

Innovation Development

In 2014, the costs of implementation of the Innovative Development Program of JSC IDGC of the North-West amounted to RUB 1,338.8 million including RUB 1,278 million for measures that were included in the investment program and RUB 60 million for measures that were funded at the account of production costs.

The rate of implementation of the Innovative Development Program in 2014 amounted to 98.7 %. The non-fulfillment of the funding plan was due to poor payment discipline of counterparties in electricity transfer.

The source of funding of innovative equipment implementation is primarily the investment program of JSC IDGC of the North-West. In 2014, the costs of innovative equipment implementation under the investment program of JSC IDGC of the North-West amounted to RUB 925.4 million. That was mainly installation of innovative equipment including indoor switchgear, reclosers, steel multi-facet supports, innovative high-temperature wires, and microprocessor relay protection and automation devices.

Costs of implementation of the Innovative Development Program

Basic areas	Costs of implementation, RUB mln		Deviation	
	2014 target	2014 actual	abs	%
Innovations and energy efficiency, in particular:	1,356.2	1,338.8	-17.4	-1.2
R&D Program	0	0	0	0
measures for implementation of new technologies	875.1	925.4	50.3	5.7
measures for raising energy savings and energy efficiency	383.7	352.6	-31.1	-8.1
measures for raising environmental friendliness of processes	0.95	0.95	0	0
measures for university training and retraining of staff	4.1	4.8	0.7	17
measures for business process improvement	92.3	55	-37.3	-40

In the framework of measures for raising energy savings and energy efficiency of power grid facilities of JSC IDGC of the North-West, the following pilot projects were launched in late 2014:

1. Implementation of RMK multi-chamber arresters

The selected pilot areas were the branches of Karelenergo, Vologdaenergo, and Komienenergo. The purpose of the project is protecting 10 kV power lines from interruptions caused by lightning strikes hitting nearby objects. For implementation of the pilot project, a list of objects where multi-chamber arresters will be installed and a schedule of organization and technical measures as approved. Most of the projects will be implemented in 2015.

2. Implementation of a 0.95 kV innovative power grid.

The purpose of the pilot project is providing alternative power supply options for consumers, which increase the efficiency of low-voltage grid operation and provide reliable power supply to and proper quality of electricity for consumers.

The pilot area for retrofitting of the distribution power grid is the Line 7 feeder from the complete explosion-proof transformer substation No. 744 (Syktyvkar, Krasnozatsky town, Sosnovaya Polyana microdistrict) of Komienenergo branch of JSC IDGC of the North-West. Documents for design and exploratory jobs are being drafted. The implementation period of the project is 2015-2017.

3. At Karelenergo branch of JSC IDGC of the North-West, a SMART-35 vacuum recloser was installed and put into trial industrial operation at the 35 kV L-90P Chelmuzy-Serghiyevo power line. It is the first switching device in the 35 kV class that can be installed directly on supports of 35 kV aerial lines. With its unique dimensions and functionality, the device enables the most efficient connection of users to the 35 kV grid, raising the reliability of 35 kV aerial lines, and efficient upgrading of 35 kV substations. Control is performed via a GSM/GPRS communication channel from the dispatching point of District Power grid 3 of the South Karelian Power grid using KOTMI teleautomatics operating and information system. During the entire time of operation in 2014, there were no false actuations or failures. Due to the high reliability of its design, absence of wearing parts, and high stability of factory settings, the SMART-35 recloser does not require special maintenance and scheduled repair throughout the entire time of its operation.

On the results of trial industrial operation, a decision was made to include purchase of such equipment in the long-term investment program of branches of JSC IDGC of the North-West.

In the part of business process improvement, the following projects were implemented in 2014:

- Implementation of the Automated System of Management Documents Exchange of JSC IDGC of the North-West (ASMDE) in industrial operation. ASMDE provides comprehensive automation of document management services in the part of management data processing, namely, the processes of drafting, coordination, approval, registration, storage, and movement of management documents and executive of resolutions and orders.

- Implementation of an automated system for accounting and fiscal reporting at JSC IDGC of the North-West, which enabled the following:
 - raising the productivity of staff engaged in the documenting of the Company's business fact; cutting material, labor, and time costs of development, processing, and storage of legally significant accounting and fiscal reporting documents;
 - improving data exchange with counterparties in the part of reducing the time of exchange of legally significant documents and raising the quality and amount of data;
 - reducing the time for VAT reimbursement;
 - cutting the costs of document exchange including the cost of archive maintenance.

In 2014, JSC IDGC of the North-West did not plan any funding of the R&D Program.

In 2014, a test batch of 60 disconnecting switches was installed at power grid facilities of the Novgorodenergo and Pskovenergo branches of JSC IDGC of the North-West in the framework of a R&D job entitled Optimization of the Structure and Production Technology of Outdoor Disconnecting Switches of the Cutting Types for 10 kV (200, 400, 630 A) with Built-In Earth Leads Not Requiring Blocking with them. The result of trial industrial operation was positive. The main benefit of 10 kV switches was found to be the presence of grounding knives and good visible disconnection when switched off. Use of the switch at 10 kV lines will make the power supply to consumers more reliable, cut operation costs, and make work safer for the staff, as the new method of switch control leaves no chance for any staff error and closure of the switch without its disconnection.

List of parameters of monitoring the innovative development program implementation

Name of the efficiency parameter	Measurement unit	2011	2012	2013	2014
Costs of research and development performed by third parties, in particular, by contractors (universities, research organizations, small and medium innovative businesses)	RUB thous	8.834	6.306	3.030	0
of that, for projects implemented in the framework of					
technology platforms	RUB thous	0	0	0	0
universities	RUB thous	6.69	0	0	0
research organizations	RUB thous	0	0	0	0
Costs of college training and professional retraining of staff per employee	RUB/person	16,595	20,000	10,726	16,901