

1 Introduction

This book is the second of a set of three being published by the ENERGYWISE Plastics project. The intention is to offer advice on energy efficiency within the polymer industry. The three books come under the main title of *A Practical Guide to Energy Management* and individual titles are aimed at Managers, Processors, and finally the management of Facilities and Utilities.

The ENERGYWISE Plastics project is partly funded by the Leonardo programme which supports the development of skills and training. It funds work placements for trainees, workers and staff, and supports European projects to discuss common issues or develop training materials, courses and frameworks. Leonardo is part of the European Commission's Lifelong Learning Programme.

1.1 The Need for Energy Reduction

The European plastics industry is one of the most important sectors in the European Union (EU), with an aggregate production of almost 40 million tonnes, representing a value of some 250 billion and applications in a vast variety of industries. However, the sector is mainly dominated by small and medium enterprises (SME) who are coming under increasing pressure from low wage economies as well as increases in EU enforced legislation and a rise in the price of energy and materials. While global demand for plastics materials has continued to grow, profit margins of European producers have suffered due to increased expenses for raw materials and energy. Because of the uncertain global economic climate and market pressures on key customer sectors, the main focus of many processors is process optimisation and cost reduction rather than business expansion.

There are many reasons for wanting to improve energy efficiency, however, the most compelling reason for the plastics processing industry is that wasting energy costs money and this is reflected in the bottom line. With rising energy costs, soaring raw material prices and the impacts of climate change, the need to monitor and reduce energy consumption is more important than ever before. As with most industries, controlling costs is critical to sustainability and profitability. However, energy costs can be controlled and often reduced, by implementing measures that do not require

significant investment. In many cases improvements can be made for low or no cost, by making slight changes to the way a process or equipment is operated to optimise its performance. Energy efficiency offers short- and long-term benefits and by increasing the efficiency of a business the bottom line can be strengthened. It will be the ability of businesses to make rational and informed decisions about the use of energy on site that will play an increasingly important role in helping to manage the new challenges in a changing business climate.

According to the *European 2008 Environment Policy Review – Annex 1*; ‘energy use (including transport) accounts for 80% of all greenhouse gas emissions in the European 15’.

Following agreement at the European Council in 2007, the EU is committed to:

- Achieving at least a 20% reduction in its greenhouse gas emissions by 2020 compared to 1990, or 30% if other developed nations agree to take similar action.
- An increase in the use of renewable energy, to 20% of all energy consumed. This is a binding target. However, the plan allows flexibility in how each country contributes to the overall EU target.
- A 20% increase in energy efficiency.
- An increase in the use of bio-fuels, to 10% of all fuel used in transport.

Energy efficiency and energy management have never been more important themes than now. With the advent of the climate change levy within the UK, companies have found an increasing burden (or incentive!) on them to reduce energy consumption and improve manufacturing processes, without significantly adding to financial burden. In reality of course, there are three major drivers for increased concern with energy – security of supply, legislation and cost.

1.2 The ENERGYWISE Plastics Project

The ENERGYWISE Plastics Project has an objective to develop an elearning platform and training materials for those working with the plastics industry to learn and understand how to manage and reduce their energy consumption. The project uses a blended learning approach, offering interactive on-line modules and supporting hard-copy resources, focusing on the needs of SME. The course has three entry points and is aimed at different levels/grades of staff within an organisation: