

3. ON THE WAY TO THE TOPS

BROAD PEAK

In 1957 an Austrian expedition led by Marcus Schmuck came to Pakistan to conquer the mountain. The expedition consisted of Fritz Wintersteller (alpinist and photographer), Kurt Diemberger (legendary alpinist) and Hermann Buhl (best post-war Austrian alpinist and Nanga Parbat pioneer). The team started to explore the western shoulder of the mountain, passed a snow couloir and made a camp (5 791 m). On May 29 the alpinists left to conquer the summit but they had to return to the camp due to a rough weather. However, on June 09 Marcus Schmuck, Fritz Wintersteller, Kurt Diemberger and Hermann Buhl ascended the peak without the aid of supplemental oxygen and high-altitude porters.





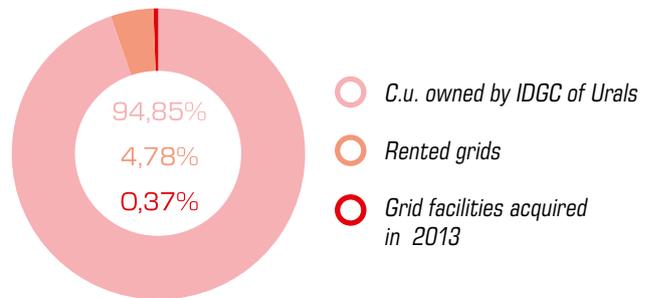
Shaping of united grid area

Consolidation of grids, pursuant to President's Decree #1567 dd. 22.11.2012 on Russian Grids, became an irreversible process engaging all interregional distributive grid companies, including IDGC of Urals. The process is focused on the shaping of a united grid area on our service area and point of responsibility for energy supply. This helps to solve several problems by:

- increasing reliability of operations and ensuring faultless supply to residential consumers and socially vital facilities;
- eliminating patchwork in the networks and lifting restrictions on quick connection;
- vanishing unfair regional grid companies to make regional tariff model more transparent and less burdensome for consumers;
- providing possibilities for connection in a minimum of time;
- enabling the increase of the Company's assets and public utilities market share on the whole.

Actions under UGA-shaping strategy comprise the conclusion of rental or public-private partnership contracts, acquisition of grids or separate facilities, fee-free transfer (from natural persons) as well as take-over, acceptance of municipal unowned grid facilities into service or ownership.

Through grid consolidation program our branches acquired over 2 250 c.u. (393 km of aerial lines, 52 km of cable lines, substations with overall capacity of 86 MVA). Acquisition costs totaled approx. RUR 190 mln. The largest acquisitions of 2013 are Arti grids (Sverdlovenergo), Zlatoust grids (Chelyabinsk) and Osa grids (Permenergo), formerly rented by the Company.



The growth of grid asset base due to new rental contracts in 2013 totaled 870 c.u. As of 31.12.2013 we rented 36 municipal and institutional grid facilities on the service area. The volume of rented property reached 29 000 c.u. (approx. 5% of overall conventional units). In 2014 we plan to consolidate over 6 700 c.u.

Key problems arising during planning procedures for 2014 are:

- 1) Tariff restrictions for current regulation period, considerable sequestering of the Company's investment program and reallocation of investment program priorities for other target programs;
- 2) Uncertainties over terms and purchase price in discussions with facility owners;
- 3) High percentage of municipal grid facilities with improperly registered titles for property and land plots as well as lack of monetary resources for state registration of title in municipal, regional or federal budgets.

Network evolution

The key evolution trends for grid facilities of the Company are:

1. Connection of new consumers to facilitate Urals economy and increase transmission volumes.
2. Construction of grid facilities to liquidate capacity deficit zones and ensure reliable and faultless operations of the grid system.
3. Shaping of united grid area.

Growth of the Company's asset base will facilitate federal programs, national projects, regional evolution programs and plans. Asset development is based on the grid evolution schemes in our service area prepared under Government Decree #823 dd. 17.10.2009 taking into account evolution plans of all system participants and regional load forecasts.

During the reported period regional authorities pre-

pared and approved evolution scheme and program for the Sverdlovsk regional grids for 2014–2018 and up to 2023 (Sverdlovsk Government Decree #540–PP dd. 30.04.2013), evolution scheme and program for the Chelyabinsk regional grids for 2013 – 2018 (Chelyabinsk Regulator Decree #13/3 dd. April 30, 2013). But the Perm regional authorities have not yet prepared the documents for the Perm regional grids.

Today there are several 110–220 kV deficit zones in the Perm region (Perm–Zakamsk and Berezniki–Solikamsk load nodes), in the Sverdlovsk region (Ekaterinburg, Krasnoufimsk and Polevskoy load nodes) and in the Chelyabinsk region (Chelyabinsk, Chebarkul–Miass and Zlatoust–Kropachevo load nodes). To lift restrictions in the nodes as well as to increase reliability of supply and ensure connection possibilities for new consumers our investment program covers the following facilities:

Facility name	Rationale
Reconstruction of 110/6 kV Severnaya substation (substitution of 2x16MVA transformers for 2x25MVA ones)	Reduced number of shut-in main substations, no restrictions for new connections.
Construction of 110/10 kV Kochkino substation (2*16 MVA and 110 kV double-circuit line to Kochkino substation)	Energy supply of a juice-producing plant (Sanfrit-Trade, OOO), facilitation of logistics and residential construction in the Perm district.
Reconstruction of 110 kV NTGRES-Viya aerial line	Life cycle of the line exceeds standard operation time, the line is highly deteriorated and cannot be repaired.
Reconstruction of 110/35 kV Serov substation	Replacement of obsolete equipment, non-threatening maintenance works on the substation, increased reliability of supply.
Reconstruction of 110 kV Zlatoust – Taganai #3 aerial line, 35 kV Urzhumka (tyaga) – Zlatoust (tyaga) aerial line	Increased reliability of supply in Zlatoust-Kropachevo load node
Construction of 110 kV ChGRES-Massivnaya cable line, 110 kV ChGRES-Sportivnaya cable line	Construction of an alternative power source for consumers in Central Chelyabinsk

In 2010 the Governments of the Perm, Sverdlovsk and Chelyabinsk regions and IDGC of Urals have signed agreements on social and economic cooperation. The agreements focused on cooperation in social, economic and ecological issues regarding regional strategic development as well as provision of facilities for efficient operations of the Company and its increased role in local development. Key points of contact are provision of stable social and economic regional development,

preparation and implementation of perspective energy sector development schemes and programs, network infrastructure advances, creation of conditions and prerequisites for attracting investments to the energy sector; increase of supply reliability and quality.

Under 2011–2015 federal housing program local authorities implement individual housing projects for 2011–2015 in the Perm, Sverdlovsk and Chelyabinsk regions.

Projects	Focus of the Project	Implementation Plan
Construction of grids in Novyi microdistrict (Chelyabinsk)	Connection of buildings under construction	Completed in 2013
Construction of grids in Topolinaya Alleya microdistrict (Chelyabinsk)	Connection of buildings under construction	Completed in 2013



Besides, the Company closely cooperates with the Federal Housing Construction Promotion Fund. In 2013 we prepared information on connection options and infrastructure costs for would-be capital facilities on 33 land plots with overall area of 601.2 ha in the Sverdlovsk, Chelyabinsk and Perm regions.

Our R&D program is shaped by existing problems in grids and perspective innovative directions and includes creation of radically new technologies, methods and perfection of existing technologies. Proposals

added to the program are as follows:

- system-based grid evolution issues;
- equipment for substations and structures and materials for power lines;
- secondary substation equipment (protection, management, automation, metering and monitoring facilities);
- reliability and security of grid operations and quality of transmission services;
- increase of energy efficiency in grids.

Research ended in 2013	Research conducted during 2013	Would-be-implemented research
Engineering and implementation of geographic information system of IDGC of Urals, OAO	Research of asymmetric operating modes of 380 V aerial lines to choose detection device parameters	Engineering and implementation of autonomous supply systems to increase supply quality and reliability for remote consumers up to 100 kW

As a result of a GIS engineering and implementation research we produced a pilot GIS software and hardware package focusing on:

- 1) Arrangement and storage of spatial data obtained during R&D and previous works.
- 2) Model-set data processing enablement for a wide range of employees.
- 3) Validation of spatial data technologies and elaboration of requirements for a corporate GIS.

Pilot production of the system was made in a Sverdlovenergo production unit determined as a testing field. The results may be used in production units and branches of the Company depending on financing.

The results are as follows: aerial photography (1:2000 scaled orthophotomaps, digital terrain model and stereomodels), development of standard technical documentation, generation of information on grid fa-

cilities of the Company, preparation of land-use documents, disclosure of line dimension deviations, laser scanning and production of a pilot GIS software and hardware package. Maximum effect from GIS software and hardware package and spatial data obtained from aerial photography was reached for connection of new consumers to low- and medium-voltage networks due to reduced number of visits to a connected facility.

Sphere of application for R&D results is interwoven with grid operability assurance. Implementation of R&D results helps alter technological processes on grid exploitation and evolution, connection and land plot management (including protective zones).

Developments from R&D activities in 2013 demanded no registration of patent rights or ownership. There were no requests regarding results of intellectual activities during 2013.



A share of R&D contributions in overall revenues

	2013 actual, RUR thous. (excl. VAT)
Transmission revenues	55 279 512
Loss compensation	8 581 019
FSK payments	15 271 412
IDGC payments	14 234 011
Own gross revenue requirement	17 193 071
R&D contributions	1 257
A share of R&D contribution in own GRR	0.007%

Performance criteria	MU	Year
Expenses on R&D conducted by external agencies, including by contractors (Higher education institutions, scientific organizations, innovative companies MSB)	RUR thous.	1 451,0
Including projects implemented within:		
Processing platforms	RUR thous.	1 271,0
Higher education institutions	RUR thous.	180,0
scientific organizations	RUR thous.	0,0
Expenses on training and re-training in higher education institutions per 1 employee	RUR/person.	32,6

On December 27, 2013 the Company's BoD approved the Standard Technical Policy for grids that determines key directions providing increased reliability and efficiency of grid sector operations in short- and mid-term perspective with proper industrial and ecological security based on innovative evolution principles providing nondiscriminatory access to grids for all market participants. The Technical Policy is focused on effective asset management, determination of optimum conditions and key technical trends for ensuring reliable and secure supply. To achieve the goal we solve a range of tasks:

1) Improvement of grid technological management and application of modern methods for grid evolution planning;

2) Overcoming of ageing of equipment by enhanced reconstruction and update works;

3) Creation of conditions for application of new cutting-edge solutions and technologies in systems responsible for maintenance, administration, protection, information transmission, telecommunications and metering;

4) Development of exploitation methods using modern means of diagnostics as well as technical, information and measuring systems;

5) Improvement of standard technical and methodical documentation of the Company;

6) Decrease of expenses on grid maintenance and repair;

7) Application of highly-efficient energy-saving technologies.



Investment Policy

The investment program of IDGC of Urals for 2013 is approved by the Board of Directors (protocol # 130

dd. 28.08.2013). Cost and physical parameters of 2013 investment activities are disclosed in the table.

	2013				
	Capital expenditures	Fixed assets commissioned	Financing	Capacity commission	
	RUR mln, excl. VAT	RUR mln, excl. VAT	RUR mln, incl VAT	MVA	km
Sverdloenergo	3 503	3 582	4 000	308	783
Permenergo	3 436	3 484	3 821	168	598
Chelyabenergo	2 130	2 000	2 251	167	473
HQ	11	11	16	0	0
Total	9 079	9 078	10 087	644	1 854

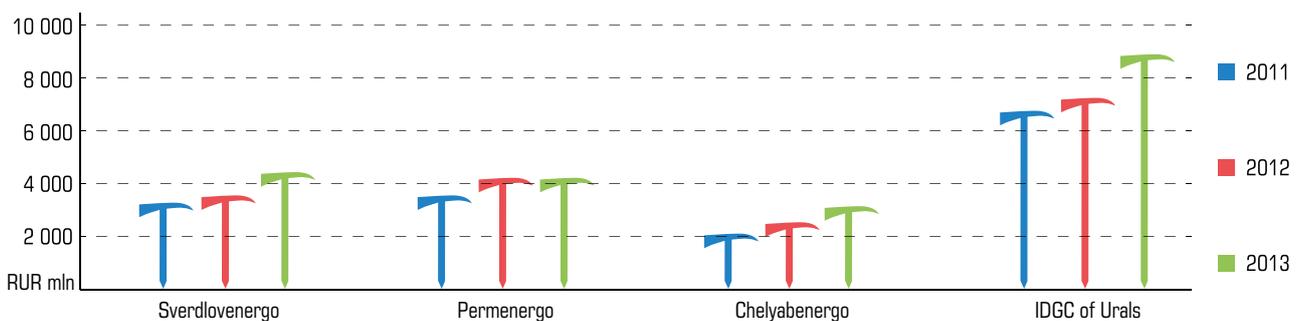
Capital expenditures in 2011–2013 are displayed on the chart. In comparison to previous years capital expenditures were increased in 2013. The increase totaled +42% on 2011 and +29% on 2012. The prerequisites for investment growth were:

- A considerable growth of connection applications;

- A need for the implementation of grid update strategy to increase reliability of grids and decrease depreciation of fixed assets;

- Construction of facilities enabling power output from generating companies.

Capex of IDGC of Urals



In 2013 the capital expenditures totaled RUR 9 079 mln (2013 target figures – RUR 8 281 mln.). Financing totaled RUR 10 087 mln. (target figures – RUR 9 498 mln.). Commissioning of facilities in money terms totaled RUR 9 078 mln. (target figures – RUR 8 754 mln.). In physical terms commissioning totaled 644 MVA and 1 854 km (target figures – 440 MVA and 1 407 km or 146% and 132%). Directions of investments are:

- upgrade and reconstruction of facilities (including connection): 2013 target figures totaled RUR 3 623 mln., actual figures totaled RUR 3 626 mln.;

- new construction and enhancement of existing facilities (including connection) target capex figures totaled RUR 4 460 mln., actual figures totaled RUR 5 287 mln.;

- other facilities stipulated in the investment program (including acquisition of facilities) – target capex totaled RUR 198 mln., actual figures totaled RUR 165 mln.

Key reasons for exceeding target figures in physical and money terms by all branches were fulfilling of obligations on newly-concluded connection contracts. Target figures of capex on connection totaled RUR 2 718 mln. in money terms, facilities commissioning reaching 671 km and 184 MVA in physical terms. Actual figures totaled RUR 3 491 mln. in money terms, commissioning reaching 1 158 km and 298 MVA. Besides, under projects regarding construction and reconstruction of important facilities Sverdloenergo branch commissioned 143 MVA on reconstructed 110 kV Ferrosplav substation, planned for commissioning in 2014, ahead of schedule.

In 2013 we constructed and commissioned the following largest facilities:

Permenergo

Construction of 110/10/6 kV Zaostrovka substation with a 110/10/6 kV line

Goal: facilitation of additional output from CHPP–9, strengthening of links between Perm and Zakamye load nodes, increased reliability of supply of existing consumers and connection of new consumers.

Project duration: 2012 –2013. Commissioned in physical terms: 50 MVA and 11.2 km. Commissioned in money terms: RUR 1 554.5 mln.

Sverdloenergo

Construction of 110/10 kV Rassokha substation

Goal: construction of required capacity to satisfy demands in residential construction in the Beloyarskiy district (Kosuliño village).

Project duration: 2012 –2013. Commissioned in physical terms: 32 MVA. Commissioned in money terms: RUR 229 mln.

In 2013 we commenced the construction of the following largest facilities:

Permenergo

Construction of 110/10 kV Kochkino substation

Goal: energy supply of settlements in the Perm district that are serviced by Perm Urban Grids.

Project duration: 2014 –2015. Target capacity to be commissioned: 32 MVA, 4 km. Target deadline: December 2015.

Reconstruction of 110/35/6 kV Chusovaya substation

Goal: energy supply of Perm.

Project duration: 2013 – 2016. Target capacity to be commissioned: 80 MVA. Target deadline: December 2016.

Reconstruction of 110 kV Ferrosplav substation

Goal: Increased reliability and quality of energy supply of Serov Ferro-Alloy Plant.

Project duration: 2011 – 2014. Target capacity to be commissioned: 143 MVA. Commissioned in 2013 in money terms: RUR 355 mln. Target deadline: December 2014.

Reconstruction of 110/35/10 kV Serov substation

Goal: Increased reliability and quality of energy supply of Serov and local industrial enterprises.

Project duration: 2010 – 2014. Commissioned in 2013 in money terms: RUR 29 mln. Target deadline: December 2014.

Chelyabenergo

Reconstruction of 110/10 kV Pervomayskaya substation

Goal: Connection of a small-scale generating facility (Asbestotsement CHPP) to ensure output to 6–10 kV networks.

Project duration: 2011–2014. Target deadline: 2014.

Construction of 110 kV ChGRES – Massivnaya cable line and reconstruction of Massivnaya substation

Goal: construction of an alternative power supply source for main substations in Sosnovsky load node via construction of a 110 kV cable line (Chelyabinsk).

Project duration: 2012–2020. Target deadline: 2020.

Distribution of capex in the 2011–2018 investment program is shown in the table below.

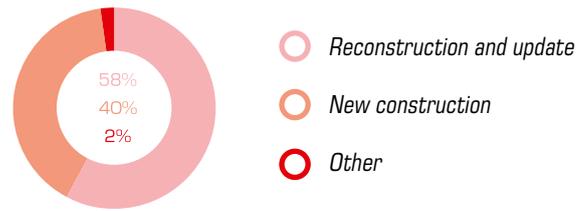
RUR mln	2011 actual	2012 actual	2013 actual	2014 target	2015 target	2016 target	2017 target	2018 target
Total	6 412	7 037	9 079	4 832	5 068	4 962	5 181	5 411
Largest facilities, including	-	1 297	1 929	532	503	539	175	-
Reconstruction and update	-	2	363	220	331	539	-	-
New construction	-	1 295	1 566	312	172	-	175	-
Facilities of primary concern	-	-	-	33	46	331	82	-
Reconstruction and update	-	-	-	27	-	-	-	-
New construction	-	-	-	5	46	331	82	-
Regular facilities, including	2 306	1 688	1 516	737	834	902	1 117	1 598
Reconstruction and update	1 393	1 387	1 080	734	828	901	924	1 597
New construction	913	301	436	3	6	1	193	1
Connection, including:	1 122	1 912	3 492	2 781	2 861	2 204	2 203	2 141
- Facilities with capacity over 750 kW (high voltage, medium voltage 1);	-	-	940	682	568	286	280	314
- Facilities with capacity 100-750 kW (medium voltage 2);	688	954	546	459	592	521	508	539
- Facilities with capacity 15-100 kW;	43	136	276	295	293	238	246	311
- Facilities with capacity below 15 kW;	351	822	1 459	1 345	1 407	1 159	1 170	977
- Generation.	40	-	271	-	-	-	-	-
Distributive grids	562	603	502	103	320	365	431	529
Reconstruction and update	338	469	291	89	271	210	257	450
New construction	224	134	210	14	48	155	174	78
IT	-	-	63	21	-	-	8	13
Process management automation (except automated utility metering systems)	512	237	288	143	68	97	202	126
Metering and control devices	521	477	293	240	130	148	324	351
Safety programs	27	96	67	27	38	45	35	66
Acquisition of grid assets, land plots, etc.	217	269	166	-	30	30	156	194
Other programs and measures	1 145	457	765	216	238	300	447	392



Taking into account expectable tariff growth and last-mile problem our investment program for 2014–2018 is sequestered by approx. 40% on 2013.

The chart demonstrates the structure of capital expenditures of the Company in 2013. The key sum was spent on new construction and grid infrastructure development (mainly, construction of 110/10/6 kV Zaostrovka substation to ensure the output from CHPP-9).

2013 Capex Structure, %



Under our 2013 investment program we constructed large and important facilities ensuring the output from generating companies as well as facilities ensuring

the development of social, residential, public utilities and industrial infrastructure.

Long-term investment program of the Company

RUR mln	MU	2011	2012	2013	2014	2015	2016	2017	2018
Capital expenditures	RUR mln., excl. VAT	6 412	7 037	9 079	4 832	5 068	4 962	5 181	5 411
Financing	RUR mln., excl. VAT	7 038	7 898	10 087	5 550	5 922	5 873	6 157	6 333
Fixed asset commissioning	RUR mln., excl. VAT	6 484	6 863	9 078	4 873	5 416	5 127	5 481	5 671
Capacity commissioned	km	1 169	1 242	1 854	729	783	639	1 189	1 487
	MVA	424	621	644	375	210	345	195	206

Capital investments of the Company for 2011–2018

