Ecodesign study: Laboratory and industrial ovens and furnaces – for the European Commission, DG ENTR Lot 4

Summary of the project

This project started in January 2010 led by **Cobham Technical Services** (ERA Technology Ltd.) with **Bio Intelligence Service** as subcontractor. It is a preparatory study being carried out under the EU Eco-design Directive that is investigating the eco-design of these products and is planned to conclude in November 2011. The emphasis will be energy efficiency but all other eco-design issues will be considered. The products which the study is considering are very varied and include:

- Blast furnaces
- Cement kilns
- Solder reflow ovens
- Muffle furnaces
- Metal heat treatment furnaces
- Drying ovens
- Sterilisers.

The purpose of this study is to provide the Commission with the necessary data to develop implementing measures either regulation or voluntary (in collaboration with industry). To do this requires us to develop a proper understanding of the sectors involved; market data, technologies (both existing and in development), the way the market works, and so on. As such it is critically important that we gain the widest possible engagement with all relevant stakeholders; companies from the industries covered, trade associations, technical experts, NGOs etc. This will not only help us but more importantly ensure that whatever measures may emerge subsequently, they will be based on sound information. Experience from previous studies shows that this is crucial to avoid problems such as inappropriate targets, reduced environmental benefit and unnecessary burden industry. **Hence, we welcome constructive input from all parties and there are opportunities to engage both formally and informally throughout the project** (see page 3 below).

Overview of the project

Task 1 defines the scope and classification of products to be included in this study. Also included in task 1 is the definition of system boundaries. Industrial ovens and furnaces are often not used as stand-alone products but with other equipment. Interaction of these products with the system in which they operate will need to be understood in order compare this with any system improvements.

Data required includes:

- Functions and designs (e.g. energy source, size, intended use mode, etc.)
- Definitions available for these products
- Standards – test, energy efficiency / performance, safety, etc. (EU, Member State and elsewhere)
- Legislation (EU, Member State and elsewhere).

Task 2 comprises an economic and market analysis to generate generic economic and market data that will be used in later tasks. Market data is a useful parameter for identifying potential product types for use as "Base-Cases" (hypothetical example products which allow various improvement options to be quantified). It is also required to calculate the potential for energy savings based on identified technology options. There are a very large variety of ovens and furnaces on the EU market and so it will be necessary to limit the number of Base-Cases to a manageable number.

Data required includes:

- EU Sales – in number units, weight, value (broken down into different types)
- EU stocks data
- Market information (biggest manufacturers, design trends, where equipment is constructed, who supplies and installs equipment, etc.)
- EU user expenditure – new equipment, running costs (energy, etc.).

Task 3 investigates user requirements and behaviour including how products are treated at end-of-life. The vast majority of laboratory and industrial ovens and furnaces will be used by professionals with only very small numbers being used by consumers for hobbies, etc. Professionals do not however always use equipment in the most energy efficient way.

Data required includes:

- Requirements of users
- How users use equipment
- What happens at end of life

Task 4 is an assessment of selected Base-Cases and provides technical information on selected products including bill of materials and energy consumption.

We select up to about 5 typical products for further analysis. These should be products that have a significant environmental impact (e.g. large numbers of ovens or a few that use a lot of energy) and there is expected to be significant potential for improvement. Base-cases consider whole life cycles so need bills of materials (BOMs), energy consumption data, etc. This is used for assessing improvement and policy options in tasks 6 and 7, respectively.

Task 5 reviews the potential for improvement by reviewing the best available technology (BAT) and the best not yet available technology (BNAT) – that is technology which in development but is close to exploitation. Improvement options will include looking at:

- Insulation
- Waste energy recovery
- Mode of use
- Air recirculation
- Temperature control.

Task 6 determines the ecodesign improvement potential and presents a sensitivity analysis of key parameters. BAT is existing technology currently in use for more advances ovens and furnaces, BNAT is technology not currently used for these products but may be used in other sectors, being researched, etc.

Task 7 presents an analysis of policy options and their potential impact. Based on base-case results (current situation), market data (numbers sold and in EU) and improvement potential (e.g. potential reduction in energy consumption). Two situations are considered:

- Now - using BAT
- In the future - using BNAT.

The study will consider reduction in energy consumption – per product and whole of EU, impact on wastes, product life, productivity, etc.

Project timetable and opportunities to engage

The project plan is as follows:

Jan 2010	Project launch
Mar/Apr 2010	Send 1st Questionnaire (focusing on Task 1 to 3) to stakeholders
May 2010	First Interim Report: Task 1 - 3
Jun 2010	First stakeholder meeting
Jul/Aug 2010	Send 2nd Questionnaire (focusing on Base-Cases) to stakeholders
Late 2010	Second Interim Report: Task 1 - 5
Early 2011	Second stakeholder meeting
Third Quarter 2011	Final Draft Report
Nov 2011	Final Report.

How to find out more

For information on this project, please contact Dr. Paul Goodman, +44 (0)1372 367221, paul.goodman@cobham.com

For more information and to register as a stakeholder so we can keep you advised of project progress and opportunities to engage : www.eco-furnace.org.