



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



ОАО "КИРОВСКИЙ ЗАВОД
ПО ОБРАБОТКЕ ЦВЕТНЫХ МЕТАЛЛОВ"

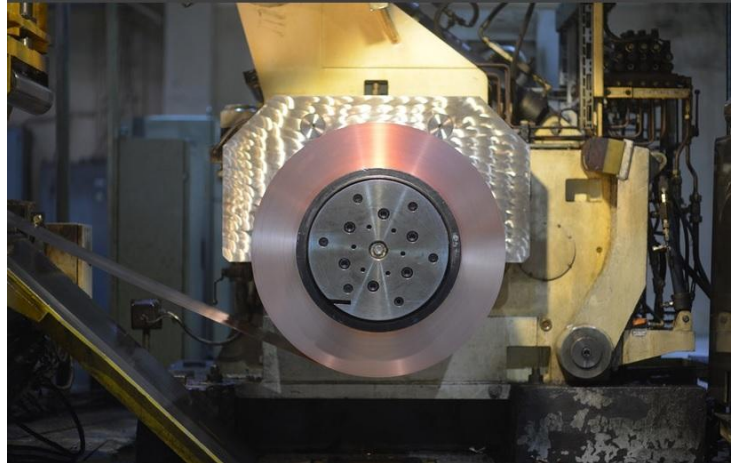


Case-study: EnMS implementation on Kirov non-ferrous metals processing plant

Kirov non-ferrous metals processing plant JSC – is one of the most modern enterprises in Russian metal processing industry. The plant manufactures a large assortment of items that are applied in automobile and machine construction, electrical and electronics, iron and steel, energy and other industries.

Kirov plant occupies the largest segment of Russian market of rolled non-ferrous metals from copper and its alloys, as well as exports to Western Europe, Southeast Asia, the USA and the CIS region.

Quality management system certified by ISO 9001:2000 ensures competitive levels of manufactured produce.



Since 2000, Kirov non-ferrous metals processing plant is part of UMMC Holding. The staff comprises of more than thousand employees, annual production output is around 24 thous. tons, with annual energy consumption of 70.98 GWh.¹

Accomplishments in energy savings prior to UNIDO EnMS project

Prior to EnMS project, the company had already been implementing consecutive measures aimed at energy saving: there was a centralized energy saving programme in use, developed for 3-year periods. This programme provided for organizational work and implementation of approved measures aimed to achieve target indicators for specific consumption norms. Established committee formed the programme and approved incoming proposals.

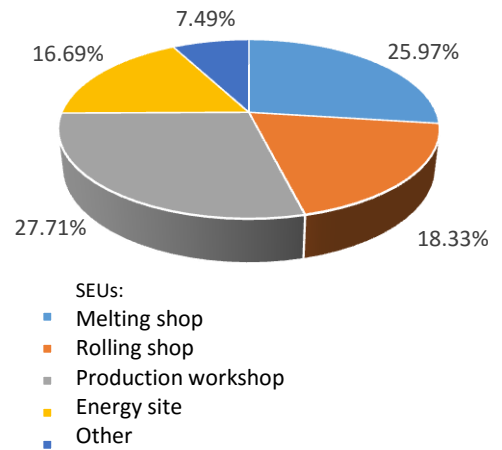
EnMS implementation

One of the key features of EnMS system by UNIDO methodology is a shift to system approach of managing energy consumption. Within system approach, energy performance analysis is done by comparing current energy consumption with regression model of the preceding (base) year. Multifactor analysis (regression) allows to consider all possible factors (variables) affecting the consumption, such as weather fluctuations, or changes in production output volumes. The results are monitored by comparing graphs of actual and target energy consumption.

¹ Data for 2015.

The company uses three types of energy resources in its production processes: natural gas, water, and electricity. Kirov plant's Working Group on EnMS decided to concentrate on the latter, and to exclude water and natural gas from analysis due to insignificant share in costs and lack of necessary measuring equipment.

Further on, Significant Energy Users (SEUs) were defined for an energy resource within EnMS scope. Overall, 4 SEUs were identified for electricity, for each of them EnMS Working Group defined variables, affecting the consumption, and built analytical regression models.



Results of EnMS implementation on Kirov plant

In the framework of EnMS implementation by UNIDO methodology, Kirov plant achieved the following results:

1. Technological measures were implemented:
 - nominal parameters are set for pumping station of circulated water for cooling furnaces;
 - control over the equipment during breaks (lunches, unplanned idle time, repairs, public holidays);
 - modernization of lighting – switch to EE light sources;
 - workload of electric induction furnaces is optimized;
 - installation of smaller compressors in melting and cold stamping workshops;
 - planned preventative repairs of energy consuming equipment (induction furnaces, roll lines) have increased in quality and quantity.
2. Achieved savings (against planned consumption), calculated with regression method:
 - Electricity savings: 1.197 GWh;
 - Savings in monetary terms: 3 075 thousand RUB² (without any investments)
3. In result of energy consumption decrease, GHG emissions were reduced by 718 thous. tons of CO₂.
4. Additional benefits were achieved, such as improved organizational culture at the enterprise.
5. More no-cost and low-cost measures of operational control are being undertaken to improve energy efficiency.
6. Personnel, including SEUs' operators, became more involved in energy saving.

Conclusions

The case of Kirov plant demonstrates that understanding of EnMS system by the management, their involvement in the process, as well as efficiency and strong collaboration of the Working Group responsible for EnMS implementation on the enterprise, lead to strong positive outcomes already in the first



² Based on 2015 tariffs.

year of the programme, without significant investments.

Results of Kirov plant in the project confirm that success is possible even with a lack of measuring instruments (i.e. energy meters, or accounting by affecting variables).

Savings achieved by low-cost measures and verified by regression analysis convinced the management to continue using EnMS for energy performance analysis and improvement.