Contents
Social Responsibility and Corporate Sustainability Report 2016

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>26</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>29</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>37</td>
</tr>
<tr>
<td>48</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>56</td>
</tr>
<tr>
<td>59</td>
</tr>
<tr>
<td>62</td>
</tr>
<tr>
<td>65</td>
</tr>
<tr>
<td>68</td>
</tr>
<tr>
<td>71</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>83</td>
</tr>
<tr>
<td>87</td>
</tr>
<tr>
<td>87</td>
</tr>
<tr>
<td>90</td>
</tr>
<tr>
<td>103</td>
</tr>
<tr>
<td>109</td>
</tr>
<tr>
<td>121</td>
</tr>
<tr>
<td>124</td>
</tr>
<tr>
<td>127</td>
</tr>
<tr>
<td>130</td>
</tr>
<tr>
<td>132</td>
</tr>
<tr>
<td>132</td>
</tr>
</tbody>
</table>
Dear colleagues,

The Social Responsibility and Corporate Sustainability Report of PJSC FGC UES for 2016 is already the Company’s tenth non-financial report. The scope of the information disclosed, including consideration of requests from interested parties, is expanded every year. This is our way of emphasising our commitment to the target of maintaining a favourable environment for contemporary and future generations.

Federal Grid Company is on the edge of its fifteenth anniversary. Naturally, the first backbone electric grids appeared in our country much earlier, still, the management company of the Unified National Electric Grid was established in 2002 only, in the course of the Russian electric power reforming.

Backbone grids form the ‘backbone’ of Russia’s electric power industry and represent one of the key infrastructural systems on which the country’s economy is based. PJSC FGC UES today is one of the world’s largest companies of its kind: it supplies power to consumers in 77 regions of Russia, covering a total area of over 15.1 million sq. km. This formulates a specific area of the Company’s responsibility to the society – responsibility for uninterrupted power supply to our customers and its simultaneous development in proportion to their needs.

In this sense, 2016 was a success for us: we maintained a high level of reliability, commissioned 8.8 thousand MVA of transformer capacity and over 800 km of electricity transmission lines, and ensured the timely technological connection of 5.6 thousand MW of consumer capacities. At the same time, the quality of services provided to consumers is up to par with the best world analogues, while the specific accident rate has been declining for the third year in succession.

Of course, the Company has been paying attention to conventional areas of social responsibility and sustainability as well, strictly following their principles in all operating activities, including the design and construction of facilities, equipment selection, maintenance of existing infrastructure and the development of new innovative solutions.

A big step towards performance environmentalisation was the reduction water resource consumption by 13% compared to the previous year. The Company continued its work towards compliance with the requirements of environmental laws, the introduction of environmentally friendly technologies, increasing industrial environmental control at the facilities and involving the Company’s personnel in environmental protection activities.

Thanks to the optimisation of the organisational structure and centralisation of managerial functions at our branches, we managed to raise our labour productivity by 12% compared to 2015.

Federal Grid Company is also implementing a housing programme for its employees, in addition to sport and youth policies. Almost 15,000 employees (or 66% of the total headcount) participated in training, retraining and skills improvement programmes in 2016. Our Personnel Training Centre was recognised and awarded as Best Corporate University.

In order to increase transparency and develop charity and sponsorship, internal documents regulating these types of activities were approved. They include recommendations from the federal authorities and best practices in the above stated areas.

There is yet another factor, perhaps the most important one – there are always certain people standing behind a Company’s success. At PJSC FGC UES there are more than 22,000 employees throughout the country for whom the sustainable development principles have become an integral part of the common corporate culture.

Andrey Murov
Chairman of the Management Board of PJSC FGC UES
In 2017 PJSC FGC UES celebrates its 15th anniversary. The Company was established on 25 June 2002 as an operator of the Unified National Electric Grid as a result of the reform of JSC RAO UES of Russia. Today, PJSC FGC UES supplies power to consumers in 77 regions in Russia, covering a total area of over 15.1 million sq. km.

KEY PERFORMANCE INDICATORS FOR 15 YEARS

15 Years in Figures

MORE THAN 50% of all energy consumption in Russia derives from electricity transmitted by PJSC FGC UES

The length of the power transmission lines of PJSC FGC UES increased by 3.4 TIMES during its 15 years of operation

The length of power transmission lines by chains managed by PJSC FGC UES amounted to 152,742 KM

People work for PJSC FGC UES MORE THAN 22,000

The number of substations of PJSC FGC UES increased by 7.5 TIMES during its 15 years of operation

The capacity of the Company’s substations increased by 2.4 TIMES during its 15 years of operation

The installed capacity of the Company’s substations amounted to 341,187 MVA

The capacity of the substation 750 kv gribovo substation, the largest power supply centre in Europe in this voltage class, reached 4,552 MVA
The Largest Infrastructural Projects

MES SOUTH
The 220 kV Poselkovaya substation was the main power supply centre for the mountain area of the XXII Winter Olympic Games, as well as the facilities of the Caucasian Biosphere Reserves. This was the first facility built by PJSC FGC UES in 2009 for the Olympic Games in Sochi. The substation has a unique architectural appearance: the facility is decorated with perforated panels with a unique design and kinetic lighting is used at night-time.

MES NORTHWEST
Pulkovo ranks as the fourth airport in Russia by the number of served passengers. The new terminal was opened in December 2013. The airport is supplied by the SS 220 kV Chesmenskaya, on which 882 MVA of transformer capacity was launched under the framework of reconstruction in 2007-2012.

MES SIBERIA
Sayano-Shushenskaya HPP is the largest power plant in Russia by installation capacity. PJSC FGC UES’s substations, including the SS 500 kV Oznachennoe, the SS 500 kV Novokuznetskaya, the SS 500 kV Alyuminievaya, the SS 500 kV Abakansksaya, as well as the SS 1,150 kV Itatskaya, the only substation in the country with this design voltage class (operating with a voltage of 500 kV), are involved in the power supply. To improve the reliability of the power supply to Sayano-Shushenskaya HPP in 2015 PJSC FGC UES put the second transmission line 500 kV Abakansksaya – Itatskaya into operation, with a length of 269 km connecting the energy systems of Khakassia and the Krasnoyarsk Territory, which has a population of some 300,000 people, as well as of the power supply of aluminum plants and open cuts of coal.

MES EAST
Vostochny Cosmodrome is the only civil spaceport in Russia. The first stage of works for an external electricity supply was completed in March 2014: the SS 220 kV Ledyanaya was renovated (changes to the RU 220 kV scheme, reconstruction of out-dated switchgear equipment and the installation of three new linear cells) and an electricity transmission line with a voltage of 220 kV was built, which provides electricity to the main step-down substation (MSDS) of the complex.

MES SIBERIA
The Ulan-Ude Aircraft Factory was established in 1939. During the Second World War, the factory manufactured the La-5 and La-7 fighter planes. Today, the enterprise produces civil and military helicopters used in more than 40 countries of the world. The SS 220 kV Rayonnaya, which was renovated in 2014, supplies electricity to the factory.

MES NORTH-WEST
The 330 kV Volkhov-Severnaya is one of St. Petersburg’s monuments of industrial architecture. This is the oldest substation of PJSC FGC UES and the first power facility in the city built in 1926 under GOELRO Plan. The facility was completely reconstructed and, since 2013, has become part of the St. Petersburg Energy Ring consisting of five substations (Vasileostrovskaya, Vostochnaya, Volkhov-Severnaya, Zavod Ilyich and Severnaya) and 95 km of electricity transmission lines with a voltage of 330 kV.
MAIN EVENTS FOR THE PAST 15 YEARS

MES EAST
The oil loading port Kozmino
which is the end point of the Eastern Siberia–Pacific Ocean pipeline system, was established in order to increase oil export to countries in the Asian-Pacific Region. The shipment volume reached 100 million tonnes in 2015. In the beginning of 2016, PJSC FGC UES connected the port to backbone electric grids and two new lines were connected the port's SS with the SS 500 kV Lozovaya.

MES URALS
Mikheevsky GOK
is the largest enterprise for mining and the processing of copper ore in the country. The plant’s capacity reaches 18 million tonnes of ore per annum. Construction of the plant was completed in 2013, and PJSC FGC UES completed the direct connection of the enterprise to its grids in the same year. The scope of works included the reconstruction of the SS 220 kV Kartaly.

MES WESTERN SIBERIA
Vankorskoe deposit
The largest oil deposits in the country are concentrated in the Yamalo-Nenets Autonomous Region and the Krasnoyarsk Territory. At the end of 2014, PJSC FGC UES commissioned two new substations of the closed type – 220 kV Mangazeya and Arsenal – for the development of large-scale infrastructural projects, including the development of the Vankorskoe deposit (PJSC NK Rosneft).

MES VOLGA
Avtovaz
is the largest car producer in Russia and Eastern Europe. The factory was established in 1966. PJSC FGC UES supplies electricity to the factory from several supply centres, one of which is the SS 220 kV Vasilyevskaya. Its capacity was increased to 500 MVA in June 2016. The main target was to improve the quality and reliability of the electricity supply to large industrial consumers in the region.

MES SIBERIA
The Trans-Siberian
is the longest railroad in the world. The distance from Moscow to Vladivostok totals 9,288 km. BAM is a northern duplicate of Trans-Siberian with a length of 4,300 km. Starting in 2014, PJSC FGC UES, together with JSC RZD, has been working on the energy infrastructure renovation project in the area of these roads.

MES CENTRE
The SS 750 kV Gribovo
is one of the largest supply centres in Russia. The facility has an area of 29.35 ha and the installed transformer capacity amounts to 4,552 MVA. The substation was commissioned in November 2012 for the delivery of capacity from the 4th power unit of Kalinin NPP to the Moscow energy system.
Key Performance Indicators for 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability of the Electricity supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope of technological connection: Number of contracts, pcs fulfilled</td>
<td>329</td>
<td>298</td>
<td>273</td>
<td>306</td>
<td>216</td>
</tr>
<tr>
<td>Share of equipment procured from domestic manufactures, %</td>
<td>17</td>
<td>30.5</td>
<td>44.5</td>
<td>75</td>
<td>70</td>
</tr>
<tr>
<td>Summary data on operational benefit of energy saving measures as of the end of the year, tonnes of equivalent fuel</td>
<td>27,028.1</td>
<td>12,557.8</td>
<td>12,269.4</td>
<td>6,392.9</td>
<td>7,560</td>
</tr>
<tr>
<td>Number of process disturbances, pcs</td>
<td>2,596</td>
<td>2,286</td>
<td>1,954</td>
<td>1,616</td>
<td>1,606</td>
</tr>
<tr>
<td>Aggregate duration of electricity outages, hours</td>
<td>319.95</td>
<td>270.07</td>
<td>276.24</td>
<td>189.13</td>
<td>167.30</td>
</tr>
</tbody>
</table>

**Human Resource (HR) Management**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average employee age, years</td>
<td>39.6</td>
<td>39.1</td>
<td>39.3</td>
<td>40.9</td>
<td>40.9</td>
</tr>
<tr>
<td>Employee turnover, %</td>
<td>6.3</td>
<td>7.8</td>
<td>6.5</td>
<td>8.7</td>
<td>4.9</td>
</tr>
<tr>
<td>Average number of training hours per employee (administrative and managerial personnel/industrial personnel), hours/ man</td>
<td>28/50</td>
<td>28/49</td>
<td>18/40</td>
<td>35/51</td>
<td>29/54</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>male</td>
<td>female</td>
<td>male</td>
<td>female</td>
</tr>
</tbody>
</table>

**Implementation of social programmes**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-governmental pension programme costs, RUB million</td>
<td>320.7</td>
<td>306</td>
<td>327.3</td>
<td>327.3</td>
<td>327.3</td>
</tr>
<tr>
<td>Voluntary medical insurance costs, RUB million</td>
<td>331.3</td>
<td>334.0</td>
<td>351.6</td>
<td>330.3</td>
<td>345.0</td>
</tr>
<tr>
<td>Total number of employees injured on the job, persons</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Workplace accident frequency rate</td>
<td>0.285</td>
<td>0.319</td>
<td>0.124</td>
<td>0.200</td>
<td>0.137</td>
</tr>
</tbody>
</table>

**Environmental protection**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital investments into environmental protection, RUB million</td>
<td>82.1</td>
<td>133.7</td>
<td>127.0</td>
<td>95.9</td>
<td>7.41</td>
</tr>
<tr>
<td>Current environmental costs, RUB million</td>
<td>60.3</td>
<td>60.3</td>
<td>98.8</td>
<td>152.4</td>
<td>182.11</td>
</tr>
</tbody>
</table>

**Contribution to the economy**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax payments, RUB million</td>
<td>9,980.2</td>
<td>13,081.9</td>
<td>20,156.0</td>
<td>26,171.6</td>
<td>37,247</td>
</tr>
<tr>
<td>Amount of investment financing, RUB billion</td>
<td>179.9</td>
<td>149.7</td>
<td>90.9</td>
<td>85.9</td>
<td>90.7</td>
</tr>
</tbody>
</table>

1 Per 1,000 employees.
KEY EVENTS IN 2016

July
Start of the seventh season of the Company's student construction teams.
Electricity supply to the Kuyumba-Taishet oil pipeline that is being built to connect the largest deposits in the North of the Krasnoyarsk Territory to the Eastern Siberia–Pacific Ocean (ESPO) system. Thanks to connection to UNEG, the oil pumping stations received 19.1 MW of electric power.
Participation of PJSC FGC UES's team in the sixth annual International Forum of Young Power Engineers Forsath 2016 in the Kalgan Region.

August

September
Participation of the Company's Chairman of the Management Board Andrey Murov in the opening ceremony of the 42nd Chess Olympics in Baku.
Holding a forum for young power engineers in Kazan with the support of PJSC FGC UES.
Connection of the Lyuberetskiy residential complex, with an area of 350,000 sq. m that is being built in the South-East of Moscow, to the Unified National Electric Grid for 7.3 MW of electric capacity.

October
Working visit of the Company's Chairman of the Management Board, Andrey Murov, to Krasnoyarsk where the key power facilities for the Winter Universiade 2019 were inspected and the readiness of the Siberian branch for the fall-winter season 2016–2017 was assessed.
In the course of his visit to Siberia, the Company's Chairman of the Management Board, Andrey Murov, visited power facilities that are being built in Western Siberia and held a meeting with branch management with concerning preparation for the fall-winter season 2016–2017.
The Company's Chairman of the Management Board, Andrey Murov, received a delegation from the State Electric Grid Company of Vietnam EVNPT in Moscow to discuss bilateral cooperation and the development of high-voltage grids.

November
Compliance of the environmental management system with the international ISO standard 14001:2004 at the management departments and operating facilities of the branches of MES Centre, MES East and the Executive Office of PJSC FGC UES was confirmed.
The VI Open Chess Tournament, in memory of Mikhail Botvinnik, was held in Moscow at the Research and Development Centre of PJSC FGC UES with the participation of the Russian Chess Federation.
The Company's Chairman of the Management Board, Andrey Murov, participated in a plenary session of the International Forum UNES-2016 for the energy efficiency and development of the power industry in Russia.

December
PJSC FGC UES's employees playing for the Company's own football team, along with the students of the Moscow Power Engineering Institute, met with the coaches and football players of the CSKA Professional Football Club at the CSKA Arena in Moscow.
A meeting of the leading research and development partners of the R&D subcommittees of the CIGRE Russian National Committee, headed by the Chairman of RNC CIGRE – Andrey Murov, was held.
In the course of the traditional December meeting with investors and analysts, the Head of PJSC FGC UES, Andrey Murov, informed the attendees about the main results and work plans of the Company.
After a major upgrade the 500 kV Kuibyshevskaya substation, which covers more than 70% of the energy needs in the Samara Region, was commissioned.

Results for the year: Positive dynamics of key indicators
Considerable results in main business directions were demonstrated in 2016.
The period passed without any large accidents in UNEG, with the number of accidents continuing to decline, the Company received a certificate of readiness for operation in the fall-winter period without any significant remarks.
The planned investment programme indicators were reached and were exceeded by certain figures, 8,800 MVA of transformer capacity and more than 800 km of electricity transmission lines were commissioned.
There was a multiple increase in the net profit, including the net profit secured by cash funds – to RUB 59 billion. This growth was mainly caused by record revenue from technological connection services (RUB 45.5 billion), a total of which 5,600 MW of capacity was connected.

About the Company
PJSC FGC UES is a unique infrastructure that forms a framework of the state economy. The company has a significant impact on Russia's GDP, employment and social stability in the country.
Public joint-stock company Federal Grid Company of Unified Energy System (hereinafter PJSC FGC UES, the Company, Federal Grid Company or Federal Grid) was established in 2002, in accordance with Russia’s electricity industry reform package, as a management organisation of the Unified National (All-Russian) Electric Grid (UNEG) for the purpose of its maintenance and development.

In accordance with the Federal Law No. 35-FZ of 26 March 2003, “On Electric Power Industry”, PJSC FGC UES is a natural monopoly in the area of electricity transmission via UNEG. The Company is responsible for the reliable supply of electricity to consumers in the Russian Federation.

PJSC FGC UES is included in a list of systemically important organisations that have a significant influence on the GDP of the Russian Federation, as well as on the employment rate and social stability of the country.

Electric grid facilities are located in the regions of the Russian Federation with a total area of more than 15.1 million sq. km. Being a part of the technological infrastructure of UES of Russia and the electric energy market, the electric grids play a key integrative role in the fuel and energy complex, providing electricity supply to consumers, delivering power to power plants, as well as exchanging power between the regions and implementing systemic impacts.


Abbreviated Corporate Name: PJSC FGC UES.

Equity Share Capital

As of 31 December 2016, the share capital of PJSC FGC UES stood at RUB 637,332,661,531.50, divided into 1,274,665,323,063 ordinary registered uncertified shares with a nominal value of RUB 0.50 each. No preferred shares have been placed by the Company as of the date above.

In accordance with the Company’s Articles of Association, the number of authorised shares shall be 72,140,500,768 ordinary registered shares, with a nominal value of RUB 0.50 each and a total nominal value of RUB 36,070,250,384. Authorised ordinary shares offer the same rights to their owners as outstanding ordinary shares.

In 2016, there were no issues or placements of additional shares by PJSC FGC UES.

Key Operations
- Management of UNEG;
- Investment activities in the area of UNEG’s development;
- Electricity supply services to consumers of the Company’s services;
- Technological connection of the applicants’ facilities to the Company’s electric grid facilities;
- Maintaining UNEG facilities in good working order and technological supervision.

Location of the Company’s Headquarters
Location: 5A Academica Chelomeya St., Moscow, Russia 117630
Telephone: 8 800 200 18 81
Fax: (495) 710-95-67
E-mail: info@fsk-ees.ru
Website: www.fsk-ees.ru

Organisational Structure of the Company
The General Meeting of Shareholders is the supreme governing body of the Company. The Board of Directors is responsible for establishing the strategy of PJSC FGC UES and overseeing the Management Board’s activities. The Management Board is in charge of the day-to-day operations of the Company.

As of 31 December 2016, the Company has 51 regional branches, including:
- 8 branches – Main Power Transmission Lines (MPS);
- 41 branches – Main Power Transmission Line Companies (PMES);
- Technical Supervision Centre (liquidated on 03 February 2017);
- Special purpose production centre - Bely Rast.

Managing subsidiaries and associates
As of 31 December 2016, PJSC FGC UES participates in 24 business entities operating in different industries, including those that support electric grid facilities.
The Company’s Role in the Industry

PJSC FGC UES operates in 77 Russian regions covering an area of more than 15.1 million sq km. The territory of the Company’s facilities is divided into zones of responsibility for the corporate branches – backbone electric grids (MES), and their local enterprises (PMES). Under populated territories with no large customers – such as Chukotka, Kamchatka, the Magadan Region, Sakhalin, the Nenets Autonomous Region and the Altai Republic – are not integrated into UNEG because they do not have the economic conditions necessary for laying electricity transmission lines and establishing large substations.

The main consumers of the Company’s services are: – distribution electric grids (DEG); – territorial grid companies (TGC); – power supply organisations (PSO); – large enterprises – electricity consumers; – electricity exporters.

Length of electricity transmission lines


As of 31 December 2016, PJSC FGC UES owned 396,210 km of cable transmission lines (cable lines) (in 2015 – 396,210 km, in 2014 – 368,621 km).

As of 31 December 2016, PJSC FGC UES owned 1,299,729 km of aerial cable lines (ACL) (in 2015 – 943.052 km, in 2014 – 775.307 km).

As of 31 December 2016, the length of overhead transmission lines (OHL) leased by PJSC FGC UES was 3,072,440 km (in 2015 – 3,182,660 km, in 2014 – 3,125,653 km).

Technological Connection to UNEG networks in 2016

<table>
<thead>
<tr>
<th>Indicators</th>
<th>PJSC FGC UES, total</th>
<th>DEG, Subsidiaries and Associates of PJSC Rosseti</th>
<th>Consumers and FGC</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pcs</td>
<td>MW</td>
<td>Pcs</td>
<td>MW</td>
</tr>
<tr>
<td>Contracts Effective as of 01 January 2017, including</td>
<td>1,221</td>
<td>47,185</td>
<td>459</td>
<td>10,055</td>
</tr>
<tr>
<td>Individual projects</td>
<td>39</td>
<td>14,756</td>
<td>6</td>
<td>554</td>
</tr>
<tr>
<td>Non-individual projects</td>
<td>1,182</td>
<td>32,429</td>
<td>453</td>
<td>10,401</td>
</tr>
<tr>
<td>Applications accepted</td>
<td>361</td>
<td>8,041</td>
<td>108</td>
<td>1,596</td>
</tr>
<tr>
<td>Technological connection contracts signed in 2016</td>
<td>307</td>
<td>6,660</td>
<td>84</td>
<td>990</td>
</tr>
<tr>
<td>Contracts fulfilled</td>
<td>216</td>
<td>5,635</td>
<td>75</td>
<td>1,368</td>
</tr>
</tbody>
</table>

About the Company

Ensuring Corporate Sustainability

PJSC FGC UES Social Responsibility and Corporate Sustainability Report 2016
**THE COMPANY’S ROLE IN THE INDUSTRY**

<table>
<thead>
<tr>
<th>Capitals</th>
<th>Strategy</th>
<th>Risks</th>
<th>Risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial capital</td>
<td>Increase of return on financial capital and maintenance of financial sustainability</td>
<td>Lack of increase in cost of attracted borrowed capital</td>
<td>Active interaction with investors and market, diversification of sources of financing, increasing transparency and business predictability to reduce the risk premium as part of the cost of debt</td>
</tr>
<tr>
<td>RUB 987 billion of equity capital</td>
<td></td>
<td>Risk of unbalanced tariff decisions</td>
<td>Preparing economically justified proposals on tariff regulation</td>
</tr>
<tr>
<td>RUB 262 billion of liabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870 substations 35—1,100 kV</td>
<td>Investments to electric grid infrastructure development and operating assets renovation</td>
<td>Decrease in return on capital</td>
<td>Innovations and planning of the structure of network assets</td>
</tr>
<tr>
<td>134 thousand km of electricity transmission lines¹</td>
<td></td>
<td>Cost overrun and failure to meet deadlines Electric mains interruption (failure) Excess/lack of power</td>
<td>Selection of contractors on competitive basis, control of construction schedules</td>
</tr>
<tr>
<td>RUB 3.3 billion of intangible assets</td>
<td>Development of research and innovative potential and implementation of new technologies</td>
<td>Risks related to innovative technology implementation Infringement of intellectual property rights</td>
<td>Reconstruction of electric grid facilities Forecasting of grid load</td>
</tr>
<tr>
<td>RUB 414 million of R&amp;D financing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.2 thousand employees 63.5% with professional education</td>
<td>Social support of the employees, focus on development and training of the personnel</td>
<td>Reduction in qualification level of operation personnel Recruitment of personnel with insufficient qualification</td>
<td>Meeting the deadlines for operation personnel mandatory trainings Selection and recruitment of skilled personnel</td>
</tr>
<tr>
<td>84.3% operating employees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>901 thousand cubic metres of water consumption</td>
<td>Reduction of the adverse impact on environment, improvement of energy efficiency</td>
<td>Environmental risks (environmental pollution risks)</td>
<td>Environmental policy implementation Implementation of environmental activities</td>
</tr>
<tr>
<td>933.6 million kWh electricity consumption for substations’ own needs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ According to the annual production report
Layout of PJSC FGC UES grid assets and branches

Information on a number of the substations and the length of the PJSC FGC UES power transmission lines is based on the state registration of the ownership rights of PJSC FGC UES and other proprietors:

- **2321** power transmission lines (PTL) of up to 1,150 kV capacity
- **939** substations (SS) of up to 1,150 kV capacity
- **140.3 th. km** length of the PTL of PJSC FGC UES along the route
- **336,356 MVA** substations with a voltage class of 35–1,150 kV and installed capacity of 341,658.8 MVA
- **870** substations with a voltage class of 6–10/0.4 kV TSS (DSS) and installed capacity of 470.8 MVA

Further details on PJSC FGC UES subsidiaries and associates are available in the Appendix 7 hereto.

Further details on the Company’s international operations, as well as on the electric energy export and import pursuant to the contracts of PJSC Inter RAO, are available in the Appendix 1 hereto.

- PJSC FGC UES participates in 24 business entities that operate in different industries, including those that support electrical grid facilities
- Management of the cross-border interstate power transmission lines
- FGC facilitates the transit of electric power at the border of 11 foreign states and performs the collection and processing of data on power exchange via 134 interstate power transmission lines
About the Company

The core business of PJSC FGC UES on the Russian electricity market is rendering electricity transmission services to consumers via the Unified National (All-Russian) Electric Grid (UNEG).

In accordance with the Federal Law No. 35-FZ "On the Electric Energy Industry" of 26 March 2003, PJSC FGC UES is a natural monopoly for rendering electricity transmission services via the Unified National (All-Russian) Electric Grid. The Company operates in practically the entire territory of the Russian Federation; at present, PJSC FGC UES renders electricity transmission services via UNEG under contracts executed to service consumers in 77 constituent entities of the Russian Federation. The number of contracts is constantly growing, including phased termination of the "last mile" mechanism, due to the implementation of new technological connections to UNEG.

Wholesale electricity (capacity) market

PJSC FGC UES purchases electricity and capacity in the wholesale electricity and capacity market (WECM) in order to compensate for the actual losses of UNEG, with the exception of losses accounted for and paid by the WECM’s participants in market-clearing prices. This purchase occurs in the territory of the Russian Federation's constituents, united into pricing and non-pricing zones. PJSC FGC UES purchases electricity and capacity in pricing zones of the WECM at free (non-regulated) prices, while in non-pricing zones, electricity and capacity are purchased at regulated tariffs on the basis of quadripartite contracts between PJSC FGC UES, JSC ATS, the JSC Financial Settlements Centre and the electricity and capacity seller. The above activity is governed by the following legal acts and regulations:

- Rules for non-discriminatory access to electricity transmission services and the provision thereof approved by the Russian Government, Resolution No. 861 of 27 December 2004;
- Rules for the wholesale electricity and capacity market approved by the Russian Government, Resolution No. 1172 of 27 December 2010;
- Agreement for joining the trade system of the wholesale market and wholesale market regulations that form annexes to the above Agreement.

In 2016, the cost of electricity and capacity purchased by PJSC FGC UES to compensate for losses amounted to RUB 14.679 billion, net of VAT, including RUB 7.865 billion for electricity, net of VAT, and RUB 6.814 billion for capacity.

Operating Performance Results in 2012–2016, mn kWh

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric power supply servicing consumers</td>
<td>517,131</td>
<td>519,983</td>
<td>515,250</td>
<td>525,769</td>
<td>540,540</td>
</tr>
<tr>
<td>Electric power supply via UNEG to adjacent states in terms of balance</td>
<td>15,769</td>
<td>12,974</td>
<td>10,572</td>
<td>16,018</td>
<td>13,852</td>
</tr>
<tr>
<td>Electricity losses within UNEG</td>
<td>21,946</td>
<td>22,262</td>
<td>21,261</td>
<td>22,478</td>
<td>25,033</td>
</tr>
</tbody>
</table>

Reduction of electricity losses

The share of the Company’s largest service consumers in sales revenue from electricity transmission

<table>
<thead>
<tr>
<th>#</th>
<th>Company</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>JSC Tyumenenergo</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>PJSC MOESK</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>PJSC IDGC of Centre</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>JSC IDGC Ural Sverdlovskenergo</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>PJSC Leningradenergo</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>JSC IDGC Ural Chelyabinskenergo</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>PJSC Khabarovskenergo</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>JSC IDRISK</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>JSC RUSA Krasnoyarsk</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>PJSC IDGC of Centre and Privolzhskoe Nizhny Novgorodo</td>
<td>2</td>
</tr>
</tbody>
</table>

4.63% of the electricity supply to consumers via UNEG declined in actual electricity losses at grids of PJSC FGC UES in 2016.

With the growth of the grid electricity supply by 2.81% compared to 2015, the increase of relative losses amounted to 0.16%, or 1.555 mln kWh in absolute terms. The growth of electricity losses was caused by changes to UNEG’s operating mode in 2016 due to changing the loading conditions of power plants, the redistribution of the consumer load and the commissioning of new equipment in grids at PJSC FGC UES.

Electricity loss reduction measures were approved as part of the Energy Saving and Energy Efficiency Programme of PJSC FGC UES for 2015–2019 and were implemented in three key directions:

- Optimisation of the circuit and mode parameters in the process of operation and control of the electric grids;
- Reduction of electric power consumption for the auxiliary supply of the substations;
- The construction, reconstruction and development of electric grids, and the commissioning of energy-saving equipment (of which loss reduction has had a concurrent effect).

As a result of implementing the above measures, electric power losses were reduced in 2016 by 58.3 million kWh.

Dynamics of electricity supply to consumers via UNEG in 2015–2016, mn kWh

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>Change 2015/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>PJSC FGC UES</td>
<td>525,769</td>
<td>540,540</td>
<td>14,771</td>
</tr>
</tbody>
</table>

Electricity supply to consumers via UNEG in 2016 amounted to 540,540 mln kWh, which was 14,771 mln kWh, or 2.81%, higher than in the previous year.

International Cooperation

Electricity supplied via UNEG to adjacent states in 2016 amounted to 13,852 bn kWh in terms of balance.

PJSC FGC UES performs electricity transmission across the border of the Russian Federation and is the technical contractor of the export/import commercial contracts of the WECM’s participants.

There are currently several agreements in force stipulating parallel operation of the Russian UES with the electric power systems of foreign states. The parties involved in these agreements consist of PJSC FGC UES and the economic entities of the following countries: Georgia, Azerbaijan, Kazakhstan, the Baltic states and the Republic of Belarus, as well as an inter-system agreement with Finland. Agreements on the technical support of parallel operations have also been executed with Ukraine, the Republic of Belarus, and Mongolia.

As a management organisation of UNEG and cross-border electricity transmission lines (CBETL) of all voltage classes, PJSC FGC UES is responsible for:

- Coordinating commercial contracts for the import/export of electricity and providing engineering support therefor;
- Arranging and implementing the commercial metering of electricity transmitted via CBETL;
- Measuring the actual volumes of electricity that have been transmitted across the state border and arranging for their customs clearance (declaration).

In order to measure the volume of electricity transmitted through each CBETL, PJSC FGC UES and its foreign counterparts have signed agreements concerning the metering of cross flows via a particular CBETL.

Under these agreements, the Company and the electric power systems of 11 countries (Azerbaijan, Belarus, and others) operate.
About the Company

PJSC FGC UES updates and develops relationships with foreign power systems concerning the harmonisation of legal framework with adjacent states in the area of electric energy, the establishment and synchronisation of electricity and capacity markets as part of interstate activities of the CIS EES and their committees, including the Operational and Technological Coordination Committee, the BIREL Energy System Committee, work groups under the Executive Committee of CIS EES and the BIREL Energy System Committee, as well as Fingrid (Finland).

Industrial Companies and Committees

PJSC FGC UES represented by Deputy Chairman of the Management Board Aleksey Molsky, is a member of the Supervisory Board, which is a collective governing body of the Market Council, a non-profit partnership. In accordance with the laws and regulations of the Russian Federation, the Articles of Association of the Market Council and the Regulations on the Supervisory Board of the Market Council, a member of the Supervisory Board is authorised to veto amendments to the Trade System Accession Agreement, of which PJSC FGC UES is a statutory party.

Government Committee for the Development of the Electric Power

The Committee is a coordinating body that has been established to ensure the coordinated actions of the interested federal executive authorities and the executive authorities of the Russian Federation's constituent entities on matters of the prospective development of the electric power industry in the Russian Federation.

Chairman of the Company’s Management Board, Andrey Murov, is a member of the Committee.

CIGRE (Russian National Committee of CIGRE)

Representatives of PJSC FGC UES are engaged in work on:

– Expert workshops for Import Substitution in the Fuel and Energy Complex of the Energy Committee of the State Duma of the Russian Federation;
– Coordinating a research council on the issues concerning implementing the development of a sub-programme for the production of composite materials and their products in the Russian Ministry of Industry and Trade;

Furthermore, the Deputy Chairman of the Management Board, Alexey Molsky, represents PJSC FGC UES in the Advisory Committee on Electric Power at the Board of the Eurasian Economic Commission. As part of the sub-committee for establishing a common electricity market in the Eurasian Economic Union, three of PJSC FGC UES’s representatives from the management of the Company’s Management Board, Alexei Molsky, participate in the development and approval of the concept for the establishment of a common electricity market in the Eurasian Economic Union.

CIGRE's activities are available on the website: http://www.cigre.ru/

Sustainability Policy

The main principle of the Sustainable Development Policy of PJSC FGC UES is the balance of interests of society and the Company’s economic interests and focus on aspects of primary importance for stakeholders.

Further details about the CIGRE’s activities are available on the website at: http://www.cigre.ru/
Strategic Goals of PJSC FGC UES

Taking into consideration the implementation of the targets of the Russian Electric Grid Complex Development Strategy, PJSC FGC UES is focusing on the following strategic goals in its business until 2030:

- Ensuring the reliability and quality of services;
- Maintaining financial sustainability and independence and the growth of the Company’s value;
- Developing UNEG via the technical and economic optimisation of backbone electric grids;
- Satisfying consumer demand for the services of PJSC FGC UES with consideration of regional specifics, demand structure and the increase in the capacity loading efficiency;
- Consolidating all of PJSC FGC UES’s electric grid facilities that make up part of UNEG and meeting the eligibility criteria.

Strategic Objectives for PJSC FGC UES for 2015–2019:

- Maintain a high reliability level;
- Reduce unit investment costs by 30% by 2017 compared to the 2012 level;
- Ensure the implementation of investment projects that are of national importance in due time;
- Ensure adherence to the principles of technical and economic feasibility when taking decisions in relation to the development programme for the backbone electric grid;
- Integrate an economic model of technical connection based on a balance of interests and equitable risks shared between the applicants and the Company;
- Reduce unit operating expenses by 30% by 2017 compared to 2012, while maintaining reliability and avoiding an increase of costs in the upcoming periods;
- Optimise the utilisation of existing electric grid capacities;
- Develop a programme of phased consolidation for electric grid facilities that are part of UNEG and meet the eligibility criteria;
- Maintain the Company’s credit rating at the level of the sovereign credit rating of the Russian Federation and ensure the growth of the Company’s profit and value.
Sustainability Policy of the Company

PJSC FGC UES Social Responsibility and Corporate Sustainability Report 2016

Understanding of Sustainable Development

PJSC FGC UES development strategy is based on social responsibility principles and sustainability priorities, including the reliable functioning and sustainable development of the Company’s electric grid infrastructure.

The main objective for the 2016 Report was to build up the image of PJSC FGC UES as an effective developing infrastructural company operating in the Russian power industry.

The priority topic of the 2016 Report is the creation of opportunities for economic growth.

Based on a review made by the working team of the Annual Report, the Company refined the descriptions of its core and specific activity areas in the field of sustainable development.

In addition to this, when preparing the Social Responsibility and Corporate Sustainability Report, the Company regularly conducts a questionnaire survey to identify priority aspects for the Company and its stakeholders.

The most important sustainability aspects for the stakeholders are:
- Economic performance results,
- Electric power,
- Employment,
- Ecology,
- Relationships between employees and the management,
- Occupational health and safety,
- Education and training,
- Anti-corruption,
- Non-prevention of competition,
- Compliance with legal requirements,
- Consumer health and safety.

For more information on development history of the Corporate Social Responsibility and Sustainable Development at PJSC FGC UES and its public position on CSR, please refer to the detailed version of the 2015 Report.

For detailed information, please refer to the Matrix of important Aspects in the About the Report section.

Awards and Achievements in 2016

Over the years of its operation, PJSC FGC UES has built a reputation of being a socially responsible and customer-oriented company that aims to improve its effectiveness and make a tangible contribution to the social and economic development of the country. The Company’s successful operations throughout the year have received prizes and awards.

1. Following the results of Third All-Russian Competition: Creating the Future, arranged by the Ministry of Education and Science of the Russian Federation:
   - The Company’s project for the establishment of personnel training centres was recognised as the Best Project for the most sustainable business model of a corporate university and the creation of exclusive value for business.
   - The Company’s Gogland Complex Expedition project received second place in the nomination category for Russian World. This nomination category is dedicated to the promotion of the Russian language abroad as part of the development of the corporate culture and marketing policy of a company.

2. The Gogland Complex Expedition project was arranged by the Russian Geographical Society with the support of PJSC FGC UES and was awarded for the nomination of Best Regional Project of the IV Crystal Compass national award – the first award for the national geography, ecology and protection of Russia’s environment and its historical and cultural legacy.

3. PJSC FGC UES was awarded the Crystal Pyramid grand prize for 2016 in the category of Best Corporate University for its special contribution to human capital management.

4. PJSC FGC UES was awarded an honorary diploma for its initiative of restoring the tradition of student construction teams. The diploma was awarded in the name of the All-Russian Association of Electricity Sector Employers and the All-Russian Electricity Industry Trade Union. In 2010, PJSC FGC UES was the first electric grid complex company to arrange the work of construction teams at its energy facilities.

5. The Company’s Annual Report received the following awards:
   - Winner in the Best Annual Report category in the Non-Financial Sector of the Russian rating agency Expert RA.
   - Winner of two awards at the XIX Annual Competition of Annual Reports of the Moscow Stock Exchange in the categories of Best Disclosure of Information on Corporate Management in the Annual Report and Best Information Disclosure on the Corporate Website.
   - Platinum winner of the International Corporate Communications Competition: the MarCom Awards.

6. The Energy Saving Project was developed with the participation of young experts from PJSC FGC UES and was recognised as the Best Project in the Heat/Electric Energy section of the International Forum ENES 2016. The project was carried out with a diploma from the Russian Ministry of Energy.

7. The Minister of Energy of the Russian Federation, Alexander Novak, granted letters of gratitude to PJSC FGC UES’s employees for their active participation in the sporting events arranged with support of the Ministry in 2016. In the reporting year, PJSC FGC UES’s teams competed in football, volleyball, ice hockey, swimming and table tennis competitions. In 2016, PJSC FGC UES’s employees took part in numerous defence competitions were held. More than 200 of the Company’s employees and its branches passed the standards of the Ready-to-Work and Defence Complex.

8. PJSC FGC UES’s Sochi enterprise branch MES South won 1st place for occupational safety among PJSC FGC UES enterprises in 2016.

9. PJSC FGC UES’s Sochi enterprise branch received an Employer Compliance Certificate. This document certifies that the branch was included into the register of employers who fully observe the labour rights of employees.

10. PJSC FGC UES’s MES Centre branch received many letters of gratitude from regional authorities for its professionalism and outstanding work during the remediation of consequences of natural disasters, the restoration of the electricity supply, for work aimed at reducing electric injuries, participation in sporting competitions, and others.

11. PJSC FGC UES’s MES Ural branch received many letters of gratitude from the Government of the Sverdlovsk region, as well as from educational institutions, for its achieved success in the improvement of the industrial culture and the efficiency of occupational safety work, the reduction in the number and severity of occupational diseases and workplace injuries and for fruitful cooperation in the education of the younger generation.

12. PJSC FGC UES branch, the Khakass enterprise MES Siberia received the Employer Compliance Certificate.

13. PJSC FGC UES branch, the West Siberian enterprise MES Siberia received the status Socially Responsible Employer of Altay Territory.

14. PJSC FGC UES branch, MES East occupied the 1st place in the review competition for the best arrangement of occupational safety works, dedicated to the 150th anniversary of the capital of Kabardino-Balkar Territory.

15. PJSC FGC UES branch, MES Volga received the Honorary Certificate of the Ministry of Energy and Housing of Samara Region for commissioning of the SS 500 kV Kublyshhevskaya supplying more than 70% of Samara Region, after its total reconstruction.

16. PJSC FGC UES branch, MES Volga received a Letter of Gratitude from the Samara State Technical University for mutual cooperation, support and big contribution into education of young people.

Social Responsibility and Corporate Sustainability Report 2016
Sustainability Policy of the Company

CORPORATE GOVERNANCE

PJSC FGC UES implements corporate management in order to meet the requirements of the law on joint stock companies, the Corporate Management Code and the listing rules of the Moscow Stock Exchange. PJSC FGC UES’s corporate management system enables us to observe the rights and interests of the shareholders and to maintain high information disclosure standards. The corporate management system at the Company also includes a risk management and internal control system, oversees the strict delineation of authority and the identification of the responsibilities of each management body of the Company, as well as the assessment of the performance of assigned functions and responsibilities.

In accordance with the Company’s Articles of Association, the management bodies consist of the following:

– General Meeting of Shareholders,
– Board of Directors,
– Management Board,
– Chairman of the Management Board.

The Committees of the Board of Directors, as established by the resolution of the Board of Directors, make recommendations and perform the efficiency assessment of corporate management’s procedures and other functions aimed at maintaining the Board of Director’s high performance standards. All committees report to the Company’s Board of Directors.

General Meeting of Shareholders

The General Meeting of Shareholders is the Company’s supreme governing body whose competence is set out by the Federal Law on Joint Stock Companies and the Company’s Articles of Association, which includes, among other things, such serious matters as approving annual reports and annual financial statements, selecting an external auditor; electing members to the Board of Directors and the Audit Commission and the termination of their powers, as well as the payment of dividends.

The Chairman of the Company’s Management Board, being the sole executive body (G4-38), and the collective executive body of the Company, PJSC FGC UES’s Management Board, manage the current operations of PJSC FGC UES. The Management Board and the Chairman of the Management Board report to the General Meeting of Shareholders and the Board of Directors of PJSC FGC UES.

The Chairman of the Management Board is responsible for all aspects related to the Company’s day-to-day operational management, except for any issues belonging to the competence of the General Meeting of Shareholders, the Board of Directors and the Management Board.

The Audit Commission is elected by the General Meeting of the Shareholders and performs control over the Company’s financial and business operations. The Audit Commission is entitled to request that any extraordinary General Meetings of the Shareholders be convened.

Well-Developed Corporate Governance Practice

The Russian Institute of Directors granted PJSC FGC UES a corporate governance rating level of 7++. Further information on the biographies of the Board members, as well as information on their competences and industry-specific experience, is available in the 2016 Annual Report of PJSC FGC UES.

The Board of Directors

The Board of Directors (BD) performs the general strategic management of the Company and plays a key role in PJSC FGC UES’s corporate management system. Its main functions include:

– Shaping the Company’s strategy and monitoring its implementation;
– Ensuring the exercise and protection of the rights and legal interests of the Company’s shareholders and protecting the Company’s assets;
– Ensuring the establishment and maintenance of a sound internal control and risk management system;
– Monitoring the performance of the executive bodies, the regular performance evaluation of senior managers and introducing effective incentive schemes for them;

The key role of each Committee is to provide the preliminary consideration of the most important issues reserved for the Board, and to develop recommendations that the Board is to follow when making resolutions on the relevant items. The Committees are completely subordinate to the Company’s Board of Directors. The Committees are made up of the Board members and persons suggested by the Board members, whose competence and experience are essential to the work of the Committees.

In accordance with best practices and the listing rules of the Moscow Stock Exchange, only independent directors can be nominated to the Audit Committee and the HR and Remuneration Committee. This ensures the provision of objective and balanced recommendations. In 2016, the Company introduced the practice of engaging independent consultants to work with the Audit Committee and the Board’s Investment Committee. As such, corresponding regulations were prepared and approved that are now being tested for possible implementation into the work of other committees. In addition, some updates were made to the Regulations for the HR and Remuneration Committee, the Investment Committee and the Strategy Committee.

Committees Under the Board of Directors

At the end of 2016, the four Board Committees that worked to increase the effectiveness of the resolutions taken by the Board of Directors by providing preliminary consideration of the most important issues and preparing respective recommendations for the Board, included the:

– Audit Committee;
– HR and Remuneration Committee;
– Strategy Committee;
– Investment Committee.

The chairman of the supreme corporate management body is not an executive officer.

Further information on the Statement of the Board of Directors on compliance with the corporate management principles, as well as the Report on the Company’s development results in its priority business directions, is available in the 2016 Annual Report of PJSC FGC UES.

Further information on the functions of the Board of Directors is available in the 2016 Annual Report of PJSC FGC UES.

Further information on the work of the Board Committees is available in the 2016 Annual Report of PJSC FGC UES.

Further information on corporate management quality assessment is available in the Annual Report of PJSC FGC UES for 2016.

Further information on the 2016 Annual Report of PJSC FGC UES is available in the 2016 Annual Report of PJSC FGC UES.

Members of the Board of Directors elected at the General Meeting of Shareholders on 26 June 2015

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Oleg Budargin</td>
<td>Board Chairman, Non-Executive Director</td>
</tr>
<tr>
<td>2</td>
<td>Andrey Murov</td>
<td>Executive Director</td>
</tr>
<tr>
<td>3</td>
<td>Pavel Grachev</td>
<td>Independent Director</td>
</tr>
<tr>
<td>4</td>
<td>Andrey Demin</td>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>5</td>
<td>Sergey Mininovsky</td>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>6</td>
<td>Evgeny Prokhorov</td>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>7</td>
<td>Nikolai Roshchenko</td>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>8</td>
<td>Sergey Sergeyev</td>
<td>Non-Executive Director</td>
</tr>
<tr>
<td>9</td>
<td>Igor Kamensky</td>
<td>Independent Director</td>
</tr>
<tr>
<td>10</td>
<td>Ernesto Ferkhghi</td>
<td>Independent Director</td>
</tr>
<tr>
<td>11</td>
<td>Pavel Snikars</td>
<td>Non-Executive Director</td>
</tr>
</tbody>
</table>

The Board of Directors includes the representatives of minority shareholders in order to maintain a balance of the best interests of all of the Company’s existing shareholders within the Board.

1 Independent criteria are defined in accordance with recommendations of the Russian Corporate Governance Code and the listing rules of the Moscow Stock Exchange.
Corporate Governance Scheme

As of 31 December 2016, the Russian Federation, represented by the Federal Agency of State Property Management (Rosimuschestvo), owned 0.59% of FGC UES’s shares. In this context, an agreement has been signed between the Company’s major shareholders ROSSETI and Rosimuschestvo regarding management and voting at Federal Grid Company. The above agreement regulates the shareholder's relationship with regard to the implementation of their rights with respect to Federal Grid Company for the purposes set forth in the Decree of the Russian President No. 1567 of 22 November 2012. The Company’s interaction with the State as a shareholder has a specific procedural character that is determined by the regulatory acts of the President and the Government of the Russian Federation. In particular, the State representatives within the Company’s governing bodies are required to vote on certain matters as instructed by the Government.
Sustainability Policy of the Company

PJSC FGC UES Social Responsibility and Corporate Sustainability Report 2016

Risk Management

PJSC FGC UES’s activities aimed at the achievement of its set goals are exposed to external and internal operational risks. Risk analysis and forecasting is one of the main business directions of the Company’s management bodies. The Company applies a systematic approach to the management of all types of risks typical for its operations throughout its organisational structure and the geography of its presence. The Company’s Board of Directors regularly considers the reports on key risks prepared by the responsible structural units, as well as measures for the minimisation of current risks. The Company’s Board of Directors regularly performs analysis of any economic, environmental and social impacts.

Settlement of Conflicts of Interest in the Board of Directors

The Company has a comprehensive system for the settlement of any conflicts of interest between members of the Board of Directors and the Management Board by providing reasonable assurance that any conflict situation will be settled at an early stage and that the Company’s interests will not be infringed upon.

The Management Board and Its Chairman

The competence of the Management Board includes the management of the Company’s day-to-day operations on the basis of the Articles of Association, the resolutions of the General Meeting of Shareholders and the Board of Directors. As of the end of 2016, the Management Board of PJSC FGC UES consisted of nine members. All persons that make up part of the Management Board have the required experience and competences to perform their functions at the senior level.

Composition of the Company’s Management Board in 2016

<table>
<thead>
<tr>
<th>Member of the Management Board</th>
<th>Position</th>
<th>Areas of Responsibility</th>
<th>Membership Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrey Murov</td>
<td>Chairman</td>
<td>Management of the Company’s day-to-day operations, arrangement of work of the Management Board</td>
<td>2012</td>
</tr>
<tr>
<td>Alexander Vasilev</td>
<td>Deputy Chairman</td>
<td>Security and Internal Control</td>
<td>2014</td>
</tr>
<tr>
<td>Vladimir Dikoy</td>
<td>Deputy Chairman</td>
<td>Maintenance and Repairs</td>
<td>2013</td>
</tr>
<tr>
<td>Alexander Zaragatsky</td>
<td>First Deputy Chairman of the Management Board</td>
<td>Legal and General Administrative Matters, Staff Management and Development, Corporate and Strategic Management</td>
<td>2014</td>
</tr>
<tr>
<td>Alexey Molsky</td>
<td>Deputy Chairman of the Management Board</td>
<td>Development and Customer Relations</td>
<td>2016</td>
</tr>
<tr>
<td>Sergey Terebulin</td>
<td>Deputy Chairman of the Management Board</td>
<td>Economy, Finance and Subsidaries</td>
<td>2016</td>
</tr>
<tr>
<td>Maria Tikhonova</td>
<td>Deputy Chairman of the Management Board</td>
<td>Corporate and Strategic Management</td>
<td>2013</td>
</tr>
<tr>
<td>Roman Filimonov</td>
<td>First Deputy Chairman of the Management Board</td>
<td>Development and Customer Relations, Investments and Innovative Development, IT Operation and Development, Procurement Management, Operational Control</td>
<td>2016</td>
</tr>
<tr>
<td>Nikolay Pozdniyakov</td>
<td>General Director of the Subsidiary of JSC CIUS UES that is of high importance to PJSC FGC UES</td>
<td></td>
<td>2014</td>
</tr>
</tbody>
</table>

Remuneration of the Members of the Management Board

In accordance with the Regulations on the Terms and Conditions of Employment Agreements and the Determination of Remuneration and Compensation for Senior Managers of PJSC FGC UES, remuneration for senior managers is determined by their employment agreements. Remuneration includes a fixed component (salary) and a variable component (bonuses). The bonus amount depends on the achievement of key performance indicators (KPIs) by senior managers.

In accordance with the above Regulations, remuneration is paid to the Board members out of the Company’s net profit based on their performance for the corporate year and is subject to the relevant resolution of the General Meeting of Shareholders.

In 2016, the Company implemented a system of quarterly and annual bonuses based on the Methodology for the Calculation and Evaluation of KPIs of the Company’s senior managers, which was approved by the Board of Directors.

Annual and Quarterly KPIs in 2016

<table>
<thead>
<tr>
<th>Annual KPIs</th>
<th>Quarterly KPIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>– TSR (Total Shareholder Return);</td>
<td>– Meeting commissioning deadlines;</td>
</tr>
<tr>
<td>– Return on invested capital (ROIC);</td>
<td>– Meeting deadlines for technological connections;</td>
</tr>
<tr>
<td>– Reduction of operating expenses (Costs);</td>
<td>– Improvement of labour productivity;</td>
</tr>
<tr>
<td>– Electricity loss level;</td>
<td>– Innovation activity efficiency;</td>
</tr>
<tr>
<td>– Achieving the required reliability level for the services provided;</td>
<td>– Procurements from small and medium-sized enterprises;</td>
</tr>
<tr>
<td>– Reduction of unit investment costs;</td>
<td>– Financial stability and liquidity indicator;</td>
</tr>
<tr>
<td>– Absence of any increase in major accidents;</td>
<td>– Absence of increase in the number injured in accidents;</td>
</tr>
</tbody>
</table>
Remuneration of Members of the Management Board in 2016, RUB thousand

<table>
<thead>
<tr>
<th>Remuneration for participation in the work of the management body</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td>105,636</td>
</tr>
<tr>
<td>Bonuses</td>
<td>180,385</td>
</tr>
<tr>
<td>Commission fees</td>
<td>0</td>
</tr>
<tr>
<td>Benefits</td>
<td>0</td>
</tr>
<tr>
<td>Reimbursement of expenses</td>
<td>0</td>
</tr>
<tr>
<td>Other types of remuneration</td>
<td>53,345</td>
</tr>
<tr>
<td>TOTAL</td>
<td>339,366</td>
</tr>
</tbody>
</table>

Corporate Secretary

The position of Corporate Secretary was introduced at PJSC FGC UES in 2015.

Alexey Ozherelyev

Corporate Secretary of PJSC FGC UES

Born in 1986
Graduated from the Moscow State University of Economics, Statistics and Informatics (MESI) in 2006 with a degree in Finance and Credit.

Experience:
2009–2011 – Worked at the Ministry of Energy of Russia and occupied the positions of the Advisor, Deputy Division Head, Division Head of the Department for Economic Regulation and Property Relations in the Fuel and Energy Complex.
2011–2013 – Worked at PJSC FGC UES in the position of Deputy Head of the Corporate Management Department.
Since 09 January 2017–present – Has been working at PJSC Rosseti in the position of the Head of the Department for the Operation Organisation of Management Bodies, the Board of Directors and Interaction with Shareholders and Investors.

Risk Management

Internal Control System

The Internal Control System (ICS) is part of the risk management and internal control system and covers all of the Company’s business directions. Control procedures are executed on a regular basis for all of the Company’s processes (business directions) at all management levels and are aimed at providing reasonable achievement guarantees of goals in the following directions:

- Effectiveness and efficiency of the Company’s activities and protecting the Company’s assets;
- Compliance with the legal requirements applicable to the Company and its internal regulations, including for business facts and accounting purposes;
- Reliability and timely submission of accounting (financial) and other statements.

Internal Control System

Improvement of ICS is carried out at all levels of the Company’s management in the following areas of control:

Preliminary (preventive) control

Creation of process control environment including:

- Check of sufficiency of control procedures for risk prevention or mitigation, and achievement of objectives of business processes, development and deployment of control procedures.

The control procedures implementation that are built in business processes and aimed at achieving objectives of business processes

Monitoring

Internal audit, revisional control of reliability of the reporting, preservation of assets, compliance-control, external audit, self-assessment

Follow-up control

Participants of the Internal Control System
Sustainability Policy of the Company

Regulatory Documents

The Regulations on the Internal Control System of PJSC FGC UES are currently in effect at the Company. The Regulations on the Internal Control System determine the goals, operational principles and elements of ICS, the main functions and responsibilities of ICS’s participants and the efficiency of the assessment procedure for ICS.

The Company’s Internal Control System is operated in accordance within the model of three defence lines:

1st defence line – includes management bodies of the Executive Office, management bodies of the branches, units and subdivisions of the Company who perform control procedures as part of their functions and responsibilities.

2nd defence line – consists of risk management, legal review, economic security, quality control, and compliance control. The Company’s structural units perform the functions of the 2nd defence line exercise additional control over all structural units of the Company in areas requiring special attention (that is, especially prone to risks).

3rd defence line – The Internal Audit. The function of the Internal Audit is to present the Board of Directors and senior management with an independent and objective assessment of the risk management, internal control and corporate management systems by using a risk-based approach. The Internal Audit monitors the activities of the 1st and 2nd defence lines.

In order to implement the Regulations on the Internal Control System, a programme ("road map") for improving the quality of the Internal Control System of PJSC FGC UES until 2018 has been developed and implemented by the Company.1

Interaction between ICS’s participants at Different Hierarchy Levels

Functions of ICS Participants

<table>
<thead>
<tr>
<th>Participant Name</th>
<th>Core functions in ICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Commission</td>
<td>- Performs analysis of the Company’s financial standing, identifies reserves to improve its financial standing, makes recommendations to the management bodies;</td>
</tr>
<tr>
<td></td>
<td>- Conducts inspections (audits) of the financial and economic activities of the Company;</td>
</tr>
<tr>
<td>Board of Directors</td>
<td>- Determines the principles of and approaches to the organisation of the Company’s ICS, including the approval of the Company’s internal documents, defining the structure of the Internal Control System, and the efficiency of its assessment criteria;</td>
</tr>
<tr>
<td></td>
<td>- Supervises the activities of the Company’s executive bodies in the main (priority) business directions;</td>
</tr>
<tr>
<td></td>
<td>- Annually reviews the report of the Chairman and Members of the Management Board on the functioning of the Company’s Internal Control System;</td>
</tr>
<tr>
<td></td>
<td>- Annually reviews the Internal Auditor’s reports on the efficiency of the Internal Control System;</td>
</tr>
<tr>
<td></td>
<td>- Reviews the results of the external independent assessment of the Internal Control System.</td>
</tr>
<tr>
<td>Audit Committee of the Board of Directors</td>
<td>- Performs preliminary consideration of internal documents indicating the provisions on the Internal Control System and its efficiency criteria, prior to approval by the Company’s Board of Directors;</td>
</tr>
<tr>
<td></td>
<td>- Performs preliminary consideration of the following documents, prior to submitting them to the Company’s Board of Directors: the report of the Chairman and Members of the Management Board on the functioning of the Internal Control System; the Internal Auditor’s report on the efficiency of the Internal Control System, as well as information on the results of the external independent assessment of the Internal Control System’s efficiency;</td>
</tr>
<tr>
<td></td>
<td>- Reviews issues related to inspecting the reliability of the Company’s accounting (financial) statements, selecting an external auditor and performing external audits, conforming to regulatory legal requirements and considering issues related implementing the analysis and assessment of Regulations on the Internal Control System.</td>
</tr>
<tr>
<td>Other Committees of the Board of Directors (HR and Remuneration Committee, Strategy Committee, Investment Committee)</td>
<td>- Monitor the implementation of set financial and operating indicators, monitor compliance with the applicable legislation, the performance of rules and procedures set by local regulations, as well as control the reliability and timely submission of the Company’s reporting.</td>
</tr>
<tr>
<td>Executive Body – Management Board</td>
<td>- Ensures the development and effective functioning of the Internal Control System;</td>
</tr>
<tr>
<td></td>
<td>- Ensures the implementation of the Board’s resolutions on internal control;</td>
</tr>
<tr>
<td></td>
<td>- Reviews the results of the external independent and internal assessment of the Internal Control System’s efficiency, as well as development and improvement measures thereof.</td>
</tr>
</tbody>
</table>

**RISK MANAGEMENT**

**Participant Name** | **Core functions in ICS**
--- | ---
**Executive Body – Chairman of the Management Board** | - Adopts regulatory and methodological documents of the Company on development and functioning of the Internal Control System, except for the documents whose approval is related to the competence of the Board of Directors;
- Ensures the implementation of the Company’s business plans necessary to reach its goals;
- Organises accounting, management accounting and the preparation of the accounting (financial) and other statements;
- Reports to the Board of Directors on the financial and economic activities of the Company and on the organisation and functioning of the Company’s Internal Control System;
- Ensures that the reports of the Chairman and Members of the Management Board on ICS’s functioning are submitted to the Company’s Board of Directors upon preliminary consideration by the Audit Committee of the Board of Directors.

**Heads of Divisions and Structural Units** | - Responsible for the development, documentation, implementation, monitoring and improvement of the Internal Control System in the functional areas of the Company’s operations, as well as for the arrangement, coordination and implementation of the operations assigned to them by corporate regulations and provisions on structural units, including:
- Ensuring the implementation of the internal control principles;
- Arranging efficient processes (business directions), including the development and implementation of new and/or changing existing monitoring procedures, taking into account the identified risks;
- Evaluating monitored processes (business directions) to optimise their efficiency and meet the changing conditions of the external and internal environment, ensuring their regulation and developing proposals to improve control procedures;
- Organising the implementation of control procedures;
- Assessing (monitoring) compliance with control procedures;
- Correcting the identified drawbacks of control procedures and processes (business directions).

**Employees at the Company’s structural units, performing control procedures as a part of their official duties** | - Execute control procedures;
- Ensure the timely notification to line managers of cases when the implementation of control procedures has become impossible due to any reasons and/or on any changes in the design of control procedures required in response to changes to the internal and/or external business environment of the Company;
- Submit proposals for implementing control procedures in the respective areas of operations to line managers.

**Special-Purpose Control Bodies (including risk management, legal expertise, accounting, security, quality control and compliance control)** | - Monitoring the functions of the first defence line and key risks, including risk management, regulatory compliance, the environment, the protection of health and safety, quality assurance, etc.
- Provides the overall coordination of internal control processes;
- Ensures the development of the fundamental methodology documents for internal control;
- Organises training for the Company’s employees on risk management issues;
- Supports the Company’s management and controlled entities in the development of control procedures and monitors the implementation of control procedures in the Company;
- Monitors ICS’s effectiveness in functional areas, including via the implementation of self-evaluation tools.

**Directorate of Internal Control and Risk Management** | - Ensures the implementation of the Company’s business plans necessary to reach its goals;
- Organises accounting, management accounting and the preparation of the accounting (financial) and other statements;
- Reports to the Board of Directors on the financial and economic activities of the Company and on the organisation and functioning of the Company’s Internal Control System;
- Ensures that the reports of the Chairman and Members of the Management Board on ICS’s functioning are submitted to the Company’s Board of Directors upon preliminary consideration by the Audit Committee of the Board of Directors.

---

**Efficiency Assessment of ICS**

To guarantee ICS’s efficiency and compliance with objectively changing requirements and conditions, the Company performs an efficiency assessment of its conformance with the targets and maturity levels. The Company determined 6 levels of maturity for the Internal Control System (from '1 zero' to '6 high').

**Plans for 2017:**

The following measures aimed at improving the Internal Control System have been planned for the further implementation of the Internal Control System Development Strategy in 2017:
- Approval of the Company’s control matrices by all business processes (business directions) by their process owners;
- Analysis of core activity and management processes for their effectiveness and the sufficiency of their control procedures was started.
**Risk Management System**

The target of the Risk Management System (RMS) currently effective at PJSC FGC UES is to ensure the Company's stable and continuous functioning and its development by means of the timely identification, assessment and efficient management of risks that threaten the Company's efficient business operation and reputation, employee health and environment and property interests of shareholders and investors. As an element of the Company's risk management and internal control system, the Risk Management System, which is a part of the general corporate management process, consists of a set of mechanisms and tools that ensure organisational measures for the development, adoption, monitoring, revision and constant improvement of risk management processes within the Company.

The Regulations on the Risk Management System have been approved for RMS's development. The Regulations on the Risk Management System were enacted by the Resolution of the Board of Directors of 12 December 2016.

**Key Principles of Risk Management System:**
- Continuity and integrity;
- Orientation of goals;
- Integration into management;
- Balance between risks and earnings;
- Uncertainty;
- Consistency;
- Information quality;
- Involvement and leadership;
- Assignment of risk management responsibilities;
- Efficiency.
- Cross-functional networking;
- Reasonable confidence;
- Adaptability;
- Continuous improvement.

**Functions of RMS Participants**

<table>
<thead>
<tr>
<th>Participant Name</th>
<th>Key Responsibilities in the Risk Management System</th>
</tr>
</thead>
</table>
| Board of Directors | - Determines the principles and approaches to the organisation of RMS;  
- Approves the approach to identifying the priority of a risk, its values and review frequency;  
- Considers the organisation, functioning and effectiveness of RMS at least once a year, and, if necessary, provides recommendations for its improvement, including after consideration of the reports of the Chairman and Members of the Company's Management Board on the effective functioning of RMS, and of the Internal Audit Department on the assessment results of the actual state of RMS's reliability and efficiency. |
| Audit Committee of the Board of Directors | - Considers the operational matters of the Risk Management System prior to their consideration by the Board of Directors. |
| Chairman of the Management Board and the Management Board | - Establish and maintain the operation of a sound risk management system at the Company;  
- Responsible for implementing the Resolutions of the Board of Directors on the Risk Management System;  
- Ensure the submission of reports by the Chairman and Members of the Management Board on the operation of the Risk Management System for review to the Board of Directors, with a preliminary review by the Audit Committee;  
- Distribute the powers, duties and responsibilities of certain risk management procedures among the subordinate heads of the Company's units. |
| Directorate of Internal Control and Risk Management | - Develops methodological materials in support of the risk management process;  
- Arranges risk management training for the Company's employees;  
- Performs analysis of the Company's risk portfolio and makes proposals regarding its risk response strategies and the re-allocation of resources to manage the relevant risks;  
- Makes consolidated reports on risks;  
- Performs the operational control of the risk management processes carried out by the Company's units and controlled legal entities in accordance with the established procedure;  
- Prepares and informs the Board of Directors and the Company's executive bodies about the efficiency of the risk management process, as well as on other matters stipulated by the Regulations on the Risk Management System;  
- Performs the general coordination of the organisation of the risk management process and support for preventing and fighting corruption;  
- Provides consultations to the executive bodies and heads of structural units and the Company's employees on the anti-corruption law and the implementation of measures for preventing and fighting corruption;  
- Supports risk owners in the development and updating of the Company's internal regulatory documents for preventing and fighting corruption by the monitored processes (business directions);  
- Supports risk owners in the development of measures aimed at preventing and fighting corruption by the monitored processes (business directions). |
| Internal Audit Department | - Performs the regular and independent review of the reliability and effectiveness of the Risk Management System. |

**Participants of RMS**

The main participants of the risk management process are:
- Board of Directors;  
- Audit Committee of the Board of Directors;  
- Chairman of the Management Board and the Management Board;  
- Directorate of Internal Control and Risk Management;  
- Internal Audit Department;  
- Risk owners.

**Additional Information**

**Risk Owners include organisational units (heads, structural units) that have authority and responsibility for the risk management of the Company’s the functional areas and activities assigned to them.**

**Risk Response Methods:**
- Risk avoidance;  
- Acceptance or increase of the risk to implement favourable opportunities;  
- Mitigation or assignment of the risk.

The response method depends on the relevance of risks (in accordance with the identified risk priority), the impact on the likelihood and effect of the risks, the costs of the risk occurrence and the benefits of the risk.

**Results for 2016:**
- Approval of methodology documents on risk management;  
- Approval of guidelines for the planning and implementation of the risk management measures;  
- Approval of the register of operational risks, the identification and estimation of operational risks in accordance with the effective methodology and developed operational risk management measures. The summary of operational risks is considered by the Management Board on a quarterly basis.  
- Approval of standard regulations on the interaction of the Company's Directorate for Internal Control and Risk Management and the subsidiaries of PJSC FGC UES for the organisation of the Internal Control and Risk Management System's operation. Action plans for the Internal Control and Risk Management System are developed by the subsidiaries on a yearly or quarterly basis. |
Risk Management Stages

First Stage: Identification of the Situation (environmental factors)

Second Stage: Risk Assessment
1. Risk Identification
2. Risk Analysis
3. Risk Estimation

Third Stage: Risk Treatment (Response)

Fourth Stage: Information Interchange and Consulting

Fifth Stage: Monitoring

Risk Relevance Assessment at PJSC FGC UES

Relevance of the Company's Key Risks in 2016 (Risk Map)

Level of Risk Relevance
- Critical
- Significant
- Moderate

Key Non-Financial Risks and Information on Implementing Management Activities in 2016

Risk of the Business’s Loss of Reputation
1. Measures taken:
   - Measures aimed at levelling operational and technological risks;
   - Informing the stakeholders, including consumers and the media, in a complete and timely manner in accordance with the regulations adopted by the Company.

2. Level of awareness among consumers, the public and other stakeholders about the Company’s activities

Strategic Risk
The Company's strategic development goals and objectives have been set in the Long Term Development Programme (LDP) for 2015–2019. The Long Term Development Programme contains a set of activities aimed at implementing the main provisions of the Programme, including improving the efficiency of the Company's management, investment policy priorities, improving investment performance, operational efficiency, asset management and others.

In order to monitor the implementation of the Long Term Development Programme and minimise the strategic risk factors associated with potential changes in the internal and external environment, the Company monitors the implementation of the activities provided in the Long Term Development Programme and annually prepares a report on the implementation thereof, regularly conducting an external audit of the Programme's implementation in accordance with the Auditing Standard for the Programme's implementation. The report on the implementation of the Long Term Development Programme and its audit results are sent to the Ministry of Energy of Russia. The Long Term Development Programme sets targets for the results of the activities and functional areas that the Company needs to achieve and key performance indicators (KPIs) for the management that encourage the achievement of those targets. The annual and auditor's reports should include not only the analysis of implementation of these activities, but also conclusions about and proposals for adjusting the Long Term Development Programme and KPIs for future periods. This provides feedback for and the adaptation of the strategy to changes in and the reduction of the strategic risk. The Company has developed an updated Long Term Development Programme for 2015–2019, which includes two variants of the Company's development scenario in both basic and risk scenarios.
RISK MANAGEMENT

Strategic Risk

The basic scenario is based on a more favourable economic environment for the Company’s development. The risk scenario involves conditions that complicate the Company’s financial situation (increase the amount of debt), development and growth.

The Company, together with the System Operator, annually develops the Plan and Development Programme of the Unified Energy System of Russia, which defines the main areas of UNG’s development for the next seven years based on the medium-term forecast of the demand for electricity and capacity. The Plan and Development Programme of UES of Russia are approved by the Ministry of Energy of the Russian Federation.

The Company takes the Plan and Development Programme into consideration when developing its investment programme. The practice of the last three years has been a public discussion of the investment Programme by the stakeholders, including large consumers and the Open Government.

The Strategy Committee of the Board of Directors operates and performs a preliminary review, analysis and development of recommendations to the Board of Directors of the Company concerning:

– Evaluating the Company’s performance efficiency for the long term;
– Approving the Company’s Long-Term Development Programme, making amendments thereto and reviewing its progress reports;
– Setting out strategic objectives, monitoring the performance of the Company’s strategy and adjusting the exiting development strategy;
– Determining the Company’s business priorities.

Risks Related to the Company’s Operations

In accordance with the Instruction of PJSC FGC UES No. 232r of 29 April 2014, “On the Analysis of the Environmental Situation in the Branches of PJSC FGC UES – MES, PMES” the current environmental situation at the branches of PJSC FGC UES – MES and PMES are analysed. Based on the results of such analysis, the assessment of possible risks (penal and financial) for PJSC FGC UES is carried out, and proposals for improving the environmental performance of the branches of PJSC FGC UES – MES and PMES are issued.

The Regulations for handling TCD-containing equipment was approved by the Order of PJSC FGC UES on 11 March 2016. The Company’s production facilities (as of the end of the year) have 49,708 equipment units containing TCD (with a total weight of 1,961 tonnes), 5,118 units of which are out of service.

In 2016, the branches of PJSC FGC UES – MES Khabarovsk PMES and Amur PMES, as well as at the branches of PJSC FGC UES – Volga-Don PMES, Vologda PMES, Chemozer PMES and the Special Purpose Production Centre Bely Rast, for compliance with the requirements of ISO 14001:2004. In November 2016, the Company’s environmental management system received a certificate of conformity to the requirements of the ISO 14001:2004 international standard. The validity of the certificate of conformity has been extended until the next compliance audit in 2017.

(1) Risks arising due to failure to comply with the requirements of the environmental legislation of the Russian Federation

In November 2016, the Company’s environmental management system received a certificate of conformity to the requirements of ISO 14001:2004. In accordance with cl. 9.1.1.2 of the ISO 17021:2011 international standard conformity assessment, requirements for authorities auditing and certifying management systems and compliance audits for the Environmental Management System were carried out at the Executive Office of the Company, the Management Offices of MES East, MES Centre and branches of PJSC FGC UES – MES Khabarovsk PMES and Amur PMES, as well as at the branches of PJSC FGC UES – Volga-Don PMES, Vologda PMES, Chemozer PMES and the Special Purpose Production Centre Bely Rast, for compliance with the requirements of ISO 14001:2004. In November 2016, the Company’s environmental management system received a certificate of conformity to the requirements of the ISO 14001:2004 international standard. The validity of the certificate of conformity has been extended until the next compliance audit in 2017.

(2) Risks related to non-fulfilment of targets in the Environmental Policy Implementation Programme

In accordance with the Instruction of PJSC FGC UES No. 232r of 29 April 2014, “On the Analysis of the Environmental Situation in the Branches of PJSC FGC UES – MES, PMES” the current environmental situation at the branches of PJSC FGC UES – MES and PMES are analysed. Based on the results of such analysis, the assessment of possible risks (penal and financial) for PJSC FGC UES is carried out, and proposals for improving the environmental performance of the branches of PJSC FGC UES – MES and PMES are issued.

The Regulations for handling TCD-containing equipment was approved by the Order of PJSC FGC UES on 11 March 2016. The Company’s production facilities (as of the end of the year) have 49,708 equipment units containing TCD (with a total weight of 1,961 tonnes), 5,118 units of which are out of service.

In 2016, the branches of PJSC FGC UES – MES Khabarovsk PMES and Amur PMES, as well as at the branches of PJSC FGC UES – Volga-Don PMES, Vologda PMES, Chemozer PMES and the Special Purpose Production Centre Bely Rast, for compliance with the requirements of ISO 14001:2004. In November 2016, the Company’s environmental management system received a certificate of conformity to the requirements of the ISO 14001:2004 international standard. The validity of the certificate of conformity has been extended until the next compliance audit in 2017.

(3) Reputation risks

(3) The Company clearly follows the formulated principles of corporate social responsibility, given its impact on the national economy, the environment and the society at large. Particular attention is paid to the implementation of charitable, social and environmental programmes, most of which are long-term.

Plans for 2017:

– Risk Management System development at the Company’s branches and subsidiaries;
– Integration of anti-corruption risks into the Company’s Risk Management System;
– Assessment of the risks included into the Company’s Long-Term Development Programme with the introduction of the risks indicated into the Company’s risk register (risk map);
– Training of the Company’s management on the operation of the Risk Management System;
Sustainability Policy of the Company

Ethics in Governance

Code of Corporate Ethics

PJSC FGC UES is a unique infrastructure that connects the country's main electricity generation and consumption units into a unified system. The coordinated work of many thousands of employees depends largely on how they understand the Company's same ethical and professional standards. Therefore, since 2011, PJSC FGC UES has been using a Code of Corporate Ethics, developed in accordance with the best international practices on corporate governance, aimed at increasing the level of corporate culture across all of its business structures.

The Code defines the purpose of the Company – its mission, strategic priorities, goals and values. In addition, this document contains the rules and standards for employee behavior in various situations, as well as recommendations for the effective use of the Company's property and resources and the prevention of conflicts of interest.

The Company's subsidiaries share the principles set forth in Federal Grid Company's Code of Corporate Ethics.

From the Code of Corporate Ethics

PJSC FGC UES

"We continuously strive to improve the quality of our electricity supply to consumers and, for this purpose, we are actively introducing advanced technology and equipment to our company. In the context of the innovative development of the country, the Unified National Electric Grid has gradually moved up to a new level – to the format of a smart electric grid that provides the reliable, high-quality and effective interaction of the consumers and producers of electricity."

For more information on the Code of Corporate Ethics, please see the website at http://www.ues.ru in the Personnel section.

Values and Principles of Governance

The values of the Company consist of:

- **EMPLOYEES** – the Company's greatest asset. The Company provides equal opportunities for job success, professional development and career growth to all of its employees, maintaining the continuity of generations and, respect for the experience of long-serving employees, ensuring the transfer of their professional knowledge and traditions to young employees.

- **DEVELOPMENT** – continuously upgrading and ability to create and master new technologies, the desire to maintain a pace in line the country's growth and openness to new knowledge and innovative solutions allow us to do our job efficiently, safely and with minimal costs.

- **EFFECTIVENESS** – focusing on the overall result and providing the uninterrupted electricity supply to all regions of the country. The Company strives to complete all of its tasks clearly and in due time with reasonable costs.

- **PROFESSIONALISM** – working in the energy industry requires professional competence and knowledge. The Company pays special attention to the formation of its staff, providing each the equal opportunity to prove themselves, encouraging the best employees and entrusting them with new functions and projects that create the conditions for further career growth.

- **RESPONSIBILITY** – our employees perform their duties responsibly without negligence or error. The Company, in return, strives to provide its employees with fair wages, an attractive benefits package and safe and comfortable working conditions.

- **TRUST** – trusting our colleagues and confidence in their professionalism, fairness and openness. The Company is known and respected in the regions of its operation. We value our reputation and strive to maintain and improve it through reliable and high quality work day-by-day.

The Company has a Central Commission for Compliance with Corporate Ethic Standards and Conflict of Interest Resolution.

Mechanisms for Reporting Unethical and Unlawful Conduct

Since 2010, a Hot Line has been in operation at Federal Grid Company for the Company's employees to report on corruption. To report on corruption, please call: 8 (495) 620-16-17. In addition, you can send any information about corruption by e-mail to debt@UES.RU. All calls and e-mails received will be investigated. If the information given is confirmed, administrative measures are taken against the guilty parties and materials from the Company's investigations are sent to the proper legal authorities.

The Hot Line is part of the Company's Programme for Anti-Corruption and Dealing with Conflicts of Interest. This document, in particular, stipulates the need for the increased control over procurements and the signing and execution of agreements with contractors.

In addition, to prevent unlawful practices, a set of measures has been implemented that is aimed at improving the security level of the automated control and accounting systems.

The Hot Line and e-mail address are available for providing information on unethical or unlawful conduct, and/or negligence within the Company.

The company cooperates with government agencies exercising supervisory and control functions, as well as with law enforcement agencies in the field of combating corruption:

- Assists in conducting inspections of the Company's activities;
- Provides support to the legal authorities in detecting and investigating corruption, taking necessary measures to keep and send out the relevant documents and information needed to the legal authorities.

For more information on the Compliance with Corporate Ethic Standards and Conflict of Interest Resolution, please see the Corporate Social Responsibility Report for 2014.

Claim and Complaint Procedure

PJSC FGC UES appreciates its customers and strives to improve its customer service quality. In order to ensure transparency, improve its IT support, as well as the effectiveness and control of technological connection, Federal Grid Company has developed and approved a procedure for filing and handling claims (complaints) on unlawful actions (inactions) of the Company's employees when providing technological connection to UNEG. In accordance with the above document, if the technological connection department violates any provisions of the Standard Procedure for disclosing information on the technological connection of power receivers to UNEG, or any other regulatory act governing the relationships between the Company and the person(s) involved, such person(s) are entitled to file a claim for unlawful actions (inactions) of the Company's employees during the technological connection process.

For the convenience of claimants, a form for filing complaints/claims has been developed, and which is to be filled out and sent to Federal Grid Company at the following address: 9, B. Nikolovorobinsky per., Moscow, 109028.

A claim shall be sent by a registered letter with return receipt, or by any other method allowing the confirmation of the date of the claim's receipt by the Company. Claims/complaints shall be considered within 15 working days from the date of receipt. If desired, a claimant may take part in the consideration of his/her claim.

Following consideration of the complaint, PJSC FGC UES will send a written response by mail or other communication channel as stated in the claim to the Company (via fax or e-mail).

If the Company sends no response to the person(s) concerned within 15 days, the claimant may file the claim to the state regulatory authorities.
Stakeholders and Stakeholder Engagement

Approach to Stakeholder Engagement

PJSC FGC UES strives to provide a high level of openness and transparency of its activities by implementing a principle of maintaining an active dialogue with stakeholders. The Company understands that a reliable, uninterrupted and high-quality power supply to consumers across the Russian Federation is possible only in direct cooperation with all of its stakeholders.

The Company maintains active communication with all of its stakeholders by providing the timely and essential information on all aspects of its activities and responding to their requests and suggestions. Since 2008, the Company has published an annual Social Responsibility and Corporate Sustainability Report. When preparing social reports, the Company is governed by the following international standards for non-financial disclosure: GRI Guidelines, GRI Sector Disclosures for Electric Utilities and the AA 1000 SES Standard. Since 2014, the Company has switched to reporting according to the fourth generation of GRI Guidelines (G4).

As part of preparing the Social Report, the Company discusses the key topics thereof with its stakeholders and collects requests on its disclosure. Prior to publication, the text of the Report is discussed in the form of public hearings, held either in absentia or in person.

Our Social Responsibility and Corporate Sustainability Reports are included in the National Register of Corporate Non-Financial Reports of the Russian Union of Industrialists and Entrepreneurs (RUIE).

List of Stakeholder Groups

When identifying and selecting stakeholder groups to engage with, the Company relies upon the assessment of the stakeholder’s influence on its current operations and strategic development, as well as on the established practice for stakeholder engagement and the stakeholder’s dependence on the Company’s performance.

The assessment of the stakeholder’s influence is shown on the following map. Due to the absence of any significant changes to the Company’s activities in 2016, no updates to the map were made.

For more information on the various forms of stakeholder engagement, please see the 2015 Report.

The main principle of the Company’s sustainability policy is to maintain a balance of implementing the social and economic interests of our activities and to focus on those sustainability aspects that are of primary importance to our stakeholders.

When preparing the annual Social Responsibility and Corporate Sustainability Report, the Company conducts a questionnaire survey to identify priority aspects for the Company and its stakeholders.

Regular and open communication with stakeholders provides the Company with a better understanding of their expectations and gives a chance to use a targeted approach when preparing the corporate social responsibility agenda. Participation in congresses and exhibitions, multilateral discussions, information published in the media – the Company regularly uses all of these communication channels to provide the possibility for dialogue with the relevant audiences.

Engagement with Shareholders and Investors

The Company’s investment programme includes the relevant measures recommended by the Scheme and Development Programme of UES of Russia. The Ministry of Energy of Russia sends the project of the Investment Programme for approval to Rosenergoatom and to the local authorities of the regions.

In addition, the project of the Investment Programme is held at public hearing with the participation of the Expert Council of the Government of the Russian Federation.

On December 2016, Andrey Murov, the Chairman of the Board of JSC FGC UES, participated in a traditional business lunch with the investment society. During the lunch, Andrey Murov discussed the Company’s main performance results and plans. In 2016, the Company retained its leading position in the industry thanks to the achievement of its key financial and economic indicators and increased capitalisation. The Company was successful in coping with the task of developing and maintaining the reliable operation of its backbone electric grids.

Engagement with Customers and Consumers

For more details, please see the Customer Focus section of the Corporate Social Responsibility Report for 2015.

Engagement with Business Partners, Suppliers and Contractors

For more details, please see the Stakeholders and Stakeholder Engagement section of the Corporate Social Responsibility Report for 2015.
Engagement State Control (Supervisory) Bodies and Regulators

PJSC FGC UES holds regular meetings with the representatives of the following federal executive authorities:

- Ministry of Energy of the Russian Federation;
- Federal Tariff Service of the Russian Federation (dissolved in 2015);
- Federal Anti-Monopoly Service of the Russian Federation;
- Federal Service for Environmental, Technological and Nuclear Supervision;
- Federal Service for Supervision of Natural Resources;
- Central Energy Customs of the Federal Customs Service.

PJSC FGC UES cooperates with the Ministry of Energy of the Russian Federation.

PJSC FGC UES and its contractors on the wholesale market: the JSC Financial Settlements Centre, along with generating and energy supply companies, signed standard electricity (capacity) purchase agreements to compensate for losses on the wholesale electricity market, consisting of a commercial representation agreement, based on which the JSC Financial Settlements Centre enters into electric power (capacity) purchase agreements on behalf of PJSC FGC UES, as well as service agreements with infrastructure organisations on the wholesale electricity and capacity market, such as JSC ATU, JSC Financial Settlements Centre.

Engagement with Local Authorities

Federal Grid Company engages in a constructive way with the local administrations and the general public in addressing pressing social, economic and environmental issues, and cooperates with non-profit organisations and the expert community at the regional level.

Engagement with Professional Associations and Industry Organisations

The number of trade union members in the Company makes up about 6% of the total headcount; 8 trade unions operate in the Company. The number of trade union members in the Company makes up about 6% of the total headcount; 8 trade unions operate in the Company.

Engagement with People in Regions of the Company’s Operation and Local Communities, including Indigenous Minorities

The Company operates in accordance with the generally recognised principles and norms of international law, the standards of the International Labour Organisation and the federal legislation. The Company recognises the rights of the indigenous peoples in the territories where the Company operates, supports their identity and initiatives aimed at preserving and developing the culture of the native peoples of the Far North.
Response to Stakeholder Recommendations at Public Hearings on the 2016 Report (20 April 2017)

<table>
<thead>
<tr>
<th>Stakeholder Concerns/Proposals</th>
<th>Response to Stakeholder Concerns/Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To pay more attention to ecology in the 2017 Report.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
<tr>
<td>2. To give more information on the Company’s participation in Worldskills.</td>
<td>Done, p. 100.</td>
</tr>
<tr>
<td>3. To disclose information on the certification of new Russian equipment.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
<tr>
<td>4. To expand the circle of stakeholders.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
<tr>
<td>5. To give more information on the Environmental Management System according to ISO 14000, in particular, on the management hierarchy and performance indicators.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
<tr>
<td>6. To add the impact on biodiversity to the list of environmental impacts, to move the information on bird protection devices into the section on insufficient knowledge of the impacts on biodiversity.</td>
<td>Partially done, p. 109; the number of the bird protection devices has been fixed, p. 113.</td>
</tr>
<tr>
<td>7. To make corrections to the information on interaction with the World Wildlife Fund (WWF of Russia) by taking into account the actual activities of 2016.</td>
<td>Done, p. 116.</td>
</tr>
<tr>
<td>8. To add information on the share of accidents related to birds.</td>
<td>Done, p. 96.</td>
</tr>
<tr>
<td>9. In 2017, to pay more attention to biodiversity, since the impact is not limited to the impact on birds, to attract biologists and to pay attention to the Company’s consistency.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
<tr>
<td>10. To remove information on Smolny National Park that is not related to 2016.</td>
<td>Done, p. 119.</td>
</tr>
<tr>
<td>11. To add a page with the indicators by unit structure to each section.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
<tr>
<td>12. To get the report approved by the Russian Union of Industrialists and Entrepreneurs.</td>
<td>The Company conducts public hearings with PJSC FGC UES’s stakeholders.</td>
</tr>
<tr>
<td>13. To pay more attention to global trends in sustainable development.</td>
<td>Will be taken into account when drafting the 2017 Report.</td>
</tr>
</tbody>
</table>

At public hearings the Company was represented by the Vice Chairman of the Board, Deputy Directors of business areas, heads of departments, and specialists. Stakeholders participating in the events included representatives of public and non-profit entities, educational institutions, environmental and research organisations, business associations and the expert community of electric power sector.

During the discussion, the stakeholder’s representatives expressed their concerns and made some recommendations on the disclosure of certain issues in the Report.

Growth
Infrastructure Development

For 2016, UNEG has kept its maximal reliability level. The accident rate at substations and transmission lines was at the minimal level in the Company’s history. 2017 is the Year of UNEG reliability increase in FGC UES.
Ensuring Reliable and Uninterrupted Operation of UNEG

The system for the operational process control and situational management of the Company facilities was established to ensure operational preparedness and a reliable electricity supply. The disturbances at substations occurred mainly on circuit breakers and at transformer leads and line isolations. The number of accidents has been decreasing for four consecutive years: a decrease of 2.4 times in circuit breaker accidents and a 45.1% decrease in transformer leads and line isolation accidents compared to 2012.

In 2017, the Company will pay special attention to employee actions and work on transmission lines and automatic reclose devices of overhead lines in order to maintain a high reliability level. A quick diagnostic of substation equipment is also possible due to transformer oil and distillate testing laboratories. At the end of 2016, the Company opened such laboratories at locations in the Far North and South. At present, all of the Company’s facilities have their own laboratories. 2017 shall be the year of the increase of the reliability of UNEG at the Company.

Number of Process Disturbances in 2016

All of the Company’s activities are aimed at ensuring the reliable and uninterrupted operation of UNEG. The reliability of the Company’s grids increases every year. In 2016, the specific accident rate at FGC’s facilities declined by 1.3% thanks to the introduction of new equipment, improving the skills and expertise of the servicing personnel and other such activities.

In addition, the Company has continued to work on improving its process control regulations. In 2016, the Company developed and updated a number of basic regulations.

Unified Technical Policy

The Company’s Unified Technical Policy is governed by the Regulation on the Unified Technical Policy in the Electric Grid Complex. The Regulation on the Unified Technical Policy in the Electric Grid Complex was approved in 2013. Its aim is to identify the key technical areas that enhance the electric grid complex’s reliability and efficiency for the short and medium term with the appropriate industrial and environmental safety, based on the innovative development principles that provide non-discriminatory access to the electric grids for all market participants.

The Technical Policy has the following objectives:

- To ensure reliable electricity supply to the customers;
- To improve the technologies for operations, maintenance and repairs;
- To reduce investments and costs necessary for operating the facilities;
- To minimise environmental impact;
- To create incentives for manufacturing the most-up-to-date equipment and engineering structures in Russia, and encourage the enhancement of R&D and project capacity.

The implementation of the Unified Technical Policy allows the Company to optimise the use of its investment resources, increase the efficiency of the electric grid complex, reduce the costs of its operation, to strengthen UNEG system’s reliability and to ensure a growing demand for electricity.

Control over the implementation of the Unified Technical Policy in the electric grid complex is carried out with the inspection of:

- External work and technical conditions for technological connection;
- Design assignments, projects and working documentation for new construction (expansion, reconstruction, technical re-equipment, modernisation) at electric grid facilities;
- Tender documentation, in addition to technical and commercial proposals for design, survey, construction and installation works, and the supply of equipment to the electric grid complex.

Number of Accidents Dynamics at FGC’s Facilities

Implementation of APCS and the transition to the operation of substations without permanent on-duty personnel will enable the Company to reduce service costs and the time for needed for eliminating process disturbances, as well as the ability to perform simultaneous situation analyses at the facilities and grids adjacent to the substation.

Dynamics of Power Energy Undersupply by FGC, MWh (According to Data from Accident Investigation Reports)

Results of 2016

In 2016, the accident rate at the Company’s substations and transmission lines remained at the same level for 2015, which is the lowest level in the Company’s history. Quality of investigating the reasons of accidents has significantly increased. The number of disturbances at primary equipment of substations decreased by 9.4% (a 44.5% difference compared to 2012), with disturbances to the dispatch control system decreasing by 2.5 times (16.5 times compared to 2012). The reasons for the decrease of accidents are: MRS Siberia (-16.5%), MRS East (-15.3%) and MRS Urals (-12.4%). Analysis of the process disturbances at transmission lines showed that the majority of the accidents were caused by storms and other climatic reasons, with these accounting for 45% of all the disturbances. 19% of the disturbances were caused by birds and 13% by third parties.

Measures to Improve the System’s Performance

The Company continues to implement the Automatic Process Control System (APCS) at new generation substations and establish fully functional grid control centres at PMES that makes it possible to transfer the operation and maintenance of substations to grid control centres, thus placing such substations into the category of “substations without permanent on-duty personnel”. In 2016, the Company executed pilot projects for the distant control of substations from the dispatch centres of JSC SO UES and the grid control centres at PMES at the branches of Leningrad and Kuber PMES.

In 2016, UNEG boasted its Maximum Level of Reliability

In 2016, the accident rate at the Company’s substations and transmission lines remained at the same level for 2015, which is the lowest level in the Company’s history. Quality of investigating the reasons of accidents has significantly increased. The number of disturbances at primary equipment of substations decreased by 9.4% (a 44.5% difference compared to 2012), with disturbances to the dispatch control system decreasing by 2.5 times (16.5 times compared to 2012). The reasons for the decrease of accidents are: MRS Siberia (-16.5%), MRS East (-15.3%) and MRS Urals (-12.4%). Analysis of the process disturbances at transmission lines showed that the majority of the accidents were caused by storms and other climatic reasons, with these accounting for 45% of all the disturbances. 19% of the disturbances were caused by birds and 13% by third parties.

Results of 2016

In 2016, the following results were achieved due to successful operational process control and situation management:

- No violations to UNEG’s overvoltage standard occurred;
- Minimising the number of process disturbances caused by employee mistakes;
- Retaining a high level of key performance indicators such as the outage schedule compliance rate and the outage duration rate;
- Next generation substations with advanced automated equipment control systems were designed and commissioned;
- The Company optimised the time and resources needed for dealing with emergency situations and for post-accident repairs.

Measures to Improve the System’s Performance

The Company continues to implement the Automatic Process Control System (APCS) at new generation substations and establish fully functional grid control centres at PMES that makes it possible to transfer the operation and maintenance of substations to grid control centres, thus placing such substations into the category of “substations without permanent on-duty personnel”. In 2016, the Company executed pilot projects for the distant control of substations from the dispatch centres of JSC SO UES and the grid control centres at PMES at the branches of Leningrad and Kuber PMES.

In 2016, UNEG boasted its Maximum Level of Reliability

In 2016, the accident rate at the Company’s substations and transmission lines remained at the same level for 2015, which is the lowest level in the Company’s history. Quality of investigating the reasons of accidents has significantly increased. The number of disturbances at primary equipment of substations decreased by 9.4% (a 44.5% difference compared to 2012), with disturbances to the dispatch control system decreasing by 2.5 times (16.5 times compared to 2012). The reasons for the decrease of accidents are: MRS Siberia (-16.5%), MRS East (-15.3%) and MRS Urals (-12.4%). Analysis of the process disturbances at transmission lines showed that the majority of the accidents were caused by storms and other climatic reasons, with these accounting for 45% of all the disturbances. 19% of the disturbances were caused by birds and 13% by third parties.

Results of 2016

In 2016, the following results were achieved due to successful operational process control and situation management:

- No violations to UNEG’s overvoltage standard occurred;
- Minimising the number of process disturbances caused by employee mistakes;
- Retaining a high level of key performance indicators such as the outage schedule compliance rate and the outage duration rate;
- Next generation substations with advanced automated equipment control systems were designed and commissioned;
- The Company optimised the time and resources needed for dealing with emergency situations and for post-accident repairs.

Measures to Improve the System’s Performance

The Company continues to implement the Automatic Process Control System (APCS) at new generation substations and establish fully functional grid control centres at PMES that makes it possible to transfer the operation and maintenance of substations to grid control centres, thus placing such substations into the category of “substations without permanent on-duty personnel”. In 2016, the Company executed pilot projects for the distant control of substations from the dispatch centres of JSC SO UES and the grid control centres at PMES at the branches of Leningrad and Kuber PMES.
Growth Infrastructure Development
PJSC FGC UES Social Responsibility and Corporate Sustainability Report 2016

Reliability and Quality of Services

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability of services</td>
<td>Target</td>
<td>0.0483</td>
<td>0.0241</td>
<td>0.0475</td>
<td>0.0199</td>
<td>0.03662</td>
</tr>
<tr>
<td></td>
<td>Actual</td>
<td>0.0479</td>
<td>0.0198</td>
<td>0.03348</td>
<td>0.0171</td>
<td></td>
</tr>
<tr>
<td>Quality of services</td>
<td>Target</td>
<td>1.2410</td>
<td>1.2101</td>
<td>1.2224</td>
<td>1.1088</td>
<td>1.2040</td>
</tr>
<tr>
<td></td>
<td>Actual</td>
<td>1.1520</td>
<td>1.23908</td>
<td>1.0236</td>
<td>1.22049</td>
<td>1.0252</td>
</tr>
</tbody>
</table>

Pursuant to the Company’s announcement for improving UNEG’s reliability for the corporate year, a number of events will be held to improve the quality of services that will ensure a reliable electricity supply to consumers and attract the community’s attention to the Company’s production activities and culture of labour safety.

Fire Safety

The number of fires as the result of process disturbances at the Company’s facilities decreased thanks to the implementation of a programme for increasing the fire safety level and improving the quality of fire safety at UNEG’s facilities for the 2011–2017 period, as well as a result of certain additional measures taken to prepare for the fire season.

In 2016, there was only one fire-related incident at the Company’s facilities, however, no violations of fire safety rules were discovered, including any violations discovered by the supervisory authorities prior to the fire.

Number of Accident-Prevention and Fire Safety Trainings for Operational Personnel at Grid Control Centres of MES, PMES and SS in 2016, pcs

<table>
<thead>
<tr>
<th>Branch Name</th>
<th>Number of Test Fire Safety Trainings</th>
<th>Number of Test Fire Safety Trainings, Together with Accident Prevention and Post-Accident Trainings</th>
<th>Number of Fire Safety Trainings and Exercises in Cooperation with the Ministry of Emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td>MES Centre</td>
<td>1,144</td>
<td>1,144</td>
<td>102</td>
</tr>
<tr>
<td>MES Northwest</td>
<td>218</td>
<td>218</td>
<td>5</td>
</tr>
<tr>
<td>MES South</td>
<td>993</td>
<td>993</td>
<td>5</td>
</tr>
<tr>
<td>MES Volga</td>
<td>864</td>
<td>864</td>
<td>83</td>
</tr>
<tr>
<td>MES Irkut</td>
<td>133</td>
<td>133</td>
<td>2</td>
</tr>
<tr>
<td>MES Western Siberia</td>
<td>137</td>
<td>137</td>
<td>1,211</td>
</tr>
<tr>
<td>MES Siberia</td>
<td>436</td>
<td>436</td>
<td>8</td>
</tr>
<tr>
<td>MES East</td>
<td>220</td>
<td>220</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>4,145</td>
<td>4,145</td>
<td>230</td>
</tr>
</tbody>
</table>

1 The reliability level of the Company’s services is determined by the duration of the electricity outage and is calculated as the ratio of the actual total duration of electricity outage in the control period (hour) to the maximal number technological connections for the same period.

2 The quality level of the services is determined based on the execution of technological connection request, and is calculated as the ratio of the number of applications submitted by consumers, in accordance with the requirements during the control period, to the difference between the number of draft contracts sent to said applications in accordance with the established procedure of contract conclusion for technological connection and the number of draft contracts sent in breach of the terms.

Fire Safety

In 2016, there was only one fire-related incident at the Company’s facilities, however, no violations of fire safety rules were discovered, including any violations discovered by the supervisory authorities prior to the fire.

Number of Test Fire Safety Trainings in 2009–2016, pcs

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>436</td>
<td>436</td>
</tr>
<tr>
<td>2010</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>2011</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2015</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>2016</td>
<td>52</td>
<td>52</td>
</tr>
</tbody>
</table>


Energy Efficiency and Energy Management

In 2016, the Company continued to implement the Energy Saving and Energy Efficiency Programme of PJSC FGC UES for 2015–2019, which was reapproved in 2015.

Results for 2016:

- In 2016, energy saving and the reduction of specific energy consumption for the Company’s own needs at substations was 2.4% per 1 unit of equipment, compared to the 0.5% target for Russia;
- The Company’s buildings, structures, and other facilities have been equipped with water, gas, heat and electricity metering devices. 100% of the target was achieved (TEI-2);
- Reduction of specific energy consumption at the Company’s buildings, structures, and other facilities was 3.43% (TEI-5) per 1 sq. m compared to the 3.4% target for Russia;
- Reduction of specific heat consumption at the Company’s buildings, structures, and other facilities was 5.61% (TEI-6) per 1 sq. m compared to the 5.8% target for Russia;
- Reduction of specific petrol consumption for UNEG’s transmission lines was 1.01% (TEI-7.1) per 1 km compared to the 0.4% target for Russia;
- Reduction of specific diesel fuel consumption for UNEG’s transmission lines was 2.37% (TEI-7.2) per 1 km compared to the 0.5% target for Russia;
- Preparing and improving the Company’s regulations and internal documents related to energy saving and higher energy efficiency.


RUB 75 million

the economic effect of measures taken in 2016 within the Energy Saving Programme

7,560 tonnes of fuel oil equivalent (TFOE)

the technological effect of measures to decrease fuel/energy consumption

Programme goals

- To ensure the saving and rational use of fuel and energy resources and reduce electricity consumption during transmission via UNEG grids by improving the energy efficiency of the Company’s facilities and equipment;
- To implement an energy management system and to conduct the certification of activities as per the requirements of the ISO 50001:2011 international standard on Energy Management Systems – Requirements and guidelines;
- To improve the energy efficiency of the Company’s electric grid facilities and equipment.

Energy Saving and Increasing Energy Efficiency

PJSC FGC UES for 2015–2019, which was reapproved by Order No. 525-e of FTS of Russia, of 26 March 2015, and Order No. 398 of the Ministry of Energy of Russia, of 30 June 2014.

In 2016, the Company started an energy inspection pursuant to Article 16 of Federal Law No. 261-FZ “On Energy Saving and Increasing Energy Efficiency” of 23 November 2009.


The Company held a pilot energy inspection at Moscow PMES and developed methodical guidelines for the energy inspection approved by Order No. 24 of 23 January 2017, which included:

- Regulations on energy inspections for the Company’s facilities;
- Methodology for the collection of data and instrumental measurements during the Company’s energy inspections;
- A calculation method for the target and actual technological effects of energy saving and measures for increasing energy efficiency, including a list of typical and innovative measures;
- Requirements for the structure of the mandatory energy inspection report.
Energy Management System

In 2016, the Company held the following state certified training seminars (on site) aimed at training and ensuring the competency of its employees:

- Implementation of Energy Management Systems
- The auditors recommended the issuance of a certificate of conformity.

The main activities aimed at reducing the consumption of petrol, oil and lubricants include:

- Technical control over the operation of vehicles (the alignment of wheels, tyre pressure control, replacement of oil, filters, spark plugs, injection of fuel nozzles, etc.);
- Adjustment of fuel consumption norms;
- Purchasing injection engine test benches;
- Equipping vehicles with satellite positioning equipment for their continuous monitoring;
- Optimising traffic routes, educating personnel, and when possible, priority loading with the minimum specific fuel consumption necessary.

Energy Resources Used in 2016

<table>
<thead>
<tr>
<th>Types of Resources</th>
<th>Measurement Unit</th>
<th>2016 Target</th>
<th>2016 Actual</th>
<th>Deviation, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat in administrative buildings</td>
<td>In physical terms</td>
<td>39.5 thousand Gcal</td>
<td>39.6 thousand Gcal</td>
<td>-0.4</td>
</tr>
<tr>
<td></td>
<td>In monetary terms</td>
<td>46,704.8 RUB thousand, VAT excl.</td>
<td>46,161.7 RUB thousand, VAT excl.</td>
<td>-1.0</td>
</tr>
<tr>
<td>Electricity in administrative buildings powered by third-party sources</td>
<td>In physical terms</td>
<td>32,375.7 thousand kWh</td>
<td>32,200.2 thousand kWh</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>In monetary terms</td>
<td>142,781.2 RUB thousand, VAT excl.</td>
<td>144,257.0 RUB thousand, VAT excl.</td>
<td>-1.0</td>
</tr>
<tr>
<td>Petrol for automobiles</td>
<td>In physical terms</td>
<td>7,535.8 thousand l</td>
<td>6,078.3 thousand l</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td>In monetary terms</td>
<td>223,955.2 RUB thousand, VAT excl.</td>
<td>199,153.6 RUB thousand, VAT excl.</td>
<td>16.0</td>
</tr>
<tr>
<td>Diesel fuel</td>
<td>In physical terms</td>
<td>6,852.5 thousand l</td>
<td>5,964.5 thousand l</td>
<td>13.1</td>
</tr>
<tr>
<td></td>
<td>In monetary terms</td>
<td>223,997.4 RUB thousand, VAT excl.</td>
<td>199,937.4 RUB thousand, VAT excl.</td>
<td>13.3</td>
</tr>
</tbody>
</table>

The process effect of initiatives aimed at reducing electricity losses across the Company amounted to 58.3 mln kWh in 2016, which is equivalent to 7,172.0 tonnes of fuel equivalent, with an economic effect amounting to RUB 68.3 million.

In order to reduce process consumption (losses) of electricity in UNEG, the Company has taking the following measures:

- Replacing old doors, entrance units and gates with new energy efficient ones;
- Installing a lighting control system (including the installation of motion and presence sensors);
- Replacing window structures with energy efficient ones (mainly LED);
- Optimising the operation of the heating, air-conditioning, lighting of buildings, and disconnecting office equipment and electric appliances with the appointment of persons responsible for them.

The main activities aimed at reducing the consumption of petrol, oil and lubricants include:

- Technical control over the operation of vehicles (the alignment of wheels, tyre pressure control, replacement of oil, filters, spark plugs, injection of fuel nozzles, etc.);
- Adjustment of fuel consumption norms;
- Purchasing injection engine test benches;
- Equipping vehicles with satellite positioning equipment for their continuous monitoring;
- Optimising traffic routes, educating personnel, and when possible, priority loading with the minimum specific fuel consumption necessary.

RUSC FGC UES Pilot Projects in Terms of Energy Saving and Energy Efficiency

**Project Name**

**Savings**

**Building an Energy-Efficient Pilot Plant for 500 kV SS Nizhegorodskaya**

- The heating system of the pilot plant building was replaced. Modern heating radiators with temperature control valves were installed.
- The installed capacity of the heating system was reduced by 20 times. Two electrode boilers with a 450 kW capacity were replaced by 22 kW heat recovery system.
- Rooms were categorised by their constant temperature. The temperature was reduced to 9–15° C in the technical rooms, with the possibility of providing a comfortable environment at a rapid speed, if required for working conditions.
- The heating system was integrated into the substation’s APCS. The main parameters of the heating system are displayed on the substation’s mnemocircuit.

**Development of a Unified Heating System for Drive Cabinets and Terminal Boxes and OSG 220–750 kV Circuit Breakers**

- Heating systems were created for the drive cabinets and terminal boxes of breakers, disconnecting switches, isolators and OLTC of OSG 110–750 kV transformers.
- The heating systems of the drive cabinets and the terminal boxes of the breakers and disconnecting switches of the OSG 220–750 kV transformers were upgraded.
- Technical solutions and unified heating systems for oil switch tanks were developed.
- Thermostats (T1 group) and single-channel digital thermostats (OF group) were installed.
Project Name: The Integrated Project to Reduce Energy Consumption Necessary for 750 kV SS Vladimirskaya’s Own and Utility Needs

- Frequency control of electric motors for the AT-7 cooling system was performed.
- Fluid cooling of the AT-6 and heat recovery system of the AT-6 for heating the pilot plant building and the PMES building complex was implemented.

Will allow the reduction of power consumption of AT cooling and heating for the building of the 750 kV SS Vladimirskaya.

2017 Plans

Implementation of the approved programme for 2015–2019 is to continue in 2017, in accordance with targets set by the Programme and the Order of PJSC FGC UES on the programme’s implementation in 2017. Recertification of the internal audit of the Energy Control System of PJSC FGC UES that will confirm compliance with the ISO 50001:2011 international standard has been planned.

Import Substitution

Import Substitution Programme of Federal Grid Company for 2015–2019

Purpose of the Programme’s Implementation

To build efficient and effective cooperation with the manufacturers of electric equipment to implement the policy of innovative development, energy saving and improving energy efficiency, as per the Unified Technical Policy Regulation, including the following:

- Strengthening the national energy security by supporting the development of domestic manufacturers of electric equipment that meet modern standards and international quality and reliability requirements;
- Facilitation of innovative development and the upgrade of enterprises for the domestic electric equipment industry;
- Creating a competitive market for electric equipment in the Russian Federation.

Key Objectives of the Programme

- To promote the development of a competitive Russian market for state-of-the-art electric equipment;
- To promote the development of a multidimensional industry-wide innovative infrastructure;
- To promote the development and improvement of technologies for manufacturing new types of electric equipment;
- To improve the regulatory framework and methodological support of cooperation with producers of electric equipment;
- To lower the cost of electric equipment procured by the Company through import substitution and raising the level of localisation;
- To increase the transparency and openness of the Company’s procurement operations.

Assessment Criteria for the Efficiency of the Import Substitution Programme 2015–2019

70% The share of domestic products procured for main electric equipment by PJSC FGC UES in 2016.

A key expected result of implementing this Programme is an increase of equipment produced by domestic manufacturers in the total share of the procurement of electric equipment for PJSC FGC UES’s needs, which are also characterised by a high share of localisation in the territory of the Russian Federation.

<table>
<thead>
<tr>
<th>Year</th>
<th>Share of domestic electric equipment in procurements made by FGC UES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>60%</td>
</tr>
<tr>
<td>2018</td>
<td>57%</td>
</tr>
<tr>
<td>2017</td>
<td>54%</td>
</tr>
<tr>
<td>2016</td>
<td>51%</td>
</tr>
<tr>
<td>2015</td>
<td>48%</td>
</tr>
</tbody>
</table>

As the part of the assessment criteria for the efficiency of the Programme’s implementation, the following indicators are used:

- To increase the share of Russian-made electric equipment in the Company’s procurements compared to 2014;
- To increase the level of localisation for electric equipment manufacturing in the Russian Federation;
- To increase the number of domestically manufactured innovative products and technologies, which were developed in joint projects of PJSC FGC UES and Russian producers, compared to the previous year.
Programme Implementation Methods

1. Developing guidelines, standards and legal support for the import substitution processes and localisation of manufacturing;
2. Arranging procurement by PJSC FGC UES by taking into account the Programme’s target indicators;
3. Signing long-term supply contracts with leading foreign electric equipment manufacturers that stipulate;
4. Information support of the domestic manufacturers including stimulation of use of their product in production of localised items (informing of short-term and long-term Company demand, conditions of cooperation, enterprises localising production in the territory of the Russian Federation; arranging meetings, seminars, open discussions of localisation issues, etc.)

Target indicators for implementing the import substitution programme for equipment, technologies, materials and systems at PGSC FGC UES for the period up to 2030

PJSC FGC UES included nine groups of main electric equipment whose procurement was significantly dependent on imports into the Import Substitution Programme as priority import substitution areas:

<table>
<thead>
<tr>
<th>Groups of Equipment</th>
<th>Procurement of Domestic Equipment Groups</th>
<th>2019</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Electric Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–750 kV power transformers and autotransformers</td>
<td>70%</td>
<td></td>
<td>95%</td>
</tr>
<tr>
<td>110–750 kV shunt reactors</td>
<td>77%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–500 kV controlled shunt reactors</td>
<td>64%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–750 kV circuit breakers</td>
<td>51%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–750 kV disconnectors</td>
<td>81%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–500 kV current transformers</td>
<td>57%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–500 kV voltage transformers</td>
<td>41%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–500 kV gas insulated metal-clad distribution substations</td>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110–330 kV power cable with cross-linked polyethylene coating</td>
<td>39%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Secondary Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relay protection and automation</td>
<td>66%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency control automatics</td>
<td>92%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatic process control system</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication systems</td>
<td>55%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The share of domestic equipment procurement in these product groups is aimed at 95% by 2030 (compared to 75% in 2015 and 44.5% in 2014.)

Tariff Policy and Transparency for Consumers

Tariff Regulation

PJSC FGC UES performs regulated operations for the provision of electric power transmission services via UNEG, distribution electric grids (hereinafter referred to as DES facilities), technological connection to the electric grids, as well as other non-regulated activities. The Company’s core business of electricity transmission via UNEG and technological connection services is performed based on tariffs that are approved by the federal executive authority for tariff regulation.

The Company’s activity on providing the services of electric power transmission via distribution electric grids is regulated at the regional level by the executive bodies of the constituents of the Russian Federation.

Tariffs for Electric Power Transmission Services via UNEG

The Main Long-Term Regulatory Parameters Established by FTS of Russia for the Second Long-Term Regulation Period of 2015–2019

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of return on capital invested, %</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Base level of operating expenditures, RUB million</td>
<td>35,023,035</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Operating expenditure efficiency index, %</td>
<td>–</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Net working capital, RUB million</td>
<td>11,417,538</td>
<td>11,919,910</td>
<td>12,432,466</td>
<td>12,967,062</td>
<td>13,524,645</td>
</tr>
<tr>
<td>Period of return of capital invested, years</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Electric power loss rate when transferred via electric grids, %</td>
<td>4.27</td>
<td>4.27</td>
<td>4.27</td>
<td>4.27</td>
<td>4.27</td>
</tr>
</tbody>
</table>

The FTS Order No. 297-e/3 of 9 January 2014 approved the tariffs for electricity transmission via UNEG for the second long-term regulatory period of 2015–2019. The following changes to the established tariffs and regulatory parameters were made during 2016:

- Pursuant to p. 37 of the "Basic Pricing Principles of Regulated Prices (Tariffs) for the Electricity Sector", approved by Russian Government Resolution No. 1178 of 29 January 2011, the FAS Order No. 1895/16 of 27 December 2016, amendments were made to the FTS Order No. 297-e/3 of 9 January 2014, and the adjusted tariffs for power transmission services provided by PJSC FGC UES via UNEG for 2016–2019 were approved.

The FAS of Russia’s Order No. 1895/16-DPS approves the forecast for the balance of electric energy and capacity for 2017, which foresees a reduction in service volumes that FGC provides to grid companies from 01 July 2017 due to the transition of ‘last mile’ consumers to direct contracts with PJSC FGC UES and payments based on average capacity.
The tariff regulation performed by applying the method for return on invested capital based on long-term parameters implies that PJSC FGC UES is able to assure parameters for the reliability and quality of services rendered as established by FTS of Russia. The Order of the Russian Ministry of Energy No. 718 of 14 October 2013 approved new guidelines for calculating the level of reliability and the quality of goods supplied and services rendered for the managing company of UNEG and regional grid organisations. This list includes the indicators for the reliability of power transmission that characterise the occurrence of process disturbances and their consequences for consumers, as well as quality indicators for consumer service, which primarily characterise the timely execution of technological connection liabilities. The Order of FTS of Russia No. 254-e/1 of 26 October 2010 approved guidelines for the calculation and application of any decreasing (increasing) factors that make it possible to ensure the consistency of the tariff levels with the level of reliability and quality of goods delivered and services provided established for organisations that perform regulated operations. In accordance with these guidelines, increasing or decreasing factors within the limit of 3% of the required gross revenue will be applied to FGC’s revenues.

Tariffs for Electric Power Transmission Services via UNEG

The FAS of Russia defines two payment methods for technological connection to UNEG facilities: the approval of an individual payment for a specific applicant (in case the construction of electric grid facilities is required) and the approval of a payment set by the formula using the standard C1 tariff rate. Order No. 1830/16 of FAS of Russia on 23 December 2016 approved the 2017 standard tariff rate for PJSC FGC UES in the amount of 23.64 RUB/AW (excl. VAT) divided by activity. The reduction of the rate by 6.04% compared to 2016 is the result of a decrease in FGC’s headcount in the area of technological connection.

In 2016, the payment amount for the technological connection an individual project was set for 9 consumers with a total amount of RUB 37.3 billion (excl. VAT). The applicants with the highest payment amount include:

- JSC Kontarem Rosenergotom Kalininskaya HPP
- PJSC RusHydro Zelenchukskaya HPP
- LLC Huadan-Tensinskaya CHPP
- JSC Energesyuskaya Territorial Generating Company Krasnoyarskikh PCH

The standard C1 rate is set for PJSC FGC UES at the same level as the rate for all of the constituents of the Russian Federation’s consumers, regardless of the electric supply price category, the range of the connected capacity or the voltage level of the applicants. The only exception is for consumers connecting less than 150 kW. In that case, the C1 rate does not include expenses for the presence of a Rostekhnadzor official during examination. The 2017 rate for this consumer category is set in the amount of 23.15 RUB/AW.

Starting from November 2013, payment amounts for the technological connection of generating facilities to UNEG, in addition to expenses for new construction of last mile electric grid facilities, includes the cost of investment for developing the existing grid infrastructure in order to provide the delivery of capacity, regardless of the type of generation – HPP, NPP, or CHP.
Investment Activities

The project of the Investment Programme of PJSC FGC UES for the period of 2016-2020 (hereinafter referred to as IP) was developed in accordance with the rules for the approval of investment programmes for electric power entities (of which the State is a shareholder) and grid organisations. The key objectives of the IP which have been outlined in the conditions of the current situation are characterised by the significant growth of borrowing costs, the restriction of the finance market due to inflation and the increase of the currency exchange rate, failure of the consumer to pay for electric power transmission and technological connection services, include:

- Maintenance of the operational reliability of the Unified Energy System that is required for uninterrupted power supply to consumers;
- Electricity supply to facilities of national importance, including actions taken to ensure the uninterrupted electricity supply under the conditions of the separation functioning of the Unified Energy System of Russia and Energy Systems of the Baltic States and to compensate for the reduction in the transfer capacity of interconnections of the IPS of Centre and the IPS of the Northwest, as well as changes in the operating modes of the BRELL (Belarus, Russia, Estonia, Latvia and Lithuania) energy ring, the ESPO pipeline and the development of the electric grid infrastructure in Eastern Siberia and the Far East;
- Providing an uninterrupted power supply while maintaining the separate operation of the UES of Russia and the UPS of Ukraine;
- Providing quality and the availability of the power transmission service and connection to electric grids for consumers;
- Synchronisation of the development programmes with generation facilities and distribution grids;
- Improvement of the operational efficiency of backbone grids via cost reduction and the implementation of energy efficiency programmes;
- Development of an effective system of operational management for UNEs that provides improvement in the observability of the electric grid facilities.

The Russian Ministry of Energy’s Order No. 980 of 18 December 2015 approved the Investment Programme of PJSC FGC UES for the period of 2016-2020 (hereinafter referred to as IP) was developed in accordance with the rules for the approval of investment programmes for electric power entities (of which the State is a shareholder) and grid organisations.

In physical terms, 8,772 MVA of transformer capacity and 827 km of electric power transmission lines were commissioned as a result of the implementation of the Investment Programme of PJSC FGC UES in 2016.1

December 2016 approved adjustments to the Company’s Investment Programme for the period of 2016–2020, including:

- Financial plans for the set of compensation measures at the UES of Russia when separating from the BRELL energy systems that are brought in line with the work performance schedule;
- The Reserve for ERW investment project programme was excluded from the Investment Programme;
- Justifying the materials and calculations needed for the Research and Training centre were finalized;
- Design notes for programmes in terms of the justification of the cost and the composition of the activities were finalized.

“...The Company’s management maintains their adherence to the course of respecting a balance of common interests – the conditions of maintaining the growth of transmission tariffs for the backbone electric grid system were developed, the expenses of direct consumers were lowered, and, at the same time, the accumulation of the resources for the efficient implementation of investment, repair and renovation programmes was provided and the shareholders’ expectations were met.”

A. Mironov
Chairman of PJSC FGC UES

Overall, the project of adjusting the Investment Programme for 2016–2020 was optimised to address the need of improving the operation reliability of the backbone electric grid system with a focus on ensuring a continuous electricity supply to the facilities and complete electric grid facilities, the need to finalise the construction of electric grid facilities whose construction had started in the previous periods and possibility to finance the implementation of new investment projects by using all sources of funding.

The implementation of the Investment Programme of PJSC FGC UES will ensure solution to the key current issues related to maintaining UNEG, including tasks that are of national importance, in order to assure the operation of the most important facilities and the electricity supply to socially significant facilities.

2016 Results:

The transfer of assets under construction to fixed assets in a total amount of RUB 103,670 million was performed as a result of the implementation of the Investment Programme of PJSC FGC UES in 2016.1

In physical terms, 8,772 MVA of transformer capacity and 827 km of electric power transmission lines were commissioned.

In 2016, 216 contracts for technological connection (5,635 MW) were executed, 19 of which were contracts for the connection of generating companies (2,982 MW).

Key Indicators of Investment Activity

Dynamics of Commissioning Capacity

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commissioning value, RUB billion</td>
<td>103.7</td>
<td>137.3</td>
</tr>
<tr>
<td>Commissioning capacity, MVA</td>
<td>8,772</td>
<td>13,226</td>
</tr>
<tr>
<td>Commissioning of power transmission lines, km</td>
<td>827</td>
<td>2,303</td>
</tr>
</tbody>
</table>

Dynamics of the amount of investment financing, RUB billion

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>103.7</td>
<td>109.9</td>
<td>117.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The structure of capital investments (for financing) in 2016

1 Information has been provided according to data from the 2016 Q4 report on the implementation of the Investment Programme of PJSC FGC UES, submitted to the Russian Ministry of Energy by Letter No. FR-829 on 14 February 2014.
Large Technological Connections Implemented in 2016

1. Vladimirmensk Branch of PJSC IDGC of Centre and Privolzhie SS 110 kV Vorasha, 40 MN, 31 August 2016. Vladimir Region.
3. PJSC IDGC of Centre and Privolzhie, 22.6 MW, 31 October 2016. Nizhny Novgorod Region.
4. PJSC IDGC of Northwest, SS 110 kV IndustrPark SOKOL, 20 MW, 11 April 2016, Vologda Region.
5. JSC Gazpromneft-Noyalkoskneftegaz TC ES-110 NKS-1 with OHL 110 kV, 30.5 MW, 11 August 2016, Yamalo-Nenets Autonomous District.
6. JSC E.ON Russia, Surgutskaya GRES-2, 46 MW, 2 February 2016. Tyumen Region.
7. PJSC IDGC of Centre – Tambove, increase in existing connections OHL 110 kV SS 220 kV Tambovskaya 4, 20.4 MW, 26 February 2016. Tambov Region.
8. PJSC IDGC of Ural Branch – Chelyabenergo, reconstruction of RPA and emergency automatic equipment at SS 220 kV (Isakovo, 56 MW, 24 September 2016. Chelyabinsk Region.
10. PJSC Kubanenergo, SS 110 kV Kostpressomay, 3.2 MW, 28 October 2016. Krasnodar Region.
12. PJSC IDGC of Volga SS 110 kV Tomylovskaya, 35 MW, 24 October 2016. Samara Region.
14. JSC Antipinsky Oil Refinery, GPR-10 kV, 59.75 MW, 12 April 2016. Tyumen Region.
15. JSC Nizhne-Bureiskaya HPP SS 220 kV Stvoir, 22.5 MW, 25 May 2016. Amur Region.
16. PJSC IDGC of Ural Branch – Chelyabenergo, SS 110 kV Granitnaya, 56 MW, 26 September 2016. Chelyabinsk Region.
17. JSC Tymenenergo, increase of existing connecting points, SS 110 kV Rosa, 48 MW, 28 June 2016. Khanty-Mansiysk Autonomous District.


INVESTMENT ACTIVITIES

INNOVATIVE DEVELOPMENT

The PJSC FGC UES Innovative Development Programme for 2016–2020, with an outlook to 2025, (hereinafter referred to as IDP) was approved by the Decision of the Board of Directors of the PJSC FGC UES (Minutes No. 328 of 28 June 2016).

The implementation of IDP is aimed to achieving the Company’s strategic goals for the period up to 2030, as defined in the Long-term Development Programme of PJSC FGC UES, taking into account the objectives of implementing the Development Strategy for the electric grid system of the Russian Federation, including:

– Providing the reliability and quality services provided by PJSC FGC UES;
– Maintaining the Company’s financial stability and independence;
– Developing UNEG by taking into account the technical and economic optimisation of backbone electric grids;
– Satisfying consumer demand for the Company’s services with consideration of the regional specifics, demand structure and increase of capacity load efficiency;
– Consolidation of all electric grid facilities that are part of UNEG and compliant with the criteria of UNEG’s facility under the management of PJSC FGC UES.

In order to achieve the Company’s strategic goals, with consideration of the priorities of the Innovative Development Programme, the following key IDP targets have been set:

– Achieving the global average indicators of the reliability, safety, quality, efficiency and availability of the energy supply to consumers thanks to the introduction of new equipment, technology and practices;
– Improving PJSC FGC UES’s focus on customers via the enhancement of existing and developing new services, including high-tech services;
– Developing, testing and providing conditions for the commercial implementation (roll out) of innovative equipment and practices, taking into account the factors of their integral efficiency and based on the principles of the life cycle management of facilities and systems;
– Transferring the Company to an ‘adopter’ model of innovative solutions and technologies offered by the market in order to resolve the Company’s current targets, including via the development of ‘open innovation’ tools;
– Enhancing the system for interacting with entities of the industry innovative ecosystem – small and medium size enterprises, Russian institutions of innovative development, technology platforms, higher education institutions and research and development organisations, equipment manufacturers, etc.;
– Enhancing the innovative activity management system, including the efficient use of managing the intellectual property system and the Company’s standard engineering documentation;
– Creating a talent pool with candidates of advanced competencies to ensure the Company’s innovative development;
– Creating conditions for the development of promising scientific research, process operations and advanced production in the territory of the Russian Federation.

Dynamics of Investment Activity Funding, RUB billion

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017 (Plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90.9</td>
<td>85.9</td>
<td>90.7</td>
<td>105.6</td>
</tr>
</tbody>
</table>

1 Information has been provided according to data from the 2016-04 report on the implementation of the Investment Programme of PJSC FGC UES, submitted to the Russian Ministry of Energy by Letter No. FR-629 on 14 February 2014.

2 Planned funding for 2017 is provided in accordance with the Investment Programme for 2016-2020, approved by the Order of the Russian Ministry of Energy No. 1422 on 28 December 2016.
# The Growth Infrastructure Development

## PJSC FGC UES Social Responsibility and Corporate Sustainability Report 2016

### Priority areas of technological and innovative development

**Process and Management**

- Quality of Electric Power
- Reliability and Asset Management
- Digital Design

**Efficiency**

- Energy Efficiency and Loss Reduction: 35 20
- Quality of Electric Power: 1 0
- Reliability and Asset Management: 0.72 0.63
- Net OHL Accident Rate (total OHL length ratio): 0.98 0.91

**Innovation**

- Digital Substations: 3 5
- Composite Materials and Superconductivity: 1 2
- Remote control and Safety: 0.5 0.63

**Digital Design**

- Description: An engineering ecosystem based on a modern design using information technology, the support of teamwork and parallel engineering, the introduction of digital assessment techniques and the virtual testing of engineering solutions. This strategic initiative is aimed at the implementation of the Development Strategy of the electric grid system of the Russian Federation, approved by Russian Government Order No. 511-r of 3 April 2013, in terms of improving performance and reducing the unit cost of investment and complying with the requirements of the Unified Technical Policy in the electric grid system at all stages of the life cycle of energy facilities by providing solutions to optimisation and informatisation of engineering activities. This is to be achieved by introducing industrial methods of production via electronic services that can operate within an integrated environment, ensuring the uniformity of the design processes and the construction and interaction of entities when constructing an electric grid facility.

**Implementation Schedule**: 2015–2020 (modification and development of information services: 2020–2025)

**Technologies Used**: CAD (PLM, BIM), modelling tools, e-catalogues, electronic design services, data processing logistics, mobile terminals, geo-location and laser technologies.

### Quality of Electric Power

**Description**: Work in this area involves the placement of voltage-control devices, which consist of a system of balancing and compensating voltage harmonics in the complex circuit-mode nodes of a grid. So far, a broad class of devices based on power electronic hardware, which enable to impart active characteristics to the elements of electric grids and ensure control over the quality level, have been developed with the participation of the PJSC FGC UES. In order to scale this technology to the distribution system and energy receiving devices of industrial consumers, pilot projects, the development of new type of control systems, regulatory and legislative adjustments, as well as the establishment of a ramified system of independent control over electric power quality, are required.

**Implementation Schedule**: 2016–2025

**Technologies Used**: A bundle of FACTS technologies, systems of balancing and compensating voltage harmonics, distributed monitoring and control systems and standard automatic control systems that make it possible to regulate the criteria for the quality of several electric power voltages.

### Reliability and Asset Management

**Description**: Development of the components of the Production Asset Management System (PAMS) of PJSC FGC UES, as determined by the Long-Term Development Programme of PJSC FGC UES, the Development Strategy of the electric grid system of the Russian Federation (Russian Government Directive No. 511-r of 3 April 2013), Russian Government Resolution No. 1404 of 19 December 2016, “On Integral Determination of the Parameters of the Technical And Economic State of the Electric Energy Facilities, Including the Parameters of Depreciation and Energy Efficiency of Electric Grid Facilities”, as well as on performing the monitoring of such parameters, taking into account the concept of the development of the Production Asset Management System of PJSC Rosseti, approved by the Resolution of the Board of Directors of PJSC Rosseti (Minutes No. 227 of 29 April 2016).

**Implementation Schedule**: To be completed within the timeline set by the PAMS development plan of PJSC FGC UES.

**Technologies Used**: Introduction of air drones, mobile solutions for operational personnel, systems for modelling the consequences of process disturbances, geo-location systems, intelligent monitoring and diagnostics technologies, integration and sharing systems of operational data, as well as systems for visualising the Company’s business processes.

### Matrix of the Influence of the Activities of the Innovative Development Programme on IDP KPI achievement

<table>
<thead>
<tr>
<th>Priority areas of technological and innovative development</th>
<th>KPIs of the Long-Term Development Programme of PJSC FGC UES</th>
<th>Reliability of Electricity Supply to Consumers</th>
<th>Efficient Governance</th>
<th>Infrastructure Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital substations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy efficiency and loss reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote control and safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of electric power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliability and asset management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composite materials and superconductivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend**

- **Influences**: 0.5 0.63
- **Indirect Influences**: 1 2
- **Complete Absence**: empty cell

### Priority (Base) Technological Areas of Innovative Development at PJSC FGC UES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target value in the Programme for the reporting period (2016, plan)</th>
<th>Actual value as of the end of the reporting year (2016, actual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency and loss reduction: Share of substations under the programmes for reduction of electricity losses and electricity consumption for the own needs</td>
<td>0.3</td>
<td>0.32</td>
</tr>
<tr>
<td>Digital design</td>
<td>Share of duly applied recommended solutions and the best practices</td>
<td>35</td>
</tr>
<tr>
<td>Quality of electric power: Number of violations of acceptable voltage levels</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reliability and asset management: Net SS accident rate (number of accidents to the scope of operated SS equipment ratio)</td>
<td>0.72</td>
<td>0.63</td>
</tr>
<tr>
<td>Net OHL accident rate (number of accidents to the total OHL length ratio)</td>
<td>0.98</td>
<td>0.91</td>
</tr>
<tr>
<td>Digital substation: Number of substations using digital technologies</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Composite materials and superconductivity: Number of projects implemented using the technologies</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Remote control and safety: Share of low-maintenance facilities</td>
<td>0.5</td>
<td>0.63</td>
</tr>
</tbody>
</table>
Digital Substation

Description: A Digital Substation (hereinafter referred to as DSS) is a substation (hereinafter referred to as SS) with a high level of automated process control, equipped with advanced IT control systems and tools, in which all information exchange processes between SS elements, information exchange with external systems, as well as control over SS operation, are carried out in a digital format. At the same time, the primary power equipment of the DSS and the components of its IT control systems shall be functionally and structurally designed to support digital data exchange, which makes it possible to provide a high level of diagnostic information and operational reliability, which in turn reduce maintenance costs.

Implementation Schedule: 2016–2025

Technologies Used: SS equipment supporting data exchange on the basis of IEC 61850 standard: bay controllers, switches, fibre optic communication lines, optical and electronic current and voltage transformers (conversion devices), intelligent electronic devices, registration and diagnostics systems.

Composite Materials and Superconductivity

Description: This initiative is aimed at the implementation of the Development Strategy of the electric grid system of the Russian Federation, approved by Russian Government Order No. 511-r of 03 April 2013, as well as by Russian Government Order No. 130-r of 24 July 2013, concerning the development of the composite material production industry in terms of improving performance and reducing the unit cost of investment and compliance with the requirements of the Unified Technical Policy at all stages of the life cycle of electric facilities via the development of new technical solutions with the wider application of new construction materials, the creation of a production base and relevant standard solutions, industry standards and organisation standards.

Implementation Schedule: 2015–2025

Technologies Used: Composite materials for OHL and SS structures, composite materials for insulation products, composite core and conductor products, high-temperature superconductivity technology, functional OHL wire wraps and new warming materials to ensure the cost reduction of consumption for the Company’s own needs.

Remote Control and Safety

Description: PJSC FGC UES is introducing an automated process control system (APCSS), which consists of a set of tools that automate the tasks of production, engineering, operation and process control of UNEG grid facilities, enabling the remote control and monitoring of facility operation in order to ensure the high operational readiness of UNEG and the reliability of the UES’s system as a whole. Within the implementation of the programme, the development of technology for remote control from PJSC MOESK (hereinafter referred to as DSS) with a high level of automated process control, enabling the remote control of UNEG’s grid facilities, enabling the remote control and monitoring of facility operation in order to ensure the high operational readiness of UNEG and the reliability of the UES’s system as a whole.

Implementation Schedule: 2016–2025

Technologies Used: Process control systems at the level of the control centres (SCADA, EMS) and the facility level (IATS, PIATS), modern digital measurement systems (monitoring and diagnostic tools, systems and tools for information and physical protection and systems of the detection and localisation of cyber attacks).

Use of High Temperature Superconductivity

Development of an HTS cable line for alternative current with a length of 200 m, a voltage of 20 kV, and a current of 2,500 A. Contractor: JSC ENIN (Implementation project: Centralnaya SS, Saint Petersburg – SS RP-9)

Results:
- Pilot model of the power electric line for distribution grids based on HTS technology with a length of 200 m with a cryostatting system and power input leads.
- Positive results from life cycle tests of the HTS cable line in operation modes.

Direct current HTS cable line with a voltage of 20 kV, a current of 2,500 A and a length of 2,500 m. Contractor: JSC R&D Centre of FGC UES (Implementation project: Centralnaya SS, Saint Petersburg – SS RP-9)

Results:
- Direct current HTS cable (5 delivery lengths up to 438 m each).
- End bells and coupling sleeves of HTS cables
- Converting equipment, helium management system.

Intelligent (Active Adaptive) Grid

In the long run, the result of implementing the innovative Development Programme will be the creation of an electric energy system with an intelligent grid that will differ from the current grid by the presence of the following innovative components: automated systems of electric power transmission control, active grid components with variable parameters, a system for monitoring the grid's current state, automated real-time systems for maintaining the operation of the power system within the set parameters as part of a unified analysis and decision making system. The basic principles for building an intelligent grid and system of power control, and the priorities for the system’s factors and conditions, are the reliability and efficiency of the entire system.

SHOWCASE

Use of High Temperature Superconductivity

Development of an HTS cable line for alternative current with a length of 200 m, a voltage of 20 kV, and a current of 1,500 A. Contractor: JSC ENIN (Implementation project: 110 kV SS Dinamo of PJSC MOESK)

Results:
- Pilot model of the power electric line for distribution grids based on HTS technology with a length of 200 m with a cryostatting system and power input leads.
- Positive results from life cycle tests of the HTS cable line in operation modes.

Direct current HTS cable line with a voltage of 20 kV, a current of 1,500 A and a length of 2,500 m. Contractor: JSC R&D Centre of FGC UES (Implementation project: Centralnaya SS, Saint Petersburg – SS RP-9)

Results:
- Direct current HTS cable (5 delivery lengths up to 438 m each).
- End bells and coupling sleeves of HTS cables
- Converting equipment, helium management system.
Building a Portfolio of Intellectual and Intangible Assets of PJSC FGC UES

Within the scope of the R&D Programme in 2016, 7 intellectual property items were registered with the Federal Service for Intellectual Property (Rospatent), including the following:

- 4 invention patents;
- 3 software certificates.

The Company plans to achieve the following effects in the framework of the Innovative Development Programme:

- Growth of the quality of the R&D Programme’s planning, implementation and efficiency, aimed at:
  - Compensating for the resource reduction of the Company’s Investment Programme;
  - Maximum focus on the most advanced and crucial directions of innovative activities
- Updating ‘open innovation’ tools to cooperate with the partners of the Company’s innovative development in the following areas:
  - Development and promotion of the Company’s public documents and Internet resources about innovative development targeted at its partners and counterparties and stating the goals and objectives, key requirements and technologies, and other such important issues related to the modernisation of UNEE, as well as building a smart energy system with an active adaptive network and other areas of Company’s innovative development;
  - Assure that the further development of innovative competence centres is established jointly with the Company, or with its support, on the basis of university labs, chairs, departments and small innovative ‘subsidiaries’, as well as innovation contests;
  - Development of public-private partnership mechanisms;
  - Development of instruments for knowledge, competencies and the Company’s operational management in order to put the Company’s maximum internal potential for innovative development to use.

Improving the Efficiency of Innovative Activities

The technical terms and the operation manual for this model were developed. Methodical guidelines were given for the selection settings (parameters) of Relay Protection and Automation (RPA) units installed next to the grid’s series compensation devices and for the protection of a series of compensation devices, if necessary. The pilot operation of the trial models of these devices was carried out at the experimental site.

In 2016, in accordance with the Investment Programme, the Company allocated RUB 414.234 million for the implementation of the R&D Programme.

**R&D Financing Dynamics in 2012–2016, RUB billion**

<table>
<thead>
<tr>
<th>Year</th>
<th>R&amp;D Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>0.41</td>
</tr>
<tr>
<td>2015</td>
<td>0.48</td>
</tr>
<tr>
<td>2014</td>
<td>0.42</td>
</tr>
<tr>
<td>2013</td>
<td>1.7</td>
</tr>
<tr>
<td>2012</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Design and research works in the main technological directions that are oriented at achieving the Company’s strategic goals have been planned for continuation in 2017. The planned improvement of the Innovative Activities Management System and the strengthening of interaction with development institutions, research institutes, higher education institutions, small and medium-sized businesses, foundations, and foreign partners is to be carried out.

INNOVATIVE DEVELOPMENT

Growth Infrastructure Development

The new principles and technologies that are the basis of the design of the intelligent energy system with an active adaptive grid include:

- Grid saturation with active components capable of changing its topological parameters;
- A sufficient number of sensors that measure the current mode parameters to monitor the grid’s condition in various operating modes of the energy system;
- A data collection and processing system and controls over the grid’s active components and consumer electric installations;
- Availability of the required actuators and tools for the real-time measurement of the grid’s topological parameters and interface with adjacent energy facilities;
- Automatic tools to assess the current situation and prepare grid operation forecasts;
- A high-performance control system and the fast exchange of data.

Research and Development, Experimental and Design Process Works

One of the implementation tools of the Innovative Development Programme of PJSC FGC UES for 2016–2020, with an outlook to 2025, is the R&D Programme of PJSC FGC UES (approved by Order No. 133 of 19 March 2015). The R&D Programme is designed to ensure sustainable and long-term financing for the development of new technologies, equipment and tools within the Company’s Investment Programme, as well as to improve the reliability, quality and energy efficiency of the electricity supply to customers by upgrading UES grids within Russia.

The following results were achieved in the framework of the R&D Programme’s implementation activities in 2016:

- Pilot operation for an automatic water-mist fire extinguishing system for 220 kV, 125-250 MVA transformers at the 220 kV Tura SS of the MES Centre branch of PJSC FGC UES was completed;
- Design documentation was prepared for switch linear complexes for the nominal voltage of 220 and 330 kV with remote control over arranging ice-melting short-circuit stations that are installed at the 220, 330, 500 kV OHL, standard supports;
- These linear sets of switchgear devices will allow:
  - Reduction of the time and cost needed for designing the ice melting system as a result of using developed standard design solutions;
  - Reduction in the area of land plots allocated for permanent use for the creation of the ice melting system;
  - Reduction in the number of approvals to be obtained from land users and reducing the duration of design studies;
  - Ensuring the safe operation of the ice melting system;
  - Improvement in the reliability of the system and simplifying its operation;
  - Reduction in the total construction period for both the ice melting system and OHL;
  - Reduction in the construction cost and operational expenses of the ice melting system.
- Design documentation was prepared for a trial model of a series of compensation devices for 220 kV OHL. The technical terms and the operation manual for this trial model were developed. Methodical guidelines were given for the selection settings (parameters) of Relay Protection and Automation (RPA) units installed next to the grid’s series compensation devices and for the protection of a series of compensation devices, if necessary. The pilot operation of the trial models of these devices was carried out at the experimental site.
- Methodical guidelines were prepared for the development of a circuit design for RPA microprocessor units, the adjustment and configuration of RPA microprocessor and communication devices for the development of information application for RPA microprocessor units.

**In 2016, in accordance with the Investment Programme, the Company allocated RUB 414.234 million for the implementation of the R&D Programme.**

**R&D Financing Dynamics in 2012–2016, RUB billion**

<table>
<thead>
<tr>
<th>Year</th>
<th>R&amp;D Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>0.41</td>
</tr>
<tr>
<td>2015</td>
<td>0.48</td>
</tr>
<tr>
<td>2014</td>
<td>0.42</td>
</tr>
<tr>
<td>2013</td>
<td>1.7</td>
</tr>
<tr>
<td>2012</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Ensuring Corporate Sustainability

PJSC FGC UES provides energy to millions of people and renders a significant impact on society. In its work, the Company seeks to find a balance between reliability, economic, environmental and social efficiencies, as well as global challenges of sustainable development.
Managing Economic Development

“The current figures of PJSC FGC UES represent the results of work started three years ago. The Company’s revenue dynamics and structure have demonstrated a qualitative change: income from rendering services for technological connection and electricity transmission to direct consumers have both increased considerably. At the same time, the Company is working successfully at reducing expenses in an effective manner, and complying with all directives of the State.”

Andrey Murov
Chairman of the Management Board of PJSC FGC UES, Board Member of ROSCOSMOS

2016 main events:

— In accordance with the approved tariff decision for PJSC FGC UES for 2015-2019, starting from 01 July 2016 the tariff for electricity transmission services via the Unified National (All-Russian) Electric Grid rendered by PJSC FGC UES increased by 7.5% against the tariff level effective before 30 June 2016.
— Following the results of reviews performed in 2016 by the international rating agencies Moody’s, Fitch Ratings, Standard & Poor’s, the Company’s ratings remained at the sovereign level (Ba1, BBB- and BB+, respectively).
— In June 2016 the decision to pay dividends for 2015 in the amount of RUB 19.976.6 million, which accounted for 38% of profit under IFRS, or 95% of profit under RAS for 2015, was made by the General Meeting of Shareholders.
— Payment for technological connection of Kalininskaya NPP (RUB 32.2 billion), Zelenchukskaya HPP-HPP (RUB 1.93 billion), and Krasnoyarskaya CHPP-3 (RUB 1.02 billion) for a total amount of RUB 35 billion, net of VAT, was approved.
— The Resolution of the Russian Government No.1265 of 30 November 2016 stipulating the possibility of making payments for technological connection in instalments for 10 years to be provided to nuclear and hydroelectric power plants by the Company with collection of instalment interest at the annual rate of 6%, was approved.

2016 Financial results:

Main financial results of PJSC FGC UES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2015</th>
<th>2016</th>
<th>Dynamics, 2016 vs. 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue, RUB million</td>
<td>173,266</td>
<td>218,366</td>
<td>+26.0%</td>
</tr>
<tr>
<td>Electricity transmission services, RUB million</td>
<td>158,986</td>
<td>171,133</td>
<td>+7.6%</td>
</tr>
<tr>
<td>Technological connection services, RUB million</td>
<td>12,397</td>
<td>45,479</td>
<td>3.7 times</td>
</tr>
<tr>
<td>Cost of sales, RUB million</td>
<td>134,938</td>
<td>140,038</td>
<td>+3.8%</td>
</tr>
<tr>
<td>Cost of sales adjusted for losses, depreciation and property tax, RUB million</td>
<td>37,971</td>
<td>36,845</td>
<td>-2.9%</td>
</tr>
<tr>
<td>Administrative costs, RUB million</td>
<td>7,851</td>
<td>8,033</td>
<td>+2.3%</td>
</tr>
<tr>
<td>Administrative costs adjusted for depreciation and property tax, RUB million</td>
<td>5,999</td>
<td>6,104</td>
<td>+1.7%</td>
</tr>
<tr>
<td>Profit on sales, RUB million</td>
<td>30,477</td>
<td>70,296</td>
<td>+6.3%</td>
</tr>
<tr>
<td>Adjusted EBITDA1, RUB million</td>
<td>103,667</td>
<td>119,662</td>
<td>+15.4%</td>
</tr>
<tr>
<td>Net profit, RUB million</td>
<td>17,870</td>
<td>106,071</td>
<td>5.9 times</td>
</tr>
</tbody>
</table>

1 excluding accrual and recovery of bad debt provisions, revaluation of assets and technological connection revenue

Further information on financial accounting for 2016 under RAS is available at the website: http://www.fgc-ues.ru, in the section For Shareholders and Investors/RAS Financial Reports

The performance indicators of PJSC FGC UES for 2016 are the result of the Company’s work at improving the efficiency of all core business directions, which started in 2014.

The Company’s revenue increased by 26.0% in 2016 vs. 2015, including:
— For electricity transmission services, growth amounted to RUB 12,147 million, or 7.6%, under average annual tariff growth of 7.5% thanks to an increase in capacity by direct consumers;
— For technological connection services, growth was 3.7 times (by RUB 33,082 million) thanks to completion of technological connection of power plants and recognition of revenue from these services.
Other incomes also increased, including thanks to the strengthening of claim settlement activities, with income from sanctions (penalties, fines) for violation of contract obligations by counterparties (RUB 1,734 million).

The adjusted profit before interest, «paper» operations, revenue from technological connection services, profit tax and depreciation (adjusted EBITDA) increased by RUB 15,995 million (by 15.4%) compared to the same period in 2015, and amounted to RUB 119,662 million.

Following the results for 2016, PJSC FGC UES received net profit of RUB 106,071 million, which was 5.9 times higher than in 2015. Non-cash transactions, including growth of reserve balances, and evaluation of shares of Inter RAO owned by PJSC FGC UES, had a big impact on the Company’s financial results.

In 2016 PJSC FGC UES continued to optimise costs. With an increase in the amount of equipment under maintenance due to implementation of a large-scale investment programme, the Company managed to optimise the headcount by 5.3% and substantially reduce the costs of materials and services by 5.2%. At that, growth of tax costs in 2016 was caused by phased cancellation of the property tax privilege under the law.

Total assets of PJSC FGC UES increased by RUB 97,872 million (7.7%) vs. the beginning of the year, and amounted to RUB 1,366,174 million as of the end of the reporting period. Non-current assets amounted to RUB 1,183,264 million of this amount, and current assets to RUB 182,910 million. The Company’s equity increased by RUB 101,614 million (11.3%) in the reporting period. The growth in equity reflected the Company’s financial results for 2016.

Economic costs payable by PJSC FGC UES decreased by RUB 13,007 million (4.9%), to RUB 261,633 million vs. the end of 2015. In 2016, the Company raised loans for a total amount of RUB 10,165 million, and repaid borrowings in the amount of RUB 23,172 million.

Economic performance of PJSC FGC UES in 2016

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Amount, RUB thousand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic value generated</td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>229,081,255</td>
</tr>
<tr>
<td>Economic value distributed</td>
<td>109,101,918</td>
</tr>
<tr>
<td>Operating costs</td>
<td>39,543,146</td>
</tr>
<tr>
<td>Wages and salaries, other payments and benefits for personnel</td>
<td>19,737,397</td>
</tr>
<tr>
<td>Payments to equity contributors</td>
<td>23,207,189</td>
</tr>
<tr>
<td>Payments to the state budget</td>
<td>26,568,228</td>
</tr>
<tr>
<td>Community investments</td>
<td>45,959</td>
</tr>
<tr>
<td>Economic value retained</td>
<td>120,879,336</td>
</tr>
</tbody>
</table>

Tax Payments

PJSC FGC UES tax payments and payments to off-budget funds in 2016, RUB thousand

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of tax (contribution to the non-budget (fund)</th>
<th>Amount of transferred taxes, RUB thousand</th>
<th>Tax, RUB thousand</th>
<th>Penalties, fines, RUB thousand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Federal taxes and levies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>VAT</td>
<td>15,829,157</td>
<td>15,829,157</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PIT</td>
<td>2,482,692</td>
<td>2,482,183</td>
<td>509</td>
</tr>
<tr>
<td>4</td>
<td>Profit tax</td>
<td>483,910</td>
<td>483,901</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Profit tax on foreign income</td>
<td>5,124</td>
<td>5,119</td>
<td>5</td>
</tr>
</tbody>
</table>

PIT — Profit Income Tax; VAT — Value-Added Tax; PIT — Pay-As-You-Earn Tax; PIT — Personal Income Tax; PIT — Pay-As-You-Earn Tax
Ensuring Corporate Sustainability

### Procurement Activities

PJSC FGC UES carries out active procurements aimed at purchasing the necessary equipment and services on the competitive market within its investment programme, as well as annual repairs and target programmes, in all regions of its presence. The Regulations on the procedure for regulated procurement of goods, works, services (hereinafter – the Regulations on procurement in accordance with p. 3 Art. 2 Legal basis for procurement of goods, works, services, of the Federal Law No. 223-FZ) is the main document regulating the Company’s procurement activities.

This document ensures procurement of goods, works and services using the unified methodological base and modern competitive procurement forms, mainly on the basis of competitive bidding. The following methodology underpins the Company’s procurement activities:

- Legal acts of the Russian Federation;
- Public procurement experience;
- International best practices;
- Unified standard of PJSC Rosseti (Regulations on procurement).

To facilitate interaction with suppliers, procurement is made by means of an electronic trading platform, which ensures attracting a larger number of service providers and a competitive environment, providing for improved procurement efficiency. PJSC FGC UES holds annual meetings with its largest suppliers to discuss how to improve cooperation with them. The updated procurement plan (procurement procedures planned for announcement, being held, and already completed) is published on the website [http://www.fsk-ees.ru](http://www.fsk-ees.ru) in the section “For Suppliers” every month, with the capability of automatic transfer to the trading platform, in order to get timely information.

### Amendments and supplements were made to the Regulations on procurement in 2016

In pursuance of the Russian Government Resolutions, directives of the Russian Government and Instructions of the Moscow Office of the Federal Antimonopoly Service, the following amendments and supplements were made to the Regulations on procurement of goods, works, and services for the needs of PJSC FGC UES in 2016:

- With regards to prioritizing procurement of domestic innovative construction materials and the possibility to execute long-term contracts with domestic producers of innovative construction materials for guaranteed supplies for the long-term period, as well as with producers who executed special investment contracts for manufacturing of these products in accordance with the established procedure;
- With regards to introducing requirements in the course of procurement of goods, work, and services using the methods determined in the Regulations on procurement, except for trading in accordance with the provisions of the Russian civil law;
- With regards to change the contract execution period following the trading results in accordance with Part 4 of the Article 18.1 of the Federal Law No.135-FZ of 26 July 2006, “On Protection of Competition”. The contract execution period was set not earlier than ten days after the day of trading results in order to provide the participants with the right to appeal against the actions (omissions) of the customer and organiser.

### Principles and main tasks of the Company’s procurement activities

**Openness**

Optimise the procurement management system on the basis of best practices

**Competitiveness**

Reduce the Company's expenses by cutting the cost of procurement goods, works, and services, and minimising intermediary services

**Justification**

Provide goods, works and services of high quality at minimum cost and in a timely manner

---

**Customer Focus**

Since 2009 PJSC FGC UES has been conducting annual surveys of customer satisfaction regarding their awareness of the stages of technological connection to the Company’s electric grids, opportunity to get connected to feeding centres (available transformer capacity for technological connection) as well as rules and regulations governing this activity, the possibility of calculating technological connection fees on their own, and monitoring the status of their requests. This survey helps to find and optimise bottlenecks.

**Customer satisfaction dynamics in 2014–2016**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of tax (contribution to the non-budget fund)</th>
<th>Amount of transferred taxes, RUB thousand</th>
<th>Tax, RUB thousand</th>
<th>Penalties, fines, RUB thousand</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Water tax</td>
<td>338</td>
<td>334</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>State duty</td>
<td>80,208</td>
<td>80,208</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Payments for air emissions of hazardous substances</td>
<td>5,049</td>
<td>5,049</td>
<td></td>
</tr>
</tbody>
</table>

**Sustainability Policy**

**Growth and Infrastructure Development**

**About the Company**

---

**Managing Economic Development**

**Additional Information**

---
2016 Results:

Structure of regulated procurements by their implementation methods in 2016

Following the results of the procurement campaign in 2016, PJSC FGC UES completed 13,676 procurement procedures for a total amount of RUB 109.2 billion. Procurements held on the basis of competitive tenders accounted to RUB 101.3 billion or 92.7% of total procurements. The economic effect of procurement activities amounted to RUB 2.7 billion.

Procurements completed in 2016

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>By all methods</th>
<th>OT</th>
<th>ORQ</th>
<th>OIT</th>
<th>SS</th>
<th>SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of completed procedures, RUB billion</td>
<td>109.2</td>
<td>87.2</td>
<td>0.6</td>
<td>12.1</td>
<td>7.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Number of completed procedures, units</td>
<td>13,676</td>
<td>420</td>
<td>548</td>
<td>1,905</td>
<td>580</td>
<td>10,223</td>
</tr>
<tr>
<td>As a % of the cost of completed procedures</td>
<td>100.0%</td>
<td>79.8%</td>
<td>0.6%</td>
<td>11.0%</td>
<td>7.3%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Procurement methods

Tender
Procurement of any products is conducted by means of an open one-stage tender without special procedures, unless there are explicitly provided grounds for other procedures (expected procurement volume exceeds RUB 10 million (including VAT)).

Invitation to tender
Is held in the presence of at least one of the following conditions:
- There is not time for the tender or it is unreasonable to conduct the tender; there are no circumstances requiring immediate procurement from the sole source, and complexity of products or their supply conditions does not allow holding a tender or request for quotation;
- It is necessary to hold negotiations with participants and the two- or three-stage tender procedure is unreasonable due to timing or other major reasons;
- When the expected procurement volume does not exceed RUB 10 million (including VAT).

Request for quotation
For procurement of simple products for which there is a functioning market, the only criterion is the price and the condition that the contract price for request for quotation does not exceed RUB 5 million (including VAT), and the time period does not allow holding a tender.

Simple procurement
In an amount from RUB 0 thousand to RUB 500 thousand including VAT. Simple procurements are made under the condition of a lack of time for conducting other competitive procurement procedures.

Procurements from the sole source
Are divided into:
- Procurement of unique goods (works, services) from the sole source;
- Procurement from the sole source in order to prevent an emergency situation or mitigate its consequences.

Procurements from local suppliers
Considering that procurements are made in the regions of presence of the Company’s branches, a large number of local suppliers and contractors are attracted and workers to participate in the procurement procedures.

Up to 75% of local suppliers and contractors participate in procurements in each region. For execution of highly specialised works, companies performing these works on the whole territory of the Russian Federation can be attracted. New workplaces are created and workers from local areas and related economic sectors are attracted for construction and commissioning power facilities.

PJSC FGC UES procurements in regions in 2016

<table>
<thead>
<tr>
<th>Region name</th>
<th>Share in the total procurement volume, %</th>
<th>Amount, RUB billion, including VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MES Siberia</td>
<td>6.6</td>
<td>7.3</td>
</tr>
<tr>
<td>MES Centre</td>
<td>23.4</td>
<td>25.5</td>
</tr>
<tr>
<td>MES East</td>
<td>21.6</td>
<td>23.6</td>
</tr>
<tr>
<td>MES South</td>
<td>9.1</td>
<td>9.9</td>
</tr>
<tr>
<td>MES Volga</td>
<td>2.7</td>
<td>3.0</td>
</tr>
<tr>
<td>MES Urals</td>
<td>5.1</td>
<td>5.5</td>
</tr>
<tr>
<td>MES North-West</td>
<td>15.3</td>
<td>16.7</td>
</tr>
<tr>
<td>MES Western Siberia</td>
<td>16.2</td>
<td>17.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100.0</td>
<td>109.2</td>
</tr>
</tbody>
</table>

PJSC FGC UES attracted a total of 7,500 suppliers for procurement of goods, works and services in 2016.

Main procurement directions of PJSC FGC UES in 2016

<table>
<thead>
<tr>
<th>No.</th>
<th>Main procurement types</th>
<th>Amount, RUB billion, including VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Financial and legal services</td>
<td>1.4</td>
</tr>
<tr>
<td>2</td>
<td>Design and exploration works</td>
<td>3.3</td>
</tr>
<tr>
<td>3</td>
<td>Technical maintenance, repairs, materials</td>
<td>2.7</td>
</tr>
<tr>
<td>4</td>
<td>IT-procurements</td>
<td>1.7</td>
</tr>
<tr>
<td>5</td>
<td>Equipment</td>
<td>15.4</td>
</tr>
<tr>
<td>6</td>
<td>Operation</td>
<td>4.4</td>
</tr>
<tr>
<td>7</td>
<td>Lease of land/forest land plots and residential/non-residential premises</td>
<td>0.9</td>
</tr>
<tr>
<td>8</td>
<td>Financial and legal services</td>
<td>1.1</td>
</tr>
<tr>
<td>9</td>
<td>Right-of-way clearing and widening</td>
<td>0.7</td>
</tr>
<tr>
<td>10</td>
<td>Other procurements</td>
<td>8.2</td>
</tr>
<tr>
<td>Total</td>
<td>109.2</td>
<td></td>
</tr>
</tbody>
</table>

Procurements from small and medium-sized enterprises

The Partnership Programme between PJSC FGC UES and small and medium-sized enterprises has been effective since 2014, and a register of small and medium-sized enterprises that joined the Partnership Programme is being kept. In addition to that, the section Road Map for Cooperation with Small and Medium-Sized Enterprises was developed on the Company’s official website. Please follow the link [http://www.fsgc-ues.ru, section “Home page” for suppliers/Road map] for cooperation with small and medium-sized enterprises.

An advisory body to improve the efficiency of procurements made by PJSC FGC UES, including procurements from small and medium-sized enterprises, has been established at the Company. In accordance with the Resolution of the Russian Government No. 1352 of 11 December 2014, starting from 28 December 2015 the range of goods, works, and services to be purchased only from small and medium-sized enterprises has been expanded, as well as the composition of the advisory body, which included the following representatives: PJSC Russet, the Chamber of Commerce and Industry of the Russian Federation, the Skolkovo Foundation, the Association of Energy Constructing Enterprises, the Compliance Assessment and Monitoring Directorate of JSC Federal Corporation for Development of Small and Medium-Sized Enterprises, the Innovations Committee of the National Association of Procurement Institutions, the Procurement and Sales Management Institution named after A.B. Solovyev of the National Research University – Higher School of Economics, the Energy Committee of the All-Russian Public Organisation of SME OPORA ROSHII, and LLC RUSENERGOSEBYT.

The 2016 Procurement Plan was approved by the Federal Corporation for Development of Small and Medium-Sized Enterprises.
Ensuring Corporate Sustainability

About the Company

Sustainability Policy

Growth Infrastructure Development

Additional Information

Number and value of contracts awarded to SME for procurement in 2016

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of contracts</th>
<th>Contract value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SME procurements</td>
<td>7,219</td>
<td>RUB 29.7 billion including VAT</td>
</tr>
</tbody>
</table>

Thus, the contracts executed with SME accounted for 31.9% in 2016 in terms of value, while the contracts executed with SME upon the specialised tender procedure accounted for 23.3%, which was significantly higher than the standards set by the Resolution of the Russian Government (18% and 10%, respectively).

Procurement Chain

Main procured goods, Works and services in RUB billion (% of the total procurement amount)

- Work package, including the design documents and specifications, construction and installation: RUB 67.4 bn (61.7%)
- Equipment and materials: RUB 15.8 bn (14.5%)
- Design: RUB 3.3 bn (3.0%)
- Repair and maintenance: RUB 9.4 bn (8.6%)
- Financial, legal, IT, communication and insurance services: RUB 5.1 bn (4.7%)
- Other procurements: RUB 8.2 bn (7.5%)

2017 and medium-term plans:

Further improvement of procurement activities in accordance with the Russian legislation (Civil Code of the Russian Federation, Federal Law No. 223-FZ of 18 July 2011 On Procurement of goods, works and services by certain legal entities, etc.).

Anti-Corruption Activities

The Company's Anti-Corruption Policy reflects the commitment of PJSC FGC UES to high ethical standards of conducting fair and open business to improve the corporate culture and declares the Company's zero tolerance towards corruption in all its forms and manifestations.

The Anti-Corruption Policy is a fundamental document determining the main objectives, directions and key principles of the Company's activities, which targets prevention, identification and suppression of corruption within the Company, compliance with Russian anti-corruption law and international best practices.

The target of the Company's Anti-Corruption Policy is to develop and implement diversified and consecutive steps to prevent, liquidate (minimise) the reasons and conditions causing corruption, to develop anti-corruption awareness, which is a zero tolerance towards corruption of the Company's employees, shareholders, investment community, counterparties, and management bodies.

Within the framework of the Anti-Corruption Policy, monitoring of compliance with corporate ethical standards (observance of the Corporate Ethics Code), corporate behavior standards and resolution of conflicts of interest are performed on a regular basis.

The Company implements a system of measures aimed at excluding the possibility of gaining financial and (or) personal benefit personally or through an intermediary due to the rights providing for such possibility which were granted to the Company's employees or their family members or persons being in close relationships with them, as a result of using their official positions.

In order to improve the corporate culture and legal awareness of Company employees, PJSC FGC UES has developed Regulations on resolution of the conflicts of interest, which determine the procedures for prevention, timely identification and resolution of the conflicts of interest, sets the basis for coordination of actions between all employees in case of occurrence or possibility of the conflicts of interest.

The Company introduced a disclosure system for the conflicts of interest (declaring the conflicts of interest):
- Initial disclosure of the available conflicts of interest during employment;
- Annual disclosure of the available conflicts of interest as of 31 December of the respective year.

In accordance with p. 2.1. of the Company's Anti-Corruption Policy:
- Encourages employees to report confirmed information on corruption and other offences within the Company;
- Guarantees that no employee will be compromised if he/she rejects corruption, even if such rejection results in financial losses for the Company.

PJSC FGC UES conducts training of employees for preventing and fighting corruption by holding educational events (trainings, seminars, questionnaire surveys and testing) (p. 3.6. of the Company's Anti-Corruption Policy).

For interaction with applicants, PJSC FGC UES uses a hot line, as well as an e-mail address to accept applications from the Company’s employees, partners, counterparties and other (individuals and legal entities) on possible evidence of corruption, noncompliance with internal procedures, the Corporate Ethics Code.

Communication on anti-corruption policies and procedures

Further information on the Company's Anti-Corruption Policy is available at http://www.fsk-ues.ru, section Home Policy/Anti Corruption Policy.

To communicate on anti-corruption policies and procedures applicable in PJSC FGC UES, the Company's official website has an Anti-Corruption Activities section sharing the Company's Anti-Corruption Policy, information on joining the Anti-Corruption Charter of the Russian business by PJSC FGC UES, the Company's anti-corruption management structure, information on managing the conflicts of interest, an anti-corruption note for the Company employees, the anti-corruption regulatory framework, as well as a feedback form which the users of the Company’s website can use to complete a questionnaire on fighting corruption, participate in surveys on this topic, as well as leave their question or share their opinion.

While employed, each employee gets familiarised with the Company's Anti-Corruption Policy and signs an Agreement on compliance with the requirements of the Company's Anti-Corruption Policy.

As part of Knowledge Day, held on 14 December 2016, representatives of the Chamber of Commerce and Industry of the Russian Federation conducted a
Ensuring Corporate Sustainability

ANTI-CORRUPTION ACTIVITIES

In 2016, no attested evidence of corruption was detected at PJSC FGC UES. In case of detection of such facts, the materials, after a validity check, are forwarded to law enforcement authorities, investigation and inquiry bodies according to jurisdiction, as well as to the public prosecutor’s office for decision making in pursuance of the Articles 143-145 of the RF Criminal Code.

In accordance with the Methodological Recommendations for Risk Management and Internal Control with regards to Preventing and Fighting Corruption in Joint Stock Companies with Participation of the Russian Federation, enacted by the order of the Federal Agency for State Property Management No. 80 of March 2016, identification and scoring of corruption risks typical for the Company with consideration of its strategic development plans were performed at PJSC FGC UES in 2016. As a result, a List of corruption risks was determined, which was approved at the PJSC FGC UES Board of Directors meeting (Minutes No. 354 of 6 February 2017). This List covers all the Company units, divisions of which conduct activity that is subject to potential corruption risks.

The Company ensures the anti-corruption monitoring, with such tasks as to receive, collect and systematize the reliable information on anti-corruption activities; to obtain objective data on the status and effectiveness of anti-corruption measures in the Company. One of the anti-corruption monitoring methods is a survey (questionnaires, interviews).

PJSC FGC UES operates on the basis of the provisions of the Russian Federation Constitution, Labour Code of the Russian Federation, other regulatory legislative acts that prohibit use of child labour on hazardous or hard production sites. During the reporting period, nonexistence of child labour abuse by counterparties and contractors, violating labour legislation, was detected. It is worth mentioning that specificity of the process at the facilities of PJSC FGC UES both in operation and under construction excludes use of child labour.

Implementation of the PJSC FGC UES Anti-Corruption Policy and corruption counter-action is within the responsibility of a special structural division – Internal control and risk management department.

- Within the framework of implementation of federal anti-corruption legislation requirements, the following local regulatory acts were adopted:
  - Guideline documents in the area of corruption risk management, approved by Order No. 379 on 18 October 2016;
  - A Road Map for arranging the risk management and internal control procedures to prevent and fight corruption, approved by the Board of Directors on 27 September 2016.
- Measures to detect and regulate conflicts of interest:
  - In 2016, declaration of conflicts of interest was conducted at PJSC FGC UES in order to expediently detect and prevent conflicts of interest, which may occur if close relatives of Company employees occupy positions in both, contracted organisations and within the Company. 4,980 declarations were collected and examined.
  - The declared information was analysed. The situations that contained indications of potential conflicts of interest were reviewed by the Commissions on the code of conduct and regulation of conflicts of interest at the branches of PJSC FGC UES.
  - Control of transactions for presence of the conflicts of interest (including procurement procedures) was performed, namely, an anti-corruption expert examination of 2,229 document sets submitted by potential counterparts (participants of procurement procedures) was conducted.
  - Control and prevention of corruption when interacting with the partners and counterparts:
    - For the transactions for conflicts of interest was performed, timely receipt of information on changes of the shareholders of the contracting parties was ensured, as well as inclusion of an anti-corruption clause and other mandatory clauses into contracts;
    - Check of documents presented for providing charity assistance was performed, as well as monitoring the use of funds allocated to 27 organisations in the amount of RUB 19,084,900.
    - Procedures conducted in order to detect potential occurrence of corruption as a result of abuse of power:
      - Anti-corruption expert examination of 6,170 regulatory and administrative documents and drafts in the executive office and branches of PJSC FGC UES was conducted.
      - Conflicts of interest declaration by the employees of PJSC FGC UES was arranged and conducted. 4,980 declarations were checked. Work to detect indications of potential conflicts of interest, to resolve pre-conflict situations and to regulate conflicts of interest was conducted within the Company.
- Collection activity and analysis of information on incomes, expenses, property and property liabilities was carried out for the employees, whose positions are included in the List of PJSC FGC UES, positions that require the employees to provide such information prior to their appointment.
- Participation in work groups and collective initiatives on preventing and fighting corruption;
- To implement the RF Government instructions regarding the transparency of financial and business operations of PJSC FGC UES and subsidiaries of PJSC FGC UES, monthly reports on signed contracts, including the chain of owners of counterparts, were submitted to the Russian Ministry of Energy, the Federal Financial Monitoring Service (Rosfinmonitoring) and the Federal Tax Service of Russia.
- Evaluation of the Anti-corruption policy effectiveness.

3% is the increase in number of employees who evaluate the Anti-corruption Policy as effective.

2% is the increase in number of employees that are ready to report corruption evidence should they be aware of it.

7% is the increase of both indicators in the executive office of the Company.

An employee survey was conducted in order to study corruption perception within PJSC FGC UES, understanding of the Company’s Anti-Corruption Policy by the personnel, as well as to evaluate effectiveness of policy implementation and enhance anti-corruption activity at PJSC FGC UES.

The questionnaire analysis showed a 3% increase across the Company, in the number of employees who assessed the Anti-Corruption Policy as effective and a 2% increase in the number of employees who are ready to report a corruption fact should they be aware of it. There was a 7% increase of both indicators in the Executive office.

There was a 2% increase of awareness of where to report in the event an employee becomes aware of possible evidence of corruption.

2017 Plans:

- Integration of anti-corruption risks into the Company’s Risk Management System;

- Enhancement of activities on detection and assessment of corruption risks in the areas (functions) with the highest potential impact of corruption risks;
Human Resources and Social Policy

Human Resource (HR) Management

The Human Resources and Social Policy of PJSC FGC UES is a unified system of human resource management aimed at establishing a balance between optimal use of the results of the Company employees’ professional activity, achieving the Company’s strategic objectives, improving labour productivity (including in pursuance of the Russian Federation Government Resolutions), and provision of social benefits and protection that are relevant to employees’ needs and expectations.

The key objectives of the Company’s HR Policy are as follows:

— Control of staff efficiency;
— Headcount control;
— Staff development control.

In order to improve efficiency of the management system, PJSC FGC UES conducts activities aimed at building a transparent functional management structure and optimisation of organisational structure at all of the Company’s management levels (Executive office – MES – PMES) by:

— performing systematic analysis and assessment of efficiency of the Company’s organisational and functional structure;
— developing and implementing standard solutions for the Company’s branches;
— developing unified guidelines for forming organisational and functional structure and organisation structure documents in the Company, taking into account innovative methods of analysis and structurisation of organisational and functional structure;
— developing the functional accountability matrices that reflect interaction between the Company’s goals and objectives, operation areas, and functions performed by the structural division of the Executive office, the branches – MES, PMES, when conducting production and administrative operations;
— developing and implementing unified management structures for branch operation units basing on best industry management practices.

Headcount and Personnel Competency

During 2016, implementation of activities for optimisation of the organisational structure and centralisation of the management functions of the executive offices of the MES and PMES branches continued, as well as implementation of the programme for Development and implementation of organisational and technical measures to increase labour productivity of production personnel of PJSC FGC UES.

In addition, the new organisational and functional structure of the Company’s Executive office was approved in 2016, which enabled optimising the headcount, and to establish clear and transparent functional vertical management frameworks that expanded the span of control and increased efficiency of the Company’s performance in general.

In 2016, the average headcount of PJSC FGC UES was 22,150 employees, which was a 5% decrease vs 2015.

The measures conducted for optimisation of the Company headcount led to a labour productivity increase in monetary terms (RUB thousand/person/year) by 12% vs the 2015 level.

Average headcount dynamics for 2012–2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Average headcount, persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>23,358</td>
</tr>
<tr>
<td>2013</td>
<td>24,362</td>
</tr>
<tr>
<td>2014</td>
<td>25,123</td>
</tr>
<tr>
<td>2015</td>
<td>24,460</td>
</tr>
<tr>
<td>2016</td>
<td>22,150</td>
</tr>
</tbody>
</table>
Ensuring Corporate Sustainability

Ensuring Corporate Sustainability

PJSC FGC UES Social Responsibility and Corporate Sustainability Report 2016

In 2016 there were no cases of violation of the social and labour rights of employees during the hiring or work process, nor were there cases of abuse of authority by the Company security service employees, which could be considered to be discrimination towards the Company employees or citizens.

2017 Plans:

In 2017, PJSC FGC UES will continue:

— implementing the programme of “Development and implementation of organisational and technical measures to increase the labour productivity of the production personnel of PJSC FGC UES”;

— developing unified principles and management structure for the Company’s production units, implementing standard solutions for the branches.

Professional level, level of education

One of the priority areas is renewal and retention of the number and quality of employees in order to ensure reliable operation and development of PJSC FGC UES.


In 2016, PJSC FGC UES implemented the following measures aimed at implementing professional standards to the Company’s operations:

— a regulatory and administrative document which regulates introduction of professional standards to the operations of PJSC FGC UES was developed and approved;

— analysis of the organisational charts of PJSC FGC UES was performed in order to identify jobs and positions for which professional standards should be applied.

Implementation of professional standards to operations of PJSC FGC UES in 2016

The Company imposes high requirements on the educational level and qualifications of its employees. The educational structure of employees has remained unchanged over the last few years. Employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.

The share of employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.

Analysis of the staffing table of PJSC FGC UES

Making a list of positions and professions, and the professional standards that correspond to them.

Development and approval of the regulatory and administrative document regulating implementation of professional standards to the operations of PJSC FGC UES

Order of PJSC FGC UES No. 222 of 31 July 2016 on creation of the working team for introduction of professional standards

Methodological Guidelines on the application of professional standards at PJSC FGC UES and qualification diagrams have been developed and approved.

Inconsistencies in employees’ position names have been revealed and the lists of positions of Company employees that do not correspond to professional standards in terms of position names have been approved.

The Company imposes high requirements on the educational level and qualifications of its employees. The educational structure of employees has remained unchanged over the last few years. Employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.

The share of employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.

The Company imposes high requirements on the educational level and qualifications of its employees. The educational structure of employees has remained unchanged over the last few years. Employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.

The share of employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.

The share of employees with university degrees dominate, at 63% (63.3% in 2015). The share of employees with intermediate vocational education is 36.5% (36.4% in 2015). Average years in the Company are 6.79.
HUMAN RESOURCES AND SOCIAL POLICY

Total headcount by education level

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Science Degree</td>
<td>19</td>
<td>24</td>
<td>28</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td>Ph. D. Degree</td>
<td>95</td>
<td>97</td>
<td>94</td>
<td>98</td>
<td>96</td>
</tr>
<tr>
<td>University degree</td>
<td>14,552</td>
<td>15,256</td>
<td>14,935</td>
<td>14,770</td>
<td>14,100</td>
</tr>
<tr>
<td>Intermediate vocational and secondary general education</td>
<td>10,465</td>
<td>10,364</td>
<td>9,461</td>
<td>8,535</td>
<td>8,157</td>
</tr>
<tr>
<td>Total:</td>
<td>25,131</td>
<td>25,741</td>
<td>24,518</td>
<td>23,429</td>
<td>22,377</td>
</tr>
</tbody>
</table>

Headcount structure by education level in 2012–2016, %

- Doctor of Science Degree: 0.4%
- Ph. D. Degree: 0.3%
- University degree: 0.0%
- Intermediate vocational and secondary general education: 0.0%

2017 Plans:

- Performing analysis and updating the documents defining the functional structure of PJSC FGC UES in accordance with the professional standards;
- Conducting expert examination of the education programmes implemented by PJSC FGC UES in terms of compliance with the provisions of the professional standards;
- Carrying out an assessment procedure for employees whose experience is not compliant with the requirements of professional standards;
- Forming plans for ensuring compliance of PJSC FGC UES employees with the provisions of the professional standards.

Social Security and Material Incentives

PJSC FGC UES has established and maintains an employee compensation system that takes into account position categories, performance results of the branches and structural units, as well as specifics of the regional labour markets and the individual contribution of each employee. Performance of the Company’s senior management is assessed against key performance indicators (KPIs) that are approved by the Board of Directors.

Differentiation of wages and salaries is determined by the level of complexity and importance of work performed, the qualification of the employee, and his/her impact on the performance of PJSC FGC UES.

The compensation system for employees is based on a variable component (bonuses). Remuneration includes a fixed component (salary) and a variable component (bonuses). The average salary was RUB 69,835 during 2016, which is 4.9% higher than the actual 2015 salary. According to Rosstat, the average monthly nominal wage paid in the RF in 2016 amounted to RUB 36,740.

The Company’s benefits package is an efficient tool for employee motivation and their social security, and includes:

- Voluntary medical insurance
- Accident insurance
- Non-governmental pensions
- Financial assistance related to various social aspects, such as marriages, childbirths, and others

The Company has a Corporate Housing Programme. To provide qualified personnel for key power facilities that are in remote areas or under construction, a corporate housing stock of Federal Grid Company has been created. A total of 17 apartments in the Demyanskoye village, the Uvatsky District of the Tyumen Region, and 16 apartments in the Sentyabsky village, the Nefyugansk Region of the Khanty-Mansi Autonomous District were commissioned in 2016. Employees of MES Western Siberia branch electric facilities located in remote areas will live in these apartments, including employees who will work under a rotation system.

In 2016, FGC intends to support its employees within the approved benefits package. The Company will continue to implement the Programme for Improving Employees’ Housing Conditions.

Key Performance Indicators (KPI)

In accordance with the Regulations on Terms and Conditions of Employment and Determination of Remuneration and Compensation for Senior Managers of PJSC FGC UES, remuneration for senior managers is determined by their employment agreements.

Remuneration includes a fixed component (salary) and a variable component (bonuses). PJSC FGC UES applies a management motivation system on the basis of achievement of KPIs set by the Board of Directors. In 2016, the quarterly and annual bonus system continued to function in the Company based on the methodology of calculating and evaluating the achievement of KPIs for the senior management of PJSC FGC UES, and was approved by the Board of Directors.
Ensuring Corporate Sustainability

The company's governance efficiency (KPIs: Reliability of power supply to consumers (KPIs: Meeting the deadlines for technological connections).

- Infrastructure development and execution of macro projects (KPIs: Accomplishment of the facility commissioning schedule, Innovation activity efficiency).
- Maintaining financial sustainability (KPIs: Return on invested capital (ROIC); Total shareholder return (TSR; Total Shareholder Return); Indicator for financial stability and liquidity).
- Efficient customer relations (KPIs: Meeting the deadlines for technological connections).

Non-Governmental Pension Programme

In order to ensure a decent standard of living for employees who reach retirement age, increase high performance motivation, and attract and retain highly qualified employees, the Non-Governmental Pension Programme has been implemented in PJSC FGC UES.

Awards Policy

In order to raise motivation for effective performance, and to provide moral and financial awards for high results, PJSC FGC UES has been successfully implementing a programme of giving state awards, awards by the Government and Ministry of Energy of the Russian Federation, the Russian National Association of Electricity Sector Employers (NaEL), PJSC Rosseti and corporate awards to its employees (hereinafter – the Programme).

2016 Results

In 2016, awards were given to 1336 employees of PJSC FGC UES, its subsidiaries and contractors, including:

- For great contribution to the power supply of the Crimean Peninsula consumers, 5 employees were awarded with state awards:
  - Andrey Murz, the Chairman of the Management Board of PJSC FGC UES was awarded with The Order of Alexander Nevsky;
  - The medals of the Order for Merit to the Fatherland 2nd class were given to
    - Vadim Pakov, Director of Kuban PMES branch of PJSC FGC UES;
    - Oleg Yakovlev, Head of Taman substation of Kuban PMES branch;
    - Pavel Korobenchikov, Director of Management - Deputy Chief Engineer of JSC CIUS;
    - Alexander Kupryanovich, Head of Management of JSC CIUS;
    - Sergey Golovkin, Deputy Chief Engineer of PJSC FGC UES of Kuban PMES branch was awarded with the Honorary Diploma of the President of the Russian Federation for his great contribution to the power supply Crimean Peninsula consumers.
  - For achievements in the energy sector and many years of conscientious work, Birts Aafarsie, the Leading Specialist of Trans-Baikal PMES, was nominated for the honorary title of Honorary energy worker of the Russian Federation;
  - 6 employees were awarded the title Honoured Power Engineer of the CIS, and 3 employees were given the Honorary Certificate of the CIS Electric Power Council for their contribution to the development of integrated processes in the power industries of CIS countries;

- 116 employees received awards of the Ministry of Energy of the Russian Federation for achievements in the energy sector, including 2 employees who were awarded the highest industrial award, the honorary title of Honourable Worker of the Fuel and Energy Complex;

- 153 employees received the Rail Association Awards, including 14 employees who received titles and signs for their achievements and for their long and productive work in the electric energy sector;

- 205 employees who made major contributions to the development of the electric grid complex received corporate awards from PJSC Rosseti;

- 946 employees received corporate awards for their contribution to the development and services of PJSC FGC UES.

Employees of PJSC FGC UES subsidiaries also received awards from entities of the Russian Federation and subsidiaries for their contribution to the development of the regional electric grid system.

For ensuring reliable operation of equipment, introduction and implementation of new technologies, equipment and advanced labour management techniques, the title Best Branch of Federal Grid Company – MES was awarded to MES Western Siberia, while the title Best Enterprise of Federal Grid Company – PMES was awarded to Orenburg Enterprise of Backbone Electric Grids.
**Succession Pool**

The succession pool is created in order to improve the staff capacities of Federal Grid Company to build an optimal vocational qualification structure of personnel for achievement of the strategic objectives, and to improve operational reliability of UNEG facilities.

**Types of Succession Pools of Federal Grid Company**

<table>
<thead>
<tr>
<th>Type of Succession Pool</th>
<th>Number of succession pool members, appointed to superior positions, persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical succession pool for production and technical facilities of Federal Grid – MES</td>
<td>59 (18%)</td>
</tr>
<tr>
<td>Succession pool for the position of Director of the Branch of Federal Grid Company - PMES</td>
<td>2 (2.4%)</td>
</tr>
<tr>
<td>Youth succession pool</td>
<td>4 (5.4%)</td>
</tr>
</tbody>
</table>

Appointments of succession pool members to superior positions in 2016

<table>
<thead>
<tr>
<th>Type of Succession Pool</th>
<th>Number of succession pool members, appointed to superior positions, persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical succession pool for production and technical facilities of Federal Grid – MES</td>
<td>51 (16%)</td>
</tr>
<tr>
<td>Succession pool for the position of Director of the Branch of Federal Grid Company - PMES</td>
<td>5 (6.1%)</td>
</tr>
<tr>
<td>Youth succession pool</td>
<td>74 employees</td>
</tr>
</tbody>
</table>

**HR Development**

The training and skills improvement system of Federal Grid Company is to develop the succession pool and professional development with consideration to the company’s prospective needs, changes in the environment and the level of employees’ development.

Average employee training hours per person per year, by employee gender and category, 2016

<table>
<thead>
<tr>
<th>Employee category</th>
<th>Average training hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial personnel:</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>54 hours/person</td>
</tr>
<tr>
<td>Women</td>
<td>48 hours/person</td>
</tr>
<tr>
<td>Administrative and managerial personnel and maintenance personnel:</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>29 hours/person</td>
</tr>
<tr>
<td>Women</td>
<td>18 hours/person</td>
</tr>
</tbody>
</table>

In 2016, 14,692 employees (including 13,977 employees in industrial personnel) took part in training, skills improvement programmes. The trained personnel accounted to 66% of total headcounts of the Company. Most of personnel improved its professional skills at their own Licensed Personnel Training Centres.

The Personnel Training Centres of Federal Grid Company conduct 49 programmes of skills improvement and 17 programmes of professional worker training. Special attention to training programs at the Personnel Training Centres is paid to practical exercise and skills. The licensed Personnel Training Centres of Federal Grid Company are equipped with training simulators, specialised software complexes (ASOP-Expert, Retrench, Phoenix, Modus), laboratories and electric grid training areas. This makes it possible to conduct skill drills and accident prevention trainings in as close to real life conditions as possible. In 2016, 346 accident prevention trainings were held at the Personnel Training Centres.

In 2016, 369 events were held and attended by 10,690 employees within the framework of the «Day of Knowledge» educational project for development of the knowledge management system, research and development, educational and methodological basis and improvement of personnel professional skills.

**2017 Plans:**

The 2017 objectives include, in particular, implementation of corporate education programmes for its operational personnel, development of the simulator drills, introduction of professional standards and organisation of Federal Grid’s employee retraining and skills development in accordance with the new qualification requirements.

**Co-Operation with Educational Institutions**

The Company has a system for attracting and retention of young professionals with a profile in electric education, and those future professionals who will implement all of UNEG’s modernisation and innovative development programmes that have been planned today.

284 employees passed the professional retraining, including:
- 39 persons in the Personnel Training Centres;
- 245 persons in higher education institutions, specialised secondary school and additional professional education institutions.

Employees from Federal Grid Company were trained under the federal programme “Training and Retraining of Management Pool” in 2016, in the course of production and graduate practices, over 800 students got practical knowledge and expertise at the Company’s facilities. Temporary jobs with a time wages system were created for 200 of them.

The Personnel Training Centre “Bely Rast” of MES Centre hosted the Young Engineer School training programme for 25 students.

The Federal Grid Company through participation of the Company’s management is a member of trustful councils of Moscow University of Power Engineering, Naro-Fominsk State Power Engineering University and other higher education institutions.

A list of over 100 topics on current technical problems for thesis works, research papers and dissertations of undergraduate and graduate students was made jointly by specialists of Federal Grid and the Electric Energy Institute of the Moscow Power Engineering Institute in order to attract undergraduate and postgraduate students to research and development and innovative projects. The above topics were used for works of undergraduate, graduate students and young researchers in industry-specific higher education institutions across the territory of Federal Grid’s operations.

In total, about 3,600 students, tutors and Company employees took part in events that Federal Grid Company arranged for the development in co-operation with educational institutions in 2016.
Day of Federal Grid Company

In April and May 2016, all branches and the Executive Directorate of the Federal Grid Company held annual events for professional orientation of students – the Day of Federal Grid Company. The total audience included over 1.5 thousand participants from 36 higher education institutions and from 6 specialised secondary schools.

Federal Grid’s Student Construction Teams

Within season VII of Student Construction Teams, Federal Grid Company organised operation of 6 teams from 3 institutions (Kazan State Power Engineering University, Volga branch of Moscow Power Engineering University and Research and Development University of Moscow Power Engineering University). In September 2016, Federal Grid Company was awarded a diploma by the All-Russian Intersectoral Association of the Electric Energy Employers and All-Russian Electric Power Industry Trade Union for the initiative of restoring the student construction teams’ tradition.

Youth Policy

Among the priorities of the long-term HR policy of Federal Grid Company is the preparation of young specialists for the electric power industry and creation of conditions for attracting talented active young specialists to the Company.

The key event of the year for the candidates of the youth technical talent pool of Federal Grid Company was the PROdvizhenie forum attended by 100 employees of the company at the International Forum of Young Power Engineers "Forsazh".

In 2016, the key topics in the relationship with educational institutions were the development of industry-specific education and creating opportunities for participation of industry-specific higher education institutions in scientific and innovative activities of Federal Grid Company. As part of the above cooperation with higher education institutions, the following measures were implemented:

- Work of student construction teams at the Federal Grid’s facilities, organization of the pre-graduation and production practices;
- Engaging the undergraduate and graduate students of the cooperative institutions to work on the technical topics of thesis works, research papers and dissertations that are actual for the electric grid facilities;
- Involving the education institutions in implementing R&D and innovative development programmes of the Company.

To contribute to training efficiency, the Company holds on an annual basis, tours of the power facilities of Federal Grid Company for the students of higher education institutions and specialised secondary schools. In 2016, 900 students attended such tours.

The key focus of the corporate youth policy in 2017 will be on the development of a mutually beneficial partnership with educational institutions and assistance in the professional development of the Company’s young employees.

In 2017, a Day of Federal Grid Company is planned at educational institutions, organised skills training at corporate facilities, co-operation with relevant educational departments with a view towards improving the professional background of employees, and involving higher education institutions in the Federal Grid’s innovative development programme: Student construction teams of Federal Grid Company will be formed during summer vacations. In July 2017, young specialists of Federal Grid Company will take part in the International Forum of Young Power Engineers ‘Forsazh’.

Development of Corporate Culture

In November 2016, the Botkin’s sixth chess competition between power engineers was held. The number of teams increased from 21 to 36, and the number of participants grew to 170. The competition was attended by teams of the power industry companies and the Russian Ministry of Energy. For the first time, the teams of Skolkovo Science and Technology Institute, Moscow Power Engineering Institute, Youth Section and Sub-committees of Russian National Committee of CIGRE joined the competition. During the year, the Company continued to arrange training in popular sports, and partial compensation for the cost of annual fitness contracts to sport clubs.


At the end of the year a traditional children’s pictures’ competition on the occasion of the 2017 Ecology Day in Russia was held. Over 500 children of the employees of branches, executive directorate and subsidiaries of Federal Grid Company took part in the competition.

In 2016, a range of corporate events was implemented to ensure commitment to corporate values and to promote a healthy lifestyle:

The Millen football team of Federal Grid Company took part in Great Victory Cup competitions held by the Ministry of Energy of Russia and the Rosseti Cup. Federal Grid’s teams took part in volleyball, Russian hockey, swimming and table tennis competitions held among TECs with support of the Russian Ministry of Energy.

2017 Plans:

2017 is the 15th anniversary year of Federal Grid Company. To develop corporate culture, several events will be organised during the year on the occasion of the Federal Grid’s anniversary. In April and May a children’s picture competition "Federal Grid Company: 15 years with the country" will be held. Pictures of the young painters who win the competition, will be placed in the Federal Grid’s offices during anniversary celebrations. The Company’s anniversary day will be celebrated by awarding the employment dynasties of Federal Grid’s branches and the best employees who contributed significantly to the Company’s development and achievements.

Ensuring Corporate Sustainability

The Company’s employees will take part in traditional sport events - mini football, volleyball, hockey, table tennis, swimming, skiing competitions supported by Rosseti and the Russian Ministry of Energy. Besides, a large mini football competition will be held to celebrate the 15th anniversary day. Furthermore, a traditional Botvinik’s Open Chess Competition is planned between power engineers.

Federal Grid Company will continue support to the Council of Veterans of the Energy Sector. Festivities on the occasions of Victory Day and the Power Engineer Day will be organised for them.

Charity and Sponsorship

Federal Grid Company’s main charitable support areas:

— Support of educational, scientific and cultural activities, and public awareness campaigns;
— Support of fitness and sport activities (except professional sport);

RUB 21.1 million

In 2016, the Company allocated RUB 21.1 million for charitable aid to individuals and legal entities.

— Social support and protection of citizens including the improvement of the financial situation of low-income people, social rehabilitation of the unemployed, the disabled and other persons who are unable to implement their rights and lawful interests on their own due to their physical or intellectual condition or any other circumstances;
— Protection and adequate maintenance of buildings, facilities and territories of historic, religious, cultural or environmental importance;
— Social rehabilitation of orphaned children and children without parental care, neglected children and children in difficult life circumstances;
— Support of activities in the field of health care, healthy lifestyle promotion, improvement of moral and psychological conditions of citizens;
— Assistance for those who have suffered from natural disasters, environmental or industrial disasters or other catastrophes, as well as social, ethnic or religious conflicts, victims of repression, refugees and forced migrants;
— Support of individuals who need surgery to save their lives and health (including prevention of disability and long-term rehabilitation), and those who need treatment of serious disease.

RUB 152.3 million

In 2016, Federal Grid Company provided sponsorship support totaling RUB 152.3 million.

Health and Safety

Health and Safety Policy

The Federal Grid’s occupational health and safety policy is one of the key elements of the Company’s occupational safety management system.

Federal Grid Company is committed, in all aspects of its businesses, to ensure the priority of life and health of its employees over operating performance.

The Federal Grid’s key objectives in occupational health and safety are as follows:

— To eliminate workplace injuries and occupational diseases;
— To develop safe conduct and accident-prevention skills among employees;

More details on main liabilities of Federal Grid Company related to the occupational health and safety are provided in the 2015 Statements.

Main areas of sponsorship support:

— Support of scientific development: Support of projects, programmes, institutions related to development of scientific activities in power industry;
— Preserving biodiversity: Support of programmes for the reduction of mortality and preserving endangered species whose natural habitat is connected to the electric grid facilities;
— Development of business partnerships and international cooperation: Support of the largest business forums and conferences on general economic topics, infrastructure development, power industry, energy saving and energy efficiency, technologies and innovations;

2017 Plans:

Federal Grid Company will continue charitable support to legal entities and individuals in accordance with approved corporate regulations and the 2017 budget of the Company.

Hazardous Production Factors at the Company’s Facilities

The main dangerous and hazardous production factors that may negatively impact the health of employees on Federal Grid’s sites are as follows:

— Physical factors (microlimate, temperature and related humidity, noise, etc.);
— Chemical factors (chemical substances and mixtures in the operational air);

HUMAN RESOURCES AND SOCIAL POLICY

—— Other areas that do not run contrary to the laws of the Russian Federation.

—— Physical factors (microclimate, temperature and related humidity, noise, etc.);
—— Biological factors (pathogenic microorganisms - agents of other infectious diseases);
—— Difficulty level of the occupational process (physical dynamic load, work posture, weight of lifted goods, etc.);
—— Intensity of the occupational process (period of focused surveillance, voice load, etc.)
Special Assessment of Working Conditions

Special assessment of working conditions is provided to identify dangerous and hazardous production factors on site.

In 2016, special assessment of working conditions was provided in 21 branches of Federal Grid Company (18 PMES and 3 MIES), at 2,875 work places hosting 3,406 persons.

Proceeding from results of the special assessment of working conditions, the number of work places with hazardous working conditions reduced by 28.9% and amounted to 0.4% of total number of work places assessed in 2016.

Consolidated list of results of the special assessment of working conditions in 2016 at branches of Federal Grid Company

<table>
<thead>
<tr>
<th>Name</th>
<th>Total</th>
<th>Number of work places and the number of engaged employees</th>
<th>Number of work places and the number of engaged employees per classes (subclasses) of working conditions from the number of work places shown in graph 3 (units)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of work places where special assessment of working conditions was provided in 2016</td>
<td>Class 1 Class 2 Class 3 Class 4</td>
</tr>
<tr>
<td>Work places (units)</td>
<td>17,962</td>
<td>2,875</td>
<td>2,864</td>
</tr>
<tr>
<td>Engaged employees (persons)</td>
<td>22,033</td>
<td>3,406</td>
<td>3,395</td>
</tr>
</tbody>
</table>

Proceeding from results of the special assessment of working conditions in 2016, the work places of the electric and gas welder and persons performing his functions were considered to be harmful (11 work places at Kuban PMES and 1 work place at Stavropol PMES).

Based on results of the special assessment of working conditions, activities were developed and performed during the current year to reduce the harmful production impact on 11 work places: Operational defects in operation of the exhaust ventilation of the fixed welding station were eliminated, up-to-date respiratory protection devices for electric gas welder and the persons performing his functions were procured, the UV protection creme was procured.

As of 01 January 2016, work places with harmful working conditions (class 3.1 and higher) in Federal Grid Company represented 4.4%.

Health and Safety Committees

Health and Safety Committees (hereinafter ‘the Committees’) of Federal Grid branches are one of the elements of the occupational health and safety management system. Work of the Committees is governed by the Regulations on Health and Safety Committees of Federal Grid Company, in force since 2012.

Each MIES and PMES branch has its own Committee. Totally, Federal Grid has 45 Committees that include 753 members. Within the reporting period, 384 meetings were held and 1,248 matters were considered. All Committees’ decisions made on the items reviewed have been implemented.

Also, Federal Grid Company has a Health and Safety Committee that is composed of 20 persons, including representatives from the Departments of the Executive Office of Federal Grid Company, First Deputies of General Directors (Chief Engineers) of MIES branches and the Company subsidiaries (hereinafter referred to as the Committee). The Committee is a collective consultative body that shapes the Company occupational health and safety policy. In 2016, three meetings of the Committee were held devoted to the development of occupational accident prevention measures that were further implemented.

Another important element of the health and safety management is workforce involvement in the creation of healthy and safe working conditions through the appointment of authorised persons for health and safety monitoring. These authorised persons perform health and safety inspections in their structural units, including monitoring of compliance with the health and safety requirements for employees. 1,068 authorised persons in the health and safety area were appointed in 1,206 structural units of PMES branches. Among them, 1,000 persons received training in specialised health and safety courses.

Thanks to the work of the health and safety authorised personnel, the number of inspections of the work teams increased with the aim of reducing violations in the preparation of workplaces.

Plans for improvement of personnel protection from harmful production factors will be completed in 2017

To reduce the impact of electromagnetic field at work places (substations and overhead electric transmission lines of 330 kV and up), the following measures are planned:

– Organisational activities (limiting the areas of electromagnetic field impact, location of work places and travel paths of the service staff at a sufficient distance from sources of the electromagnetic field to ensure an acceptable level);

– Engineering and technical activities (installation of biological protection devices along the traffic route to protect from the electromagnetic field impact, introducing new technologies and using individual electromagnetic field protection devices).

Occupational Injuries

Since 2002 no cases of occupational diseases have been registered in Federal Grid Company.

In all accidents during 2016, men were injured as a result of: Electric shock in indoor switchgear – 10 kV (2 persons) and induced voltage in HV lines of 500 kV (1 person).

Employees injured in 2016 by branch, persons

<table>
<thead>
<tr>
<th>Branch name</th>
<th>Total number of persons injured at production, including, persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
</tr>
<tr>
<td>MES Centre</td>
<td>1</td>
</tr>
<tr>
<td>MES North-West</td>
<td>1</td>
</tr>
<tr>
<td>MES South</td>
<td>1</td>
</tr>
<tr>
<td>MES Volga</td>
<td>1</td>
</tr>
<tr>
<td>MES Urals</td>
<td>1</td>
</tr>
<tr>
<td>MES Western Siberia</td>
<td>1</td>
</tr>
<tr>
<td>MES Siberia</td>
<td>1</td>
</tr>
<tr>
<td>MES East</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3</td>
</tr>
</tbody>
</table>
Ensuring Corporate Sustainability

Public Injuries at Federal Grid’s Facilities

2 accidents involving the third parties were recorded in 2016 (not related to work execution at Federal Grid’s facilities): 2 injured persons – one angler and one person during violence.

Programme of action for third party injuries risk reduction at Federal Grid’s facilities

A Programme of public and informational events for third party injuries risk reduction at Federal Grid’s facilities (hereinafter the Programme) was approved in order to prevent third party injuries, including child injuries.

The main directions of the Programme activities are cooperation with authorities and the community, including summer visitors, gardeners and amateur anglers, and measures to prevent electric injuries among children and teenagers, third parties and contractors.

The following measures were implemented in 2016 within the Programme:

No.  Measure                                                                 Number: ps.  
1. Preparation of information materials on electric injury prevention and their publication in local media 362  
2. Preparation and distribution of printed materials for various target audiences, including with the involvement of volunteers and representatives from non-governmental organisations 2,291  
3. Manufacturing and installation of warning signs 4,779  
4. Joint preventive initiatives with regional educational authorities, territorial offices of the Ministry of Internal Affairs, Emergency Situations Ministry, RosTechnadzor. 81  
5. Preparation of health and safety audio and video materials and their placement at local radio stations and TV channels 6  
6. Preventive printed materials distributed among rural gatherings, residents of private homes, on the mortal danger of unauthorised connection to electric grids. 2,689  
7. Horticultural societies where preventive printed materials about the danger of approaching electric facilities and unauthorised work within the OHL exclusion zones were distributed 570  
8. Equipping the crossing points of electricity transmission lines within bodies of water with the warning signs about prohibition or danger of fishing within an OHL exclusion zone. 365  
9. Preventive meetings and discussions with members of anglers’ associations 49  

Measures to prevent electric injuries among children and teenagers

10. Preventive offline events in child health improvement at municipal camps 19  
11. Conducting guided tours for schoolchildren of power facilities 89  
12. Conducting lessons on electric safety for schoolchildren 132

In 2016 additional health and safety measures were taken:

- The “Safety behavior audit” project was implemented for using mobile video recorders to record and analyse, with the employees, the most dangerous processes and work done by the employees at the existing electric facilities;
- Monthly Health and Safety Days in order to improve the efficiency and to prevent similar accident violations;
- Monthly initiatives devoted to road traffic safety.

Number of accidents at Federal Grid branches in 2016 by type, pcs

- violation of process technologies
- non-use of PPE
- violation of traffic rules by the Company’s employees
- violation of traffic rules by a third party

Injury1 and fatality frequency rates of Federal Grid Company

- Injury frequency rate
- Fatality frequency rate

In 2016 additional health and safety measures were taken:

- The project is implemented for using mobile video recorders to record and analyse, with the employees, the most dangerous processes and work done by the employees at the existing electric facilities;
- Monthly Health and Safety Days in order to improve the efficiency and to prevent similar accident violations;
- Monthly initiatives devoted to road traffic safety.

12 Production injury rates, including fatality rate or group injury rate resulting from non-performance/poor performance of liabilities per 10,000 persons.
Ensuring Corporate Sustainability

Environmental Safety

Environmental Management System and Environmental Policy

Environmental Policy

Objectives, tasks and principles of environmental protection activities and priority directions of the state environmental policy in economic, industrial, social and other areas are stipulated in the Ecological Doctrine of the Russian Federation.

The Company’s Environmental Policy approved by the Federal Grid’s Board on 30 September 2014 follows the principles set by the state environmental development policy of Russia and the Energy Strategy of Russia to 2030.

Degree of environmental impact reduction of of products and services

In 2016, there has been the following reduction of negative environmental impact against 2015 results:

- a 13.3% reduction in water consumption;
- a 29.3% reduction in wastewater discharge;
- a 15.4% reduction in gross pollutants discharge into waters;
- a 5.7% reduction in the volume of wastes to be burned and disposed in the environmental area.

The main goal of the Environmental Policy of Federal Grid Company is to minimise negative environmental impacts of electricity transmission and distribution.

While implementing its environmental policy, the Company focuses on the environmental aspects of its activities, strives to mitigate negative environmental impacts, ensure rational use of natural resources.

Main directions of the Environmental Policy implementation stipulated in the Programme on implementation of the Federal Grid’s Environmental Policy for 2016–2019 approved in 2015, are as follows:

- Meeting the requirements and standards stipulated by the environmental legislation of Russia and international environmental regulations;
- Observing the standards of possible environmental impact set by the Russian environmental legislation;
- Priority of preventive measures over environmental remedial actions;
- Use of the best available technologies that ensure the compliance with environmental requirements and mitigation of negative environmental impact;
- Restriction of industrial and construction activities on the areas of special conservation interest;
- Preserving the biodiversity;
- Stage-by-stage decommissioning of the polychlorinated biphenyl containing equipment and its replacement with environmentally safe equipment;
- Industrial wastes management and environmentally safe treatment;
- Improving the corporate system of the Company’s environmental protection activities.

Within the programme of implementation of the Environmental Policy, Federal Grid Company conducts technical and organisational initiatives to mitigate negative environmental impact of the Company’s production activities.

The technical measures comprise:

- Replacement of equipment containing dangerous and toxic substances;
- Renovation and repair of oil receivers and collectors and systems;
- Reconstruction of water supply and sewage systems;
- Organisation of the temporary waste storage areas;
- Environmental training of the personnel.

Organisational activities comprise:

- Development of the required regulatory and technical documentation and improving documentary support of environmental protection activities;
- Efficient performance of the environmental management system (EMS) which meets the ISO 14001:2004 requirements;
- Improving the production environmental control and EMS’s internal environmental audit system;
- Environmental training of the personnel.

Federal Grid Company admits that its production activities have an adverse environmental impact due to:

- Accumulation of production wastes;
- Water intake from underground and surface water bodies;
- Pollutants emissions and discharge;
- Physical impact on ambient air;
- Impact on flora and fauna.

For more information on the Federal Grid’s Environmental Policy principles and objectives please visit: http://www.fsgc-ues.ru, the section About Us / Ecology.
Main types of adverse environmental impact

Environmental Management System

Goals, objectives, and principles of Environmental Management System

Pursuant to the Directive of the Russian Government on introduction of voluntary environmental liability schemes and in order to implement the objectives defined in the Federal Grid’s Environmental Policy, the Company implements the project for introduction of the unified environmental management system (EMS) and its certification for compliance with ISO 14001:2004 international standard.

Environmental management system is a part of the overall Federal Grid’s management system used for creation and implementation of the Environmental Policy and control of environmental aspects of the Company’s operations within the overall management system.

The main objective of the implementation and operation of the environmental management system is to apply new management methods that enable us to strengthen our influence on environmental aspects of our industrial and business operations. Efficient operation of the environmental management system allows to establish unified approaches to the Federal Grid’s environmental protection management, to minimise adverse environmental impact of production factors, and to solve economic and environmental problems at the same time.

For more information on regulatory documents used by the Company in the ecological matters please see the report, page 112.

Environmental protection management system of Federal Grid Company

The supervisory audit carried out in autumn 2016 by an independent certification authority proved that Federal Grid’s environmental management system fully complies with ISO 14001:2004 international standard and is focused on its continuous improvement. The certificate was extended till the next supervisory audit.

Internal environmental audits

In 2016, under internal environmental audits 410 facilities were checked (371 industrial facilities, 39 structural units), which makes 35% of total number of facilities covered by the Federal Grid’s environmental management system.

The internal environmental audits were carried out to assess compliance with the requirements of the environmental legislation of Russia and environmental management system. In the course of internal environmental audits, special attention is paid to compliance with the environmental requirements during operation of contractors on the territory of electric grid facilities. If any non-compliance is identified, its reasons are defined and corrective measures are developed. The results of remedial actions on identified violations are recorded in consolidated reports on internal environmental audits of Federal Grid Company’s branches – MES, and later are sent to profile structural units of the executive directorate for their further analysis, definition of possible environmental risks, and decision making on improvement of environmental protection measures.

85% of the violations and noncompliances identified during internal environmental audits were eliminated until the end of the reporting year, elimination of the remaining 15% claims were scheduled for a later term.

The number of noncompliances identified during the 2016 internal environmental audit reduced by 7% per one inspected facility over the previous year, which proves the efficiency of the Federal Grid’s activities for minimisation of the adverse environmental impact.
2016 Innovations in Utilisation of Equipment Containing Trichlorodiphenyl (TCD)

To timely meet the requirements of the Stockholm Convention on persistent organic pollutants ratified by Russian Federation, and optimisation of use of equipment containing Trichlorobiphenyl (hereinafter referred to as TCD), Federal Grid Company developed and approved in 2016 the Regulations on TCD-containing equipment handling and provided inventory processing of such equipment.

The Regulations stipulate:
- uniform requirements at all stages of handling TCD-containing equipment, such as technical evaluation, decommissioning, replacement, accumulation, transfer for processing/storage;
- health, safety and environmental requirements for works with TCD-containing equipment;
- principles of interaction between structural units of the Executive Office of Federal Grid Company and its MES/PMES branches when handling TCD-containing equipment;
- information exchange rules when handling TCD-containing equipment.

Operating processes related to electricity receipt, transmission and distribution at the Company’s facilities do not include the use of raw materials, semi-manufactures products (materials) as well as recycled waste and waste reuse. 

Environmental impact management system


The overall environmental costs include capital and current costs, as well as payments for adverse environmental impact.

Environmental protection costs

In 2016, the territorial authorities of Rosprirodnadzor and Rosreestrnadzor conducted three scheduled inspections in Federal Grid’s branches to check the observance of the environmental protection legislation. Following the results of inspections, five claims were compiled, the amount of penalties made RUB 113.0 thousand. All corrections were made until 31 December 2016.

The overall environmental costs include capital and current costs, as well as payments for adverse environmental impact.

Dynamics of environmental protection costs and investments in 2014–2016, RUB million

<table>
<thead>
<tr>
<th>Environmental protection costs and investments</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital investments for environmental protection, total</td>
<td>126.97</td>
<td>95.91</td>
<td>7.41</td>
</tr>
<tr>
<td>Current environmental costs, total</td>
<td>98.83</td>
<td>152.4</td>
<td>182.11</td>
</tr>
<tr>
<td>including:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water resources protection</td>
<td>98.83</td>
<td>152.4</td>
<td>182.11</td>
</tr>
<tr>
<td>Ambient air protection</td>
<td>37.2</td>
<td>54.67</td>
<td>68.96</td>
</tr>
</tbody>
</table>

Environmental protection costs and investments

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection of land resources from industrial and residential wastes</td>
<td>44.51</td>
<td>65.29</td>
<td>69.65</td>
</tr>
<tr>
<td>Deployment and certification of the environmental management system</td>
<td>4.23</td>
<td>6.02</td>
<td>0.38</td>
</tr>
<tr>
<td>Other expenses</td>
<td>1.55</td>
<td>13.67</td>
<td>33.13</td>
</tr>
<tr>
<td>Payments for adverse environmental impact, total, including:</td>
<td>6.82</td>
<td>6.52</td>
<td>4.45</td>
</tr>
<tr>
<td>within the established standards</td>
<td>4.27</td>
<td>3.94</td>
<td>3.10</td>
</tr>
<tr>
<td>exceeding the established standards and norms</td>
<td>2.55</td>
<td>2.58</td>
<td>1.35</td>
</tr>
</tbody>
</table>

Total costs and investments of Federal Grid Company for environmental activities in 2016 made

RUB 193.98 million

The following measures were implemented in 2016 using current costs:
- Sits for temporary storage of waste were arranged at 89 facilities;
- Repairs and maintenance of water supply and sewage systems were performed at 214 facilities;
- Repairs and maintenance of systems and devices of oil receivers and oil collectors were performed at 193 facilities;
- 27,637 bird protection systems were installed in OHL;
- 137 capacitors containing trichlorobiphenyl, with a total weight of 3.93 tonnes, were handed over to specialised institutions for treatment/disposal;
- one draft standard for permissible discharges, 153 draft waste generation standards and waste disposal limits, 99 draft standards for permissible emissions, 41 health protection area designs, 19 drinking water protective area designs were developed;
- 37 licenses for subsoil use were received for the purpose of underground water abstraction;
- geological survey of underground water resources was conducted at 5 deposits;
- 1,558 laboratory analyses of the quality of air, wastewater and groundwater, and physical effects analyses were made;
- 238 employees were trained in environmental safety programmes;
- 10 employees were trained in environmental management programmes.

Implementation of activities from capital costs:
- Reconstruction of water supply and sewage systems at one production facility;
- Reconstruction of systems and devices of oil receivers and oil collectors at two facilities.

Total environmental costs directly depend on the necessity and change every year. In 2014–2016 the annual current environmental costs increased continuously. The capital costs reduce every year due to reduction of the volume of renovation and refurbishment works on electric grid facilities.

Pursuant to Article 16 of the Federal Law No. 7–FZ of 10 January 2002, “On Environmental Protection”, Federal Grid’s branches – MES, PMES pay fees within the time periods set in legislation for pollutants emissions in the ambient air made by the stationary emissions sources, for pollutants discharge into water and wastes disposal.

Regulatory payments for environmental pollution are made pursuant to the permissions at basic rates set by the Russian Government. If the amount of environmental pollution exceeds the norms or no permits are available, additional payments are made with 5-fold ratio for wastes disposal and 25-fold ratio for pollutants emissions and discharge.

The above-limit payments for negative environmental impact are due to the following reasons:
- failure to have permits for pollutant discharge and emission, waste disposal;
- waste disposal to landfills that are not included in the State register of waste disposal facilities, due to their absence within the location area of substations;
- absence of Russian laws and regulations that govern the procedure for development and approval of standards for permissible discharge onto the terrain and for issuance of the appropriate permits.

Significant reduction of payments for adverse environmental impact in 2016 is due to cancellation of payments for pollutants discharge from movable sources, and for pollutants discharge onto the terrain.
### 2016 Results

#### Implementation of innovative solutions

Every year Federal Grid Company provides actions for implementation of innovative solutions contributing to minimisation of adverse environmental impact.

Though no innovative projects were completed in 2016, the perspective technologies and solutions were implemented in certain branches:

<table>
<thead>
<tr>
<th>Technology / Solution</th>
<th>Industrial facility</th>
<th>Environmental effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement of fluorescent lamps to the LED lighting</td>
<td>Cherezovnnoe PMES: Metallurgicalchskaya 575 kV, Stary Osol SS 550 kV</td>
<td>Reduction of volumes of I hazard class wastes, reduction of energy consumption</td>
</tr>
<tr>
<td>Replacement of platform truck with electric truck (tricycle)</td>
<td>Yuzhno-Uralskoe PMES: SS 500 kV, Chelyabinskaya, Smolenskaya, Kropachevo</td>
<td>Preventing the pollutants emission into the ambient air</td>
</tr>
</tbody>
</table>

#### Approving the quantitative environmental targets

To comply with the Environmental policy and to establish the documented environmental objectives and tasks Federal Grid Company approved the Quantitative environmental targets for 2014–2016. The following quantitative environmental targets were set for 2016:

- A 1% reduction of water consumption volumes to total number of industrial facilities;
- A 2% reduction in the number of violations of environmental laws identified during the production environmental control to the annual number of audited production facilities.

#### Results of comparative analysis of the planned parameters changes

<table>
<thead>
<tr>
<th>Quantitative environmental target</th>
<th>Number of facilities</th>
<th>Absolute value</th>
<th>Unit value</th>
<th>Achievement of the quantitative environmental target, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 1% reduction of wastes volumes transferred to be buried and disposed in the environment, to total number of industrial facilities compared to previous years results</td>
<td>935</td>
<td>950</td>
<td>7,207.17</td>
<td>6,797.78</td>
</tr>
<tr>
<td>A 1% reduction of water consumption volumes to total number of industrial facilities compared to previous years results</td>
<td>935</td>
<td>950</td>
<td>1,039.92</td>
<td>901.14</td>
</tr>
<tr>
<td>A 2% reduction in the number of violations of environmental laws identified during the production environmental control to the annual number of audited production facilities compared to previous years results</td>
<td>372</td>
<td>371</td>
<td>902</td>
<td>839</td>
</tr>
</tbody>
</table>

Analysis of the environmental activities and environmental indicators of Federal Grid Company for 2016 shows that all quantitative environmental targets were achieved.

To establish the documented environmental goals and objectives for future periods of 2016, the Quantitative environmental targets of Federal Grid Company for 2017–2019 were developed and approved.

### Quantitative environmental targets of Federal Grid Company for 2017-2019

<table>
<thead>
<tr>
<th>Quantitative environmental target</th>
<th>Reduction per years (to the previous year result)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of volumes of the operated equipment containing trichlorodiphenyl</td>
<td>4% 4% 4%</td>
</tr>
<tr>
<td>Reduction of wastes volumes transferred to be buried and disposed in the environment, to total number of industrial facilities</td>
<td>2% 2% 2%</td>
</tr>
<tr>
<td>Reduction of water consumption volumes to total number of industrial facilities</td>
<td>2% 2% 2%</td>
</tr>
<tr>
<td>Reduction in the number of non-compliances identified during the production environmental control to the annual number of audited facilities</td>
<td>2% 2% 2%</td>
</tr>
</tbody>
</table>

The Company cooperates with the following Russian and international organisations on the matters of environmental protection, environmental safety and rational use of natural resources:

- All Russian non-governmental organisation Russian Association of Birds Protection;
- Russian Geographic Society;
- Non-profit Organisation World Wildlife Fund Russia (WWF Russia).

In 2016, the corporate standards of Federal Grid Company on environmental safety at all stages of the lifecycle of electric grid facilities were approved to set requirements to environmental safety of electric grid facilities and to improve the regulations and standards:

- Environmental safety of electric grid facilities. Requirements to project designing, erection, reconstruction and liquidation;
- Environmental safety of electric grid facilities. Requirements to maintenance and repair.

#### Partnership projects

**Earth Hour**

In 2016 Federal Grid Company again took part in the international Earth Hour initiative. On 19 March 2016 at 20:30 the lighting of administrative buildings, duty lighting on the territory of substations and other facilities not impacting the production operations and safety were turned off. 762 facilities of Federal Grid Company took part in the Earth Hour resulting in energy savings of 10,307,836 kWh.

During the Second Eastern Economic Forum in September 2016 in Vladivostok, Federal Grid Company and All-Russian public association Russian Bird Conservation Union signed a cooperation agreement on environmental safety of UNEG facilities. The cooperation agreement is to improve the power supply reliability in the regions by using the protection devices and technologies at electric grid facilities subject to adverse birds impact, and to protect rare endangered species of birds from damage when contacting the electric transmission lines within the ornithologically significant and special protected territories.

Charitable contribution to the Autonomous Non-Profit organisation Centres for Study and Preservation of the Amur Tiger Population+ to contribute to the environmental protection and animal protection activities within the project Tiger and the Right and to promote the Amur tiger preservation concept in Russia and at an international level.
Environmental Performance

Collection, Storage and Utilisation of Production and Consumption Waste

In the course of operations at electric grid facilities of Federal Grid’s branches, 80 types of production and consumption waste are generated. The wastes are transferred to special licensed organisations for processing, secondary processing, use and disposal on special sites. The most common are as follows:

- I hazard class – waste mercury containing and fluorescent lamps;
- II hazard class – lead-acid batteries and battery sulfuric acid;
- III hazard class – used motor filters, transformer, transmission and engine oils, paint and varnish waste;
- IV hazard class – repairs and construction waste, sweepings from industrial facility territories, absorbent materials contaminated by oil, waste office equipment, worn special clothing, waste tiers;
- V hazard class – used porcelain insulators and tiers, ferrous steel scrap, waste concrete products, waste insulated wires and cables, wood waste, green waste, polyethylene waste paper and cardboard waste.

Over the period 2014–2016, an annual decrease in waste generation volumes, connected, primarily, with the reduction of works on reconstruction and refurbishment of electric grid facilities.

Dynamics of education volumes change in 2011-2015, thousand tonnes

<table>
<thead>
<tr>
<th>Volumes of wastes generation and approaches to their application</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, including</td>
<td>14.3</td>
<td>13.6</td>
<td>13.1</td>
</tr>
<tr>
<td>I hazard class</td>
<td>0.1</td>
<td>0.1</td>
<td>0.01</td>
</tr>
<tr>
<td>II hazard class</td>
<td>0.01</td>
<td>0.04</td>
<td>0.006</td>
</tr>
<tr>
<td>III hazard class</td>
<td>0.7</td>
<td>0.8</td>
<td>0.4</td>
</tr>
<tr>
<td>IV hazard class</td>
<td>6.2</td>
<td>6.2</td>
<td>5.3</td>
</tr>
<tr>
<td>V hazard class</td>
<td>7.2</td>
<td>6.5</td>
<td>7.4</td>
</tr>
<tr>
<td>Transferred to specialised organisations for decontamination, secondary treatment and its usage</td>
<td>5.9</td>
<td>6.5</td>
<td>6.3</td>
</tr>
<tr>
<td>Transferred to specialised organisations for disposal on wastes landfill</td>
<td>8.2</td>
<td>7.2</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Since 2015, in cooperation with the WWF Russia, a joint pilot project Monitoring the effectiveness of measures implemented by the MES East branch to prevent death of Oriental white storks on power transmission lines was launched. According to the results of the above monitoring, the effectiveness was noted of the efforts of the MES East branch aimed at protecting Oriental white storks, and the necessity to implement the following joint bird protection measures with the involvement of the Russian Birds Conservation Union was determined:

- In spring – summer 2016 the experts of WWF of Russia in cooperation with the specialists of Amur PMES in the course of monitoring inspected the OHL 500/220 kV within the territory of Amur region to check for the new and existing places of the Oriental white storks breeding.

An annual decline in wastes disposed of at landfills in Federal Grid branches, which indicates a reduction in adverse environmental impact.

Protection and Rational Utilisation of Water Resources

Water consumption at the industrial facilities of Federal Grid branches is based on water withdrawal from surface and underground water sources, centralised water supply and other sources (e.g., bottled water).

<table>
<thead>
<tr>
<th>Water consumption</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, including</td>
<td>1,160.1</td>
<td>1,039.9</td>
<td>901.1</td>
</tr>
<tr>
<td>from surface water sources</td>
<td>68.7</td>
<td>74.3</td>
<td>74.7</td>
</tr>
<tr>
<td>from underground sources</td>
<td>643.2</td>
<td>529.2</td>
<td>516.7</td>
</tr>
<tr>
<td>from centralised water supply systems</td>
<td>430.6</td>
<td>432.3</td>
<td>299.4</td>
</tr>
<tr>
<td>from other sources</td>
<td>17.7</td>
<td>13.2</td>
<td>10.3</td>
</tr>
</tbody>
</table>

In 2016, Urals MES, Volga MES and Western Siberia MES contributed most to reduction of this indicator.

The water is subsequently used to meet the technical, drinking, fire, and technological needs.

Air Protection

In the course of production operations of Federal Grid Company, air pollutant emissions occur from stationary sources (wood/metal-working machines, parking places, diesel driven generators, oil-filled equipment, welding stations etc.).
The volumes of emissions are set by means of calculations in the course of project designing the maximum emissions and are not measured analytically since this equipment is operated periodically and the volumes of emissions are not large.

In 2016, gross air pollutant emissions increased due to an increase in practically all types of air pollutants to be recorded in Federal Grid branches, excluding hydrocarbons (without volatile organic compounds) that have reduced due to optimisation of the motor vehicle use.

Annual increase of emitted pollutants is due to standardisation of the major portion of stationary wastes sources.

In 2016, in Federal Grid branches, 59 new projects for maximum emissions were developed due to increase of the volume of emissions of almost all pollutants, subject to accounting by Federal Grid’s branches, excluding hydrocarbons (without volatile organic compounds) that have reduced in 2015 due to optimisation of the motor vehicle use.

Reduction of greenhouse gases wastes

- optimisation of electric grid operation and management modes;
- reduction of electric power consumption for auxiliary supply of the substations;
- initiatives to build, reconstruct and develop electric grids, and commission the energy saving equipment (loss reduction has a collateral effect).

Ozone-destructing substances are not present in pollutants emitted in ambient air by Federal Grid’s facilities.

Impact on biodiversity

Protection of Flora and Fauna

Electric grid companies impact on biodiversity has not been studied enough.

Plants (trees and bushes) are monitored and controlled in the course of scheduled OHL inspection along the lines by checking the height and density of plants for taking timely cutting measures. Control of plants along the electric transmission lines is provided by manual, mechanical and chemical cutting. Chemical cleaning is provided by using the herbicides allowed for use in Russia, that have no adverse environmental impact, and is not used in special protected areas and in water protected areas of water bodies. Pest impact is not controlled.

Activities in Protected Areas

For detailed information please refer to Register of special protected areas provided in the Appendix.

Environmental control in the OHL areas

In 2009–2016 environmental situation in 500 kV OHL areas was controlled in National Park Smolny (Republic of Mordovia) located within the territory of Nizhegorodsky PMES. The objective of monitoring is to assess species diversity, number and distribution of birds within the controlled areas located along electricity transmission lines 500 kV Ulyanovskaya–Severnaya and Ulyanovskaya–Yuzhnaya.

In 2016, research was performed within the reference areas located along the route of 500 kV Vestikayma–Arzamasskaya, Vestikayma–Osinovka OHL on the territory of Baranovskovsky forestry of the National Park Smolny.

13 species of birds were recorded in the reference areas in 2016 that is 6.2% from total numbers of bird species in the territory of the National Park. Among the predominates species are song thrush (Turdus philomelos) (19.2–22.5% of total number of recorded birds), nightingale Caprimulgus europaeus (15.4–20.6%), robin Erithacus rubecula (14.7%), woodcock Scolopax rustica (14.7–19.2%).

When conducting observation in 2016, no cases were recorded of bird death caused by constructions of 500 kV OHL on the territory of the National Park Smolny.

Dynamics of the number of birds in the examined biotypes is due to various ecological conditions in the territory of the National Park Smolny.

Sewage water discharge

Wastewater (industrial, storm water, and technical) from the Federal Grid's facilities is discharged through the public sewerage system, into the surface water bodies and onto the terrain. In the course of sewage water discharge, pollutants come into soil and water resources and have adverse environmental impact. No significant impact of wastewater discharge from the areas of substations on ecological diversity of water bodies (streams) and their related habitats has been identified.

Sewage water discharge with breakdown into receiving facilities in 2016

<table>
<thead>
<tr>
<th>Type of Discharge</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally treated</td>
<td>226.2</td>
<td>198.6</td>
<td>177.1</td>
</tr>
<tr>
<td>Insufficiently treated</td>
<td>472.8</td>
<td>385.4</td>
<td>217.3</td>
</tr>
<tr>
<td>Without treatment</td>
<td>20.3</td>
<td>26.9</td>
<td>29.6</td>
</tr>
<tr>
<td>Total, including:</td>
<td>497.1</td>
<td>415.2</td>
<td>32.8</td>
</tr>
<tr>
<td>Water discharge into sewage grids</td>
<td>535.6</td>
<td>497.1</td>
<td>415.2</td>
</tr>
<tr>
<td>Water discharge into surface water bodies, including:</td>
<td>85.8</td>
<td>109.4</td>
<td>75.8</td>
</tr>
<tr>
<td>Without treatment</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Insufficiently treated</td>
<td>65.5</td>
<td>82.5</td>
<td>46.2</td>
</tr>
<tr>
<td>Normally treated</td>
<td>20.3</td>
<td>26.9</td>
<td>29.6</td>
</tr>
<tr>
<td>Water discharge on the terrain, including:</td>
<td>472.8</td>
<td>385.4</td>
<td>209.9</td>
</tr>
<tr>
<td>Without treatment</td>
<td>246.6</td>
<td>198.8</td>
<td>32.8</td>
</tr>
<tr>
<td>Insufficiently treated</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Normally treated</td>
<td>226.2</td>
<td>198.6</td>
<td>177.1</td>
</tr>
</tbody>
</table>

Annual reduction of sewage water volumes is due to reduction of water consumption.

Dynamics of gross pollutants emissions into ambient air in 2014–2016, tonnes

<table>
<thead>
<tr>
<th>Type of Emission</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>184.0</td>
<td>221.7</td>
<td>226.7</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>5.9</td>
<td>8.6</td>
<td>9.3</td>
</tr>
<tr>
<td>Carbonic oxide</td>
<td>178.1</td>
<td>212.5</td>
<td>217.3</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>1.1</td>
<td>1.6</td>
<td>1.7</td>
</tr>
<tr>
<td>Nitrogen oxide (re-calculated to NO2)</td>
<td>42.8</td>
<td>51.2</td>
<td>50.5</td>
</tr>
<tr>
<td>Carbon hydride (without volatile organic compounds)</td>
<td>6.0</td>
<td>7.7</td>
<td>7.9</td>
</tr>
<tr>
<td>Volatile organic compounds</td>
<td>49.6</td>
<td>46.3</td>
<td>41.2</td>
</tr>
<tr>
<td>Other</td>
<td>68.4</td>
<td>94.4</td>
<td>183.4</td>
</tr>
</tbody>
</table>

Reduction of greenhouse gases wastes

- optimisation of electric grid operation and management modes;
- reduction of electric power consumption for auxiliary supply of the substations;
- initiatives to build, reconstruct and develop electric grids, and commission the energy saving equipment (loss reduction has a collateral effect).

Ozone-destructing substances are not present in pollutants emitted in ambient air by Federal Grid’s facilities.

Impact on biodiversity

Protection of Flora and Fauna

Electric grid companies impact on biodiversity has not been studied enough.

Plants (trees and bushes) are monitored and controlled in the course of scheduled OHL inspection along the lines by checking the height and density of plants for taking timely cutting measures. Control of plants along the electric transmission lines is provided by manual, mechanical and chemical cutting. Chemical cleaning is provided by using the herbicides allowed for use in Russia, that have no adverse environmental impact, and is not used in special protected areas and in water protected areas of water bodies. Pest impact is not controlled.

Activities in Protected Areas

For detailed information please refer to Register of special protected areas provided in the Appendix.

Environmental control in the OHL areas

In 2009–2016 environmental situation in 500 kV OHL areas was controlled in National Park Smolny (Republic of Mordovia) located within the territory of Nizhegorodsky PMES. The objective of monitoring is to assess species diversity, number and distribution of birds within the controlled areas located along electricity transmission lines 500 kV Ulyanovskaya–Severnaya and Ulyanovskaya–Yuzhnaya.

In 2016, research was performed within the reference areas located along the route of 500 kV Vestikayma–Arzamasskaya, Vestikayma–Osinovka OHL on the territory of Baranovskovsky forestry of the National Park Smolny.

13 species of birds were recorded in the reference areas in 2016 that is 6.2% from total numbers of bird species in the territory of the National Park. Among the predominates species are song thrush (Turdus philomelos) (19.2–22.5% of total number of recorded birds), nightingale Caprimulgus europaeus (15.4–20.6%), robin Erithacus rubecula (14.7%), woodcock Scolopax rustica (14.7–19.2%).

When conducting observation in 2016, no cases were recorded of bird death caused by constructions of 500 kV OHL on the territory of the National Park Smolny.

Dynamics of the number of birds in the examined biotypes is due to various ecological conditions in the territory of the National Park Smolny.
Ensuring Corporate Sustainability

Preservation and recovery of the habitat

Pursuant to the unified technical policy applied in the electric grid company, the Company takes all measures required to reduce the impact of electric grid facilities on animals and birds, including:

– restriction of industrial and construction activities on the areas of special conservation interest;
– making management and investment decisions with due account of environmental impact assessment, development of measures aimed at mitigating and eliminating negative environmental impact;
– use of innovative materials and technologies that ensure the compliance with environmental requirements and minimisation of negative environmental impact.

Federal Grid Company applies the following technologies and initiatives in its operations:

– high towers with the conductors over top of the valuable trees’ crown;
– implementation on electric grids of the activities for animals’ protection (installing special devices in OHL towers to prevent birds breeding on the bar elements, to use the scaring and birds protection devices for preventing the animals from coming onto the territory of substations and getting into the units and devices, etc.).

Plans for 2017 in the ecology and environmental protection domains

– organizing and conducting activities and initiatives on occasion of the Ecology Year on the specially protected areas;
– implementing the environmental protection activities to minimise the adverse environmental impact and to achieve the quantitative environmental targets set in Federal Grid Company;
– updating the base of TCD-containing equipment, developing the plans for its further decommissioning and taking measures to minimise adverse environmental impact during operation and storage of TCD-containing equipment;
– introducing new technologies and bird protection devices to reduce the bird peril risk at power facilities and to improve the electricity supply reliability;
– further improvement of the environmental protection management system, confirming the compliance of the Federal Grid’s environmental management system with ISO 14001:2004;
– improving the internal environmental audit system in Federal Grid’s branches to further improve the efficiency of environmental protection activities;
– environmental training for the management and employees in order to improve environmental knowledge and skills of the Company’s personnel.

The number of species in the IUCN Red List and the national protected species list with habitats in the areas affected by operations of the Company total of 196, including plants – 42 species; mushrooms – 9 species; animals – 91 species.

– sustainability and minimisation of negative environmental impact, due account of environmental impact assessment, and setting requirements and minimisation of negative environmental impact.

Federal Grid Company, including the branches (MES and PMES), has made the plans for its further decommissioning and recovery of the habitats on the occasion of the Ecology Year.

The results of observation show that climatic and phenological fluctuations of seasons (years) are the most important factors impacting the dynamics of surface ecosystems. First of all, these are fluctuations of surface soil humidity and dynamics of grass and bush formations development; cutting and cleaning of young bushes and underwood in some areas of OHL, 500 kV routes; fires and resulting long-term plant transformations.

The results of observation show that climatic and phenological fluctuations of seasons (years) are the most important factors impacting the dynamics of surface ecosystems. First of all, these are fluctuations of surface soil humidity and dynamics of grass and bush formations development; cutting and cleaning of young bushes and underwood in some areas of OHL, 500 kV routes; fires and resulting long-term plant transformations.

Report Preparation Process

Traditionally, the purpose of the Report is to inform a wide range of stakeholders on the Company’s activities, its strategy and mission, social responsibility and corporate sustainability policy, key events and performance, crisis response measures, import substitution policy, economic, social and environmental impact, and stakeholder engagement.

Preparing the Report, we analysed the Company’s operations in 2016. To understand the Company’s performance, crisis response measures, import substitution policy, economic, social and environmental impact and stakeholder engagement.

Disclaimer

The Report contains forward-looking statements with respect to operating, financial, economic and social performance indicators that characterise further development of the Company. Our assumptions and intentions are subject to political, economic, social and legal situation in Russia and in the world. Due to this, the Company’s actual performance may differ from forecasts.
Material Aspects Matrix

There are no material changes in the scope and boundaries of the disclosed aspects compared to previous reports. Discussing the concept of the report, stakeholders confirmed the relevance of the disclosed material aspects and their prioritising, performed in accordance with the GRI G4 Guidelines in the previous reporting campaign. In this regard, the Company considers inexpedient to perform the annual update of the material aspects matrix.

Aspect Boundaries: PJSC FGC UES, including all branches (MES and PMES). Aspects are not material outside the organisation.

Adhering to the principles of stakeholder engagement, the Company conducted public hearings of the draft Report on 20 April 2017. The results of these hearings and stakeholder recommendations were incorporated in the 2016 Report. The minutes of the hearings were agreed with the participants of the dialogue and included in the interactive version of the Report.

Interactive version of the 2016 Report, as well as previous reports of Federal Grid Company in electronic formal are available on the corporate website (http://www.fsk-ees.ru/ shareholders_and_investors/ disclosure_of_information/ annual_reports/).

Please refer any questions related to the 2016 Report and its contents to the Department for External Communications and Government Relations at: 8 (800) 200 18 81 (ext. 20–97) and e-mail: ratnikova-yd@fsk-ees.ru.
Introduction

The management of PJSC FGC UES offered us to assess the 2016 Social Responsibility and Corporate Sustainability Report (hereinafter referred to as the Report) in terms of the completeness and materiality of information disclosed therein, as well as to assess the management’s response to the requests and comments of stakeholders.

Report Assessment Procedure

We possess the required competence and experience necessary in the field of corporate responsibility, sustainable development and non-financial reporting to carry out an assessment of the Report. Our statement is based on a comparative analysis of the two versions of the Report (the Draft Report for the Public Hearings and the final version of the Report) and the materials were provided to us based on the results of the Public Hearings (the minutes of the event, a table of response to the stakeholders’ comments), as well as on the comments given by the management and employees of the Company in the course of the public assurance of the Report.

In the process of the public certification of the Report, we did not set the task of verifying the reliability of the information. Confirming the degree of the Report’s compliance to any reporting standards, both Russian and international, was also not the goal of this conclusion. We affirm our independence and the fairness of our assessment, in which we express our personal expert opinion, not the opinion of the entity we represent. All participants at the Public Hearings had an opportunity to freely express their own view. We confirm that we did not receive any compensation from the Company for participating in the external assurance procedure. The results of our work have been included into this External Assurance Statement and contain our generally agreed upon opinions.

While performing the assessment, we took the following criteria into account:

- Issuing the Report in compliance with the requirements of the selected reporting standards in terms of sustainable development (AA1000SES and GRI G4);
- Applying the key reporting principles in terms of sustainable development;
- Ensuring the materiality of the contents of the Report;
- Providing a completeness and balance of information, including coverage of the three main foci of sustainable development – economics, the environment and social relations.
- Responding to the requests of stakeholders;
- Ensuring the credibility and consistency of the data presented.

We give the Report a positive assessment in terms of its structure and content. PJSC FGC UES has produced an insightful and well-structured report that meets our expectations. We appreciate that the Report has been issued by the Company on a voluntary basis for the tenth consecutive year. This is a good example of the Company’s increasing level of transparency and openness. When developing the Report, the Company demonstrated a high level of aspiration to ensure public and environmental acceptability, as well as a readiness to carry on an open dialogue with stakeholders affected by different areas of its activities. We note that the Company’s management is aware of the constructiveness and its prospects for interacting with stakeholders.

The application of international standards in the course of issuing the Report is another unconditional advantage demonstrated therein, namely the Sustainability Reporting Guidelines of the Global Reporting Initiative – GRI, version G4.0, and a series of AA1000 standards of the Institute of Social and Ethical Accountability. The content of the Report, its completeness and the relevance and significance of the delivered information allows us to note the positive dynamics of the Company’s development and the increasing efficiency of its activities.

We should emphasise the constructive nature of interacting with stakeholders that has been demonstrated by the Company’s management, both in the process of issuing the Report and during the Public Hearings, as well as the high quality of organisation of these events. We estimate the disclosure of the information in the Report as sufficient, both in terms of observing the international standards of public reporting and taking into account the comments of the stakeholders during the activities related to the Report’s issuance.

Materiality

In our opinion, the Report touches upon all of the significant topics for the Company and its stakeholders. The Report fully covers the issues of efficiency in the areas of corporate social responsibility management, highlights the issues of economic and environmental impact, discloses the topics of the HR policy and interaction with stakeholders, in addition to strategic development, financial and economic performance and the results of the social, environmental and economic impact on the external environment. We should note that, for the second consecutive year, the Company has been using the procedure for assessing the materiality of the aspects of activities developed in compliance with the relevant international standards, which allows the Company to take the stakeholders’ opinions into account. Furthermore, by material aspects we mean any activities contributing to the actual or potential impact on stakeholders or having an influence on the assessments and decisions of the key stakeholders. We do not see any reasons to doubt the reliability and relevance of setting the priority of items for disclosure in the Report.

The main priority item of the Report, Creating Opportunities for Economic Growth, is disclosed throughout the Report by cross-referencing, which ensures the coherence of disclosure. We confirm that during the open dialogues, the Company invited stakeholders to give recommendations on disclosing the main priority item in the Report. In our opinion, all the material information on the main priority item has been disclosed.

Balance

In our opinion, all material information has been presented in full in the Report. It has been stated with a sufficient degree of completeness and in a well-balanced way: virtually all aspects of the Company’s activities that have an impact on the economy, the social sphere and the environment that may be of interest to stakeholders has been described in the Report. In order to more accurately adhere to the principle of completeness, the Report contains references to regulatory documents and additional public sources of information, including the ones posted on the corporate website. We are not aware of any facts related to the concealing of essential information.

Stakeholders Involvement in the Report Issuing

We believe that the Company regularly engages stakeholders in the development of the reports and answers all questions that arise in the course of Public Hearings. The Company’s management responds in a constructive way to the comments, suggestions and recommendations of stakeholders.

The Company recorded the recommendations of stakeholders in the Minutes of the Public Hearings, conducted a thorough analysis thereof and took them into account when preparing the final version of the Report and when conducting the Company’s general activities. In addition, the Company responded to the comments of stakeholders given during the previous reporting campaign.

Thus, in developing the Report, the Company demonstrated a willingness to respond to the wishes and proposals of its stakeholders, to meet any challenges and deal with the issues raised in a constructive way. We appreciate the high quality of preparation and organisation that the Company puts into the Public Hearings by engaging representatives of across a wide range of stakeholders. We pay specific attention to the fact that the Company has made significant efforts to expand its audience and attract new stakeholder representatives.

We also would like to note that our proposals for future reports that were expressed during the discussion of the 2015 Report were taken into account when developing the 2016 Report.
Signatures of the Approving Parties

<table>
<thead>
<tr>
<th>Full name</th>
<th>Entity Name, Position</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander A. Voloshin</td>
<td>Moscow Power Engineering Institute (National Research University)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head of the Relay Protection and Automation of Energy Systems Department</td>
<td></td>
</tr>
<tr>
<td>Arkady V. Zamoskovny</td>
<td>RaEI Association</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Director</td>
<td></td>
</tr>
<tr>
<td>Elena V. Zubakina</td>
<td>Conservation Union</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of Russian Birds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Director for Development</td>
<td></td>
</tr>
<tr>
<td>Rashid A. Ismailov</td>
<td>Expert Council under the Government of the Russian Federation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head of the Task Force on Ecology</td>
<td></td>
</tr>
<tr>
<td>Alexey Y. Krizhnikov</td>
<td>World Wildlife Fund (WWF of Russia)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head of the Programme on Environmental Policy of the Fuel and Energy Complex</td>
<td></td>
</tr>
<tr>
<td>Alexander Y. Ignatov</td>
<td>Association Global Energy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vice President</td>
<td></td>
</tr>
<tr>
<td>Alexander S. Martynov</td>
<td>Interfax–ERA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Valery I. Salygin</td>
<td>International Energy Policy and Diplomacy Institute (MIEP MGIMO)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Ministry of Foreign Affairs of the Russian Federation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Director, Academic Advisor, Doctor of Science (Technical), corresponding member of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Russian Academy of Sciences, Professor</td>
<td></td>
</tr>
</tbody>
</table>

**EXTERNAL ASSURANCE STATEMENT**

Professor
Russian Academy of Sciences, corresponding member of the
Doctor of Science (Technical), Director, Academic Advisor,
The Ministry of Foreign Affairs of Russia
Diplomacy Institute (MIEP MGIMO)
International Energy Policy and Diplomacy Institute (MIEP MGIMO)
The Ministry of Foreign Affairs of the Russian Federation
Director, Academic Advisor, Doctor of Science (Technical), corresponding member of the
Russian Academy of Sciences, Professor

**Glossary and Abbreviations**

- **Stakeholder Engagement**
  A process, which helps the Company to understand stakeholder interests, expectations and concerns, to engage stakeholders in the Company’s activities and the decision-making process, taking into account their concerns.

- **Stakeholder Dialogue**
  An interactive communication between the Company and its stakeholders, performed on a voluntary basis, so that the interests and motives of the parties involved are updated.

- **Unified Energy System of Russia (UES of Russia)**
  A complex of production facilities and other property items of the electric power industry interconnected by a unified production process, including the combined generation of electric and thermal power, and electricity transmission under the centralised operational dispatch control.

- **Unified National (All-Russian) Electric Grid (UNEG)**
  A major part of the UES of Russia, a complex of electric grids and other grid facilities that ensure a sustainable electricity supply to consumers, the wholesale electricity market performance, and a parallel operation of the UES of Russia and the electric power systems of other countries.

- **Sustainability context**
  The Company's understanding of the sustainable development, its characteristics and goals at the industry, local, regional and/or global level, the degree of the Company's impact within the corresponding geographic context, as well as the influence of the main sustainability issues on the Company's long-term strategy, risks and opportunities.

- **Corporate social responsibility, CSR**
  A regularly updated set of commitments that corresponds to the Company's specifics and the development level and is developed voluntarily with the participation of key stakeholders, and is aimed at implementing the internal and external social programmes that contribute to the Company's development (increase in output, improvement in service quality, development of corporate brands), improving its reputation and image, establishing corporate identity, as well as extending the constructive stakeholder relations.

- **Reliability of power supply**
  Uninterrupted electricity supply to all consumers in the required volumes and proper quality.

- **Autumn-winter period**
  A period of maximum consumption of electricity and thermal energy at low outside temperatures.

- **Power supply reliability control**
  A set of management activities and mechanisms aimed to organise, control and improve operation, operational control, repairs, and renovation of UNEG facilities, as well as to train employees in the above areas of the Company’s activities.

- **Sustainable development**
  The development that meets the needs of the present without compromising the needs of future generations.

- **Free float**
  Shares in free circulation
GLOSSARY AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCS</td>
<td>Automatic Process Control System</td>
</tr>
<tr>
<td>APEC</td>
<td>Asia-Pacific Economic Cooperation</td>
</tr>
<tr>
<td>BBSA</td>
<td>Behaviour-based Safety Audit</td>
</tr>
<tr>
<td>BRELL</td>
<td>Belarus, Russia, Estonia, Latvia and Lithuania</td>
</tr>
<tr>
<td>CAPEX</td>
<td>Capital Expenditures</td>
</tr>
<tr>
<td>CBETL</td>
<td>Cross-Border Electricity Transmission Lines</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>DEG</td>
<td>Distribution Electric Grids</td>
</tr>
<tr>
<td>ECA</td>
<td>Emergency Control Automation</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EITA</td>
<td>Electricity Industry Tariff Agreement</td>
</tr>
<tr>
<td>EMF</td>
<td>Electromagnetic Field</td>
</tr>
<tr>
<td>EMS</td>
<td>Environmental Management System</td>
</tr>
<tr>
<td>ESPO</td>
<td>East Siberia – Pacific Ocean pipeline</td>
</tr>
<tr>
<td>FGC</td>
<td>PJSC FGC UES</td>
</tr>
<tr>
<td>G4-1</td>
<td>Number of GRI Indicator</td>
</tr>
<tr>
<td>HTS cable line</td>
<td>High-Temperature Superconducting Cable Line</td>
</tr>
<tr>
<td>ICS and Risk Management System</td>
<td>Internal Control and Risk Management System</td>
</tr>
<tr>
<td>IDGC</td>
<td>Inter-regional Distribution Grid Company</td>
</tr>
<tr>
<td>IPS</td>
<td>Integrated Power System</td>
</tr>
<tr>
<td>IUCCN</td>
<td>International Union for Conservation of Nature and Natural Resources</td>
</tr>
<tr>
<td>JSC SO UES</td>
<td>Open Joint Company &quot;System operator of the Unified Energy System&quot;</td>
</tr>
<tr>
<td>M&amp;R</td>
<td>Maintenance and Repair</td>
</tr>
<tr>
<td>MES</td>
<td>Backbone Electric Grid</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Maximum Permissible Emissions</td>
</tr>
<tr>
<td>MSAC</td>
<td>Mobile Situational and Analytical Centre</td>
</tr>
<tr>
<td>MVA</td>
<td>Megavolt-Ampere</td>
</tr>
<tr>
<td>OHL</td>
<td>Overhead Line</td>
</tr>
<tr>
<td>OPEX</td>
<td>Operating Expenditures</td>
</tr>
<tr>
<td>OSG</td>
<td>Outdoor Switchgear</td>
</tr>
<tr>
<td>PMES</td>
<td>Backbone Electric Grid Enterprise</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>PS</td>
<td>Pump Station</td>
</tr>
<tr>
<td>PSD</td>
<td>Power Supply Organisations</td>
</tr>
<tr>
<td>PTL</td>
<td>Power Transmission Line</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>RAB</td>
<td>Regulatory Asset Base</td>
</tr>
<tr>
<td>RMS</td>
<td>Risk Management System</td>
</tr>
<tr>
<td>RNC CIGRE</td>
<td>The Russian National Committee of the International Council on Large Electric Systems</td>
</tr>
<tr>
<td>ROIC</td>
<td>Return on Invested Capital</td>
</tr>
<tr>
<td>RPA</td>
<td>Relay Protection and Automation</td>
</tr>
<tr>
<td>RUIE</td>
<td>Russian Union of Industrialists and Entrepreneurs</td>
</tr>
<tr>
<td>SASB</td>
<td>Sustainability Accounting Standards Board</td>
</tr>
<tr>
<td>SanPiN</td>
<td>Sanitary Regulations and Standards</td>
</tr>
<tr>
<td>SPV</td>
<td>Special Purpose Vehicle</td>
</tr>
<tr>
<td>SS</td>
<td>Substation</td>
</tr>
<tr>
<td>STATCOM</td>
<td>Volt-Ampere Reactive Compensator</td>
</tr>
<tr>
<td>TC</td>
<td>Technological Connection</td>
</tr>
<tr>
<td>TGC</td>
<td>Territorial Generating Company</td>
</tr>
<tr>
<td>TSR</td>
<td>Total Shareholders Return</td>
</tr>
<tr>
<td>UNEG</td>
<td>Unified National Electric Grid</td>
</tr>
<tr>
<td>WECM</td>
<td>Wholesale Electricity and Capacity Market</td>
</tr>
<tr>
<td>WGC</td>
<td>Wholesale Generating Company</td>
</tr>
</tbody>
</table>
Feedback Form

Feedback: We value your opinion. You have reviewed the Social Responsibility and Corporate Sustainability Report of PJSC FGC UES for 2016. It is of great importance for us to be aware of your opinion on it. We shall be grateful if you can help us to improve the quality of the Company’s reporting by answering a few simple questions.

1. Have you found an important information on the issues that you are concerned with in the Report?
   - Yes
   - No
   - Simply looked through the Report

   Please, give more detail on what was specifically important, what was missing?
   Please, give more detail on what information was specifically useful, what was missing?

2. Which Report sections were of the most interest for you?

3. What is your assessment of the Report’s credibility and objectivity?

4. Will you require the next Social Responsibility and Corporate Sustainability Report of PJSC FGC UES?
   - Yes
   - No

5. What would you recommend to improve performance of the Company and its branches?

6. Other comments.

7. Please, specify, which group’s interest impacted your evaluation (please, mark maximum two points):

   - Shareholders, investors
   - Customers, consumers
   - Business partners, suppliers and contractors
   - Company’s personnel
   - Organisations representing interests of the Company employees, trade unions
   - Government Authorities
   - State Control (Supervisory) authorities, Regulators
   - Local Authorities
   - Professional Associations and Industry Organisations
   - People in Regions where the Company operates, local communities, including indigenous minorities
   - Scientific Community
   - Educational Institutions
   - Environmental Non-Government Organisations
   - Social and Charitable Non-Government Organisations
   - Mass Media
   - Other (please, specify)

8. Should you wish to receive the respond to your comments, please, leave the information on how we can contact you (Name, mailing address, postal code, phone number, email) and we will certainly contact you.

Thank you!
Contacts

<table>
<thead>
<tr>
<th>Full Corporate Name</th>
<th>Public Joint Stock Company Federal Grid Company of the Unified Energy System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short name</td>
<td>PJSC FGC UES</td>
</tr>
<tr>
<td>Head quarters (head office) location and mailing address</td>
<td>5a Academica Chelomeya str., Moscow, 117630</td>
</tr>
<tr>
<td>Phone /fax</td>
<td>Call Centre 8-800-200-18-81&lt;br&gt;Foreign Calls: +7 (495) 710-93-33 +7 (495) 710-93-33&lt;br&gt;Fax: +7 (495) 710-95-67</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:info@fsk-ees.ru">info@fsk-ees.ru</a></td>
</tr>
<tr>
<td>OGRN</td>
<td>1024701893336</td>
</tr>
<tr>
<td>INN</td>
<td>4716016979</td>
</tr>
<tr>
<td>Core activity</td>
<td>electric power transmission via the backbone grids and electric power supply of the consumers across the entire territory of the Russian Federation</td>
</tr>
<tr>
<td>Corporate internet site</td>
<td><a href="http://www.fsk-ees.ru"> fsk-ees.ru</a></td>
</tr>
<tr>
<td>Information on registrar</td>
<td>Joint-Stock Company Registrar Society STATUS&lt;br&gt;building 1, 1 Novorogozhskaya St., Moscow 109544, Russia&lt;br&gt;<a href="http://www.rostatus.ru"> rostatus.ru</a></td>
</tr>
</tbody>
</table>

External Communications and Government Relations Department  
Ratnikova Yulia  
Telephone: 8 (800) 200 18 81 (ext. 20-97)  
E-mail: ratnikova-yd@fsk-ees.ru

We shall appreciate your responses, comments and feedback. Your opinion and proposals in relation to the corporate social responsibility and ensuring sustainable operation of UNEG will help us to improve performance of PJSC FGC UES.