

## **FGC UES summarized results of its Program to decrease grid losses in 2009 February 19<sup>th</sup>, 2010**

FGC UES summarized results of its 2009 Program to decrease grid losses in the Unified National Electric Grid (UNEG). The program was fulfilled in full – with total 2009 energy savings (from undertaken measures) of 260 mln kWh.

The 2009 Program to decrease UNEG grid losses was adopted by FGC UES' Management Board and had several key directions, including: optimizing exploitation and management regimes for the electric grid, decreasing power usage to meet the own needs of its substations and introducing energy-saving equipment.

Work on optimizing exploitation and management regimes for the main electric grids included: sustaining optimal regimes for reactive capacity and voltage, powering off electric grid equipment in low load regimes (for example, transformers at substations that have two or more installed transformers), decreasing the length of technical service and maintaining the grids' primary assets (lines and transformers).

During 2009, at the MES (backbone electric grid) of Volga – via optimization of the reactive capacity and voltage regimes – losses were cut by 16 mln kWh. In order to achieve this result, regime operations with bypass reactors were carried out at the 500 kV Veshkaima and Penza-2 substations. In addition, the following 220 kV power transmission lines were powered off: Saratovskaya HPP – Kubra, Penza – Kluchiki 1, Penza – Kluchiki 2, Kinel – Uralskaya, as well as power transformers at Volzskaya, Zarya, Yuzhnaya and Saratovskaya 220 kV substations. In addition, due to measures to optimize electric regimes at the MES of the East, losses were cut 9.5 mln kWh, at the MES of the South by 20 mln kWh and at the MES of Siberia by 18 mln kWh.

The decrease in own power consumption at the substations means the optimization of cooling fans' work at transformers and auto-transformers, as well as for heating facilities and illumination facilities on the premises of substation management. As a result, in 2009, MES of the East was able to conserve 23 mln kWh via power consumption optimization, whereas MES of the Center economized 15 mln kWh and MES of the North-West saved 22 mln kWh. Implementing these measures across the whole UNEG during 2009 could decrease energy losses by 65 mln kWh.

High demands in the sphere of energy efficiency are made on equipment used during the modernization of UNEG objects. Preference is given to equipment that cuts losses, which increases the carrying capacity of transmission lines and decreases exploitation costs.

Therefore, during Q1, MES of the South installed 210 kilometers of thermo-stable wire at the 220 kV Afipskaya-Krymskaya transmission line. The new wire has unique characteristics and is not subject to corrosion or icing, which tends to be especially acute in the South of Russia's climatic extremes which are characterized by dramatic temperature changes and high humidity. As a result of carried-out work, the line's capacity increased from 200 to 360 MW, which not only increased the reliability of the power supply to the Abyn'skiy, Krymskiy and Severskiy Districts of the Krasnoyarsk Region, but also cut losses by 15% for energy transmitted via this line.