and under permanent employment contracts (87.5% for RusHydro Subgroup and 97.2% for RAO ES East Subgroup).

RusHydro Group – headcount<sup>1</sup>, people



### Headcount by country and region as at December 31, 2018 [102-7], [102-8]

Country, region	Headcount, people
<b>Russia</b>	
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
<b>Foreign countries</b>	
Republic of Armenia	401
Republic of Tajikistan	31

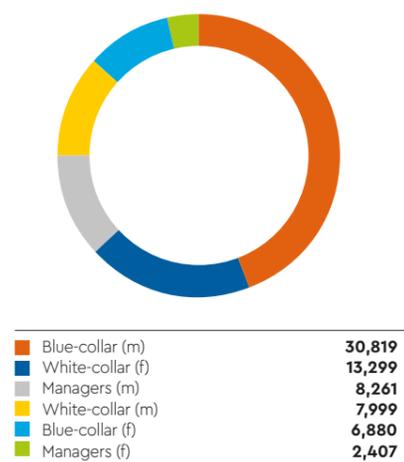
<sup>1</sup> The RusHydro Group headcount figures for 2016 and 2017 may be different from the previous annual reports due to changes in the reporting boundaries applied in 2018 report.

### Workforce by gender, region, type of employment and kind of employment contract [102-8]

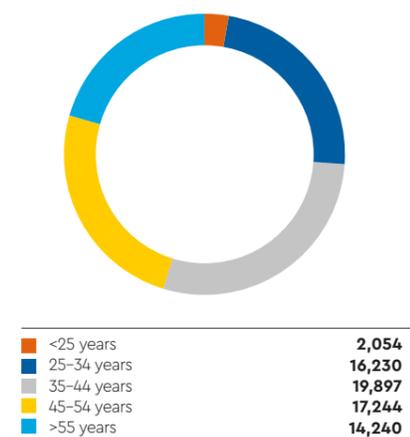
Gender distribution varies depending on the category of employees. In the management cohort, there are 3 times as many men as women; in the white-collar category – 1.7 times as many women as men; and in the blue-collar category – 4 times as many men as women, which reflects the specifics of RusHydro 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.

Workforce structure as at December 31, 2018, people [102-8], [405-1]



Workforce structure by age, people [405-1]



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 either equal to the statutory 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]

### 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.

### Percentage of employees who will reach retirement age<sup>1</sup> in the next 5 and 10 years [EU15]

Indicator	5 years		10 years		Total in the next 10 years (on an accrual basis)	
	people <sup>2</sup>	%	people <sup>3</sup>	%	people <sup>4</sup>	%
<b>RusHydro Group</b>	<b>6,856</b>	<b>9.8</b>	<b>7,718</b>	<b>11</b>	<b>14,574</b>	<b>21</b>
Management	1,131	10.6	1,372	13	2,503	24
White-collar employees	1,586	7.4	2,040	10	3,626	17
Blue-collar employees	4,139	11.0	4,306	11	8,445	22

<sup>1</sup> Age of retirement on general or special terms.

<sup>2</sup> Employees who will reach retirement age during 5 years from the reporting date (in 2019-2023).

<sup>3</sup> Employees who will reach retirement age in 5 to 10 years from the reporting date (in 2024-2028).

<sup>4</sup> Employees who will reach retirement age during 10 years from the reporting date (on an accrual basis, in 2019-2028).

### Total number of employees starting or leaving employment at RusHydro Group in 2018, by age, gender and region, people [401-1]

Region	<25 years		25-34 years		35-44 years		45-54 years		>55 years		Total
	M	F	M	F	M	F	M	F	M	F	
<b>Starting employment</b>											
Central Federal District	45	19	98	72	91	79	44	44	68	35	595
Southern Federal District	14	1	11	1	13	5	9	1	3	2	60
North-Western Federal District	19	10	9	15	7	6	10	4	7	13	100
Far Eastern Federal District	829	312	1,724	870	1,378	753	815	425	511	268	7,885
Siberian Federal District	38	29	89	74	86	82	48	45	58	37	586
Ural Federal District	3	0	5	2	3	2	2	0	3	0	20
Volga Federal District	79	5	183	28	135	18	74	11	34	7	574
North Caucasian Federal District	160	3	269	23	179	33	161	24	114	11	977
Republic of Armenia	0	0	6	2	6	2	2	1	10	2	31
Republic of Tajikistan	0	0	2	0	1	1	1	0	0	0	5
<b>Total</b>	<b>1,187</b>	<b>379</b>	<b>2,396</b>	<b>1,087</b>	<b>1,899</b>	<b>981</b>	<b>1,166</b>	<b>555</b>	<b>808</b>	<b>375</b>	<b>10,833</b>
<b>Leaving employment</b>											
Central Federal District	32	15	92	90	81	74	51	30	127	61	653
Southern Federal District	15	0	11	2	14	3	6	0	14	5	70
North-Western Federal District	9	1	12	15	5	6	5	4	14	25	96
Far Eastern Federal District	456	180	1,477	713	1,274	824	1,004	567	1,605	840	8,940
Siberian Federal District	21	11	65	58	66	86	67	51	85	65	575
Ural Federal District	4	0	2	1	4	1	0	2	7	6	27
Volga Federal District	63	1	166	19	140	22	59	9	84	26	589
North Caucasian Federal District	76	4	171	22	109	17	115	16	109	17	656
Republic of Armenia	2	0	10	3	8	2	6	2	14	3	50
Republic of Tajikistan	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>678</b>	<b>212</b>	<b>2,006</b>	<b>923</b>	<b>1,701</b>	<b>1,035</b>	<b>1,313</b>	<b>681</b>	<b>2,059</b>	<b>2,059</b>	<b>11,656</b>

### 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. [404-3]

### 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 personnel development programs, builds a talent pool and trains employees.

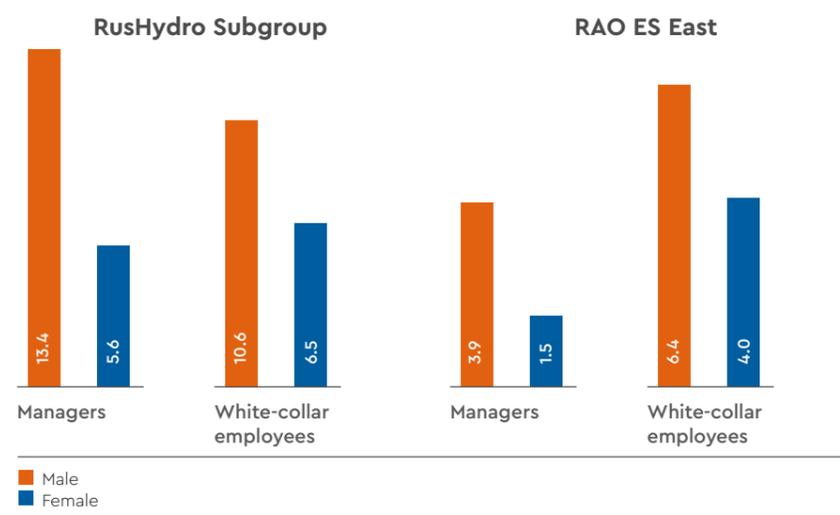
The continuous training system serves to develop employee competencies to meet their current job requirements and to be promoted as part of the talent pool arrangement. The Company offers employees professional retraining opportunities, including in accordance with occupational standards.

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.

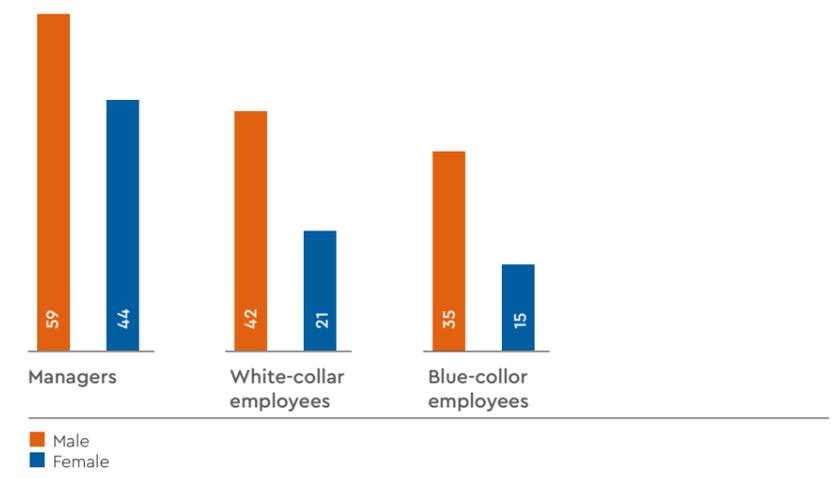
Key areas of employee training:

- 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;

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 [404-3]



Average hours of training per employee [404-1]

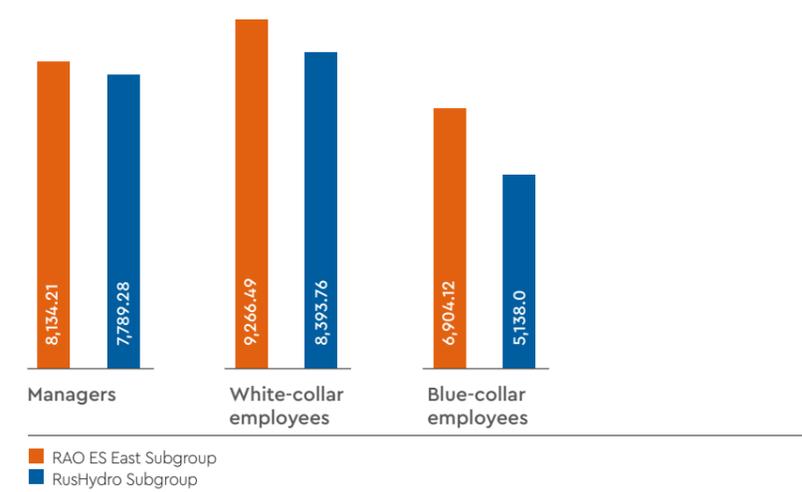


- Technical and statutory trainings required for performing job duties;
- Management and leadership trainings;
- Project management training;
- Corporate governance training;
- Graduate degrees;
- Second professional degree.

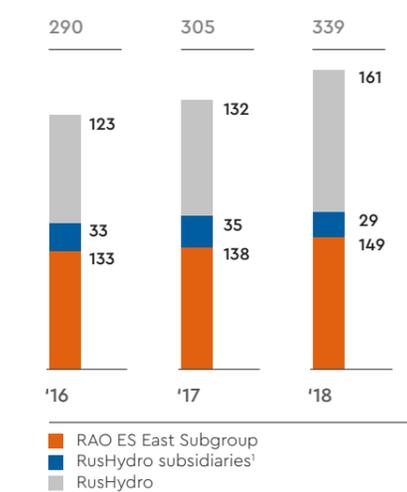
In 2018, RusHydro Group provided 36,537 training courses to its employees under corporate training programs, further professional education and

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.

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



RusHydro Group's personnel development costs, RUB mn



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

Form of training	Frequency
Further professional training	At least once every five years
Occupational training	As required by regulators, in case of retraining for a new career
Occupational retraining	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
Corporate trainings	On an as-needed basis when required to solve specific tasks
Internal training in production and technical skills	Annually
Short-term training programs (seminars, conferences, forums)	Annually, with the content depending on business needs
Distance learning	Annually, with the content depending on business needs

### 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.

<sup>1</sup> Excluding RAO ES East Subgroup.

**Training at the Corporate Hydropower University**

Employee categories	Number of courses	
	Onsite	Online
RusHydro, including:	2,466	10,875
managers	1,200	2,921
white-collar employees	1,029	5,396
blue-collar workers	237	2,558
Subsidiaries	1,121	1,481
<b>Total</b>	<b>3,587</b>	<b>12,356</b>

In 2018, RusHydro held its Corporate WorldSkills Russia Juniors Competiton 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.

The winning team participated in the 5th National Championship of Cross-Industry Working Professions in High-Tech Industries –WorldSkills Hi-Tech 2018. Team RusHydro came fourth in the Electrical Installations category among juniors aged 14 to 16.

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 (National Research University) hosted a corporate championship of professional skills in operational and technical control of hydraulic units and auxiliary equipment, according to WorldSkills standards. 21 hydraulic unit operators from RusHydro's branches and subsidiaries as well as other electrical power companies, aged up to 28, and three fourth-year students from

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.

**36,537**  
courses  
completed by RusHydro Group's employees in 2018

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 approached and solutions to deliver on RusHydro Group's strategic priorities. The community set the key project streams 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 life style 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 examination, which includes a theory test and a practical section to check skills and competencies.

The tests will be run in Moscow as well as in the Volga Training Center of the Corporate Hydropower University, the Artyom Training Centers in the Far East, and the Dolzhenko Personnel Training Center of DGK's branch Khabarovsk Generation. The examination board will include RusHydro production experts, who contributed to the development of occupational standards and assessment materials.

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

- Other plans for 2019 include:
- the 1st Corporate Engineering Case Championship of Innovation and Work Improvement Proposals 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.

## 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.

Tasks of the social policy:

- creating an institutional environment for attracting and retaining young talent;
- maximizing employee commitment to RusHydro's goals and principles;
- improving occupational relations 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 Business and the Tariff Agreement for the Electrical Power Industry of the Russian Federation [102-12].

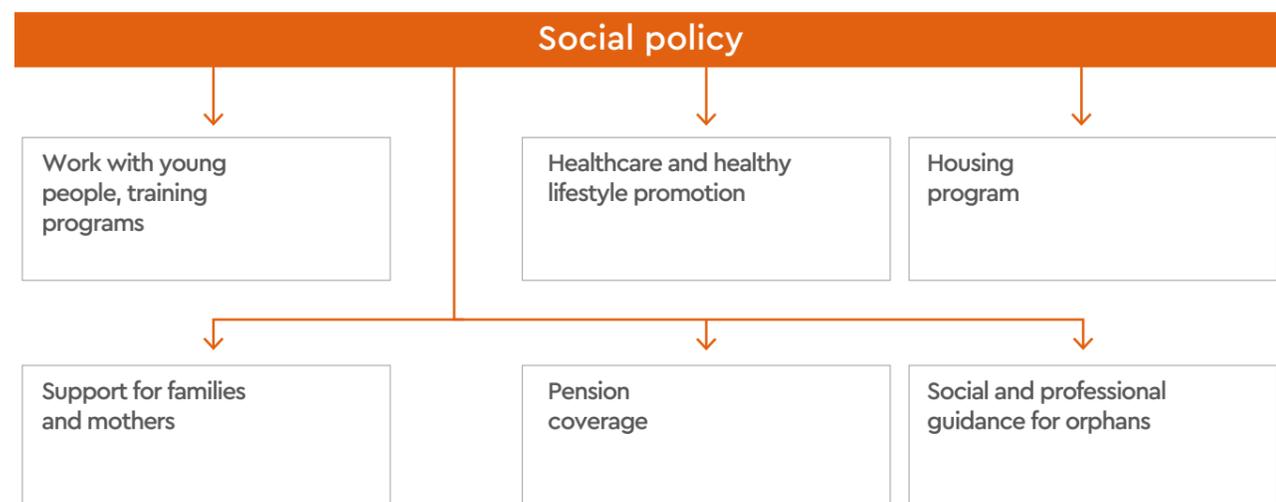
RusHydro Group grants benefits to full-time employees:

- 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 parity plan (financed on the basis of equal participation by an employee and the Company or an employee,

the Company and the state) consisting of:

- the "5+5" option (an employee and the Company jointly finance his or her pension savings);
- the "Co-financing" option (an employee, the Company and the state jointly finance his or her pension savings).

The corporate plan (financed by the Company) consisting 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 (DRSK), Far Eastern energy company (DEK), Kamchatskenergo, etc.

### Security for RusHydro Group's liabilities under pension plans<sup>1</sup> [201-3]

Indicator	Value
Net pension liabilities as at December 31, 2018, RUB mn	7,418
Estimated coverage ratio of special assets vs. liabilities under the scheme (fair value of plan assets / current value of plan liabilities), %	12.52

### 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. [407-1]

On December 11, 2018, Chairman of the Management Board – General

Director of RusHydro, Nikolay Shulginov, and the senior management of RusHydro had a meeting with the leaders of the Far Eastern sections of the All-Russian Electric Trade Union.

<sup>1</sup> Liabilities under IFRS as appraised by Actuarial and Financial Services LLC

At the meeting, memorandum No. 56 pr/2 was signed with a view to developing social partnerships at all levels, improving a social dialogue between authorized representatives of employers and employees at RAO ES East Subgroup, as well as maintaining the existing social benefits.

All of RusHydro Group's generation branches and 40 subsidiaries have collective bargaining agreements in place. In 2018, 96% of the Group's employees were covered by collective bargaining agreements.

The collective bargaining agreements signed at RusHydro Group regulate the social and labor relations taking into account the interests of employees and the employer. [102-41]

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 Electrical Power Industry of the Russian Federation. the Industry Tariff Agreement provides a single standard for regulating social

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 indexation 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 paid.

Pursuant to the Labor Code of the Russian Federation, specifically article 74 concerning changes in organizational or technical conditions of labor, article 75 concerning changes of control and restructuring, employees must be notified in simple written form within at least two months from the date of such material changes in an 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. [402-1]



» More information on the Industry Tariff Agreement is available at: <http://www.orael.ru>

## Charity projects 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

the Company's regions of operation, foster a favorable social environment and help unlock Russia's spiritual, scientific, technical and intellectual potential.

RusHydro's charitable priorities include:

- education;
- environment;
- healthcare;
- sports;
- culture;

- support of social institutions and organizations;
- initiatives promoting the social and economic development of the Russian regions;
- support of charitable foundations and non-profit organizations;
- improving the living standards of low-income households and people in need.

### Education

Support for educational institutions translates 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, 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 benefiting 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 with the 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, Karachayevo-Cherkessian Regional Sports Federation of Kyokushin, and Yenisei-STM Rugby Club.

### Culture

For several years now, cooperation with the Russian Geographical Society has been one of RusHydro's major projects in the realm of culture. Last year, the Company provided financial assistance for the Society to put in place a grant fund designed to encourage research on natural disasters and rare animal species, while also supporting the organization's publishing activities and environmental and geographical expeditions.

Financing was also allocated to ensure the preservation of cultural and historical heritage by upgrading a wide range of cultural institutions, including museums, community centers, and libraries. the financial assistance provided by the Company made it possible to stage a large number of creative festivals, contests and exhibitions and to promote book publishing.

### 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 socially 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 and programs in RusHydro Group'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, Sakhaenergo, Kamchatskenergo, Energotranssnab, Teploenergoservis, Yakutsk Energy Repair Company, UESK, and Kolymaenergo. Boguchanskaya HPP and International Energy Corporation also make significant contributions to the social development in the regions of the Company's operations. In 2018, RusHydro's subsidiaries allocated some RUB 120 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 over 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 (Sirius, 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 key areas of the Company's business. 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», «Hydromechanics and Hydraulic Machines», «Innovative Technologies of Technogenic Safety», which train 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 oBEREGAi, 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.



**AWARDS**

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:

The Company won a first grade award in the Technology Transfer nomination at 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.

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 contest held as part of the Moscow International Education Fair (MIEF-2018);
- ranked second in the nomination for the Best Program (Project) Promoting Volunteering in Russia at the awards ceremony of the Leaders of Corporate Charity in Russia 2018 initiative;
- came in the second place at Champions of Goodness, Russia's first nationwide corporate volunteering contest; and
- made it to Top 20 in the Social Mentoring nomination in the first edition of Russia's Best Mentoring Practices competition.

The Company holds charity fairs, with proceeds donated to the charitable foundations' treatment, rehabilitation, training and development programs. Volunteers are also involved in fundraising and drives for people in need. In 2018, as part of the Suitcase of Goodness campaign, the Company's volunteers collected over 2,000 toys for kids undergoing treatment in children's haematology centers and oncology hospitals. Over one hundred gifts were collected before the New Year to cater for the basic needs of the elderly people placed in care homes or under custody of the Vera Miloserdniya foundation.

RusHydro's employees arrange tours around the Group's facilities. In 2018, more than 4,000 tours were organized for students in an attempt to stir interest in engineering and energy sector professions among the youth.

Annually, RusHydro's volunteers come to schools from across the Company's footprint to give over 15,000 schoolchildren lessons about energy saving technologies and energy security.

RusHydro Group's corporate volunteers stage festive events (as part of the Brightest Christmas Tree initiative) and collect stationery (as part of the Get Ready for School campaign) for children from distressed families and kids placed under the custody of socially responsible charitable foundations, orphanages and boarding schools.

On occasion of the Energy Worker's Day and other holidays, corporate volunteers come to visit retirees at their homes and organize retiree meetings enabling energy sector workers of different generations to share their experiences. On such days, volunteers from RusHydro's North Caucasus branches clean up areas around monuments to Russia's defenders and organize excursions to the Caucasus Mountains to honor the heroic deed of soldiers who died in defense of the North Caucasus region during World War II.

In retail companies, RusHydro's corporate volunteers teach pensioners how to use their personal online accounts and give digital literacy classes.

In 2018, RusHydro Group mobilized its volunteers to streamline the implementation of Young Energy, a program aiming to provide social and professional guidance for children from orphanages. The volunteers helped children choose a career path, prepare for exams and studies at specialized technical schools, and seek employment with RusHydro or other companies. The program covering nine regions of the Company's operations has been in place since 2013. RusHydro's volunteers are the main driver behind the initiative. In 2018, 120 volunteers took part in the Program.

Volunteers work with children on an ongoing basis, having encouraged more than 55 students to take specialized training at technical schools. Five of those students are now employed with the Company. Volunteers regularly arrange socialization and career guidance events for children living in orphanages. These events come in all sorts of formats – from financial literacy classes and lessons in independent living to a series of occupational insight sessions, professional tests, and tutoring courses.

Since 2015, the Company has been using a training program for participants of the WorldSkills Russia Juniors championship as one of the main career guidance and professional development tools for orphans and children without parental care. RusHydro is the only company with children from orphanages in its teams.

In 2018, volunteers organized a large number of socialization and career guidance events for children, including:

- preparation for the WorldSkills Junior championships;
- visits to the Company's facilities;
- lectures and workshops on technology and energy (for example, Denis Ivashkin, Head of Energy Market Support

Novosibirskaya HPP (RusHydro's branch), delivered a lecture on renewables in our life for children from the Novosibirsk Orphanage);

- creative workshops (decoupage, scrapbooking, drawing contests, etc.);
- clean-up days;
- energy efficiency and financial literacy lessons, rundown on the Constitution of the Russian Federation, etc.;
- festivals held on occasion of the New Year, Defender of the Fatherland Day, International Women's Day, Maslenitsa, school graduation, Knowledge Day, Energy Worker's Day, etc.;
- visits to cultural events, theatres, exhibitions, etc. (for example, on February 2, 2019, volunteers from Volzhskaya HPP (RusHydro's branch) took children from the Volzhsky Orphanage on a trip to the Panorama Museum of the Stalingrad Battle (Volgograd) to commemorate the anniversary of the Battle of Stalingrad);
- sports events and contests (football and volleyball competitions, school sports days, rafting excursions, health days, etc.).

The Company's volunteers organized a training session for children from Lastochka Orphanage (Republic of Khakassia) in an attempt to facilitate their transition to adult life after they leave school. Moreover, additional training in maths, Russian and physics is available to orphans and children without parental care as part of their preparation for the high school graduation exams and entrance exams at technical schools.

A team of volunteers led by Natalya Gordeyeva, an HR specialist at Volzhskaya HPP (RusHydro's branch), helped Denis Tsygankov, brought up by Volzhsky Orphanage, to successfully pass entrance exams at the Volzhsky branch of Moscow Power Engineering Institute.

# 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

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 policy

### Environmental impact management [103-1]

RusHydro Group adheres to environment 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.<sup>1</sup> [102-11]

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

### Environmental impact management



<sup>1</sup> "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." (Rio Declaration on Environment and Development, 1992).

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.

### 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.

### Key environmental protection initiatives in 2018 as part of the Rehabilitation and Modernization Program

Branch/subsidiary	Initiatives
Votkinskaya HPP (RusHydro's branch)	<ul style="list-style-type: none"> <li>➤ Downstream water management at earth dam No. 3</li> <li>➤ Replacement and rehabilitation of overflow dam bars and construction of a transfer platform</li> </ul>
Saratovskaya HPP (RusHydro's branch)	<ul style="list-style-type: none"> <li>➤ Current repairs of concrete and earth slopes of the left-bank dam and channel dam</li> </ul>
Kamskaya HPP (RusHydro's branch)	<ul style="list-style-type: none"> <li>➤ Current repairs of overflow dam sealing off concrete surfaces</li> <li>➤ Repair of drainage systems</li> </ul>
Volzhskaya HPP (RusHydro's branch)	<ul style="list-style-type: none"> <li>➤ Sealing off oil-filled runners of turbines</li> <li>➤ Landscaping of upstream and downstream penstocks</li> </ul>
Cheboksarskaya HPP (RusHydro's branch)	<ul style="list-style-type: none"> <li>➤ Rehabilitation of drainage water treatment facilities adjacent to the HPP building and storm and thaw water treatment facilities adjacent to the logistics base</li> </ul>
Kolymaenergo	<ul style="list-style-type: none"> <li>➤ Installation of water meters (as part of hydroelectric unit upgrade) (Kolymskaya HPP)</li> </ul>
Boguchanskaya HPP	<ul style="list-style-type: none"> <li>➤ Search for latent flaws at ERShCh E-200 BKh biological sewage treatment plant of KOS-240 treatment facilities complex at Boguchanskaya HPP</li> <li>➤ Fishery protection (ongoing monitoring)</li> <li>➤ Inspection to identify causes for poor performance of the waste water treatment process against discharge limits for oil-contaminated water (20 l/s)</li> </ul>
JSC DRSK	<ul style="list-style-type: none"> <li>➤ Replacement of oil-filled electrical equipment with vacuum equipment</li> </ul>
PJSC Magadanenergo	<ul style="list-style-type: none"> <li>➤ Repair of fly-ash collectors at Arkagalinskaya GRES boilers</li> <li>➤ Maintenance of oil separators at Magadanskaya CHPP</li> </ul>
PJSC Mobile Energy	<ul style="list-style-type: none"> <li>➤ Introduction of gas monitors</li> </ul>
PJSC Kamchatskenergo	<ul style="list-style-type: none"> <li>➤ Repair and maintenance of waste water treatment facilities at Kamchatskaya CHPP-1 and Kamchatskaya CHPP-2, Central Power Grids, Yuzhno-Sakhalinskaya CHPP-1</li> </ul>

Branch/subsidiary	Initiatives
JSC DGK	<ul style="list-style-type: none"> <li>➤ Minor and major repairs, tests and adjustments at dust collecting equipment and aspiration bunkers, gas purification units (scrubbing towers, Venturi tubes) for Blagoveshchenskaya CHPP, Raychikhinskaya CHPP, Primorskaya GRES, Neryungrinskaya CHPP, Artyomovskaya TPP, Vladivostokskaya CHPP-2, Partizanskaya GRES, Amurskaya CHPP, Komsomolskaya CHPP-2, Mayskaya GRES, Khabarovskaya CHPP-1, Khabarovskaya CHPP-3, and Urgalskaya boiler plant</li> <li>➤ Repair of ash dump and sluice discharge piping at Blagoveshchenskaya CHPP, Chulamskaya CHPP</li> <li>➤ Construction of dam at the 3rd tier of ash dump No. 2 (upstream dam) at Primorskaya GRES, construction of ash dump at Amurskaya CHPP, ash dump expansion at Khabarovskaya CHPP-3</li> <li>➤ Repair of clarified water treatment facilities and pump station at Blagoveshchenskaya CHPP, construction of a waste water treatment station at Khabarovskaya CHPP-2 using innovative technologies of biochemical purification and disinfection</li> <li>➤ Repair of industrial, storm and household drains at Vladivostokskaya CHPP-2, repair of equipment and facilities at sewage treatment plant of Mayskaya GRES</li> <li>➤ Rehabilitation of Khabarovskaya CHPP-1 and Khabarovskaya CHPP-3 to upgrade boilers and hot-water peaking boiler plant to feed on natural gas</li> </ul>
PJSC Sakhalinenergo	<ul style="list-style-type: none"> <li>➤ Repair, tests and adjustments at boilers (including dust collecting equipment), gas turbine units and diesel power plant of Yuzhno-Sakhalinskaya CHPP-1</li> <li>➤ Instrumentation to monitor pollutant emissions into the air</li> <li>➤ Replacement of oil-filled electrical equipment with vacuum or SF6 gas equipment, which contains no oil, or with equipment with lower oil content at Yuzhno-Sakhalinskaya CHPP-1</li> <li>➤ Current repairs of gas purification equipment at boilers of Yuzhno-Sakhalinskaya CHPP-1</li> <li>➤ Replacement of straight runs of ash and slag pipe at Yuzhno-Sakhalinskaya CHPP-1</li> </ul>
JSC Chukotenergo	<ul style="list-style-type: none"> <li>➤ Tests on dust collecting equipment and measurements of gaseous effluents from boilers of Anadyr CHPP and Chaunskaya CHPP</li> <li>➤ Procurement of gas analyzers and components for Anadyr CHPP</li> </ul>
JSC UESK	<ul style="list-style-type: none"> <li>➤ Flue gas scrubbing from smoke and dust using special equipment (cyclones)</li> <li>➤ Rehabilitation of diesel power plant No. 23 and replacement of diesel generator in Ust-Kamchatsk</li> </ul>
PJSC Yakutskenergo	<ul style="list-style-type: none"> <li>➤ Replacement and repair of boiler burners at Yakutskaya GRES</li> <li>➤ Repair of mechanical-draft tower at Yakutskaya GRES</li> <li>➤ Replacement of oil-filled circuit breakers with vacuum ones at Yakutskaya GRES</li> </ul>
JSC Sakhaenergo	<ul style="list-style-type: none"> <li>➤ Current repairs to prevent air inflow at uniflow cyclone and multi-cyclone (boilers No. 4 and 5) of Deputatsky CHPP</li> <li>➤ Commissioning equipment for disposal of hazard classes 1-4 waste (Tiksi, Olekminsk, Batagay)</li> <li>➤ Replacement of oil-filled circuit breakers with vacuum ones</li> <li>➤ Rehabilitation of ash and slag pipe for recycling water supply at Deputatsky CHPP</li> </ul>
JSC LCM	<ul style="list-style-type: none"> <li>➤ Water spraying (dust suppression) of roads, coal faces and open-pit crushing and screening area</li> <li>➤ Repair of oil separators at vehicle handling facilities in the mining area</li> </ul>



### 2018 SAW NO INCIDENTS OR ACCIDENTS CAUSING ENVIRONMENTAL DAMAGE WITHIN RUSHYDRO GROUP

### Technical regulations for environmental safety

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: Environment 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.

### 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

Stage	Controls over environmental impact
Planning (pre-project stage)	<ul style="list-style-type: none"> <li>R&amp;D with a focus on environment</li> <li>Preliminary environmental impact assessment for new construction and rehabilitation planning</li> </ul>
Design	<ul style="list-style-type: none"> <li>Environmental impact assessment: assessment of the facility impact on environment in order to decide whether construction or rehabilitation is feasible</li> <li>Designing initiatives to ensure the required level of environmental safety</li> </ul>
Construction	<ul style="list-style-type: none"> <li>Implementation and follow-up on the initiatives provided for by the project and aimed at ensuring environmental safety</li> <li>Compliance with environmental laws during construction and installation</li> </ul>
Operation	<ul style="list-style-type: none"> <li>Industrial environmental control: initiatives preventing any deviation from the given level of environmental safety</li> <li>Voluntary initiatives to preserve biodiversity and improve environmental awareness among employees and communities</li> </ul>

### 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.

- 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 so 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.

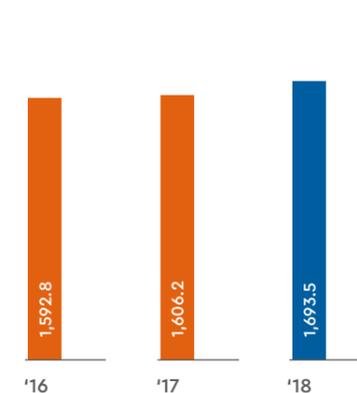
To ensure environmental safety while developing new technical solutions, the Company established the STC's task force on water reservoirs and environmental protection. It includes representatives of R&D institutions, the Chair for General Ecology of the Department of Biology at the Moscow State University, 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).

These documents are to be approved by the respective government agencies in charge of environmental protection, including:

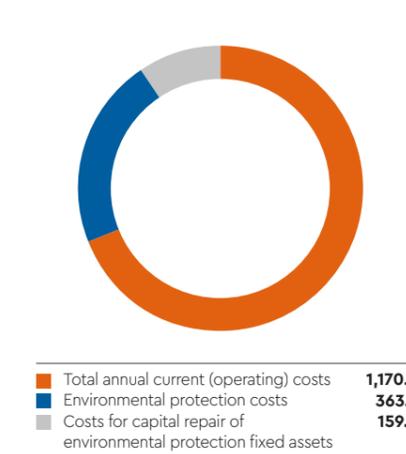
- Ministry of Natural Resources and Environment of the Russian Federation;

### Investments in environmental protection

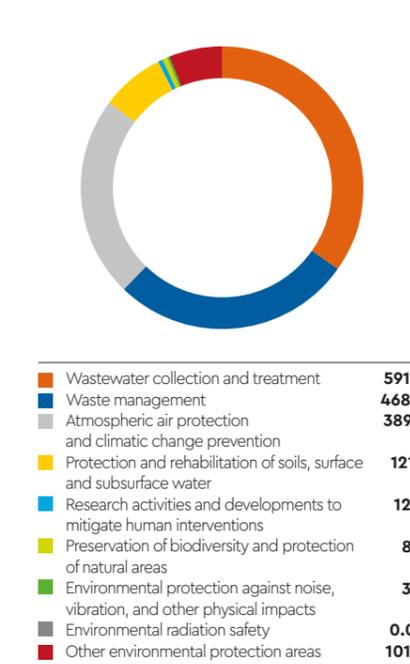
Total environmental protection expenses and investments of RusHydro Group in 2016-2018, RUB mn



RusHydro Group's Total Environmental Expenses and Investments by Type of Costs, RUB mn [103]



RusHydro Group's Total Environmental Expenses and Investments by Distribution of Costs, RUB mn [103]



**1,694**  
RUB mn

total expenses and investments to protect the environment in 2018

### 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;

- 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. [102-13]

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 24<sup>th</sup> session of the Conference of the Parties to the UNFCCC was held on December, 2018 in Katowice (Poland), whereby Timur Khaziakhmetov, 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, EuroSibEnerg, 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 EuroSibEnerg

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 authorised government agencies. The Company's water withdrawal activities have no significant impact on water sources. [103-1]

In 2018, RusHydro Group's water consumption increased by 5.86% y-o-y to 786,864,000 m<sup>3</sup>, with 97% of water taken for operational purposes.

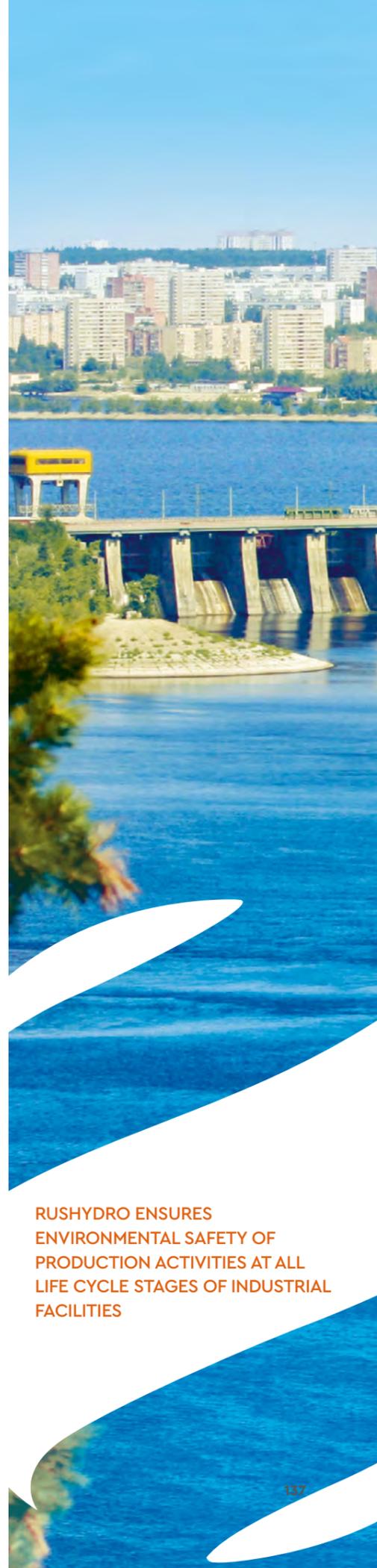
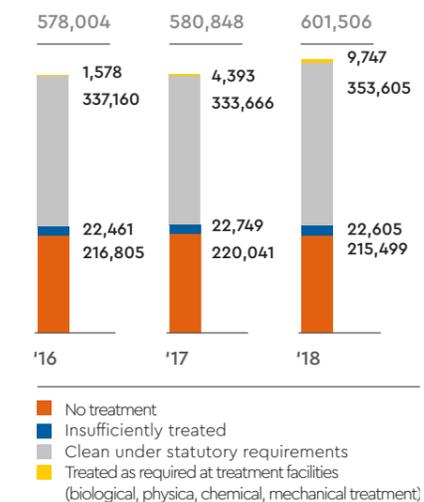


» In 2013, the Company began disclosing HPP reservoir level data on a designated web page at: <http://www.rushydro.ru/hydrology/informer/>

### Impact on water bodies

The Group's waste and drainage water is discharged in strict compliance with the applicable Russian laws. The rights to use water bodies for such purposes are confirmed by relevant permits and licenses duly issued by the authorised government agencies. The same permits and licenses set out the applicable discharge limits. [303-2] In 2018, waste water discharges totaled 601,506,000 m<sup>3</sup>. [303-3]

### Waste water discharge by treatment method, '000 m<sup>3</sup> per annum [303-3]



**RUSHYDRO ENSURES ENVIRONMENTAL SAFETY OF PRODUCTION ACTIVITIES AT ALL LIFE CYCLE STAGES OF INDUSTRIAL FACILITIES**

## 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. [304-1]

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.

### Water bodies affected by wastewater discharges of RAO ES East Subgroup: affiliation, volume and biodiversity [306-5]

RAO ES East Subgroup Subsidiary	Water body <sup>1</sup>	Volume or average discharge, mn m	Biodiversity value
JSC DGK	Kivdinskoye reservoir	9.6	High
	Kontrovod River	-	Supreme
	Promezhutochnaya Bay	-	Supreme
	Obyasneniye River	-	High
	Lozovy Klyuch Stream	-	High
	Partizanskaya River	-	High
	Olongoro River reservoir	43.2	High
	Semyonovskiy Stream	-	Medium
	Amnunakta River	-	High
	Amurskaya Anabranh	-	Supreme
	Amur River	-	Supreme
	Lake Khorpy	-	Supreme
	Galbon Anabranh (Old Amur)	-	Supreme
	Zapadnaya Bay	-	Supreme
	Nante Stream	-	Supreme
	Pravaya Beryozovaya River	-	Medium
	Chernaya River	-	Medium
	Polezhaevka Stream	-	Medium
	Gnilaya Pad Stream	-	Medium
	Malaya Sita River	-	High
Rudka Stream	-	Medium	
Bezmyanny Stream	-	Medium	

RAO ES East Subgroup Subsidiary	Water body <sup>1</sup>	Volume or average discharge, mn m	Biodiversity value
PJSC Kamchatskenergo	Avacha Bay	3,800	Supreme
	Khalaktyrka River	-	Supreme
	Lake Halaktyrskoye	11	Supreme
JSC UESK	Lake Sypuchka	-	Supreme
	Bystraya River	43.2	High
PJSC Magadanenergo	Magadanka River	127.5	Supreme
	Kamenushka River	37.9	High
	Myaunja River	37.9	Supreme
PJSC Sakhalinenergo	Gulf of Patience (Sea of Okhotsk)	211,250	Supreme
PJSC Yakutskenergo	Lena River	515,610	Supreme
	Vilyuy River	21,290	Supreme
JSC Chukotenergo	Kazachka River	22	Medium
	Lake Okhotnichye	0.25	Medium
	Chaun Bay	-	High
JSC Teploenergoservis	Vilyuy River	72,400	Supreme
	Yana River	29,297	Supreme
	Aldan River	154,683	Supreme
	Indigirka River	14,002	Supreme
	Allakh-Yun River	5,550	Supreme
	Nera River	3,658	Supreme
JSC LCM	Kontrovod River	-	Supreme

The impoundment area of the dam also covers a primary habitat of *Aleuritopteris kuhni*, 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. In 2018, JSC DRSK proposed an initiative to install supports for stork nests.

<sup>1</sup> 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 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. [\(EU13\)](#)

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,

### RusHydro Group's biodiversity conservation activities

-  Protected natural areas (sponsorship and support)
-  Protection of threatened ungulates (project "Bureysky Compromise")
-  Plant conservation (project "Bureysky Compromise")
-  Bird conservation
-  Restoration of fish populations (fish stocking)

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

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 Cascade of Kubanskiye HPPs released 165,000 juvenile silver carp into the Yegorlyk 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 over 600 juvenile sterlet, an especially valuable fish species on the Russian 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 peled, 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 stoking 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 Krasnoyaroovo. 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' Severtsov 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 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 purebred Persian leopards brought from all over the world. Their offsprings 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 in Ossetia, the program studied the possibility of releasing leopards

into the wild, comprised area preparation measures and provided for awareness initiatives aimed at picturing the leopard as a national heritage and forming a responsible attitude to the environment among local communities.

In July 2018, two non-relative species of the Persian leopard – Elbrus (male) and Volna (female) – were released in the Alania National Park with support from RusHydro. They were raised in the Sochi Breeding Center, which is now home to several purebred leopards brought from different countries to become

parents of the reviving population. Their offsprings are trained to live in the wild without human assistance. They learn to avoid humans, settlements and domestic animals and hunt prey independently.

Elbrus and Volna, who completed a similar training course, spent two years in the Sochi Breeding Center after birth preparing for their life in the wild. In the meantime, a team of zoologists, hydropower engineers and volunteers analyzed natural ecosystems in North Ossetia to select the best site for leopards to be released.

As a result, the Alania National Park was selected for the first release. the national park was fitted with photo and video cameras, and the leopards were carrying GPS tracking collars to make it possible for researchers to monitor the animals in their habitats.

The joint program of RusHydro and Severtsov Institute of Ecology and Evolution for the reintroduction of Persian leopards in North Ossetia received the Vernadsky National Environmental Award as the Best Social and Environmental Initiative in 2018.

### Rehabilitation of disturbed areas

#### Habitats preserved and rehabilitated by RAO ES East Subgroup [304-3]

Name	JSC DGK	PJSC Magadanenergo	PJSC Sakhalinenergo	JSC Chukotenergo	JSC LCM	Total
<b>January 1, 2018</b>						
Total disturbed area, ha	2,300.52	272.00	255.02	174.14	4,027.19	7,028.87
Total post-construction area, ha	59.00	51.00	3.22	0.50	24.39	138.11
Topsoil stockpiled, '000 m <sup>3</sup>	275.61	0	0	0	578.78	854.39
<b>Total in 2018</b>						
Total disturbed area, ha	15.00	0	0.1	0.51	83.60	99.21
Total post-construction area, ha	0	0	0.1	0	0	0.10
Total rehabilitated area, ha	0	0	0.1	0	0	0.10
<b>December 31, 2018</b>						
Total disturbed area, ha	2,315.52	272.00	255.02	174.66	4,110.79	7,127.99
Total post-construction area, ha	59.00	51.00	3.22	0.50	24.39	138.11
Topsoil stockpiled, '000 m <sup>3</sup>	275.61	0	0	0	578.78	854.39

## Greenhouse gas and air pollutant emissions

RusHydro uses renewables in its operation. HPPs produce no greenhouse gas emissions.

Still, emissions of greenhouse gases by the facilities of RAO ES East Subgroup were calculated in accordance with Order No. 300 issued by the

Ministry of Natural Resources and 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 gases went up 1.41% driven by higher power output at the facilities of RAO ES East Subgroup and an increase in reference fuel consumption.

#### Direct greenhouse gas emissions by RAO ES East (scope 1), '000 tonnes [305-1]

Item	2016	2017	2018	2018/2017, %
CO <sub>2</sub> emissions, '000 tonnes	34,096.5	34,457.1	34,942.3	1.4
N <sub>2</sub> O emissions, '000 tonnes CO <sub>2</sub> -eq.	119.1	117.1	120.2	2.7
CH <sub>4</sub> emissions, '000 tonnes CO <sub>2</sub> -eq.	14.4	13.9	14.6	5.0
<b>Total emissions</b>	<b>34,229.9</b>	<b>34,588.2</b>	<b>35,077.1</b>	<b>1.4</b>
natural gas combustion	9,936.0	10,101.5	10,147.9	0.5
fuel oil combustion	693.5	712.0	723.1	1.6
solid fuel combustion	23,600.4	23,774.6	24,206.1	1.8

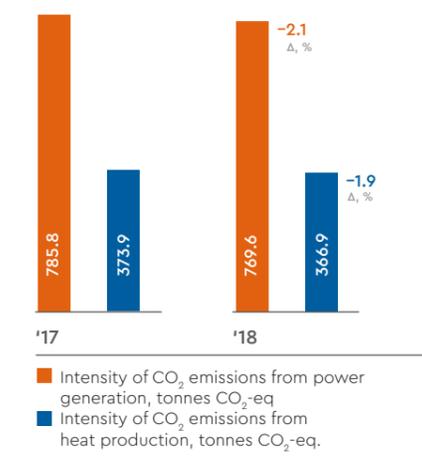
#### Intensity of greenhouse gas emissions by RAO ES East

The CO<sub>2</sub>-equivalent emission intensity is calculated as a ratio of total emissions (tonnes CO<sub>2</sub>-eq.) to electric power (mn kWh) and heat ('000 Gcal) produced.

One of the key challenges accounted for by RusHydro in its updated Environmental Policy (approved by the Board of Directors on August 9, 2018) is the global climate change and need to adapt to global warming effects threatening human life and health, flora and fauna, and causing changes in long-standing hydrological and meteorological patterns. Low-carbon development is therefore

a primary objective for RusHydro Group. Its Environmental Policy sets a number of 2025 low-carbon targets, including reduction of greenhouse gas emissions and emission intensity and expansion of low-carbon installed capacity. RusHydro Group plans to achieve a 6% decrease in its greenhouse gas emissions by 2025 as compared to 2015. The year 2015 was recommended by the Ministry of Economic Development of the Russian Federation to be used as the base year in the greenhouse gas reduction roadmap for the Russian public sector companies. The intensity of CO<sub>2</sub> emissions is set to decrease 7.7% in the electricity generation segment and 6.4% in the heat production segment.

#### Intensity of greenhouse gas emissions by RAO ES East Subgroup, tonnes<sup>1</sup> [305-4]



<sup>1</sup> Net of Cascade of Viluyky HPPs and solar power plants producing no greenhouse gas emissions

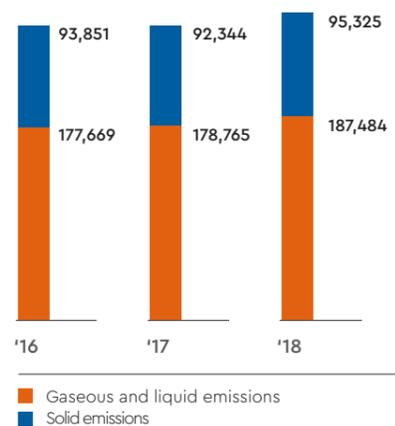
The Expansion of Installed Low-Carbon Capacity target is planned to be achieved with the Comprehensive Modernization Program (Long-Term Development Program for 2012–2020 with an outlook until 2025) providing for retrofit of RusHydro's generating facilities. RusHydro is also heavily engaged in renewable energy projects.

In particular, the Company builds smaller HPPs in Northern Caucasus. In November 2018, RusHydro commissioned a 900 kW wind power plant in the Arctic settlement of Tiksi in the Republic of Sakha (Yakutia).

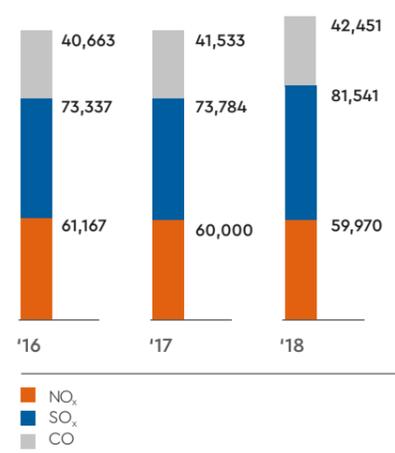
In 2018, measures were taken at the Company's subsidiaries in the Far East to reduce air pollutant emissions:

- 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 Blagoveshchenskaya CHPP, Raychikhinskaya CHPP, Primorskaya GRES, Neryungrinskaya GRES, Artyomovskaya CHPP, Vladivostokskaya CHPP-2, Partizanskaya GRES, Amurskaya CHPP, Komsomolskaya CHPP-2, Mayskaya 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 (305-5)

**Air pollutant emissions by major categories, tonnes [305-7]**



**Air pollutant emissions, tonnes [305-7]**



**Air pollutant emissions**

Air pollution is monitored at all production facilities of RusHydro Group. In 2018, SO<sub>x</sub> emissions increased by 11% on the back of a higher power output at gas-fired thermal power plants.

**2.1%**

drop in CO<sub>2</sub> specific emissions associated with electricity generation

**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. (306-4).

**Total waste by hazard class in 2018, tonnes [306-2]**

Item	2016	2017	2018	2018/2017, %
<b>RusHydro Subgroup</b>				
Hazardous waste class I and II	21	31	18	-42
Hazardous waste class III, IV and V	29,179	29,191	23,178	-21
<b>Total</b>	<b>29,200</b>	<b>29,222</b>	<b>23,196</b>	<b>-21</b>
<b>RAO ES East Subgroup</b>				
Hazardous waste class I and II	33	39	45	15
Hazardous waste class III, IV and V	24,743,429	26,570,307	29,596,949	11
<b>Total</b>	<b>24,743,462</b>	<b>26,570,346</b>	<b>29,596,995</b>	<b>11</b>
<b>RusHydro Group</b>				
Hazardous waste class I and II	54	70	63	-10
Hazardous waste class III, IV and V	24,722,608	26,599,498	29,620,127	11
<b>Total</b>	<b>24,772,662</b>	<b>26,599,569</b>	<b>29,620,190</b>	<b>11</b>

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;
- more overburden resulting from larger-scale stripping operations at JSC LCM.

// CORPORATE  
GOVERNANCE

# EVEN MORE SUSTAINABLE

RUSHYDRO GROUP HAS HIGH CREDITWORTHINESS. FOR THE FIRST TIME IN THE GROUP'S HISTORY, ALL THREE LEADING INTERNATIONAL RATING AGENCIES - S&P, MOODY'S, AND FITCH - UPGRADED THE CREDIT RATINGS OF RUSHYDRO TO THE SOVEREIGN LEVEL IN THE INVESTMENT CATEGORY. RUSHYDRO'S FINANCIAL SUSTAINABILITY CONTRIBUTES TO THE PERFORMANCE OF THE INVESTMENT PROGRAM FOCUSED ON THE EXPANSION OF THE ENERGY INFRASTRUCTURE IN THE REGIONS OF PRESENCE.



# 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.

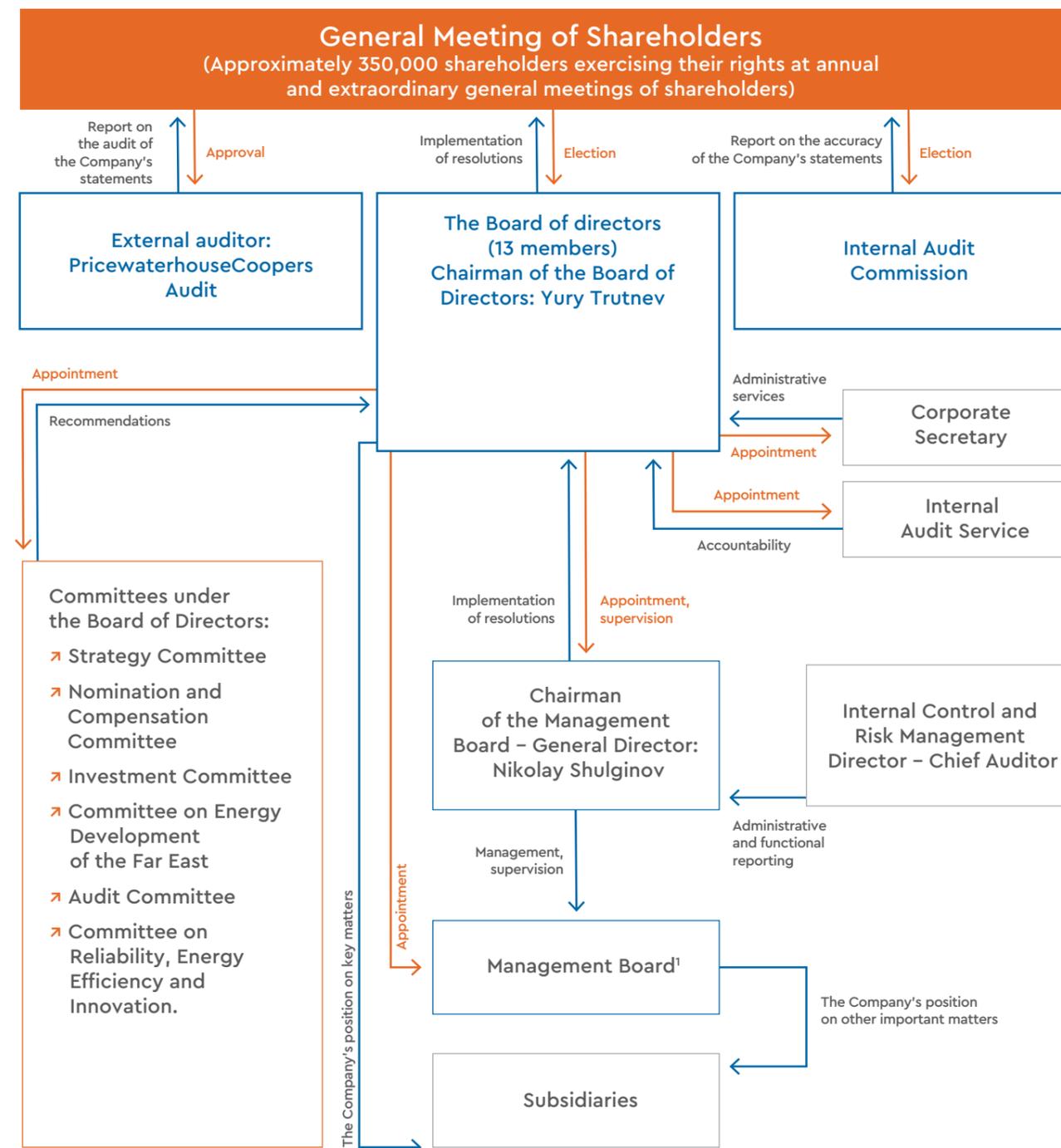
The Group's corporate governance principles and procedures are laid out in the Company's Charter and internal regulations. The corporate practices are formalized in the Corporate Governance Code.

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 [102-16]



## Corporate governance structure [102-18]



<sup>1</sup> Decides on matters reserved to 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 (KPI 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;

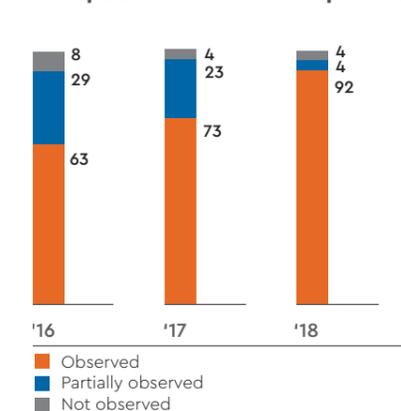
- the Information Policy Regulations were updated to reflect global and Russian best practices;
- policy on Rotation of Auditors and Policy on the Ownership of Shares in PJSC RusHydro and Shares (Interests) in PJSC RusHydro's Subsidiaries by Members of the Board of Directors and Management Board were 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.

Compliance with the Corporate Governance Code, %



» For a detailed report on the Company's compliance with the Corporate Governance Code, see Appendix № 1.

### Compliance with the principles of the Corporate Governance Code<sup>1</sup>

Observance of standards and principles of the Code	Observed			Partially observed			Not observed			Total 2018
	2016	2017	2018	2016	2017	2018	2016	2017	2018	
Shareholder rights and equitable treatment of shareholders	10	11	12	2	2	1	1	0	0	13
The Company's Board of Directors	20	23	32	12	10	1	4	3	3	36
The Company's Corporate Secretary	2	2	2	0	0	0	0	0	0	2
Remuneration of the Company's directors, executives and other key managers	10	10	10	0	0	0	0	0	0	10
Risk management and internal control system	5	6	6	1	0	0	0	0	0	6
Disclosures and the Company's information policy	3	6	7	4	1	0	0	0	0	7
Material corporate actions	0	0	4	4	5	1	1	0	0	5

<sup>1</sup> Compliance with the principles of the Corporate Governance Code was assessed based on the Bank of Russia's methodology and reporting recommendations with respect to such compliance (annex to Bank of Russia letter No. IN-06-52/8 dated February 17, 2016). For a full report on the Company's compliance with the principles and recommendations of the Corporate Governance Code, including explanation of deviations from the compliance assessment criteria, see Appendix X to RusHydro's annual report.

## 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 the following standards:
  - resolutions on critical matters set forth in recommendation 170 of the Code to be passed by a qualified majority of at least three-quarters or a majority vote involving all elected directors;
  - shareholders to be granted the right to access the list of persons entitled to attend General Meetings of Shareholders from the date following the

- date they submit their request to the Company (from the date the list is drawn up if the request is submitted beforehand);
- Enable shareholders to vote at Annual General Meetings of Shareholders via an electronic voting system;
- Arrange for a comprehensive formal self-assessment of the Board of Directors and its committees with a focus on their performance as a single body and individual contributions of directors to the proceedings of the Board of Directors and its committees; draft recommendations to

- the Board of Directors to improve the operating performance of the Board of Directors and its committees; and prepare a report on the results of the self-assessment exercise to be reviewed by the Board of Directors at a meeting held in person;
- Disclose in the Company's annual report the amount of remuneration of each member of the Board of Directors.

# SHAREHOLDERS AND INVESTORS

## Share capital and securities

### RusHydro's authorized capital<sup>1</sup>

The authorized capital of the Company amounts to 426,288,813,551 ordinary shares, each with a par value of RUB 1<sup>2</sup>.

### 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

Pevék-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.<sup>3</sup>



» See the full version of the document at: <http://www.rushydro.ru>

### 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 Zaramagskiye 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	0.000013

<sup>1</sup> As at December 31, 2018

<sup>2</sup> State registration number of the issue: 1-01-55038-E, dated February 22, 2005.

<sup>3</sup> 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.

The Russian Federation (state property) owns the Company's shares via the Federal Agency for State Property Management (258,161,535,606 pcs) and ITAR-TASS News Agency (248,527 pcs).

The Company's shareholders whose stake in the authorized capital, when taken together with the disclosed clients of nominal holders, exceeds 2% as at December 31, 2016, December

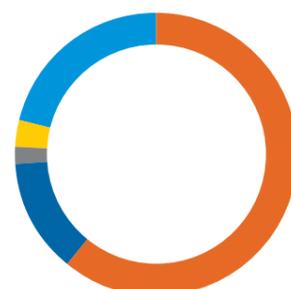
31, 2017, and December 31, 2018, respectively. [102-5]

### 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, %

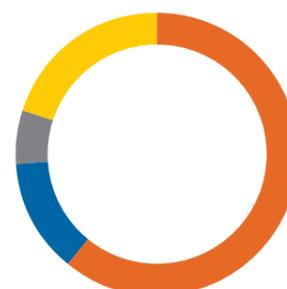
As at December 31, 2016



As at December 31, 2017



As at December 31, 2018



■ The Russian Federation as represented by the Federal Agency for State Property Management	67
■ Gazprombank (joint-stock company)	5
■ JSC Hydroinvest	3
■ The Company's other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2%	25

■ The Russian Federation as represented by the Federal Agency for State Property Management	61
■ VTB Bank (public joint-stock company)	13
■ LLC Avitrans	2
■ Jivanta Ventures Limited	3
■ The Company's other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2%	21

■ The Russian Federation as represented by the Federal Agency for State Property Management	61
■ VTB Bank (public joint-stock company)	13
■ LLC Avitrans	6
■ The Company's other shareholders whose stake in the authorized capital, when taken together with the disclosed clients, is below 2%	20

### Changes in the shareholding structure by shareholder category, %

Name of the registered entity	Percentage share in the authorized capital as at May 23, 2016	Percentage share in the authorized capital as at December 31, 2017	Percentage share in the authorized capital as at December 31, 2018
The Russian Federation as represented by the Federal Agency for State Property Management	66.8	60.6	60.6
Legal entities	30.1	38.1	38.1
Individuals	3.1	1.3	1.3

### Share of securities in free float<sup>1</sup>

Date	Free-float factor
Last trading day of 2016	0.23
Last trading day of 2017	0.25
Last trading day of 2018	0.19

### Shareholder agreements

RusHydro's shareholders can enter into shareholder agreements, including those that afford them an extent of control disproportionate to their contribution to the authorized capital<sup>2</sup>.

### Notifications on concluded shareholder agreements received by RusHydro

Parties to the shareholder agreement	Date of the shareholder agreement
<ul style="list-style-type: none"> <li>➤ The Russian Federation as represented by the Federal Agency for State Property Management</li> <li>➤ VTB Bank (PJSC)</li> </ul>	March 7, 2017
<ul style="list-style-type: none"> <li>➤ The Russian Federation as represented by the Federal Agency for State Property Management</li> <li>➤ RusHydro's subsidiaries: Hydroinvest<sup>3</sup>, EZOP, Energy Index – HydroOGK</li> </ul>	June 23, 2016

## Outstanding shares

### Moscow Exchange listing

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.

Index inclusion:

- MOEX Russia Index (previous name – MICEX Index) IMOEX;
- Electric Utilities Index MOEXEU;
- Broad Market Index MOEXBMI;
- State-Owned Companies Index MOEXSCI;
- FTSE Emerging Index AWALLE;
- FTSE All-World Index AWORLDS;
- FTSE4Good Emerging;
- NASDAQ Russia NQRU;
- Nasdaq AlphaDEX Emerging Markets NQDXEM;
- STOXX Russia Total Market TCRUP;
- STOXX Optimized Russia EEORGT.

### Moscow Exchange trading information

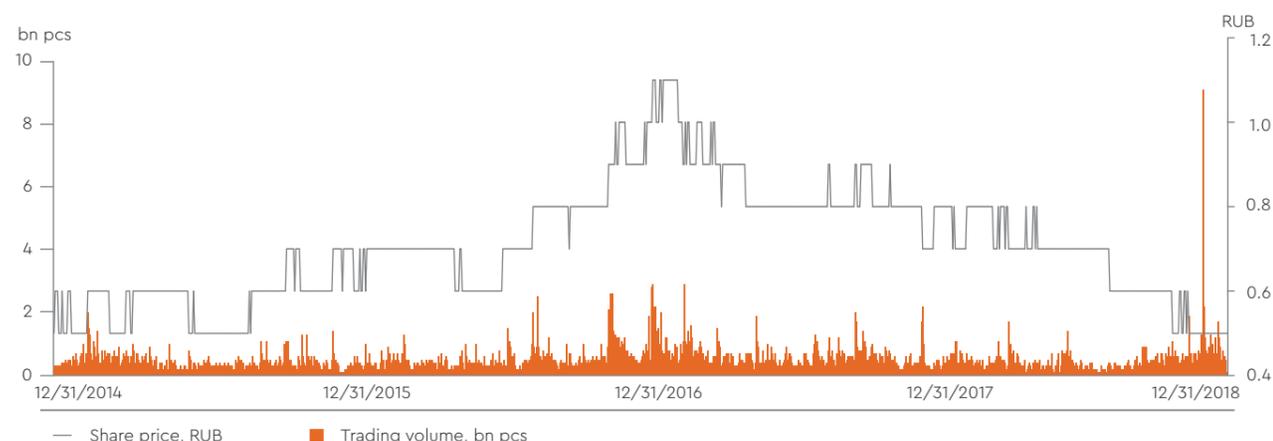
Item	2016	2017	2018
Trading mode	T+: stocks and DRs	T+: stocks and DRs	T+: stocks and DRs
Currency	RUB	RUB	RUB
Maximum trade price	0.994	1.100	0.810
Minimum trade price	0.575	0.717	0.476
Year-end trade price	0.926	0.729	0.486
Trading volume, bn pcs	134	173	136

<sup>1</sup> In accordance with the Moscow Exchange's methodology for calculating the free-float factor published at <http://www.moex.com/ru/index/MICEXINDEXCF/constituents/>.

<sup>2</sup> 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 or based on them holding ordinary and preferred shares with differing par values, please see the website at: <http://www.rushydro.ru/upload/iblock/65a/Svedeniya-o-vozmozhnosti-priobreteniya-stepeni-kontrolya.pdf>.

<sup>3</sup> As at March 7, 2017, Hydroinvest was no longer the Company's shareholder, while the aggregate stake of EZOP and Energy Index – HydroOGK in the Company's authorized capital went down to 0.8% due to the sale of shares to VTB Bank (PJSC). As at September 28, 2018, Hydroinvest held 0.8% in RusHydro's authorized capital following the incorporation of EZOP and Energy Index – HydroOGK into Hydroinvest.

Share performance on the Moscow Exchange



Shares vs key indices of the Moscow Exchange



Shares 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

Item	2016	2017	2018
Maximum trade price, USD	1.570	1.810	1.370
Minimum trade price, USD	0.750	1.200	0.640
Year-end trade price, USD	1.455	1.200	0.660
Trading volume, bn pcs	188	175	195

ADR performance on the London Stock Exchange



GDR and ADR program structure as at December 31, 2018

Type	Start of trading	Depository bank	Ratio	Ticker	Quantity as at December 31, 2018, pcs	Trading platforms
Rule 144A GDRs	June 17, 2008	The Bank of New York Mellon	1 GDR = 100 ordinary shares	HYDR	78,273	London Stock Exchange (Main Market - IOB)
Level I ADRs	August 7, 2009	The Bank of New York Mellon	1 ADR = 100 ordinary shares	RSHYY	116,318,249	OTCQX
				HYDR		London Stock Exchange

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 (PJSC), 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 6%, the MOEX Electric Utilities Index - 110%, and RusHydro shares lost 21%. The Russian market faced headwinds in the form of geopolitical risks, which included talks on new US sanctions as well as lower interest in Russian

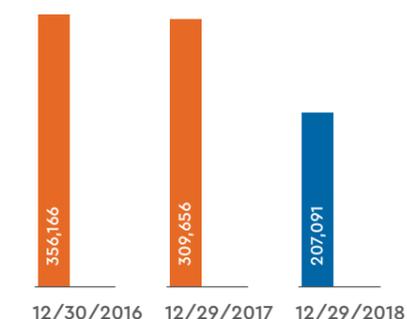
companies on the part of global investors given the stricter monetary policy in the US and oil price volatility. For most of the year, RusHydro's shares traded in line with the market. At the end of the year, the share price was driven down by the news of RusHydro's Board of Directors resolving to suspend the construction of Zagorskaya PSPP-2.

2018

In 2018, the MOEX Russia Index was up 7.8% year-on-year, while the Moscow Stock Exchange Power 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 Q1 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.

Capitalization

RusHydro's market capitalization<sup>1</sup>, 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.

<sup>1</sup> 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. [103]

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.

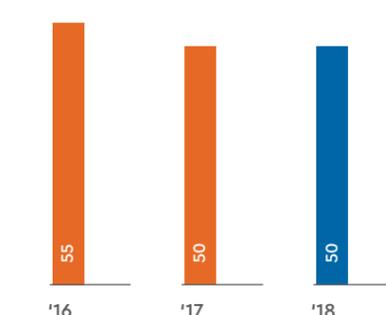
Over the last three years, the Company has paid out a total of RUB 46.1 bn in dividends.

### Information on payment of declared (accrued) dividends on the Company's shares in 2017

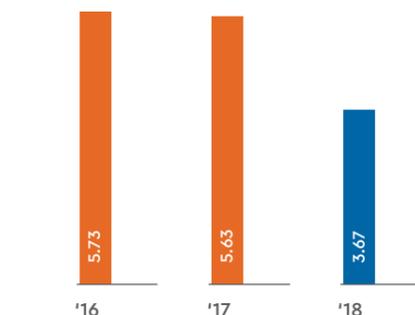
As at December 31, 2018, the Company had paid out RUB 11.19 bn in dividends, with unpaid dividends amounting to RUB 38 mn. The latter was due to reasons beyond the Company's control: the Company or the Registrar (nominal holder) did not have the exact and necessary address details or bank details.

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.

Share of IFRS net profit allocated for dividends, %



Dividend yield<sup>1</sup>, %



**46.1**  
**RUB bn**  
dividends paid by RusHydro over the past three years

## 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 (IMOEX, previously

MICEX 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.

### Dividend history for the five years preceding the reporting year

Reporting period for which the dividends were paid	Total amount of declared (accrued) dividends, RUB '000	Amount of dividends declared per share, RUB
2013	5,248,250	0.01358751
2014	6,032,750	0.01561855
2015	15,011,046	0.038863
2016	19,875,503	0.0466245
2017	11,225,676	0.0263335



**ON APRIL 19, 2019, RUSHYDRO'S BOARD OF DIRECTORS APPROVED AN AMENDED VERSION OF THE DIVIDEND POLICY<sup>1</sup> 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<sup>2</sup> OF AVERAGE DIVIDEND FOR THE PREVIOUS THREE YEARS**



» For more details on RusHydro's Dividend Policy see <http://www.rushydro.ru>

## 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-Russel;
- Vigeo Eiris;
- Robeco-SAM;
- Trucost;
- Energy Intelligence.

<sup>1</sup> Minutes No. 287 of April 22, 2019.

<sup>2</sup> The level of average dividend for the previous three years is calculated the following formula:  
 $Div_{threshold} = (Div_{-3years} + Div_{-2years} + Div_{-1year}) / 3$

<sup>1</sup> The dividend yield is calculated upon the adoption of the resolution on the size of the annual dividend by dividing the annual dividend per one share by that share's median market price in the reporting period (dividends - PJSC Moscow Exchange, <http://moex.com>).

# 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.



» More information on the Annual General Meeting of Shareholders, including materials made available to shareholders and the Minutes of the Annual General Meeting of Shareholders, is available on the Company's website at: <http://www.rushydro.ru>

## Board of Directors

The Board of Directors is a governing body that sets the priority areas of the Company's operations, 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 environmental aspects. The Board of Directors is also involved in some of the most important operational matters or those requiring regular supervision, such as reliable functioning of the Company's facilities, including in the Far Eastern Federal District, approval of individual transactions, management of subsidiaries, etc. [102-26]

The Board of Directors consists of 13 directors and operates based on the Regulations on the Procedure for Convening and Holding the Board of Directors' meetings of RusHydro.

The transparency of the Board of Directors election process is ensured by a dedicated Board of Directors' committee assessing candidates for compliance with the independence criteria.

### 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 a wide range of investors, improve the quality of management decisions, and promote compliance with corporate governance principles.

RusHydro meets Moscow Exchange's requirements in terms of the number of independent directors serving on its Board of Directors. There are four independent directors serving on the Company's Board of Directors: Maxim Bystrov, Pavel Grachev, Sergey Ivanov and Vyacheslav Pivovarov. Independent directors review the

Company's financial statements, conduct financial performance analysis and monitor the Group's delivery against targets.

The existing independent directors are assessed for compliance with the independence criteria on a quarterly basis during their tenure as part of the procedure for confirming compliance with the Moscow Exchange listing requirements, and their personal details and information provided by them on a regular basis are used for this purpose.

### 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: [www.rushydro.ru](http://www.rushydro.ru)

All candidates nominated to the Company's Board of Directors have higher education and are highly-professional and qualified, and:

- are recognized experts in energy, finance, law, strategic and corporate governance, audit, risk management,

HR, innovation and investment, as well as production and R&D;

- have a track record of serving on boards of directors or in senior positions at other joint-stock companies listed on organized exchanges;

- have impeccable business and personal reputation, sufficient skills, expertise and experience to make decisions falling within the Board of Directors' remit and perform their responsibilities efficiently.

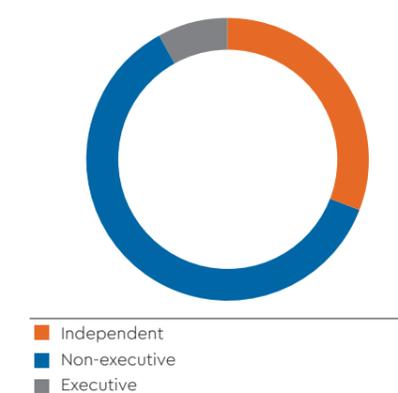
Full name	Year of appointment	Status	Nominated by	Committee membership						
				AC	NCC	SC	CEDFE	CREEI	IC	
Artem Avetisyan	2015	Non-executive	Russian Federation							
Maxim Bystrov	2013	Independent	Russian Federation	+	+					+
Pavel Grachev	2016	Independent	Russian Federation			+	+			
Sergey Ivanov	2015 <sup>1</sup>	Independent	Russian Federation	+	+	+				+
Vyacheslav Kravchenko	2014	Non-executive	Russian Federation				+		+	
Pavel Livinsky	2018	Non-executive	Russian Federation							
Vyacheslav Pivovarov	2013	Independent	Russian Federation	+	+	+				+
Mikhail Rasstrigin	2018	Non-executive	Russian Federation							
Nikolay Rogalev	2016	Non-executive	Russian Federation			+			+	+
Yury Trutnev	2015	Non-executive	Russian Federation				+			
Sergey Shishin	2011	Non-executive	Russian Federation			+				
Andrey Shishkin	2014	Non-executive	Gazprombank							
Nikolay Shulginov	2016	Executive	Russian Federation						+	

- AC – Audit Committee
- NCC – Nomination and Compensation Committee
- SC – Strategy Committee
- CEDFE – Committee on Energy Development of the Far East
- CREEI – Committee on Reliability, Energy Efficiency and Innovation
- IC – Investment Committee

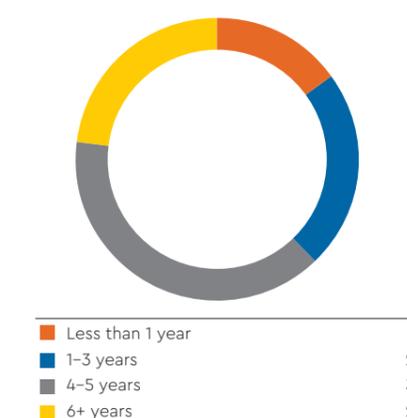


THE CURRENT COMPOSITION OF RUSHYDRO'S BOARD OF DIRECTORS IS WELL-BALANCED IN TERMS OF NECESSARY COMPETENCIES AND PROFESSIONAL EXPERIENCE

Director status, %



Years served on the Board of Directors, %



<sup>1</sup> Served on the Board of Directors from 2013 to 2014, and then starting from 2015.

<sup>2</sup> Until August 7, 2018.

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<sup>1</sup>**

Full name	Energy	Finance and audit	Management	Production	Research and development	Other competencies
Artem Avetisyan		+	+			Promotion of entrepreneurship
Maxim Bystrov	+	+	+	+		Global economics
Pavel Grachev		+	+			Law, Doctor of Law
Sergey Ivanov		+	+		+	Nuclear Physics, Professor, corresponding member of the Russian Academy of Sciences, Doctoral Degree in Economics
Vyacheslav Kravchenko	+		+			Law
Pavel Livinsky		+	+			Economics
Vyacheslav Pivovarov		+	+			Global Economics, Applied Economics, MBA
Mikhail Rasstrigin	+	+	+			Economics
Nikolay Rogalev	+		+		+	Doctoral Degree in Technical Sciences, Professor
Yury Trutnev	+	+	+	+	+	
Sergey Shishin		+			+	Doctoral Degree in Economics
Andrey Shishkin	+	+	+	+		
Nikolay Shulginov	+	+	+	+	+	PhD in Technical Sciences
<b>Total</b>	<b>7</b>	<b>11</b>	<b>12</b>	<b>4</b>	<b>5</b>	

**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<sup>1</sup>**

**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

<sup>1</sup> Relevant experience of the candidates to the Board of Directors in various areas of activity, based on the data received from candidates to the Board of Directors, including education, professional track record, and other publicly available information.

<sup>1</sup> As at December 31, 2018

**MAXIM BYSTROV**

Non-Executive Director

Independent Director<sup>1</sup>**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:**

- 2013–present: Chairman of the Management Board of NP Market Council
- 2013–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:**

- 2016–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 FGC UES

**SERGEY IVANOV**

Non-Executive Director

Independent Director<sup>1</sup>**Born in 1961****Education, academic degree, academic rank:**

Graduated from the National Research Nuclear University with a degree in Theoretical Nuclear Physics PhD

degree 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

**VYACHESLAV 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:**

- 2013–2018: Deputy Minister of Energy of the Russian Federation

**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

<sup>1</sup> Maxim Bystrov was recognised 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 FSC 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 interests of the Company and all of its shareholders. 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>

<sup>1</sup> Sergey Ivanov was elected Senior Independent Director by the Nomination and Compensation Committee of the Board of Directors of RusHydro. He 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 state: he held the position of General Director at RT-Capital LLC, which is controlled by the Russian Federation, during the year prior to the election to the Board of Directors of RusHydro. The abovementioned relation is formal and does not affect Sergey Ivanov's ability to act as a member of the Board of Directors in the interests of the Company. 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 PJSC 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

Independent director

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 Capital<sup>1</sup>
- 2011–2017: President of Altera Capital<sup>2</sup>

**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

<sup>1</sup> INN: 7714961556.<sup>2</sup> INN: 7703741291.

**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 SchoolRussian 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 Supervisory Board of the NP Market Council
- 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 CHPP

**Short biographies of members of the Board of Directors prior to June 27, 2018****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 Voskhod
- member of the Supervisory Board at ALROSA
- chairman of the Supervisory Board at the Far East Investment and Export Agency

**NIKOLAY PODGUZOV**

Non-Executive Director  
Representative of  
the Russian Federation

Born in 1974

**Education, academic degree, academic rank:**

St. Petersburg State Institute of Technology  
Moscow State Institute of International Relations (University) under the Ministry of Foreign Affairs

**Experience over the last 5 years:**

- » 2017–present: Chief Executive Officer at the Russian Post
- » 2013–2017: Deputy Minister of Economic Development 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

**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 RusHydro Group to any members of the Board of Directors.

Duties of officials representing the Russian Federation are set forth in Resolution No. 738 of the Russian Government dated December 3, 2004.

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.



» For more information on the members of the Board of Directors, see section 5.2.1 of the Company's quarterly report for Q4 2018 on the Company's website at: [www.rushydro.ru](http://www.rushydro.ru)

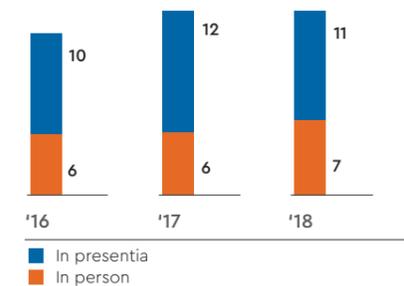
**Board of Directors' report**

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.

**Attendance in 2018 by director**

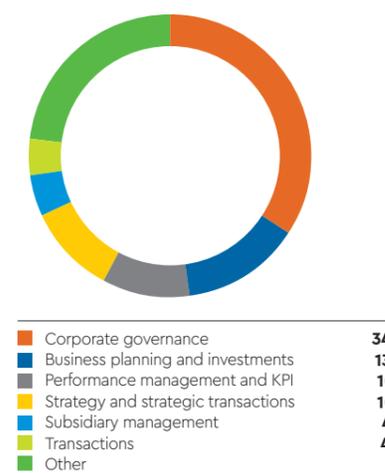
Full name	Meetings attended/total	Attendance, %
Artem Avetisyan	13/18	72
Maxim Bystrov	17/18	94
Pavel Grachev	18/18	100
Sergey Ivanov	17/18	94
Vyacheslav Kravchenko	15/18	83
Vyacheslav Pivovarov	15/18	83
Mikhail Rasstrigin (starting June 27, 2018)	7/8	88
Nikolay Rogalev	18/18	100
Yury Trutnev	17/18	94
Pavel Livinsky (starting June 27, 2018)	8/8	100
Sergey Shishin	17/18	94
Andrey Shishkin	16/18	89
Nikolay Shulginov	18/18	100
Alexei Chekunkov (member until June 27, 2018)	10/10	100
Nikolay Podguzov (member until June 27, 2018)	5/10	50

**Number of Board of Directors meetings**



» See the minutes of the previous Board of Directors meetings here: [www.rushydro.ru](http://www.rushydro.ru)

**Breakdown of items considered by the Board of Directors, %**



**169 matters**

were considered by the Board of Directors in 2018

In 2018, in addition resolutions on the convocation of the Annual General Meeting of Shareholders, approval of transactions, including related-party translations, development of a transparent procurement management framework, enhancement of the control and audit system and subsidiary management matters, the Board of Directors made a number of other important decisions related to the Company's development (see the key matters reviewed by the Board in 2018 in the table below).

**Key agenda items reviewed by the Board of Directors in the reporting year**

Item	Decision
<b>Growth of the Company's value for the state, shareholders, communities and its employees</b>	
Approval of the changes to the Group's Long-term Development Program for 2018–2022	Adjustments to the Long-term Development Program provide for additional measures to upgrade the thermal power infrastructure in the Far Eastern Federal District, improve the environmental management system, roll out intelligent systems and digital technology, and enhance the staffing system
Approval of the updated import substitution roadmap for the period up to 2025	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
Approval of RusHydro's Policy on Rotation of Auditors	The Policy on Rotation of Auditors governs the auditor selection procedure and the rules for altering the composition of the audit team
Approval of the termination of RusHydro and its subsidiaries' participation in the authorized capital of PJSC Inter RAO UES	Approved the sale of 5,131,669,622 shares of PJSC Inter RAO UES (4.915% of the authorized capital) to JSC Inter RAO Capital at the price of RUB 3.3463 per share
Dividends for 2017	The Board recommends paying out dividends in the amount of RUB 0.0263335 per share, or 50% of the IFRS net profit for 2017
<b>Stable development of the Company</b>	
Approval of RusHydro's Business Plan for 2019 and RusHydro Group's Consolidated Business Plan for 2019–2023, including the consolidated investment program	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/h of heat capacity, as well as on building and refurbishing more than 130 km of heat and 7,600 km of electric power supply networks
Approval of RusHydro Group's New Environmental Policy through 2025	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
<b>Development of the Far Eastern energy sector</b>	
Review of the Long-term Program for Replacement of Retired Capacities and Power System Development in the Far East	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 Komsomolskaya TPP-2, and commissioning of the fourth hydropower unit of Ust-Srednekanskaya HPP
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	The construction of high-voltage power lines in Chukotka due to the decommissioning of the power units at Bilibino 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

## Assessment of the Board of Directors performance

### Independent assessment

In 2018, an independent assessment of the Company's Board of Directors was carried out by LLC PricewaterhouseCoopers Advisory, a world-renowned external independent consultant<sup>1</sup>. The Board of Directors' performance was assessed from April to June 2018 via a survey among the directors, individual interviews with the directors and several key managers of the Company, as well as through reviewing the by-laws that govern the activities of the Board of Directors and its Committees, the meeting minutes of the Board of Directors and Committees, and other relevant materials. The scope of the assessment included:

- Overall assessment of the Board of Directors' performance;
- Assessment of each Committee's performance;
- Performance assessment for the Chairman of the Board of Directors and Senior Independent Director;
- Individual assessment of the Board of Directors members.

The previous independent assessment was done in 2016 by the Independent Directors Association, whose recommendations led to many improvements in the work of the Board of Directors, including:

- Approval of a number of strategic decisions, including in relation to the JSC RAO ES East debt refinancing;
- The Board of Directors regularly monitors the development and implementation of RusHydro subsidiaries' business plans based on RusHydro Group's Consolidated Business Plan;
- The position of Senior Independent Director was introduced;
- Board of Directors' meetings scheduling was improved.

## 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 13,552,825.97 (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 claimed (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.

<sup>1</sup> The word independent means the consultant has no ties to the Company.

## Committees of the Board of Directors

<b>RusHydro's Board of Directors has six committees:</b>
Audit Committee <sup>1</sup> ;
Nomination and Compensation Committee <sup>2</sup> ;
Strategy Committee <sup>3</sup> ;
Investment Committee <sup>4</sup>
Committee on Energy Development of the Far East <sup>5</sup> ;
Committee on Reliability, Energy Efficiency and Innovation <sup>6</sup> ;

### Audit Committee

#### Members of the Board of Directors<sup>1</sup>

Independent members of the Board of Directors	
Sergey Ivanov (Chairman of the Committee)	19/19
Vyacheslav Pivovarov <sup>8</sup>	14/19
Maxim Bystrov	18/19

#### 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

#### Members of the Board of Directors<sup>1</sup>

Independent members of the Board of Directors	
Vyacheslav Pivovarov (Chairman of the Committee)	12/12
Sergey Ivanov	11/12
Maxim Bystrov	11/12

#### 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.

#### Key performance results and recommendations issued to 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.
- Reviewed annual KPI of the Management Board for 2019
- 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.
- Reviewed reports on progress against the Action Plan for the Introduction of Professional Standards into RusHydro's Operations in Q4 2017 and Q1-Q3 2018.
- 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.

<sup>1</sup> Regulations on the Audit Committee are approved by resolution of RusHydro's Board of Directors (Minutes No. 239 of June 23, 2016, as amended on June 21, 2017 (No. 254) and December 24, 2018 (No. 281))

<sup>2</sup> Regulations on the Nomination and Compensation Committee are approved by resolution of RusHydro's Board of Directors (Minutes No. 239 of June 23, 2016, as amended on June 21, 2017 (No. 254))

<sup>3</sup> Regulations on the Strategy Committee are approved by resolution of RusHydro's Board of Directors (Minutes No. 242 of October 10, 2016)

<sup>4</sup> Regulations on the Investment Committee are approved by resolution of RusHydro's Board of Directors (Minutes No. 240 of August 11, 2016)

<sup>5</sup> Regulations on the Committee on Energy Development of the Far East are approved by resolution of RusHydro's Board of Directors (Minutes No. 225 of October 30, 2015)

<sup>6</sup> Regulations on the Committee on Reliability, Energy Efficiency and Innovation are approved by resolution of RusHydro's Board of Directors (Minutes No. 188 of October 15, 2013)

<sup>7</sup> 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 the number of meetings of the Committee in 2018.

<sup>8</sup> Vyacheslav Pivovarov has extensive experience and knowledge in preparation, analysis, assessment and audit of financial (accounting) statements.

<sup>1</sup> 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 the number of meetings of the Committee in 2018.

## Strategy Committee

### Members of the Board of Directors<sup>1</sup>

Independent members of the Board of Directors	
Pavel Grachev	17/17
Sergey Ivanov (since August 7, 2018)	10/17
Vyacheslav Pivovarov	14/17
Members of the Board of Directors	
Nikolay Rogalev	17/17
Sergey Shishin	17/17
Committee members	
Aleksandr Bogashov	15/17
Dmitriy Denisov (since August 7, 2018)	9/17
Igor Zadvornov (Chairman of the Committee)	16/17
Boris Livshits	17/17
Vasily Nikonov	15/17
Yevgeniy Olkhovich (since August 7, 2018)	9/17
Pavel Snikkars	15/17
Yevgeniy Stolyarov (until August 7, 2018)	5/17
Andrey Gabov (until August 7, 2018)	7/17
Members of the executive bodies	
George Rizhinashvili	17/17
Andrey Kazachenkov (since August 7, 2018)	9/17
Nikolay Shulginov (until August 7, 2018)	7/17

### 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

### 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 Sakhalinenergo.
- Set preliminary additional terms and conditions for participation in the construction of Tayshet Aluminium Smelter (the project was put on hold due to the US sanctions).
- Recommended approval of the Group's Long-Term Development Program for 2018–2022.
- Provided recommendations on report regarding the finalization of initiatives to refinance the debt of JSC RAO ES East.

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.

- 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-Naryn HPPs, and VolgaHydro.

## Investment Committee

### Members of the Board of Directors<sup>1</sup>

Independent members of the Board of Directors	
Maxim Bystrov (Chairman of the Committee)	13/13
Vyacheslav Pivovarov	10/13
Sergey Ivanov	10/13
Members of the Board of Directors	
Nikolay Rogalev	13/13
Alexei Chekunkov (until September 21, 2018)	8/13
Members of the executive bodies	
Andrey Kazachenkov	13/13
Sergey Kirov	13/13
Viktor Khmarin	13/13
Committee members	
Mikhail Bychko	4/13
Andrey Gabov	7/13
Sergey Zhuravlev	13/13
Denis Milyutin	13/13
Pavel Snikkars	7/13

### Committee competencies

The Committee is designed to preview new investment projects and programs,

### 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.

and contribute to the enhancement of the Company's investment policy.

<sup>1</sup> 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 the number of meetings of the Committee in 2018.

<sup>1</sup> 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 the number of meetings of the Committee in 2018.

## Committee on Energy Development of the Far East

### Members of the Board of Directors<sup>1</sup>

Independent member of the Board of Directors	
Pavel Grachev	7/7
Members of the Board of Directors	
Yury Trutnev (Chairman of the Committee)	0/7
Vyacheslav Kravchenko	3/7
Alexei Chekunkov	7/7
Members of the executive bodies	
Sergey Vasilyev (since April 4, 2018)	4/7
Andrey Kazachenkov	7/7
Sergey Tolstoguzov (until April 4, 2018)	0/7
Committee members	
Igor Zadornov	7/7
Denis Konstantinov	6/7
Aleksey Molskiy	5/7
Denis Pileniyeks	7/7
Aleksandr Pyatigor (since August 9, 2018)	2/7
Vladimir Tupikin (until December 6, 2018)	7/7
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 Petukhov (since December 6, 2018)	1/7

### Committee competencies

The Committee is designed to ensure 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,

### Key performance results and recommendations issued to the Board of Directors

- Recommended approval of contributions to the authorized capital of JSC Chukotenergo for the construction of two 110 kV single-circuit Pevek-Bilibino power lines in an amount not exceeding RUB 18 bn, with up to RUB 5 bn coming from RusHydro and RUB 10 bn coming from the Government in the form of contributions to the authorized capital of RusHydro.

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.

- 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 the General Contractor Agreement (Construction of Sakhalinskaya GRES-2. Key Production Capacities. On-Site Facilities. Stage 1) by RUB 3.5 bn to RUB 33.5 bn.

## Committee on Reliability, Energy Efficiency and Innovation

### Members of the Board of Directors<sup>1</sup>

Members of the Board of Directors	
Nikolay Rogalev (Chairman of the Committee)	7/7
Vyacheslav Kravchenko	4/7
Alexei Chekunkov (until August 9, 2018)	3/7
Committee members	
Oleg Barkin (since April 4, 2018)	6/7
Yuriy Vishnevskiy	6/7
Dmitriy Gvozdev (since August 9, 2018)	4/7
Sergey Zhuravlev (since August 9, 2018)	4/7
Mikhail Fedorov	7/7
Elena Belchenko (until August 9, 2018)	3/7
Roman Gromov (until April 4, 2018)	1/7
Members of the executive bodies	
Boris Bogush	7/7
George Rizhinashvili	7/7
Kirill Frolov	7/7
Dmitriy Gvozdev (since April 4, 2018)	5/7
Sergey Tolstoguzov (until April 4, 2018)	0/7
Nikolay Karpukhin (until August 7, 2018)	1/7

### Committee competencies

The Committee is designed to ensure efficient performance of the Board of Directors in the realms of the Company's Technical Policy, reliable

### Key performance results and recommendations issued to the Board of Directors

- Approved the proposal of the Company's Management Board to start levelling the station node building at Zagorskaya PSPP-2.
- Prepared a resolution to build an inventory of intellectual property rights of RusHydro Group, with the deadline set for November 30, 2018.
- Drafted a resolution for the Board of Directors to approve RusHydro Group's Intellectual Property Rights Management Program.

and safe operation of hydraulic facilities, energy efficiency, innovation and environmental policies, and other areas reserved to the remit of the Committee.

- Approved draft terms of reference for comparing the technological advancement and innovation KPI of RusHydro Group against the leading peers and submitting proposals to update the Company's innovation KPI and Innovative Development Program for 2016-2020 with an outlook until 2025.

## 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 Blagoveshchenskaya 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 SNRG
- 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).

<sup>1</sup> 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 the number of meetings of the Committee in 2018.

<sup>1</sup> 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 the 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<sup>1</sup>

### 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 RusHydro
- 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 sales, economic planning and investments

**Born in 1976**

**Education, academic degree, academic rank:**

Graduated from Perm 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

**Year of election to the Management Board:** 2015

**Participation in the Board of Directors' committees:**

Investment Committee of the Board of Directors of RusHydro

<sup>1</sup> As at December 31, 2018

**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 Hydroproject 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<sup>1</sup>**

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****Changes in the Management Board composition after the reporting date****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

**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<sup>1</sup>.

Members of the Management Board do not indirectly hold any of RusHydro shares or own shares/stakes in any of RusHydro's subsidiaries.



» For more information on the positions held by the Management Board members in other companies' governing bodies over the last 5 years, see section 5.2.3 of the Company's quarterly report for Q4 2018 on the Company's website at: [www.rushydro.ru](http://www.rushydro.ru)

<sup>1</sup> Left office on February 24, 2019 pursuant to the resolution of the Board of Directors dated February 19, 2019.

<sup>1</sup> These material facts are disclosed on the Company's website at: <http://www.rushydro.ru/upload/iblock/80d/Soobshenie.pdf> and <http://www.rushydro.ru/upload/iblock/3ac/Soobshenie-o-sushestvennom-fakte.pdf>

### Report on the Management Board's performance

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.

### Management Board performance

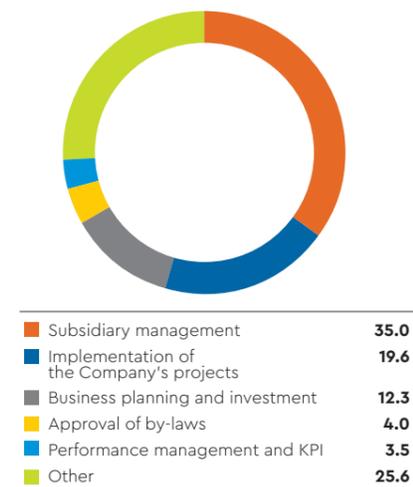
The Board of Directors evaluates the performance of the Management Board and its Chairman by reviewing the following matters:

- » 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

Items reviewed by RusHydro's Management Board in 2018, %



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.

# 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<sup>1</sup> 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<sup>2</sup>. 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](http://www.rushydro.ru)



» The documents approved by Board of directors are available on the Company's website at [www.rushydro.ru](http://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.

<sup>1</sup> Approved by Board of Directors resolution of April 7, 2016.

<sup>2</sup> More information is available at: <http://www.rushydro.ru/upload/iblock/3fa/Kodeks-korporativnoj-etiki-s-izmeneniyami-ot-27.12.2018.pdf>

## 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](#).

» For details on the remuneration of the Internal Audit Commission members, see [the Report on remuneration of the governing and control bodies on p. 210](#).

### Members of the Internal Audit Commission

Members	Primary employment	Nominated by	Shareholding
Tatyana Zobkova (Chair of the Internal Audit Commission)	Deputy Director of the Department of Corporate Governance, Price Environment and Control in the Energy Sector of the Russian Ministry of Energy	Russian Federation in 2018	None
Natalia Annikova	-	Russian Federation in 2018	None
Igor Repin	Deputy Executive Director, Association of Institutional Investors	Russian Federation in 2018	None
Marina Kostina	Deputy Director of the Corporate Governance Department of the Russian Ministry of Economic Development	Russian Federation in 2018	None
Dmitry Simochkin	Head of Department, Federal Agency for State Property Management	Russian Federation in 2018	None

## 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 11603050547.

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

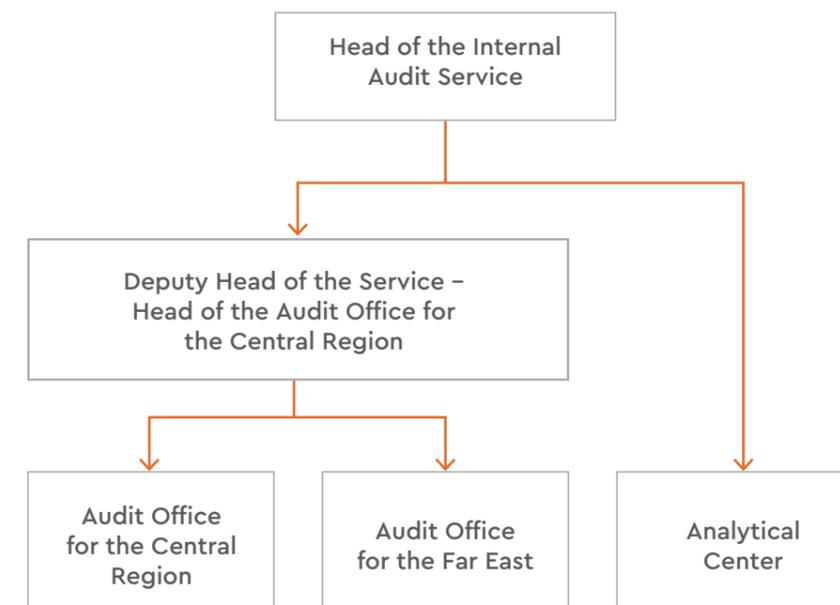
The key objective of RusHydro's internal audit function is to assist the Board of Directors and executive bodies of RusHydro Group in enhancing the Group's management efficiency and improving its operations, including by adopting a systematic and consistent approach to the analysis and evaluation of 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

### Structure of RusHydro's Internal Audit Service (15 people):



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.

The schedule of control activities is approved by the Audit Committee on an annual basis and defines the priorities of the internal audit work subject to RusHydro Group's objectives, resources available, and risk-based approach to control activities.

- implementation efficiency of investment projects involving construction of new generation facilities;
- R&D efficiency of the Company's subsidiaries (RusHydro Group institutes).

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:

- investment program efficiency as regards rehabilitation & modernization at existing generation facilities;



**IN 2018, THE INTERNAL AUDIT SERVICE CONDUCTED 12 SCHEDULED CONTROL PROCEDURES AND THREE UNSCHEDULED AUDITS AS PROVIDED BY THE SCHEDULE OF CONTROL ACTIVITIES APPROVED BY THE BOARD OF DIRECTORS' AUDIT COMMITTEE.**

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.

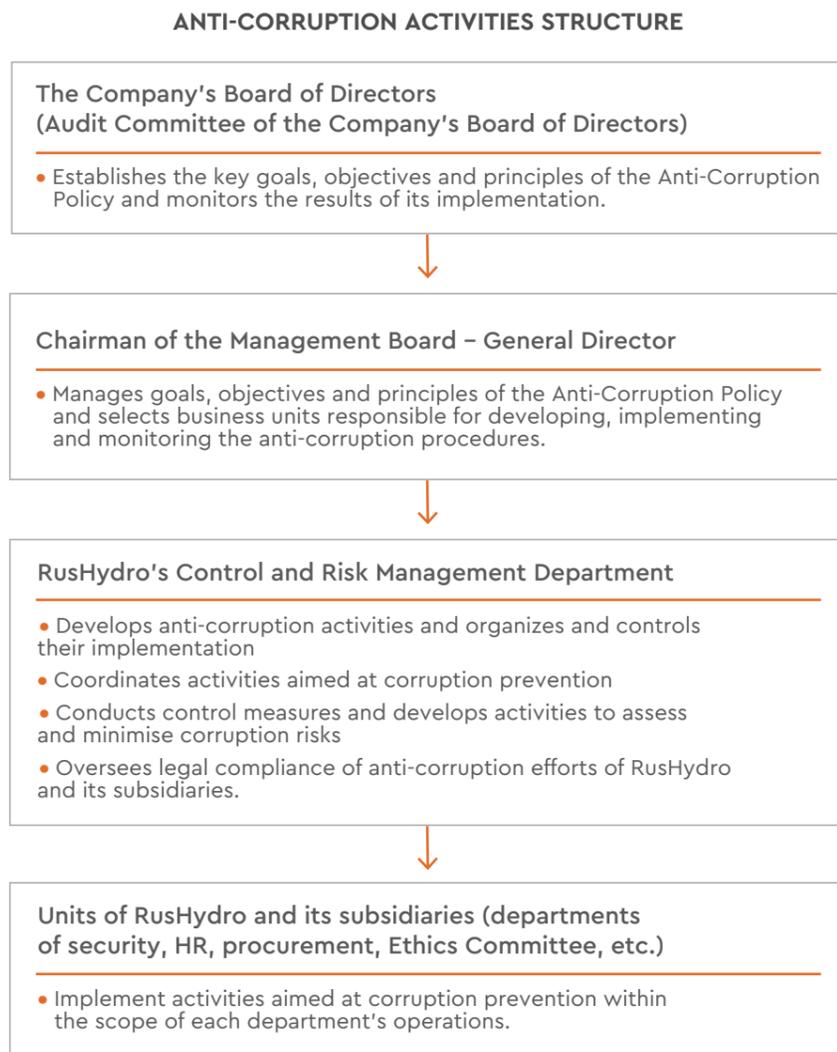
## Anti-corruption efforts

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 Presents 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 areas of corruption prevention:

- 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;



- cooperation with state regulatory bodies and law enforcement authorities responsible for combating corruption;
- measures to prevent wrongdoings by the Company's employees;
- enhancing internal controls.



» 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	What we did in 2018
Developing and updating the Company's anti-corruption regulations and by-laws	<ul style="list-style-type: none"> <li>➤ 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.</li> <li>➤ 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);</li> <li>➤ 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<sup>1</sup>, as well as mitigating the effects of such misconduct (the Board of Directors minutes No. 281 of December 27, 2018);</li> <li>➤ Update of the Regulations on the Procedure to Report Presents Received by RusHydro's Employees (Order No. 60 of February 5, 2019);</li> <li>➤ 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. 613 of July 22, 2013 and clarified by the Executive Office of the Government of the Russian Federation<sup>2</sup> (Order No. 44 of January 29, 2019).</li> </ul>
Providing for transparency and availability of information on the Company's anti-corruption policy and ensuring employees' awareness of anti-corruption legislation	<ul style="list-style-type: none"> <li>➤ The following information is published on RusHydro's website and intranet portal and updated on a timely basis:                             <ul style="list-style-type: none"> <li>➤ the Company's local internal documents on combating corruption and preventing wrongdoings and conflicts of interest;</li> <li>➤ action plans and reports on the implementation of the Comprehensive Program of Anti-Corruption Activities;</li> <li>➤ information, effective laws and regulations, and guidance on combating corruption.</li> <li>➤ RusHydro has put in place a permanent Line of Trust (<a href="http://www.eng.rushydro.ru/form/">http://www.eng.rushydro.ru/form/</a>), a communication channel available to RusHydro Group's employees and third parties (including anonymous) to report issues in an effort to combat fraud and corruption, prevent wrongdoings and conflicts of interest, and improve RusHydro's operations.</li> </ul> </li> <li>➤ In 2018, the Company developed and placed in its offices and branches new roll up banners providing information about the Line of Trust, and released a video displayed regularly in the Company's offices.</li> </ul>
Providing for investigations into any reports of wrongdoings	<ul style="list-style-type: none"> <li>➤ 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.</li> </ul>

<sup>1</sup> 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.

<sup>2</sup> No. P17-69370 of December 29, 2018.

Program workstreams	What we did in 2018
Cooperating with the state regulatory bodies and law enforcement authorities responsible for combating corruption	<ul style="list-style-type: none"> <li>➤ 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:                             <ul style="list-style-type: none"> <li>➤ disclosure of information upon an authorized request;</li> <li>➤ reporting on the Company's anti-corruption practices;</li> <li>➤ filing queries for the clarification of anti-corruption law enforcement practices;</li> <li>➤ sending proposals on amending Article 13.3 of Federal Law No. 273-FZ On Combating Corruption of December 25, 2008 (draft).</li> </ul> </li> </ul>
Measures to prevent wrongdoings by the Company's employees	<ul style="list-style-type: none"> <li>➤ 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.</li> <li>➤ In December 2018, the employees of the Headquarters, branches and subsidiaries of RusHydro holding positions exposed to corruption risks<sup>1</sup> were tested to check their knowledge of Russian anti-corruption laws and the Company's local internal documents on combating corruption.</li> <li>➤ 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.</li> </ul>
Enhancing internal control system	<ul style="list-style-type: none"> <li>➤ 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.</li> </ul>

**Anti-corruption awareness program and training [205-2]**

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**

Region	Top management		Middle management		Junior management		White-collar employees	
	Number of people	% of employees	Number of people	% of employees	Number of people	% of employees	Number of people	% of employees
Moscow	14	11.67	30	25.00	63	52.50	13	10.83
Republic of Dagestan	3	27.27	3	27.27	1	9.09	4	36.36
Kabardino-Balkarian Republic	1	14.29	6	85.71	-	-	-	-
Karachay-Cherkess Republic	1	7.14	9	64.29	-	-	4	28.57
Republic of North Ossetia – Alania	1	11.11	2	22.22	5	55.56	1	11.11
Amur Region	8	36.36	10	45.45	-	-	4	18.18
Volgograd Region	3	37.50	4	50.00	-	-	1	12.50
Perm Territory	6	28.57	10	47.62	1	4.76	4	19.05
Samara Region	4	30.77	4	30.77	-	-	5	38.46
Moscow Region	5	55.56	3	33.33	-	-	1	11.11
Yaroslavl Region	5	55.56	2	22.22	-	-	2	22.22
Stavropol Territory	5	62.50	2	25.00	-	-	1	12.50
Nizhny Novgorod Region	5	50.00	4	40.00	-	-	1	10.00
Novosibirsk Region	3	21.43	7	50.00	-	-	4	28.57
Saratov Region	3	37.50	3	37.50	-	-	2	25.00
Republic of Khakassia	4	36.36	6	54.55	-	-	1	9.09
Chuvash Republic	4	36.36	5	45.45	-	-	2	18.18
<b>Total</b>	<b>75</b>	<b>24.6</b>	<b>110</b>	<b>36.1</b>	<b>70</b>	<b>23</b>	<b>50</b>	<b>16.4</b>

<sup>1</sup> The list of the positions exposed to corruption risks was approved in accordance with the Company's Anti-Corruption Policy.

### 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<sup>1</sup>, 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;
  - updating the procedure for responding to the reports received through the Line of Trust;
- amended the Rules of RusHydro's Line of Trust Operation<sup>2</sup> to change the dial-in hotline number;
- amended<sup>3</sup> 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<sup>4</sup> updating the reporting procedure and the criteria, limits and restrictions for giving presents and using of representation allowances and hospitality expenses;

- amended 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. 613 of July 22, 2013 and clarified by the Executive Office of the Government of the Russian Federation (Order No. 44 of January 29, 2019).

### 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.

### Providing for transparency and availability of information [102-17]

The following information is published on RusHydro's website and intranet portal and updated on a timely basis:

- the Company's local internal documents on combating corruption and preventing wrongdoings and conflicts of interest;
- action plans and reports on the implementation of the Comprehensive Program of Anti-Corruption Activities;
- information, effective laws and regulations, and guidance on combating corruption.

RusHydro works in close cooperation with the law enforcement authorities and supervisory bodies and provides assistance to them in case of audits and inspections, requests of information on the Company's anti-corruption compliance (including with respect to storage and transfer to the authorities of the information and documents on corruption offences), investigations of corruption cases, and inspections seeking to check how the Company prevents and combats corruption.

In 2018, the Company completed the integration of RusHydro Group's hotlines into the single Line of Trust and updated the Regulation on the Procedure for Accepting, Processing and Responding to the Reports Received through the Line of Trust, which sets the list and responsibilities of the officers and divisions in charge of receiving and considering reports, and defines the procedure for responding to them.

The information on the ways to file a report is available on notice boards and information screens in the offices of RusHydro Group companies.

The results of the Line of Trust's operation are disclosed on the Company's intranet portal and in the corporate newsletter.

### Line of Trust

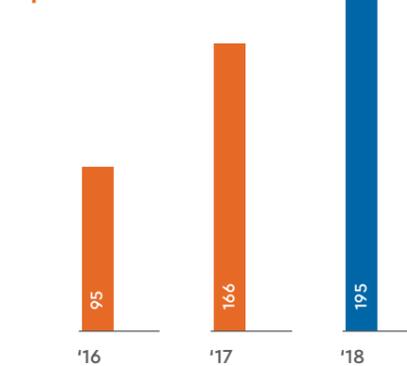
In 2018, the Company reviewed 195 reports received through the Line of Trust. The reports that did not meet the criteria set by the Rules of RusHydro's Line of Trust Operation (email spam, advertisements, mass mailing, etc.) were not accepted. The number of reports increased by 17% year-on-year.

The increase was mainly driven by the integration of RusHydro's Line of Trust, its promotion, as well as the Group's organizational changes made to improve performance of electricity retailers that included deployment of new software, unified payment documents, etc.

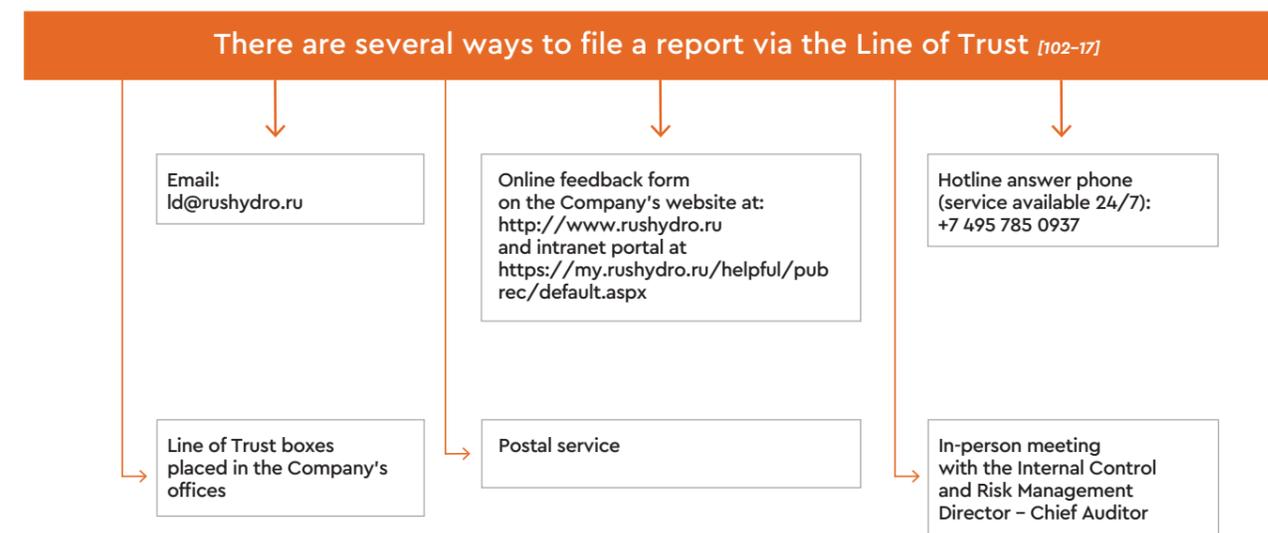
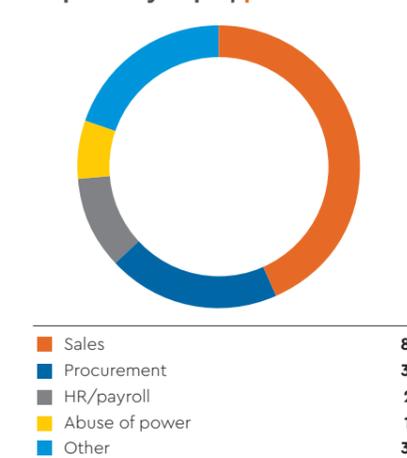
Information contained in 67 (34%) was confirmed to be true and involve violations of rights and/or other wrongdoings. The Company took measures to eliminate the verified violations:

- 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.

Number of reports considered, pcs



Reports by topic, pcs



<sup>1</sup> Order No. 689 of September 12, 2018.  
<sup>2</sup> Order No. 1018 of December 27, 2018.  
<sup>3</sup> Board of Directors minutes No. 281 of December 27, 2018.  
<sup>4</sup> Order No. 60 of February 5, 2019.

## 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<sup>1</sup>.

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](http://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 (PJSC 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.

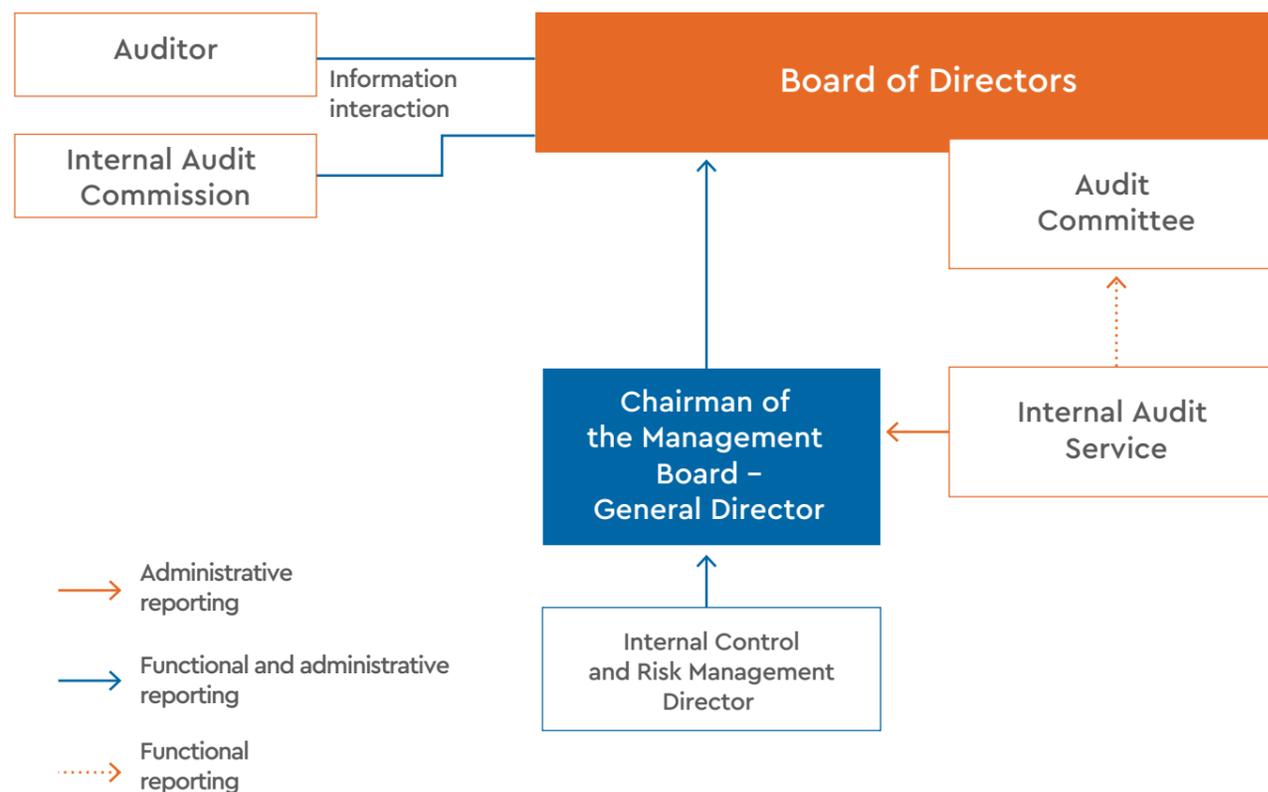
The member of the Management Board and First Deputy General Director in charge of the unit of financial and corporate law management supervises the Company's compliance with the laws on insider information and submits quarterly reports to the Audit Committee of the Board of Directors of RusHydro. The 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.

Control and Risk Management Organizational Chart



<sup>1</sup> Order No. 236 of April 18, 2018.

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 31, 2018 was 26 employees.

The Control and Risk Management Department is responsible for:

- maintaining an effective internal control and risk management

- 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.

### 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.

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.

Risk managers maintain an ongoing interaction with the Audit Committee of the Board of Directors as the body overseeing RusHydro's risk management system in line with the Guidelines on Audit Committees of the Boards of Directors of Joint-Stock

Companies with a Stake Owned by the Russian Federation (approved by order No. 86 of the Federal Agency for State Property Management (Rosimuschestvo) of March 20, 2014).



»» The Internal Control and Risk Management Policy is available on the Company's website at: [www.rushydro.ru](http://www.rushydro.ru)



»» More information of the relevant regulations is also available on the Company's website at: [www.rushydro.ru](http://www.rushydro.ru)



»» More information on RusHydro's risk management cycle and methods is available on the Company's website at: [www.rushydro.ru](http://www.rushydro.ru)

## 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

### Strategic risk management cycle



## 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, no external independent assessment was performed.

### 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 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.

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.
- The subsidiaries' risk mitigation plans for 2018–2019 are being developed subject to regular reviews and approvals, and progress against the risk mitigation plans is monitored on an ongoing basis.

There are no significant changes about key risks in the reporting year compared to the previous year.

### 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. [103]

In 2018, RusHydro Group's register consisted of 15 risks, with no changes taking place throughout the year. [102-15]

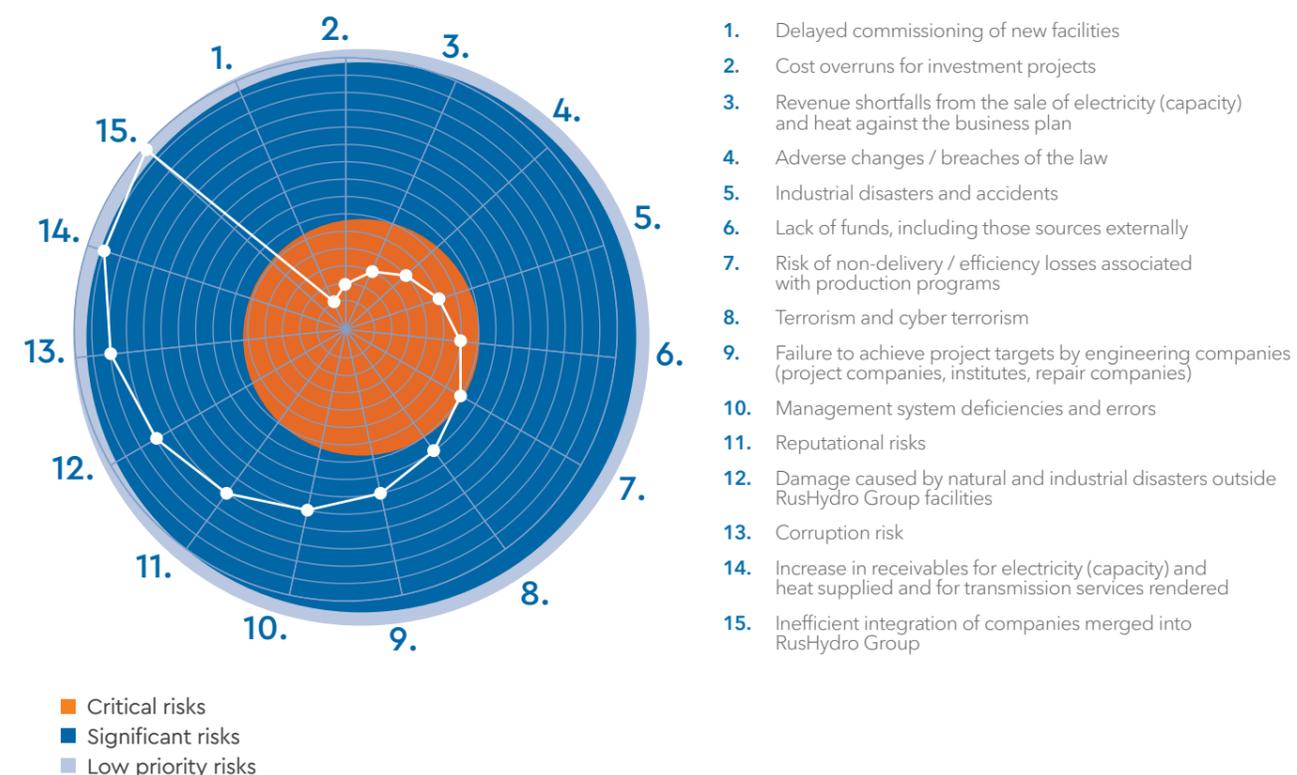
During 2018, the risk management activities centered around the critical risks associated with key construction projects, including:

- delayed commissioning of new facilities at Zaramagskiye HPP (346 MW, under capacity sale agreements for new NPPs/HPPs); Sakhalinskaya 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.

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.

RusHydro Group's strategic risk radar for 2018–2019



RISK MANAGEMENT IS AN INTEGRAL PART OF ALL ORGANIZATIONAL PROCESSES

# Risk management report for 2018

## Strategic risk management at RusHydro Group

Risk and its priority	Impact on Long-term Development Program KPI	Stakeholders	Key risk mitigants
<b>Economic aspect</b>			
1. Delayed commissioning of new capacities <i>Critical risk</i>	RusHydro Group's investment program implementation <b>Direct</b> ➤ Adherence to the capacity commissioning schedules, funding and spending plan ➤ ROE ➤ EBITDA <sup>1</sup> <b>Indirect</b> ➤ Total shareholder return (TSR)	Shareholders and investors Employees Federal government authorities Regional and municipal government authorities Suppliers and contractors	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 ➤ formalizing 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 subdesigners ➤ keeping a register of contractors' failures to meet deadlines under contracts for new construction projects and rehabilitation & modernization (TR&M) 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
2. Project cost overruns for permanent facilities construction <i>Critical risk</i>	RusHydro Group's investment program implementation <b>Direct</b> ➤ Free cash flow (FCF) <b>Indirect</b> ➤ Total shareholder return (TSR)	Shareholders and investors Employees Federal government authorities Regional and municipal government authorities Suppliers and contractors	

Risk and its priority	Impact on Long-term Development Program KPI	Stakeholders	Key risk mitigants
3. Revenue shortfalls from the sale of electricity (capacity) and heat against the business plan <i>Critical risk</i>	Production program implementation; development of a hydrometeorological observation network; tariff management, improvement of the regulatory framework governing the power industry in the Far Eastern Federal District of Russia <b>Direct</b> ➤ ROE ➤ EBITDA ➤ Labor productivity <b>Indirect</b> ➤ Free cash flow (FCF) ➤ Total shareholder return (TSR)	Shareholders and investors Employees Suppliers and contractors	➤ automating the water level scenarios generation and refining the process methodology ➤ taking part in shaping the Water Use Rules as part of the interagency working groups for setting HPP operation modes ➤ implementing the Comprehensive Modernization Program; ➤ drafting proposals on amending laws and regulations governing the power industry; liaising with the federal government authorities and the Market Council Non-Profit Partnership ➤ improving transparency of the economic dispatching business process ➤ preparing the areas to be flooded to form water reservoirs for the hydropower plants under construction with financing coming out of the state budgets and budgets of constituent entities of the Russian Federation ➤ liaising with the federal and regional government authorities on the matters of tariff regulations with a view to eliminating the cost-tariff gap in the Russian Far East
4. Lack of funds, including those sources externally <i>Critical risk</i>	Refinancing the debt of RAO ES East <b>Direct</b> ➤ Adherence to the capacity commissioning schedules, funding and spending plan <b>Indirect</b> ➤ ROE ➤ EBITDA ➤ Total shareholder return (TSR)	Shareholders and investors Federal government authorities Suppliers and contractors	➤ maintaining sufficient cash levels and securing access to liquidity through credit facilities ➤ maintaining a well-balanced model of working capital financing from both short-term and long-term sources ➤ overseeing compliance with the terms of loan agreements to exclude any breach of financial covenants by the Company ➤ using short-term financial instruments (bank deposits) to invest idle cash balances ➤ introducing an interest rate and currency risk management methodology subject to RusHydro's credit policy ➤ divesting non-core assets ➤ RusHydro completed an additional issue of shares to reduce the debt ➤ hedging financial risks ➤ diversifying the debt portfolio

<sup>1</sup> In this section, EBITDA refers to the indicator used for KPI calculations.

Risk and its priority	Impact on Long-term Development Program KPI	Stakeholders	Key risk mitigants
<p>5. Risk of non-delivery / efficiency losses associated with production programs</p> <p><i>Significant risk</i></p>	<p>Production program implementation</p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Meeting the accident prevention target</li> <li>ROE</li> <li>EBITDA</li> <li>Adherence to the capacity commissioning schedules, funding and spending plan</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Total shareholder return (TSR)</li> <li>Labor productivity</li> </ul>	<p>Shareholders and investors</p> <p>Employees</p> <p>Suppliers and contractors</p>	<ul style="list-style-type: none"> <li>Prompt filing of complaints and claims with regard to the poor quality of repairs, delivery of substandard equipment and violation of delivery deadlines</li> <li>Setting up production programs based on recommendations of the analytical center</li> <li>Streamlining the contract approval process, amending the company's internal regulations governing the contracting process</li> <li>Cutting costs (in line with the value growth plan)</li> <li>Maintaining control over the implementation of rehabilitation and modernization projects in compliance with the company's standards</li> </ul>
<p>6. Terrorism and cyber terrorism</p> <p><i>Significant risk</i></p>	<p>Improving the counter-terrorism and information security system</p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Meeting the accident prevention target</li> <li>Adherence to the capacity commissioning schedules, funding and spending plan</li> <li>ROE</li> <li>EBITDA</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Decrease in operating expenses (costs)</li> <li>Total shareholder return (TSR)</li> </ul>	<p>Shareholders and investors</p> <p>Employees</p> <p>Suppliers and contractors</p> <p>Federal government authorities</p> <p>Regional and municipal government authorities</p>	<ul style="list-style-type: none"> <li>Improving armed protection of the company's facilities by engaging the private guarding units of the national guard of russia (rosguardia), guard federal state unitary enterprise of rosgvardia, and departmental protection federal state unitary enterprise of the ministry of energy of russia</li> <li>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</li> <li>Improving access and on-site security control systems at the company's facilities</li> <li>Planning and taking measures to identify, prevent and suppress acts of unlawful interference against the company's facilities in cooperation with law enforcement agencies</li> <li>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 the company's operations</li> <li>Equipping the company's facilities with engineering and technical means of protection</li> <li>Setting up and maintaining control of access to information about on-site engineering and technical means of protection and their condition</li> <li>Maintaining property insurance against terrorism and sabotage risks</li> <li>Increasing the share of equipment certified by the federal service for technical and export control of russia, and the share of domestically manufactured equipment</li> <li>Conducting information and technical security audits</li> <li>Setting up and maintaining control of access to software and hardware of control systems and information systems</li> <li>Protecting remote access to the company's information systems and taking measures to ensure information security of virtual, mobile and cloud services and solutions</li> </ul>

Risk and its priority	Impact on Long-term Development Program KPI	Stakeholders	Key risk mitigants
<p>7. Failure to achieve project targets by engineering companies (subsidiary engineering design institutes)</p> <p><i>Significant risk</i></p>	<p>RusHydro Group's investment program implementation</p> <p>Rehabilitation and modernization program</p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Integrated innovative KPI</li> <li>ROE</li> <li>EBITDA</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Total shareholder return (TSR)</li> <li>Labor productivity</li> </ul>	<p>Shareholders and investors</p> <p>Suppliers and contractors</p>	<ul style="list-style-type: none"> <li>Setting up a single engineering design complex of rushydro through reorganization of subsidiary engineering design companies</li> <li>Implementing a development program for subsidiary engineering design companies</li> <li>Implementing international experience exchange programs at subsidiaries engaged in repairs and engineering design;</li> <li>Organizing personnel development and training of scientific staff</li> <li>Developing standard repair scope sheets for equipment and hydraulic structures</li> <li>Creating and maintaining a database of advanced and innovative technologies</li> <li>Mitigating the risks associated with inefficient management of non-core activities by their consolidation in specialized service subsidiaries</li> </ul>
<p>8. Management system deficiencies and errors</p> <p><i>Significant risk</i></p>	<p>Improving the corporate governance system</p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Adherence to the capacity commissioning schedules, funding and spending plan</li> <li>Share of procurement from SMEs</li> <li>Labor productivity</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>ROE</li> <li>EBITDA</li> <li>Total shareholder return (TSR)</li> </ul>	<p>Shareholders and investors</p> <p>Employees</p> <p>Suppliers and contractors</p>	<ul style="list-style-type: none"> <li>Exercising control over the implementation of directives of the federal government authorities</li> <li>Monitoring, analysis, and control of document management procedures</li> <li>Ensuring civil liability insurance of the members of the company's management bodies and its officers, including liability to third parties and the company</li> <li>Using an automated procurement management system</li> <li>Exercising coordination and control of work on formalizing the activities of structural units and officers</li> <li>Implementing the company's it strategy</li> <li>Ensuring support and maintenance of the company's information systems</li> <li>Improving the formalization of activities and business process management</li> <li>Rushydro introduces corporate management standards in all its newly acquired or newly established subsidiaries and rolls out systems for managing organizational projects, employee grading<sup>1</sup>, management personnel certification and individual employee development plans</li> </ul>
<p>9. Increase in receivables for electricity (capacity) and heat supplied and for transmission services rendered</p> <p><i>Significant risk</i></p>	<p>Managing receivables</p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Free cash flow (FCF)</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Total shareholder return (TSR)</li> </ul>	<p>Shareholders and investors</p> <p>Federal government authorities</p> <p>Suppliers and contractors</p>	<ul style="list-style-type: none"> <li>Monitoring data on suppliers' and contractors' financial health to prevent the risk of counterparty bankruptcy</li> <li>Filing complaints and claims</li> <li>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 accession to the wholesale market trading system</li> </ul>

<sup>1</sup> Building a system of employee grades based on the assessment of the Company's staff list, its strategy and corporate culture.

Risk and its priority	Impact on Long-term Development Program KPI	Stakeholders	Key risk mitigants
<b>Environmental aspect</b>			
10. Adverse changes / breaches of the law  <i>Critical risk</i>	Improvement of the regulatory framework governing the power industry in the Far Eastern Federal District of Russia  <b>Direct</b> ➤ ROE ➤ EBITDA ➤ Decrease in operating expenses (costs) <b>Indirect</b> ➤ Total shareholder return (TSR) ➤ Labor productivity	Shareholders and investors Consumers Employees Trade unions Federal government authorities Regional and municipal government authorities Local communities Environmental organizations Media Suppliers and contractors	<ul style="list-style-type: none"> <li>➤ Ongoing monitoring of initiated and reviewed changes to the legislation that may affect the company's operations</li> <li>➤ Monitoring and revising the existing technical oversight standards and regulations</li> <li>➤ Participating in any relevant activities related to legislative changes and arranged by legislative, executive and judicial bodies, public associations, professional legal unions and associations</li> <li>➤ Conducting regular environmental audits and implementing received follow-up recommendations</li> <li>➤ Participating in working groups of the ministry of energy of russia on technical regulation matters; filing and managing complaints and claims</li> </ul>
11. Industrial disasters and accidents  <i>Critical risk</i>	Staffing system improvement Production program implementation, roll-out of intelligent systems and digital technology <b>Direct</b> ➤ Meeting the accident prevention target and ensuring zero major accidents <b>Indirect</b> ➤ ROE ➤ EBITDA ➤ Labor productivity ➤ Decrease in operating expenses (costs) ➤ Total shareholder return (TSR)	Shareholders and investors Consumers Employees Trade unions Federal government authorities Regional and municipal government authorities Local communities Environmental organizations Professional communities and higher education institutions Media Suppliers and contractors Non-profit organizations	<ul style="list-style-type: none"> <li>➤ Implementing the full scope of the repairs program and the rehabilitation and modernisation program</li> <li>➤ Developing a quality assurance system for equipment supplies (including the quality of production and shipment/delivery), construction, installation and start-up operations, and tightening contractual liability of suppliers/contractors for the quality of equipment and materials production and delivery</li> <li>➤ Filing and managing complaints and claims against unreliable contractors/suppliers</li> <li>➤ Implementing recommendations made in follow-up of surveyor inspections of rushydro's facilities</li> <li>➤ Tightening control over contractors'/subcontractors' activities at production sites to reduce the opportunity for injuries, fires, unethical behavior and theft</li> <li>➤ Developing technical regulations to improve the quality of design and construction management processes</li> <li>➤ Introducing advanced diagnostics methods eliminating the need to take equipment offline, as well as modern technologies for managing production assets, including the required information technologies</li> <li>➤ Conducting technical equipment inspections at hazardous production facilities and expert examinations of industrial safety of technical equipment at hazardous production facilities, as well as buildings and structures accommodating hazardous production facilities</li> <li>➤ Developing a life cycle management system for existing hydroelectric power plants</li> <li>➤ Monitoring compliance with regulations, guidelines and other documents applicable to any operations, services and works by the company's officers responsible for such monitoring</li> <li>➤ Reviewing design documents by the customer-side experts and training the general designer's personnel to minimize the number of design errors</li> </ul>

Risk and its priority	Impact on Long-term Development Program KPI	Stakeholders	Key risk mitigants
12. Damage caused by natural and industrial disasters outside RusHydro Group facilities  <i>Significant risk</i>	<b>Direct</b> ➤ Meeting the accident prevention target and ensuring zero major accidents ➤ Adherence to the capacity commissioning schedules, funding and spending plan ➤ ROE ➤ EBITDA <b>Indirect</b> ➤ Decrease in operating expenses (costs) ➤ Total shareholder return (TSR) ➤ Labor productivity	Shareholders and investors Consumers Employees Federal government authorities Regional and municipal government authorities Environmental organizations Non-profit organizations	<ul style="list-style-type: none"> <li>➤ Upgrading centralized automatic emergency response systems to the most advanced standards</li> <li>➤ Implementing civil defense and emergency prevention measures</li> <li>➤ Carrying out research and development in the field of remote monitoring of hpp facilities condition and operating modes</li> <li>➤ Ensuring compliance with and maintaining a production control system based on the russian industrial safety laws</li> <li>➤ Maintaining property insurance of rushydro group</li> </ul>
<b>Social aspect</b>			
13. Reputational risks  <i>Significant risk</i>	Improving the corporate governance system <b>Direct</b> ➤ Total shareholder return (TSR) <b>Indirect</b> ➤ ROE ➤ EBITDA ➤ Labor productivity	Shareholders and investors Consumers Employees Trade unions Federal government authorities Regional and municipal government authorities Local communities Environmental organizations Professional communities and higher education institutions Media	<ul style="list-style-type: none"> <li>➤ Ensuring compliance with the company's regulations governing information activities, participation in public events and information disclosure</li> <li>➤ Engaging with stakeholders across the company's core operations, including through joint public events</li> <li>➤ Distributing regular press releases to share the company's view of the matters pertaining to its operations</li> <li>➤ Holding press tours and special media events</li> </ul>
14. Corruption risk  <i>Significant risk</i>	Improving the corporate governance system Improving the corporate system of internal control and risk management Improving the economic and information security system <b>Indirect</b> ➤ ROE ➤ EBITDA ➤ Total shareholder return (TSR) ➤ Labor productivity	Shareholders and investors Consumers Employees Trade unions Media Suppliers and contractors Non-profit organizations	<ul style="list-style-type: none"> <li>➤ Developing, implementing and monitoring the company's anti-corruption procedures</li> <li>➤ Coordinating activities aimed at preventing corruption;</li> <li>➤ Devising and supervising activities aimed at assessing and mitigating corruption risks</li> <li>➤ Supervising the compliance of rushydro's and its subsidiaries' anti-corruption activities with the legislation;</li> <li>➤ Implementing procedures to prevent conflicts of interest in the workplace</li> <li>➤ Monitoring data on income, expenditures, property and property-related liabilities of the company's officers holding positions exposed to corruption risks</li> <li>➤ Conducting expert review of procurement documents;</li> <li>➤ Checking counterparties for any conflicts of interest</li> <li>➤ Maintaining rushydro's anti-corruption trust line, checking reported allegations of wrongdoings</li> <li>➤ Conducting internal investigations of alleged wrongdoings involving the company's employees; developing and implementing measures to eliminate identified violations/deficiencies</li> </ul>

# 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<sup>1</sup>:

- 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 the Chairman and members of the Board of Directors who are (during their term in office as members of the Board of Directors whether partial or entire) subject 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<sup>2</sup> 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.

### Board of Directors' remuneration, '000 RUB<sup>1</sup>

Type of remuneration	2016	2017	2018
Remuneration for membership in governing bodies	5,561.5	7,472.3	27,945.0
Salary	0	0	0
Bonus	0	0	0
Commissions	0	0	0
Other types of remuneration	0	0	0
<b>Total</b>	<b>5,561.5</b>	<b>7,472.3</b>	<b>27,945.0</b>
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

Full name	Meetings held	Meetings attended	Senior Independent Director	Member of a Board committee	Multiplier	Remuneration	Bonus	Total remuneration	Remuneration payable <sup>2</sup>
Artem Avetisyan	20	13		0	0	1,755	0	1,755	1,526.9
Maxim Bystrov	20	18		40	40	2,430	972	3,402	2,959.7
Pavel Grachev	20	20		20	20	2,700	540	3,240	2,818.8
Sergey Ivanov	20	18	15	40	55	2,430	1,336.5	3,766.5	3,276.9
Vyacheslav Pivovarov	20	18		50	50	2,430	1,215	3,645	3,171.2
Nikolay Rogalev	20	20		40	40	2,700	1,080	3,780	3,288.6
Alexei Chekunkov	20	20		30	30	2,700	810	3,510	3,053.7
Sergey Shishin	20	19		10	10	2,565	256.5	2,821.5	2,454.7
Andrey Shishkin	20	15		0	0	2,025	0	2,025	1,761.8
<b>Total</b>						<b>21,735</b>	<b>6,210</b>	<b>27,945</b>	<b>24,312.2</b>

The Board of Directors' remuneration policy was revised after Ernst & Young (EY) 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.



» 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>

<sup>1</sup> The Regulations on Payment of Remuneration and Compensation to Members of RusHydro's Board of Directors as amended were approved by the General Meeting of Shareholders on June 26, 2017 and is available on the Company's website at: <http://www.eng.rushydro.ru/upload/iblock/977/1.5.-R-E-G-U-L-A-T-I-O-N-S-on-payment-of-remuneration-and-compensation-to-members-of-the-Board-of-Directors.pdf>

<sup>2</sup> Minutes No. 17 of June 28, 2018.

<sup>1</sup> Including personal income tax.

<sup>2</sup> Excluding 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 in achieving the Company's long- and short-term goals), 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 upon early termination of employment are 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](http://www.rushydro.ru)

### Remuneration of the Management Board, '000 RUB <sup>1</sup>

Type of remuneration	2016	2017	2018
Remuneration for membership in governing bodies	0	0	0
Salary	71,655.3	185,393.1	157,616.6
Bonus	153,917.2	344,618.0	244,368.6
Commissions	0	0	0
Other types of remuneration	0	0	0
<b>Total</b>	<b>225,572.5</b>	<b>530,011.1</b>	<b>401,985.2</b>
Compensations	6,993.9	1,697.4	861.6

<sup>1</sup> Including personal income tax.

## 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

Type of remuneration	2016	2017	2018
Remuneration for membership in a control body overseeing the Company's financial and business activities	629.5	530.5	370.8
<b>Total</b>	<b>629.5</b>	<b>530.5</b>	<b>370.8</b>
Expenses related to duties in the control body overseeing the Company's financial and business activities and compensated by the Company	0	0	0

### Individual disclosure of remuneration for work in RusHydro's Internal Audit Commission, '000 RUB

Internal Audit Commission members	2018
Natalia Annikova	163.1
Igor Repin	207.6
Tatyana Zobkova (Chairman of the Internal Audit Commission)	-
Marina Kostina	-
Dmitry Simochkin	-

## 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 PJSC RusHydro.

### Auditor's fee, RUB mn<sup>1</sup>

Audited reporting year	2016	2017 <sup>2</sup>	2018
Audit of the annual RAS financial (accounting) statements and IFRS consolidated statements, including review of the consolidated statements for six months	120.0	136.1	84.2
Non-audit services	N/a	N/a	N/a

<sup>1</sup> Including VAT

<sup>2</sup> The auditor's fee for 2017 includes the review of the consolidated statements for nine months ended September 30, 2017.

// APPENDICES

**EVEN MORE**

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ABLE**

VOSTOCHNAYA CHPP WITH AN ELECTRIC CAPACITY OF 139.5 MW AND HEAT CAPACITY OF 432 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.



# AUDITOR'S OPINION



## *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”<sup>i</sup>) 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 Table» 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;

<sup>i</sup> 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.

AO PricewaterhouseCoopers Audit (AO PwC Audit)  
White Square Office Center 10 Butyrsky Val Moscow, Russia, 125047  
T: +7 (495) 967-6000, F: +7 (495) 967-6001, www.pwc.ru

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.



- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- reporting our conclusion to the management of PJSC RusHydro.

This report, including our conclusions, has been prepared solely for the management of PJSC RusHydro in accordance with the agreement between us, to assist management in reporting on RusHydro Group sustainability performance and activities. We permit this report to be disclosed in the Report<sup>ii</sup> for the year ended 31 December 2018, to assist management in responding to their government responsibilities by obtaining an independent limited assurance report in connection with the Selected Information for 2018. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than management of PJSC RusHydro for our work or this report except where terms are expressly agreed in writing and our prior consent in writing is obtained.

### *Professional standards applied and level of assurance*

We performed a limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) ‘Assurance Engagements other than Audits and Reviews of Historical Financial Information’, issued by the International Auditing and Assurance Standards Board. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

### *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

<sup>ii</sup> PJSC RusHydro's management is responsible for placing information on PJSC RusHydro's web-site 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 Selected 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.

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.



- 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. 01-000531),

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 26 December 2004 under State Registration Number 1042401810494

660017, Russian Federation, Krasnoyarsk Region, Krasnoyarsk, Dubrovinskogo str. 43, bld. 1

Audit organization: AO PricewaterhouseCoopers Audit

Registered by the Government Agency Moscow Registration Chamber on 28 February 1992 under No. 008.890

Record made in the Unified State Register of Legal Entities on 22 August 2002 under State Registration Number 1027700148431

Member of Self-regulated organization of auditors «Russian Union of auditors» (Association)

Principal Registration Number of the Record in the Register of Auditors and Audit Organizations – 11603050547

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.

# OPINION ON PUBLIC ASSURANCE

## 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.

## Qualification of the Report

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. Nikitchanova**



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 [102-46]

Material topics were defined while preparing this annual report to ensure its compliance with international standards – the International Integrated Reporting Framework (<IR>), GRI SRS, and AA1000SES (the “applicable standards”).

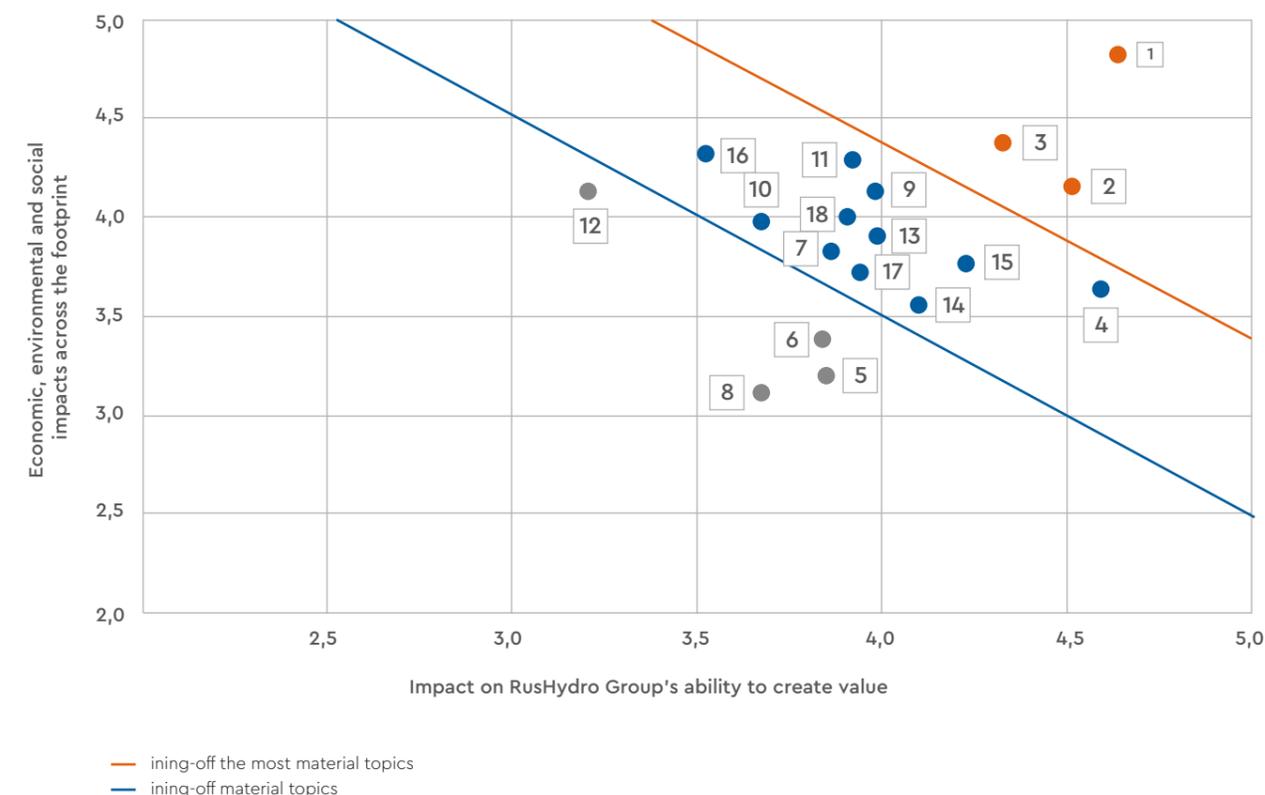
In 2018, the Company used an updated step-by-step methodology for defining material topics that involved the following stages:

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]

Nº	Material topic
1	Ensuring reliable and safe operation of RusHydro Group's facilities
2	Investment program implementation: new construction and replacement of retiring capacities and power facilities
3	RusHydro Group's role in developing the Far Eastern energy sector
4	Ensuring financial strength and improving operational efficiency of RusHydro Group
5	Innovative development of RusHydro Group
6	Improving procurement excellence and countering unfair competition
7	Renewable energy promotion
8	Business process digitalization at RusHydro Group
9	Improving energy efficiency
10	Efforts to reduce GHG emissions
11	Efforts to reduce discharges and emissions of pollutants and waste
12	Saving rare species and other efforts to conserve biodiversity
13	Good working conditions and respect for employees' rights
14	Personnel development
15	Occupational health and safety
16	Contribution to the social and economic development of regions where RusHydro Group operates (including charity projects)
17	Transparent operations and stakeholder relations
18	Anti-corruption initiatives

Materiality matrix



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 (<IR>).

Besides, based on the results of a stakeholder survey, as resolved by the Annual Report Working Group,<sup>1</sup>

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.**

<sup>1</sup> Minutes (unnumbered) dated February 14, 2019.

# GRI

## CONTENT INDEX [102-55]



For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report. The service was performed on the Russian version of the report.

No.	Disclosure	Page
<b>GRI 101: Foundation 2016 – does not include any disclosures</b>		
<b>GRI 102. Standard elements 2016</b>		
102-1	Name of the organization	12
102-2	Activities, brands, products, and services	12
102-3	Location of headquarters	12, 232
102-4	Location of operations	12
102-5	102-5. Ownership and legal form	4, 154
102-6	Markets served	30
102-7	Scale of the organization	18, 117
102-8	Information on employees and other workers	117–118
102-9	Supply chain	113
102-10	Significant changes to the organization and its supply chain	
102-11	Precautionary Principle or approach	131
102-12	External initiatives	124
102-13	Membership of associations	136
102-14	Statement from senior decision-maker	6–9
102-15	Key impacts, risks, and opportunities	203
102-16	Values, principles, standards, and norms of behavior	148
102-17	Mechanisms for advice and concerns about unethical or illegal behavior	196
102-18	Governance structure	149
102-26	Role of highest governance body in setting purpose, values, and strategy	160
102-32	Highest governance body's role in sustainability reporting	5
102-40	List of stakeholder groups	56
102-41	Collective bargaining agreements	126
102-42	Identifying and selecting stakeholders	56
102-43	Approach to stakeholder engagement	56–57
102-44	Key topics and concerns raised	57, 158
102-45	Entities included in the consolidated financial statements	20
102-46	Defining report content and topic boundaries	222
102-47	List of material topics	222–223
102-48	Restatements of information	5, 66
102-49	Changes in reporting	222
102-50	Reporting period	4
102-51	Date of most recent report	4
102-52	Reporting cycle	4

<sup>1</sup> No significant changes were reported in 2018.

No.	Disclosure	Page
102-53	Contact information	232
102-54	Claims of reporting in accordance with the GRI Standards	5
102-55	GRI content index	224
102-56	External assurance	5
<b>GRI 201 Economic performance 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	64
103-3	Evaluation of the management approach	64
201-1	Direct economic value generated and distributed	68
201-3	Defined benefit plan obligations and other retirement plans	125
201-4	Financial assistance received from government	67
<b>GRI 202 Markets of presence 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	51
103-3	Evaluation of the management approach	51
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	118
<b>GRI 203 Indirect economic impacts 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	126–129
103-3	Evaluation of the management approach	126–129
203-1	Infrastructure investments and services supported	126–129
203-2	Significant indirect economic impacts	45–46
<b>GRI 204 Procurement practices 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	112–115
103-3	Evaluation of the management approach	112–115
204-1	Management approach: Improving procurement excellence	112–115
<b>GRI 205 Anti-corruption 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	192
103-3	Evaluation of the management approach	192

No.	Disclosure	Page
205-2	Communication and training about anti-corruption policies and procedures	194
<b>GRI 206 Anti-competitive behavior 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	115
103-3	Evaluation of the management approach	115
206-1	Countering unfair competition	115
<b>GRI 302 Energy 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	102
103-3	Evaluation of the management approach	102
302-1	Energy consumption within the organization	104
302-3	Energy intensity	105
302-4	Reduction of energy consumption	105
<b>GRI 303 Water and Effluents 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	137
103-3	Evaluation of the management approach	137
303-2	Management of water discharge-related impacts	137
303-3	Water discharge	137
<b>GRI 304 Biodiversity 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	138
103-3	Evaluation of the management approach	138
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	138
304-2	Significant impacts of activities, products, and services on biodiversity	138
304-3	Habitats protected or restored	142
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	138
<b>GRI 305 Emissions 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	136
103-3	Evaluation of the management approach	136
305-1	Direct (Scope 1) GHG emissions	143
305-4	GHG emissions intensity	143
305-5	Reduction of GHG emissions	144
305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	144
<b>GRI 306 Effluents and Waste 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	131
103-3	Evaluation of the management approach	131

No.	Disclosure	Page
306-2	Waste by type and disposal method	145
306-4	Transport of hazardous waste	145
306-5	Water bodies affected by water discharges and/or runoff	138
<b>GRI 401 Employment 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	125
103-3	Evaluation of the management approach	125
401-1	New employee hires and employee turnover	119
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	124
<b>GRI 402 Labor/Management Relations 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	126
103-3	Evaluation of the management approach	126
402-1	Minimum notice periods regarding operational changes	126
<b>GRI 403 Occupational health and safety 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	97, 99
103-3	Evaluation of the management approach	97, 99
403-1	Worker training on occupational health and safety	98
403-2	Hazard identification, risk assessment, and incident investigation	98
403-3	The categories of workers at risk of occupational diseases and the number of these workers	99-101
403-4	Promotion of worker health	98
<b>GRI 404 Training and Education 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	117
103-3	Evaluation of the management approach	117
404-1	Average hours of training per year per employee	120
404-2	Programs for upgrading employee skills and transition assistance programs	121
404-3	Percentage of employees receiving regular performance and career development reviews	120
<b>GRI 405 Diversity and Equal Opportunity 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	118
103-3	Evaluation of the management approach	118
405-1	Diversity of governance bodies and employees	118
<b>GRI 407 Freedom of Association and Collective Bargaining 2016</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	222
103-2	The management approach and its components	126
103-3	Evaluation of the management approach	126
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	125

No.	Disclosure	Page
<b>Standard elements of electric utilities sector disclosures</b>		
GRI 103	Management Approach 2016	
103-1	Explanation of the material topic and its Boundary	5-8
103-2	The management approach and its components	- <sup>1</sup>
103-3	Evaluation of the management approach	- <sup>1</sup>
EU1	Installed capacity	74
EU2	Net supply by primary energy source and by regulatory regime	76-77
EU3	Number of residential, industrial, institutional and commercial customer accounts by regulatory regime	83-84
EU4	Length of overhead and underground transmission and distribution lines by regulatory regime	75
EU12	Transmission and distribution losses as a percentage of total energy	75
EU13	Biodiversity of offset habitats compared to the biodiversity of the affected areas	140
EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	118
EU22	Number of people economically displaced and compensated, by type of project	45
EU23	Programs, including those in partnership with government, to improve or maintain access to electricity and customer support services	77, 88
EU25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases	96
EU28	Power outage frequency	94
EU29	Average power outage duration	94

<sup>1</sup> Due to changes in information policy rate will be opened next year.

## Tables of compliance with International Integrated Reporting Framework

### The reflection of IR fundamental concepts in the report

Fundamental concepts	Use/ do not use
Creating value for the organization and stakeholders	Use
Capitals	Use
Value creation	Use

### Conformity of the report with the core principles of the Integrated Reporting Framework

Leading principles	Corresponds / does not correspond
Strategic focus and future orientation	Corresponds
Connectivity of information	Corresponds
Stakeholder relationships	Corresponds
Materiality	Corresponds
Conciseness	Corresponds
Reliability and completeness	Corresponds
Constancy and comparability	Corresponds

### The presence of the IR content elements in the report

Content elements	Report section	Page
Organization overview and external environment	Company profile, Markets served	12, 30
Management	Corporate governance	146
Business model	Business model	24
Risks and opportunities	Risk management	199
Strategy and resource allocation	Strategic review	28
Performance	Our performance	62
Outlook	Strategic review, Statements of senior-most officials	6, 8, 28

## Glossary

<b>Wind power plant</b>	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
<b>Day-ahead market</b>	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
<b>Energy efficiency</b>	Effective (rational) use of energy resources. Use less energy to provide buildings or production processes with the same level of energy
<b>Generating companies (OGKs) of the wholesale electricity and capacity market</b>	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
<b>Gigacalorie</b>	A unit of measurement for heating energy
<b>Gigacalorie-Hour</b>	A unit of measurement for heating power
<b>Hydroelectric power plant</b>	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.
<b>Hydro-technical facilities</b>	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
<b>Installed capacity</b>	Total nominal active capacity of generators at electric power plants which are part of the Group's structure
<b>Kilowatt-Hour</b>	A unit of measurement of generated electrical energy
<b>Megawatt</b>	A unit of measurement for electrical capacity
<b>Net electricity delivered</b>	Electricity received by consumers
<b>Net heat delivered</b>	Heat energy delivered to the consumer (consumers) at the boundary of operational responsibility (balance sheet attribution)
<b>PJSC RusHydro, the Company</b>	Public Joint-Stock Company Federal Hydro-generating Company – RusHydro, including the executive office and branches
<b>Pumped storage power plant</b>	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
<b>RAO ES East</b>	A holding established to manage energy companies operating in the Unified Energy System of the East (Primorye, Khabarovsk Territory, Amur Region, Jewish Autonomous Region, and South of Yakutia), as well as in six isolated energy systems
<b>RAO ES East Subgroup</b>	JSC RAO ES East, including its subsidiaries
<b>Renewables</b>	Renewables include all renewable energy sources defined in Art. 3 of Federal Law No. 35-FZ dated March 26, 2003 On Electric Power Industry, except for HPPs with an installed capacity of more than 30 MW.
<b>RusHydro Group</b>	PJSC RusHydro, including its subsidiaries
<b>RusHydro Subgroup</b>	RusHydro and its subsidiaries, without those belonging to the RAO ES East Subgroup
<b>Subsidiary</b>	A legal entity that is under the direct or indirect control of a controlling person
<b>Unified Energy System</b>	The combination of industrial and other property facilities of electric power industry interconnected through a single process of generation (including the combined generation of electric and heat energy) and transmission of electric energy under centralized operational dispatch management in electric power industry
<b>Wholesale electricity and capacity market</b>	Sphere for the circulation of electric energy and capacity under Russia's Unified Energy System within the country's unified economic space with the participation of large electricity producers and consumers that have the status of wholesale market entities, confirmed in full accordance with the Russian Federal Law on Electric Power Industry (by the Russian Government). The criteria for including electricity producers and consumers in the category of large producers and large consumers are also established by the Russian Government
<b>ESC RusHydro Subgroup</b>	JSC ESC RusHydro, PJSC Krasnoyarskenergosbyt, PJSC Ryazanenergosbyt, JSC Chuvashskaya Electricity Sales Company

# LIST OF ABBREVIATIONS

<b>CHPP</b> Central heating and power plant	<b>PJSC RusHydro</b> Public Joint-Stock Company Federal Hydro-generating Company – RusHydro, including the executive office and branches
<b>DAM</b> Day-ahead market	<b>PSPP</b> Pumped storage power plant
<b>FEC</b> Fuel & energy complex	<b>R&amp;D</b> Research and development
<b>Gcal</b> Gigacalorie	<b>REM</b> Retail electricity market
<b>Gcal/h</b> Gigacalorie-Hour	<b>SPP</b> Solar power plant
<b>GRES</b> State district power plant	<b>The report, the annual report</b> the present annual report
<b>HPP</b> Hydroelectric power plant	<b>TPP</b> Thermal power plant
<b>JSC RAO ES East</b> Joint-Stock Company RAO Energy Systems of the East	<b>TR&amp;M</b> Rehabilitation & modernization
<b>CPA</b> Capacity price auction	<b>UES</b> Unified Energy System
<b>KPI</b> Key performance indicator	<b>VNIIG</b> All-Russian Hydraulic Engineering Research Institute
<b>kWh</b> Kilowatt-Hour	<b>WECM</b> Wholesale electricity and capacity market
<b>MPP</b> Mobile power plant	<b>WPP</b> Wind power plant
<b>MW</b> Megawatt	

# 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.



» See the list of important matters for the previous periods here: <http://www.eng.rushydro.ru>



» Please follow the link to fill in the questionnaire [ar2018.rushydro.ru/en/](http://ar2018.rushydro.ru/en/)

# CONTACTS

Full name	Public Joint Stock Company Federal Hydro-Generating Company – RusHydro [102-1]
Abbreviated name	PJSC RusHydro
Location	43 Dubrovinskogo Street, Bldg 1, Krasnoyarsk, the Krasnoyarsk Region, Russia, 660017 [102-3]
Mailing address	7 Malaya Dmitrovka Street, Moscow, Russia, 127006
Telephone	+7 (800) 333-8000
Fax	+7 (495) 225-3737
E-mail	office@rushydro.ru
Internet address in English	www.eng.rushydro.ru
Social media accounts	www.instagram.com/rushydro/ www.facebook.com/rushydro/ vk.com/paorushydro

Contact persons on the preparation of the report [102-53]	
Head of the Equity and Disclosure Department of the Corporate Governance and Property Management Department	Novgorodtsev Anton
Telephone	+7 800 333 8000 ext. 2204
E-mail	NovgorodtsevAYu@rushydro.ru
Senior Expert of the Equity and Disclosure Department of the Corporate Governance and Property Management Department	Sidelnikov Igor
Telephone	+7 (800) 333-80-00, ext. 4084
E-mail	SidelnikovIA@rushydro.ru

Registrar	
Full name	Joint Stock Company VTB Registrar
Abbreviated name	VTB Registrar
Mailing address	PO Box 54, Moscow, 127137
Telephone	+7 (495) 787-44-83
Fax	+7 (495) 257-17-00
E-mail	info@vtbreg.ru
Hotline telephone	+7 (800) 200 6112
Dividend payment e-mail	divid@vtbreg.ru
Internet address	www.vtbreg.ru/en/

Depository Bank (Depository Receipt)	
Full name	The Bank of New York Mellon (New York City)
Contact person	Olena Smirnova
Telephone	+1 (212) 815 2510
E-mail	olena.smirnova@bnymellon.com

Shareholder relations	
Head of the Equity and Disclosure Department of the Corporate Governance and Property Management Department	Novgorodtsev Anton
Telephone	+7 800 333 8000 ext. 2204
E-mail	NovgorodtsevAYu@rushydro.ru
Deputy Director of Corporate Governance and Property Management Department, Corporate Secretary	Kovaleva Natalya
Telephone	+ 7 (800) 333-80-00 ext. 4215
E-mail	KovalevaNG@rushydro.ru

Investor relations	
Head of Investor Relations, Strategy and IR Department	Ahmedjanov Timur
Telephone	+7 (800) 333-8000 ext. 1607
E-mail	ir@rushydro.ru

Media and charity organizations relations	
Director of the Corporate Communications Department	Nagoga Margarita
Telephone	+7 (800) 333-8000 ext. 4369
E-mail	press@rushydro.ru

Depository (bonds)	
Full name	National Settlement Depository
Abbreviated name	NSD
Location	12 Spartakovskaya St., Moscow, Russia, 105066
Telephone	+7 (495) 234-48-27
Fax	+7 (495) 956-09-38
E-mail	bonds@nsd.ru
Internet address in Russian	www.nsd.ru

Auditor	
Full name	AO PricewaterhouseCoopers Audit
Abbreviated name	PwC Audit
Location	10 Butyrsky Val Street, Moscow, Russia, 125047
Telephone	+7 (495) 967-6000
Fax	+7 (495) 967-6001
E-mail	pwc.russia@ru.pwc.com
Internet address	www.pwc.ru