

T@W Good Practice Form

Setting

Title: Improvement of energy efficiency of industrial enterprise
Country: Bulgaria
Location: Silistra
Start date: June 2005
End date: October 2005
Technology keyword(s): Advanced technologies
Host sector: Machine building company

General description

Summary: The project consists of a number of measures to improve energy efficiency and decrease the costs of energy in the industrial enterprise.

Aims: The main goal is decrease the costs for temperature processing of the castings and other metal elements, to eliminate fines paid to electricity supplier for not maintained power factor, to decrease electricity costs of workshops and street lighting and to implement energy monitoring system.

Summary of Results: As a result energy (electricity) consumption is reduced with 932,7 MWh/year through reconstruction of electric furnace power factor regulator, workshops and street lighting improvement and installation of computerised energy consumption monitoring system.

Planning Time: -
Planning issues: The new equipment is already operational
Operation Time: 20 years
Feasibility Study: done

Technical details

Technical details:

The project includes four groups of technical measures:

- Reconstruction of four electric furnaces - replacement of heating resistors, heat insulation and bricks with new high quality materials - overhaul of two 45 kW, one 60 kW and one 315 kW furnace;
- Reconstruction of power factor regulator - replacement of existing capacitors with new type capacitors, replacement of existing switches and contactors with new more reliable and durable - 71 old contactors and

- switches, and the same number of old capacitors were replaced with new more reliable and of longer life ones;
- Reconstruction of workshops and street lighting - replacement of existing lighting bulbs with new high efficient and low consumption bulbs - replacement of 355 lighting bodies with 400 W installed capacity each with new energy efficient lighting bodies with 78 W (70 W) capacity each of longer life and higher intensity;
- Implementation of computerised energy consumption monitoring system.

Energy data

Energy data:	Energy consumption will be reduced by 932,7 MWh/year and energy expenses will be reduced by 28,4 % compared to the current situation.
Energy generated/saved:	932,7 MWh/year or 3355 GJ/year
Monitoring:	-

Environmental data

Environmental data:	The emissions factors elaborated by MOEW (Methodology for calculation of emissions of noxious substances (pollutants) released into the environment based on balance methods) were used for CO ₂ and other noxious gasses assessments. Determination of the annual emissions of CO ₂ and other noxious gasses is according to Commission decision of 21.01.2004 establishing guidelines for the monitoring and reporting of Greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council.
Project GHG-emissions:	-
GHG-emission reductions:	As a result of 932,7 MWh savings of electricity CO ₂ emissions reduction is 5931 tons for the period 2005-2012 SO ₂ emissions reduction amount to 19 tons for the period 2006-2012, while NO _x - 4 tons for the same period.
“EAU, CER, ERU, AAU”:	-
Methodology:	The methodology for calculation of emissions reductions is that given in Operational Guidelines for Project design documents of JI Projects of Dutch Ministry of Economics as of May 2004.

Baseline The industry works on 70 % capacity utilisation and all machines and technological equipment in the workshops use electricity. Annual electricity consumption is 3 288 MWh and is distributed as follows: 30 % peak load, 50 % day rate and 20 % night rate. The factory is a large industrial consumer and due to the old and not efficient reheating furnaces and street and workshop lighting there is significant potential to decrease the energy consumption.

Monitoring: Monitoring to be done by EnCon Services, validation to be done by ESBI

Contribution to Sustainable Development: By implementing the foreseen technical measures with high efficiency the project contributes to energy savings and therefore to sustainable development.

Economic data:

Economic data: The implementation of energy saving measures will result in reduction of annual costs for electricity by 40 250 Euro.

The project is financed through EBRD Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL) and as such received 7 % grant of the total capital costs after project completion. Part of capital costs is provided as a loan from UBB (one of the banks operating the credit line in Bulgaria) and part is project host equity.

Financing: 75,73 % UBB loan and 24,27 % own investors equity

Capital cost: 147 757 Euro

Operational Costs: n.a.

Payback: 4,33 years (4,17 if CO2 sales are implemented)

Energy Production costs: n.a.

Other savings: Productivity improvements - increased quality of products which need temperature processing due to more precise temperature control in the furnaces and the possibility to change the heating up regime according to the specific product requirements. Better working comfort in the workshops and areas between them due to the better lighting

Additional Information

Printed or electronic reports or other literature available:

Title:	"	Cost: -
Address for download of electronic document:		n.a.

Project Web site: n.a.

Photo Library

Pictures: Each one should have a caption. The provider must own the copyright (should be confirmed)

Contact information (to be duplicated for each contact for this project):

Type of Organisation: Consultancy Company, project management
(e.g. technology supplier, service provider, host company, financing body, project management)

Technology keyword(s) specific to this organisation:

Organisation / Agency: EnCon Services

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Description of the Organisation for inclusion in the database of Technology and Service Providers: Consultancy company approved by EBRD to manage and operate the BEERECL

Other contacts:

#please only give full contact details (name, address, email, telephone) if you have confirmed that they are willing to respond to enquiries and want to be included in the database of Technology and Service Providers. These could for example be: host organisation, equipment manufacturers, financial organisations, etc.#

Please email filled out form (including pictures) to: GP@setatwork.eu

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If possible please provide pictures at 300dpi so that they can be used in printed versions of the Good Practice.