

“Foundry Energy Efficiency Benchmarking” (Foundrybench -project)

Project description:

Foundries are energy intensive production facilities. Melting and casting of metals consumes a lot of energy which is transformed into and usually wasted as heat. The more expensive the energy is, the more sensitively the energy consumption reflects into the economic performance of the establishment. Energy saving is thus an important defence mechanism in current globalisation trends. Cuts in energy use in metal casting industry will also generate remarkable reductions in carbon dioxide emissions. More efficient energy use means savings in heat, electricity and water costs.

The project will assess the energy consumption and energy saving options in various foundries all over Europe to improve their energy performance. Energy saving options for all foundry unit processes, i. e. raw material handling, moulding, melting, fettling and finishing, will be elaborated. In addition advice will be given also regarding ventilation and air pollution control. A summary of this assessment will be presented in a simplified format to foster the dissemination. Viable saving options are such whose payback time is less than 5 years. Through these studies a benchmarking meter for comparable foundry types will be developed against which foundries will be able to compare their nominal energy consumption. Such a meter is a tool for the internal development of an industrial site as well as an effective marketing tool.

Project stages:

1) Collection of basic data

General description of energy economy and the energy saving points of the foundry

2) Field work and measurements

Investigation of the systems and equipment consuming heat, fuels, electricity and water in the foundry

3) Energy saving options

Analysis of the level of energy use and saving opportunities based on the initial data, field work and interviews

4) Reporting

Calculation of current energy use index for each foundry. Clear description of the energy saving measures and their saving potential relevant for a foundry

5) Comparing energy saving performance between partner and other foundries

Distribution of questionnaires to a number of European foundries (other than partner foundries) asking the basic information about their products and energy use.

Calculation of the energy efficiency index (EEI) for these foundries. Ranking the foundries by their EEI.

6) Guide of energy saving practices in foundries

Compilation of a good practice guide giving practical energy saving solutions for foundries, describing energy saving technologies and measures and their saving potential.

Project duration:

2009 - 2011

Foundrybench -project is partially funded by IEE -programme.

Partners:

The project consortium consists of eight partners. The partners are recognised consultants, research institutes and industry associations:

- AX-LVI Consulting Ltd, Finland (also Technical coordinator)
- Institut fuer Giessereitechnik gGmbH, Germany
- Swerea SweCast AB, Swedish Institute of Casting Technology, Sweden
- Foundry Research Institute, Poland
- Centre Technique des Industries de la Fonderie, France
- The International Meehanite Metal Co Ltd, United Kingdom
- Inasmet-Tecnalia, Spain

Coordinator of the project is Hermia Ltd, Finland

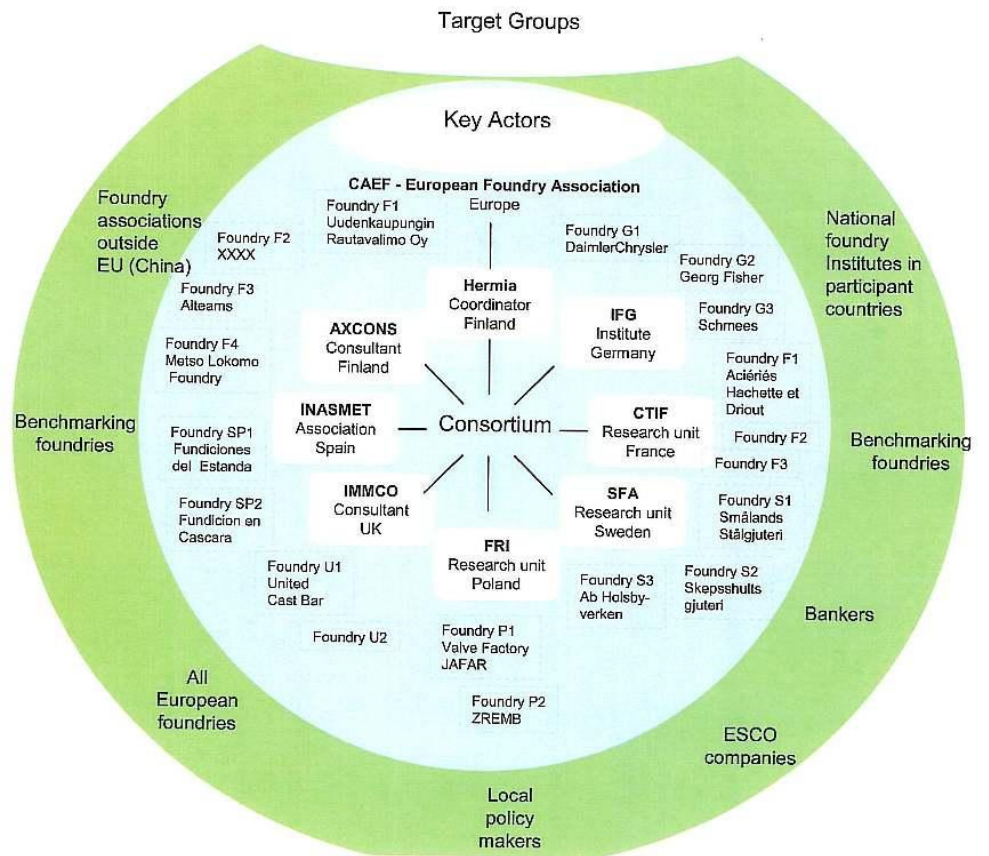


Figure 1 Project consortium

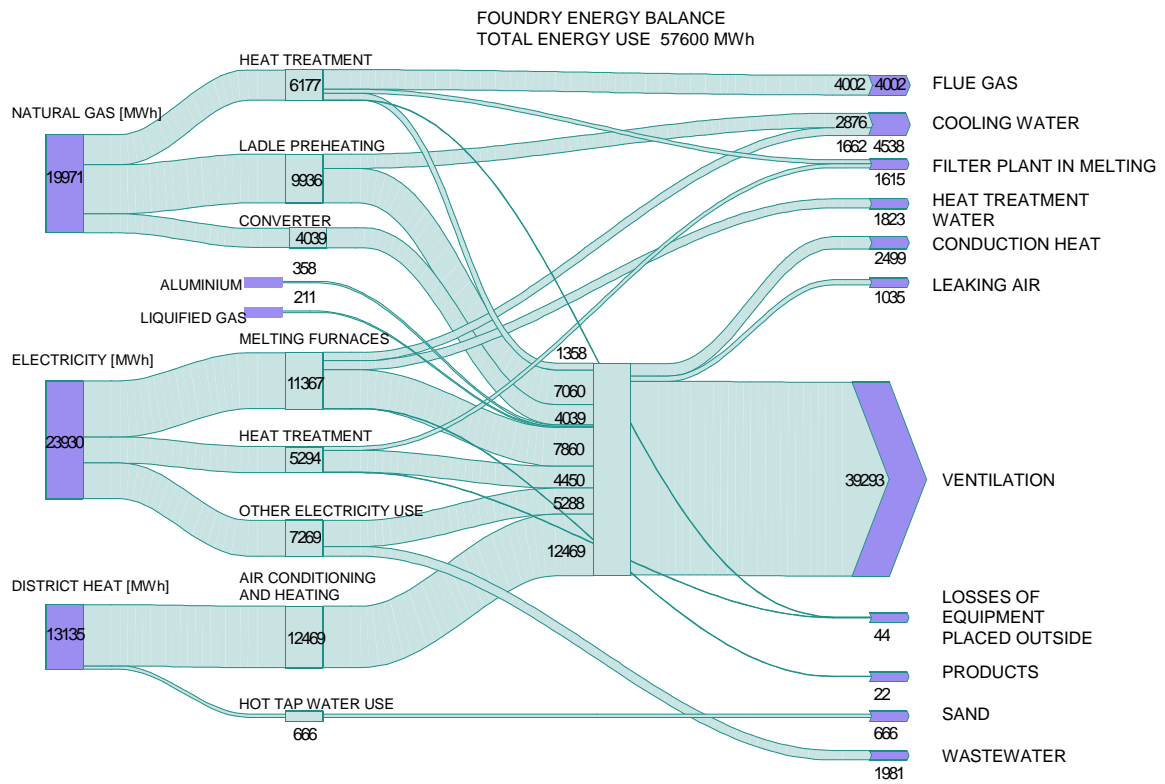


Figure 2. Energy analysis: Sankey diagram describing energy flows in a steel foundry

For more information you may contact the following person or visit project website:

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