

12th Newsletter



CROSS-INNO-CUT
Cross border implementation of
innovative cost cutting
technologies

Project Partners

***Federation of Industries
of Northern Greece***

***Aristotle University of
Thessaloniki
URENIO Research Unit***

***South-West University
"Neofit Rilski"***

***Industries Association of
Eastern Macedonia***

***Federation of Industries
of Rhodopi***

***Industrial Association of
Petritch***

***Union of Industry and
Manufacture of Xanthi***

***Industrial Association
Karjali***

***Federation of Industries
of Evros***

Implementation of cost reduction Action Plan – Cost savings by compressing energy loss and maintenance of production equipment

In this article a case of cost reduction through energy savings is presented. The cost reduction action plan is currently implemented in a company located at the Rhodopi area. The company is involved in the production of various types of alcoholic drinks, spirits and liquors.

A thorough diagnostic audit was conducted in the frame of previous stages of the Cross.Inno.Cut project to identify areas depicting high potential for cost reduction through innovative and technology oriented methods. The following areas of the production line have been identified:

1. Compressed air production and distribution system
2. Electricity distribution system
3. Scheduling and monitoring of maintenance activities for equipment and machinery

The diagnostic audit revealed significant potential for cost reduction in the above three areas of production. More specifically, the existing situation described as follows:

- There is no way to identify and verify the correct operation of the air compressor system in the production. The energy consumption of compressors may be much higher than normal if there are air leaks in the system. The air leaks result in a non-optimal mode of operation and consequently leads to a higher energy consumption level to keep the air pressure at the required levels.
- The entire system of central switchboards for distribution of electricity is installed at earlier periods by refurbishing the factory and there is no way of measuring or tracking the percentage of energy converted into heat during operation of the system. Possible bad installation switches, fuses, wiring, distributors and other components, will result to energy losses since part of the delivered energy is converted into heat and dissipated to the environment.
- In the area of production, the company runs a basic maintenance program which is activated whenever there is some small or great harm. The maintenance program is controlled in a non-automated fashion. Although there are elements and characteristics of the machinery, they do not include managerial data for the spares, neither data for the financial management of the maintenance program, neither information on how they work, data on failures and the method and the cost of repairs, etc.

Based on calculations by addressing these problems through innovative technology solutions, it is estimated that the company will have a total benefit of around € 15,000 per annum.

12th Newsletter

*Federation of Industries
of Northern Greece*

*Aristotle University of
Thessaloniki
URENIO Research Unit*

*South-West University
“Neofit Rilski”*

*Industries Association of
Eastern Macedonia*

*Federation of Industries
of Rhodopi*

*Industrial Association of
Petritch*

*Union of Industry and
Manufacture of Xanthi*

*Industrial Association
Karjali*

*Federation of Industries
of Evros*

The objectives of the Pilot Implementation

To face the above problems in order to save energy consumption and to achieve optimal use of the maintenance program the following actions are foreseen constituting the core of the pilot implementation:

1. Implementation of a sub-project to identify air leaks in the system compressors. The detection of leakages can be done using portable ultrasound measurements. The solution will be provided as a service to the company. Part of the solution is not only the take measurements and send the data to the company for planning corrective actions that will result in energy savings and thus reduce the operating costs of compressors. Also in parallel with the ultrasonic measurements to detect leaks should be the checking of the "drain traps" by thermal imaging using an infrared camera.

2. A sub-project to identify areas of high temperature at the electrical switchboards and the external piping and branching system. The detection of such areas will be done through portable thermal imaging. The solution can be provided as a service since the company does not have the required equipment, neither the ability to analyze the results.

3. Development of software for the management of the maintenance program based on a database, which will include the following elements: type, serial number, location of each machine, installation history of each machine, technical features of each machine such as power (HP or kW), operation voltage (Volts), operating current (Amperes), etc., operations and maintenance log for each machine, maintenance and manuals and user manual in electronic format for each machine, spare parts management data such as: type, serial number, supplier, cost, delivery time etc., fault history that includes time fault, ground fault, fault recovery time, rehabilitation costs, etc.

The rationale of the above approach is depicted in the following diagram. The diagram is taken from the Proceedings of the final inter-regional conference focused on the rationale, the approach and the results of the CROSS.INNO.CUT project, held in Thessaloniki on 13 & 14 of May 2013. It shows the continuous circle of improvement regarding the energy savings that may lead to a green operation of the production facilities through moderate interventions in the production line.

12th Newsletter

*Federation of Industries
of Northern Greece*

*Aristotle University of
Thessaloniki
URENIO Research Unit*

*South-West University
"Neofit Rilski"*

*Industries Association of
Eastern Macedonia*

*Federation of Industries
of Rhodopi*

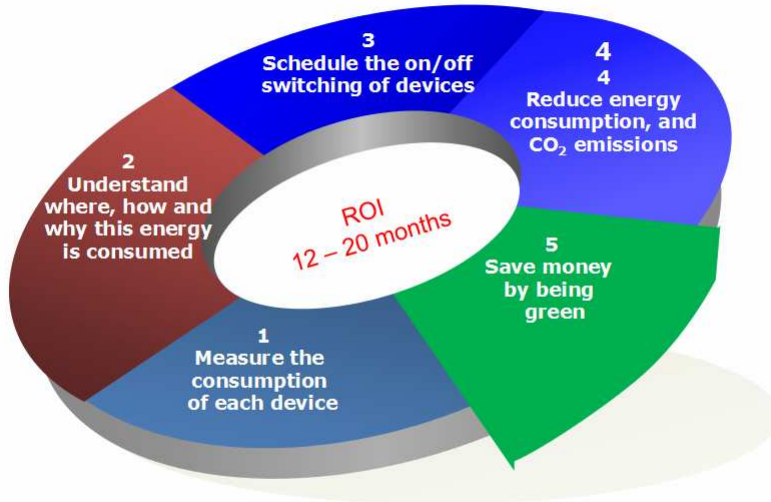
*Industrial Association of
Petritsch*

*Union of Industry and
Manufacture of Xanthi*

*Industrial Association
Karjali*

*Federation of Industries
of Evros*

Energy saved in 5 Easy steps



Source: **Arletos A.**, «Reducing production operating costs through sensors: implementation of the project's CROSS.INNO.CUT project methodology in a small & medium enterprise from the distillery sector in Greece», *Proceedings of the CROSS.INNO.CUT "Inter-regional conference for the impact of cost reduction innovation: Implementation of Innovative Cost Cutting Technologies in Small & Medium Enterprises"*, Thessaloniki, 13-14 May 2013

Expected results

The following deliverables are expected of this pilot implementation for cost reduction:

- A detailed study identifying the air leaks from the air compressor system that will include the research diary (data per measurement will include: date, place of measurement point, id of the leak, leak point pressure, pipe size, air temperature, hole size at the leak point, type of leak, CFM, etc.). It also will log the results of measurements (pressure system, ultrasound results, air flow rate), the factors affecting the measurements, and information on compressors and pipework and conclusions, comments, and proposed solutions. The report should also contain the results of thermal imaging of the existing "drain traps" and an analysis of any problems in operation.

12th Newsletter

**Federation of Industries
of Northern Greece**

**Aristotle University of
Thessaloniki**

URENIO Research Unit

**South-West University
"Neofit Rilski"**

**Industries Association of
Eastern Macedonia**

**Federation of Industries
of Rhodopi**

**Industrial Association of
Petritch**

**Union of Industry and
Manufacture of Xanthi**

**Industrial Association
Karjali**

**Federation of Industries
of Evros**

- A report on the results of thermal imaging of the electrical power distribution system (Justification of the need for thermal analysis, a description of the equipment under analysis, types of tools and devices used and software packages used for the analysis). The report should include the measurement data (camera settings, thermal images, object parameters being measured, photograph of the object, infrared images of the object, general comments about the measurements) and conclusions - comments (Thermal analysis, comments on the state of the object, identified problems and their criticality, proposed solutions to face the problems).
- A software application for the management of the maintenance program that will incorporate all the above referred information.

CROSS.INNO.CUT Inter-regional conference held in Thessaloniki

The final inter-regional conference focused on the rationale, the approach and the results of the CROSS.INNO.CUT project was held successfully in Thessaloniki on 13 & 14 of May 2013. The two-day conference entitled: "Inter-regional conference for the impact of cost reduction innovation: Implementation of Innovative Cost Cutting Technologies in Small & Medium Enterprises" attracted a large number of attendants. During the first session, the project partners were honored by the participation of executives from the ETCP GR-BG 2007-2013 Managing Authority and the Joint Technical Secretariat.

More details on this event will be presented in the next newsletter. The content of the presentations are available online via the project's web site:

www.cost-cutting.eu



12th Newsletter

*Federation of Industries
of Northern Greece*

*Aristotle University of
Thessaloniki*

URENIO Research Unit

*South-West University
"Neofit Rilski"*

*Industries Association of
Eastern Macedonia*

*Federation of Industries
of Rhodopi*

*Industrial Association of
Petritsch*

*Union of Industry and
Manufacture of Xanthi*

*Industrial Association
Karjali*

*Federation of Industries
of Evros*