

## Research and development. The most significant projects on sustainable development

### Projects of PJSC RusHydro

Project	Description	Results of 2017	Plans for 2018
Development of recommendations on the accounting of the anthropogenic impact in the downstream of the HPP on the state of hydraulic structures, equipment and energy efficiency of HPPs	The novelty of the work lies in the mathematical modelling of hydrodynamics and channel processes in the lower reaches of the hydroelectric power station with the passage of floods and daily regulation of the power of the hydroelectric power station. Work in this setting is performed for the first time	Information was collected on the dynamics of channel processes during the operation of hydraulic structures. A programme of surveys of channels in the lower reaches of the HPP was prepared	Carrying out field surveys. Mathematical modelling of hydrodynamics and channel processes in the downstream. Implementation of water and energy calculations
Development of a water and energy management system based on the Dispatch Center	Development of tools for forecasting runoffs and the optimization of operation modes of hydro-energetic facilities for the thorough optimization of energy production and water-economic activity of hydropower facilities	Models of annual effluents for Cheboksary and Nizhny Novgorod hydropower plants were developed	Verification of sewage models of Cheboksarskaya HPP and Nizhegorodskaya HPP according to the flood data of 2018 Duplication of the flow model for all HPPs of the Volga-Kama cascade

The most significant projects in the field of development and implementation of innovations aimed at the realization of sustainable development of the companies of RAO ES East Subgroup, in 2017 were the following R&D activities



Reconstruction of Khabarovsk CHPP-1 for use as a fuel of natural gas with the use of innovative technologies for the preparation and supply of fuel (power boilers).



Development, implementation and investigation of the effectiveness of the prototype of a multifunctional facility to provide 100% Upper Amga Aldan Ulus with renewable energy sources.



Development of an agent-free water treatment technology for the needs of the Primorskaya GRES hot water supply.

### Volume of R&D funding for RusHydro Group

	Plan, RUB mn	Fact, RUB mn	%
Total RusHydro Group	477.5	402.4	84.2
including RAO ES East Subgroup	204.3	166.9	81.7

# SOCIAL RESPONSIBILITY

## PERSONNEL POLICY

The employees of RusHydro Group constitute the main value of the company. The group's energy facilities in Russia and abroad are staffed with professionals who have great production experience and extensive technical knowledge. RusHydro personnel policy is aimed at developing the potential of its employees and its use for the realization of the strategic goals of the company. RusHydro strives to maintain stability for its personnel by implementing a socially responsible attitude towards its employees. In particular, the group protects the social and economic rights of workers, ensures their material stability and social guarantees. [103-2], [103-3]

Most of the staff of RusHydro are employed full-time (98.5% for PJSC RusHydro with its controlled companies and 99.7% for RAO ES East Subgroup) and on terms of a permanent contract (84.2% for PJSC RusHydro with its controlled companies and 97.2% for of RAO ES East Subgroup).

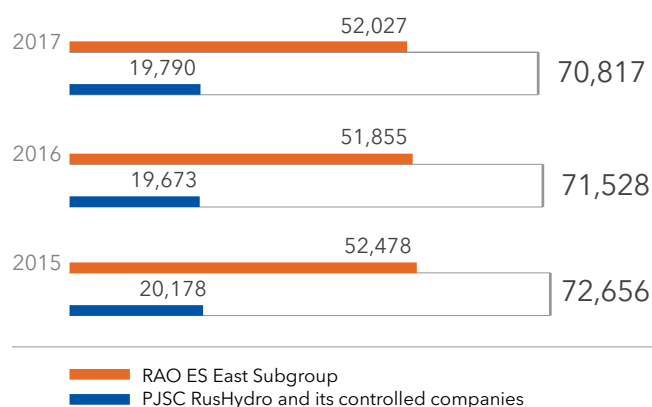
### Number of RusHydro Group employees by country and region as of December 31, 2017 [102-7, 102-8]

Country	Region	Number of employees
Russia	Central Federal District	3,835
	Southern Federal District	673
	North-West Federal District	933
	Far Eastern Federal District	53,931
	Siberian Federal District	3,568
	Volga Federal District	3,621
	North Caucasian Federal District	3,496
	Ural Federal district	314
Republic of Armenia		420
The Republic of Tajikistan		26

## Personnel profile

The number of employees of the RusHydro Group, including workers of RAO ES East Subgroup (considered in the perimeter of the report), on 31.12.2017 was 70,817 people (including facilities on the territory of the Russian Federation and abroad)<sup>1</sup>. The number of PJSC RusHydro employees on 31.12.2017 was 5,547 people.

### Number of employees of RusHydro Group



<sup>1</sup> This indicator is disclosed in this Report within the limits of the consolidated financial statements under IFRS, and therefore comparable data for 2016 and 2015 are recalculated similarly.

## Results of Activities

### RusHydro Group staff structure by gender, region, type of employment and kind of contract, Pers. [102-8]

Region	Gender	Full-time employment	Part-time employment	Permanent contract	Temporary contract
Central Federal District	m	1,930	37	1,879	88
	w	1,695	61	1,656	100
Southern Federal District	m	503	2	475	30
	w	167	1	161	7
North-West Federal District	m	364	42	396	10
	w	446	81	510	17
Far Eastern Federal District	m	2,226	3	1,489	740
	w	1,095	7	789	313
Siberian Federal District	m	1,960	5	1,800	165
	w	1,578	24	1,415	187
Volga Federal District	m	2,619	4	2,529	94
	w	987	11	949	49
North-Caucasian Federal District	m	2,962	6	1,869	1099
	w	515	13	446	82
Republic of Armenia	m	333	4	236	101
	w	78	5	59	24
The Republic of Tajikistan	m	23	0	1	22
	w	3	0	0	3
<b>Total PJSC RusHydro and controlled companies</b>	<b>m</b>	<b>1,2920</b>	<b>103</b>	<b>10,674</b>	<b>2,349</b>
	<b>w</b>	<b>6,564</b>	<b>203</b>	<b>5,985</b>	<b>782</b>
	<b>total</b>	<b>19,484</b>	<b>306</b>	<b>16,659</b>	<b>3,131</b>
Central Federal District	m	47	1	48	0
	w	64	0	63	1
Far Eastern Federal District	m	34,309	48	33,703	654
	w	16,128	115	15,452	791
Siberian Federal District	m	0	0	0	0
	w	1	0	1	0
Ural Federal District	m	237	0	236	1
	w	77	0	76	1
<b>Total for the RAO ES East Subgroup</b>	<b>m</b>	<b>34,593</b>	<b>49</b>	<b>33,987</b>	<b>655</b>
	<b>w</b>	<b>16,270</b>	<b>115</b>	<b>15,592</b>	<b>793</b>
	<b>total</b>	<b>50,863</b>	<b>164</b>	<b>49,579</b>	<b>1,448</b>
<b>Total for the Group</b>	<b>m</b>	<b>47,513</b>	<b>152</b>	<b>44,661</b>	<b>3,004</b>
	<b>w</b>	<b>22,834</b>	<b>318</b>	<b>21,577</b>	<b>1,575</b>
	<b>total</b>	<b>70,347</b>	<b>470</b>	<b>66,238</b>	<b>4,579</b>

The gender composition of RusHydro is heterogeneous, depending on the category of employees. Among leaders, there are three times as many men as women; among specialists and employees, 1.7 times more women than men, and four times as many men than women in terms of workers, which is related to the nature of RusHydro Group's activities. [103-2], [103-3]

**The number of employees of the RusHydro Group by category as of December 31, 2017, persons** [405-1]

Companies	Managers	Specialists and employees	Workers	Total
PJSC RusHydro and controlled companies (except for the RAO ES East Subgroup)	3,677	7,548	8,565	19,790
RAO ES East Subgroup	7,356	13,699	29,972	51,027
<b>RusHydro Group</b>	<b>11,033</b>	<b>21,247</b>	<b>38,537</b>	<b>70,817</b>

27% of employees of RusHydro Group are aged 35 or less. One of the key tasks in the field of personnel management facing RusHydro is to attract young specialists.

**Personnel structure of RusHydro Group by age, persons** [405-1]

Companies	<35 years	35-44 years	45-54 years	>55 years	Total
PJSC RusHydro and controlled companies (except for the RAO ES East Subgroup)	5,670	5,855	4,807	3,458	19,790
RAO ES East Subgroup	13,612	13,917	12,571	10,927	51,027
<b>RusHydro Group</b>	<b>19,282</b>	<b>19,772</b>	<b>17,378</b>	<b>14,385</b>	<b>70,817</b>

**Seasonal employment** [102-8]

RusHydro's Group attracts additional labor. In particular, in 2017 there were 15 seasonal workers who were hired in connection with the heating season, the restoration of ice fields and the control over the water passes from Lake Sevan. According to the RAO ES East Subgroup, 76 employees were involved, 52 of them were attracted by DRSK JSC in connection with the work of the children's health camp "Energetik" during the summer school holidays.

**Staff recruitment**

The selection of personnel in RusHydro Group, including management positions, is carried out on a competitive basis. This approach allows recruiting motivated professionals who meet the qualification requirements and are potentially capable of professional development. Candidates without restrictions on gender, age and nationality are allowed to compete for vacant vacancies, the main selection criterion is the qualification of the candidate.

## Results of Activities

### Total number of employees hired and by RusHydro Group laid off in 2017, by age group, gender and region, persons. [401-1]

Region	<25 years		25-34 years		35-44 years		45-54 years		>55 years		Total	
	m	w	m	w	m	w	m	w	m	w		
<b>Hired</b>												
Central Federal District	53	31	161	131	130	100	55	49	75	25	810	
Southern Federal District	20	0	25	2	19	5	7	0	1	2	81	
North-Western Federal District	13	8	12	16	5	8	5	5	6	7	85	
Far Eastern Federal District	843	267	1,728	724	1,313	616	753	334	467	250	7,295	
Siberian Federal District	22	27	94	72	69	112	40	33	66	44	579	
Ural Federal District	4	1	6	1	0	0	4	0	1	0	17	
Volga Federal District	63	8	206	42	172	41	105	41	45	12	735	
North-Caucasian Federal District	107	1	193	28	242	31	199	19	66	19	905	
Republic of Armenia	1	0	1	1	3	1	8	1	7	1	24	
The Republic of Tajikistan	0	0	3	1	3	0	3	0	1	0	11	
<b>Total</b>	<b>1,126</b>	<b>343</b>	<b>2,429</b>	<b>1,018</b>	<b>1,956</b>	<b>914</b>	<b>1,179</b>	<b>482</b>	<b>735</b>	<b>360</b>	<b>10,542</b>	
<b>Laid off</b>												
Central Federal District	26	12	159	105	147	74	78	46	130	79	856	
Southern Federal District	13	0	21	4	10	9	10	3	16	3	89	
North-Western Federal District	7	4	19	15	6	11	8	5	21	48	144	
Far Eastern Federal District	407	126	1 385	597	1, 083	587	822	446	1 453	764	7 670	
Siberian Federal District	11	13	98	69	76	120	60	62	115	105	729	
Ural Federal District	5	0	6	0	2	0	0	0	8	2	23	
Volga Federal District	36	3	165	24	163	28	86	27	105	46	683	
North-Caucasian Federal District	58	3	172	46	117	36	159	30	154	64	839	
Republic of Armenia	0	0	3	0	4	0	7	0	3	2	19	
The Republic of Tajikistan	0	0	1	0	1	0	0	0	0	0	2	
<b>Total</b>	<b>563</b>	<b>161</b>	<b>2,029</b>	<b>860</b>	<b>1,609</b>	<b>865</b>	<b>1,230</b>	<b>619</b>	<b>2,005</b>	<b>1,113</b>	<b>11,054</b>	

## Personnel assessment

Assessment of the potential of employees to create a staff reserve for managerial positions is carried out by the branch of PJSC RusHydro - Corporate University of Hydropower Engineering, using various methods for assessing professional and managerial competencies, including using the Assessment Center.

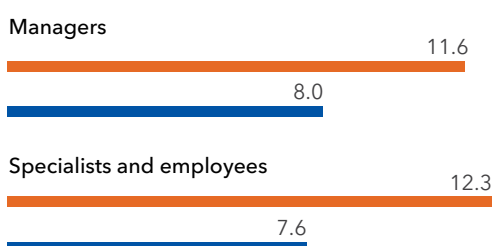
Personnel of the Company undergo certification for compliance, during which the professional, business and personal qualities of the employees and their achievements are assessed. The managers, specialists and employees of the Company, regardless of gender, are assessed every three years. [404-3]

### The share of employees for which in 2017, an evaluation of the performance and career development was carried out by gender and category, % of the total number of employees

#### PJSC RusHydro and its controlled companies



#### RAO ES East Subgroup



Men  
Women

The change in the proportion of employees for whom performance was measured relative to 2016 is related to the frequency of the assessment of employees.

## Staff development

To achieve its strategic goals, RusHydro Group participates in the development and implementation of professional standards, develops professional and managerial competencies of employees, implements professional orientation programmes for talented pupils and students. For this purpose, the Company implements programmes of advanced development of the personnel potential, creates a personnel reserve, trains employees. [103-2], [103-3]

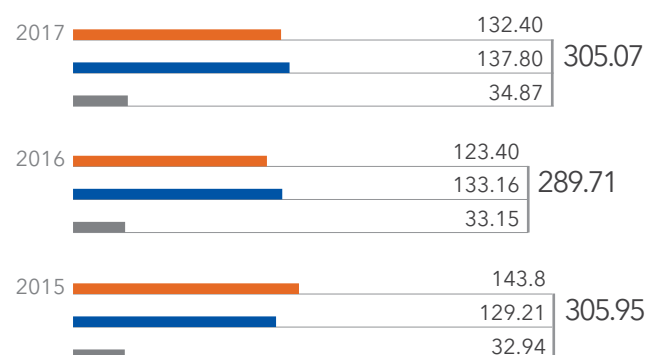


### Training of personnel [404-2]

The system of continuous training of personnel allows to develop competences of employees in accordance with the requirements for the positions held, as well as for the purpose of moving them within the framework of training the personnel reserve. In addition, the Company has the opportunity to conduct professional retraining, including in accordance with professional standards.

Expenses for the training and development of personnel of PJSC RusHydro in 2017 amounted to RUB 132.4 mn. The increase in costs in 2017 is due to the need to implement professional retraining of employees who do not meet the requirements of professional standards, as well as to conduct corporate training activities associated with supporting the integration processes of the executive apparatus of PJSC RusHydro and JSC RAO ES East.

### Expenses for the development of the human resources of RusHydro Group<sup>1</sup>, RUB mn



PJSC RusHydro  
RAO ES East Subgroup  
Controlled companies of PJSC RusHydro (except for the RAO ES East Subgroup)

<sup>1</sup> The boundaries of the disclosure of this indicator do not change with respect to the previous reporting period.

### Basic forms of training

Form	Frequency
Training	At least once every three years
Vocational training	In accordance with the requirements of the supervisory authorities if it is necessary to acquire a new profession
Professional retraining	It is conducted in connection with the production need to perform a new type of professional activity or to obtain additional qualifications for the training of the personnel reserve
Corporate training	It is carried out when it is necessary to solve specific tasks for the Company
Internal technical training	Annually
Short-term training programmes (seminars, conferences, forums)	Annually, the content depends on the production need
Distance learning	Annually, the content depends on the production need

## Corporate University of Hydropower

To implement educational projects in the Group in 2007, a branch was established - the Corporate University of Hydropower. At its base in 2017, 15,993 courses were held. Training was conducted by employees of PJSC RusHydro and controlled companies (except for the RAO ES East Subgroup).

### Training in the Corporate University of Hydropower, number of courses

Categories	Full-time	Remotely
Managers	695	3,699
Specialists and employees	627	8,419
Workers	211	2,342
<b>Total</b>	<b>1,533</b>	<b>14,460</b>

## Personnel Training of RAO ES East Subgroup

To attract young specialists to the company, RAO ES East Subgroup annually finances targeted training of students in programmes of higher and secondary vocational education, attracts students for industrial and pre-graduation internships; in addition, some employees participate in the work of examination commissions of universities and / or in the implementation of educational programmes. According to the programmes of higher professional education, 127 people were trained at the expense of the Subgroup's companies in 2017, the volume of funding for higher education amounted to 4,015 thousand rubles (an average of 31.6 thousand rubles per 1 worker).

The most popular educational programmes:

- thermal power plants;
- electrical power and electrical engineering;
- electrical power systems and networks;
- electricity supply;
- relay protection and automation of electrical power systems.

In 2017, in the companies of the RAO ES East Subgroup, 567 employees were upgraded to professional retraining in higher education institutions, whose costs reached 6,265 thousand rubles.

## New Learning Technics

In December 2017, PJSC RusHydro obtained a license to conduct educational activities, which makes it possible to implement programmes of professional retraining and advanced training on the basis of the Corporate University of Hydropower (CorUnH) from 2018 onwards.

At the Volzhskaya HPP in 2017, a new training ground for training workers serving relay protection devices was opened, which will improve the knowledge and skills of the employees of the Technology Management Systems services, both in the current work and in the process of the expected transition of the technological management systems to a modern element base - microprocessor protection and automation devices. In 2017, for the first time, professional skills competitions were held for operational TPP staff.

In the framework of the previously adopted professional standards, specialized training programmes were developed in the reporting year. In total, according to professional standards, it is planned to develop 99 programmes and training modules. In 2017, 27 programmes and training modules were developed to conduct training for compliance with professional standards.

## Staff reserve

One of the most important tasks of the Company is to provide branches and PJSC RusHydro controlled companies with qualified personnel, especially in engineering specialties. For this purpose, the Company has a staff reserve. It includes managers and specialists of RusHydro Group who have the ability to manage activities that meet the requirements for a job at a given level, passed selection and systematic targeted qualification training.

In the reserve, the following groups of candidates are being formed, preparing for a phased inclusion in management activities:

- staff reserve for the managerial position of the branch;
- staff reserve for the leading position in the controlled organisation of RusHydro;
- staff reserve of young specialists of RusHydro Group.

In 2017, actual staff reserves for the positions of the Chief Engineer of the Company's branches were created, and competitive selection was additionally held for the post of Chief of the Personnel Service Development.

In 2017, work began on the set-up of an up-to-date personnel reserve for the positions of managers of controlled entities. A personnel reserve for the position of the CEO of the controlled organisation in the Far East was formed. In 2018 it is planned to organize contests in the reserves of directors and chief engineers of the branches, as well as the continued formation of reserves of CEOs of the Far East (the level of Chief Engineers and their deputies).

For members of the personnel reserves, modular training programmes are conducted, including professional and managerial training. In 2017, 54 members of the personnel reserves defended their thesis projects and completed training under the training programme for the personnel reserve. Thesis projects were developed jointly with curators from the block of production activities and evaluated by the examination committee in terms of practical significance for the Company, elaboration and feasibility of the project. The proposed solutions can be applied to the implementation of internal projects and will improve the Company's operational efficiency.

The project "Internal source of energy" is aimed at identifying, developing and retaining talented young professionals. In addition to the professional training modules for young specialists in 2017, the company participated in industry innovation competitions, the International Forum "Fast and the Furious 2017", the Youth Day of the Russian Energy Week, as well as the World Festival of Youth and Students in Sochi as part of the "Industry of the Future" programme. In 2017, young specialists of PJSC RusHydro became winners of the contest "New Idea" for the best scientific and technical development among the youth in the sphere of fuel and energy in the Russian Federation.

RusHydro Group regularly conducts activities aimed at popularising the engineering and working professions necessary for the development of energy in the regions where it operates. Within the framework of the current Programme for advanced development of human resources of PJSC RusHydro "From the New School to the Workplace", systematic work is carried out with schoolchildren and students in the regions where the Group operates. Priority direction of the school stage of training future personnel for the Company is the creation of specialized school classes (Energoclasses) and centers of technical creativity (Technoclasses) in 9 regions of the company's presence, where 908 schoolchildren of grades 7-11 received training in the past year. 2017 was marked by the opening of two more Energoclasses in the village of Novobureisk and Rybinsk.

Annually, the Industry School Competition "Energy of Education" is held, with more than 5,000 pupils participating in it. In 2017, the school competition was organised in an online testing format.

For the best students of vocational orientation projects that passed the competitive selection, a corporate scientific camp was organized - the Summer Energy School. In 2017 the school was held on the basis of the Cheboksarskaya HPP, 34 schoolchildren from 15 Russian regions took part in it.

In 2017, the Ministry of Education and Science of the Russian Federation awarded PJSC RusHydro the status of a strategic partner of the Ministry of Education and Science of the Russian Federation "For Systemic Work on the Development of the Human Capital of the Country".





# Plans for the development of the personnel management system for 2018

In 2018, we will continue introducing professional standards in the development and implementation of supplementary education programmes, professional accreditation of additional professional education programmes based on methodology of the Council for Professional Qualifications in the Electric Power Industry, and on formation of the concept of creating a Qualification Assessment Center on the basis of one of PJSC RusHydro's subsidiaries.

In 2018, the Eighth All-Russian competition of operational personnel of the hydroelectric station will be held. In addition to subsidiaries and controlled organisations of the Company, power companies that are not part of RusHydro Group.

In 2018, in accordance with the partnership agreement with the "Professionals and Workforce Development Agency" (Worldskills Russia), the first open branch corporate championship will take place in accordance with "Operational and technological management of hydraulic units and auxiliary equipment" at the Volga educational center of PJSC RusHydro's branch - CorUnH according to the standards of Worldskills Russia.

An important event of 2018 will be the "All-Russian competition of professional skills Best by profession", organised by the Ministry of Labor of the Russian Federation. The list of competitive professions includes the nomination "The Best Electrician on duty", and the employer responsible for organizing the competition is PJSC RusHydro.

In 2018, in accordance with the partnership agreement with the "Professionals and Workforce Development Agency" (Worldskills Russia), the first open branch corporate championship will be organised in accordance with "Operational and technological management of hydraulic units and auxiliary equipment" at the Volzhsky training center of PJSC RusHydro's branch - CorUnH according to the standards of Worldskills Russia.

For 2018, the Year of Volunteer, we plan to implement the key activities of the Young Energy Programme aimed at the social and professional adaptation of children left without adult care, and start developing a Mentoring Programme as a key tool in the preparation of graduates of orphanages for independent life.

In 2017 approved in the new edition:

- Regulations on the development and approval of draft collective agreements (amendments to them) of the controlled organisations of PJSC RusHydro (Order No. 886 of December 18, 2017);

- Regulations on compensation of expenses for spa and health resort treatment and health-tourism holidays for employees of branches of PJSC RusHydro (Order No. 234 of April 18, 2017);
- Rules of internal labour regulations (Decree of September 29, 2017 No. 653);
- Standard rules of the internal work schedule of the branches (Order of 11.09.2017 No. 612 "On Amendments to the Decree of PJSC RusHydro dated December 26, 2007 No. 481;
- Model Regulations on remuneration and compensation to certain categories of executives of companies that are part of RusHydro Group (Minutes of the Board of March 31, 2017).

## OCCUPATIONAL SAFETY AND HEALTH

### Safety management system in the workplace

The fundamental document defining the principles of workplace safety in PJSC RusHydro is the Occupational Safety Policy.

The objectives of RusHydro Group in the field of labor protection and industrial safety:

- preservation of the life and health of the Company's employees in the process of labor activity,
- elimination of cases of occupational injuries and occupational diseases,
- formation of safe behavior at work in the workplace and skills to prevent dangerous situations,
- continuous improvement of working conditions.