

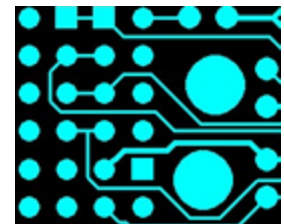
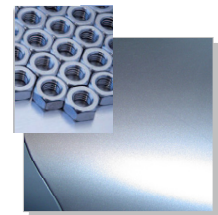


Project Fact Sheet No. 3

Updated: November 2009

Advanced Tools for SURFACE Finishing Processes to Optimise ENERGY Efficiency (SURFENERGY)

Programme area:	SAVE, Industrial excellence in energy
Status:	Ongoing
Coordinator:	Ian Dalrymple C-Tech Innovation Ltd, United Kingdom E-mail: ian.dalrymple@ctechinnovation.com Tel: +44-1513472908
Partners:	BESEL, S.A., Spain Protection des Métaux, France Env-Aqua Solutions Ltd, United Kingdom Union des Industries de Traitement de Surfaces (UITS), France European Institute of Printed Circuits (EIPC), Netherlands
Website:	www.surfenergy.eu
Objective:	Implementation of efficient energy management in Surface Finishing and Printed Circuit Manufacturing SMEs
Benefits:	Strengthen SME competitiveness through energy efficiency solutions based on analysis of generic production processes
Keywords:	Energy Efficiency, Energy Management, Benchmarking
Duration:	09/2008 – 08/2011
Budget:	€ 1,075,861 (EU contribution: 75%)
Contract number:	IEE/07/487/S12.499393



Short description

SURFENERGY supports the introduction of energy efficiency measures by Small and Medium Enterprises (SMEs) in the Surface Finishing and Printed Circuit manufacturing industry sectors.

The aim is to increase the awareness of manufacturing companies to the introduction of energy management systems and the potential benefits that could result. The project outputs will provide options for energy efficiency solutions, based on analysis and detailed understanding of generic production processes currently in use.

SURFENERGY addresses non-technological barriers to the introduction of energy efficiency measures through the main project actions: an interactive software toolkit; process benchmarking; intelligence on emerging technologies; integration with environmental assessment. The toolkit will be rigorously evaluated in SME end-user applications testing during the second half of the project.

Targeted dissemination through trade associations and other routes will increase awareness directly within industrial manufacturing SMEs. The strategic aims will support European Policy objectives on energy efficiency and increasing competitiveness.

Expected and/or achieved results

Expected Results

- The main project output will be the development of an interactive software toolkit, based on technological analysis of generic processes, to facilitate options for energy efficiency solutions. The great majority of companies in these groups are SMEs, therefore the project will essentially address the non-technological barriers to the introduction of energy efficiency to this type of organisation, within the context of the specific types of technology used in production processes. The toolkit will be rigorously evaluated in SME end-user applications testing during the second half of the project.

- An energy efficiency benchmarking component of the toolkit will be developed and applied to the collection, analysis and reporting of data for generic processes currently in industrial use. Prior benchmarking approaches will be developed and tailored to the needs of the target audience, and will be focussed on process-specific requirements. This approach will enable industrial manufacturers to compare performance to an industry standard and will act as an important stimulus for the implementation of energy monitoring and management.
- Intelligence gathering on new, emerging technologies and market drivers will be carried out. SMEs in the target groups do not have sufficient resources to keep up to date with new technological developments that may have a strong impact on their future operations. Therefore an important aim is to inform the target audience about the energy efficiency implications of emerging technologies and market/economic/societal drivers that may have an impact on their operations in the short to medium term.
- In addition to achieving excellence in industrial energy efficiency, all processes must be sustainable with a low environmental impact. In order to establish the environmental issues related to materials flow, including emissions to air and water, water usage etc., a simplified/streamlined Life Cycle Analysis approach will be applied to complement the detailed energy flow assessment.
- Targeted dissemination through trade associations and other routes will be applied to increase awareness in the targeted manufacturing sectors with high levels of 'market penetration'. These are traditional SME intensive industries, which are closely related technologically in that they operate many very similar industrial processes with overlapping issues in respect of the need to reduce energy consumption.

Achieved Results

At the date of the preparation of this factsheet, the project has been running for 15 months:

- A Best Practice Guide has been completed and can be obtained by free registration on the project website. The guide has highlighted the key areas in the printed circuit board and metal finishing industries where there may be real opportunities to improve efficiency, to save energy and therefore to reduce costs. While many of the areas described may be addressed individually for relatively simple improvements, the adoption of a more integrated approach to energy management can offer even greater savings opportunities. A summary version of the full document is also available.
- The best practice guide and other documents of general interest to SME companies in the target sectors are freely available by registration on the project website www.surfenergy.eu.
- The first version of the main project deliverable, the energy efficiency toolkit, is making progress and is due to be installed on the website by March 2010.
- Energy efficiency benchmarking trials are currently taking place. Separate questionnaires were prepared for each industry sector: Surface Finishing and Printed Circuit Manufacturing. These are being modified to reflect the feedback obtained from selected SME users (see Lessons Learnt). A series of energy audits has been planned and these are currently being implemented.

Lessons learnt

Feedback has been obtained and assessed from the first group of SMEs to test the initial benchmarking questionnaires:

- The questionnaires tried to address the issues in selected key generic manufacturing processes or unit operations. However, these were considered as too complex and much simpler top-level questionnaires should be prepared for benchmarking.
- Many SME respondents do not have access to the information required, e.g. no separation of process energy from total consumption, no power meters on individual processes or equipment, several processes operated on single production lines.
- A representative functional unit for comparison is difficult to define in Surface Finishing, e.g. the surface area of treated work pieces is difficult to measure as it involves a range of complex geometries.
- The complex versions of the questionnaires are perceived by some SMEs as being useful in helping to set up energy management systems in their companies. The detailed questionnaires will therefore be included in the web advisor toolkit to assist companies in improving their measurements of energy efficiency criteria.

In both target industry sectors, many energy efficiency opportunities have been identified that are closely linked to improved resource efficiency in typical manufacturing processes. Therefore, the introduction of improved waste minimisation measures is likely to achieve reduced energy consumption, in addition to lower environmental impact through material flows. For example, more efficient operation of post treatments such as rinsing, drying, effluent treatment, closed loop recycling, which are needed to achieve environmental controls, are expected to lead to energy savings as well as reduce the loss of process chemicals and water.