



euplastvoltage

# Energy saving tips



**European  
Plastics**

Converting Industry Voluntary  
Long-Term Agreement on  
Energy Efficiency

**Intelligent Energy**



Europe

# European Plastics Converting Industry Voluntary Long-Term Agreement on Energy Efficiency

**EUPLASTVOLTAGE will have a direct impact on the sector's energy efficiency and thus will contribute to the EU objective of 20% energy savings by 2020.**

## Energy saving tips

The objective of EUPLASTVOLTAGE is to prepare and launch a voluntary long-term agreement on energy efficiency for the European plastics converting industry.

This project will bring together experience and best practice at national and industry levels, with a view to stimulating a new long-term agreement at European level, resulting in a firm commitment by the sector to achieve long term energy efficiency targets on the European level.

The European plastics industry makes a significant contribution to the welfare in Europe by enabling innovation, creating quality of life to citizens and facilitating resource efficiency and climate protection. More than 1.6 million people are working in about 50,000 companies (mainly small and medium sized companies in the converting sector) to create a turnover in excess of 280 billion € per year.

The European plastics processing industry faces intense competition from lower wage economies and an alarming rise in energy prices. It is therefore imperative that European plastics processors embrace the concept of energy management and energy efficiency.

Many companies have already taken steps to reduce energy consumption and the "quick wins" have already been obtained. Equally, significant proportions of companies have only recently turned their attention to energy efficiency and are relative novices in the area. Energy efficiency offers short- and long-term benefits and by increasing the efficiency of a business the bottom line can be strengthened.

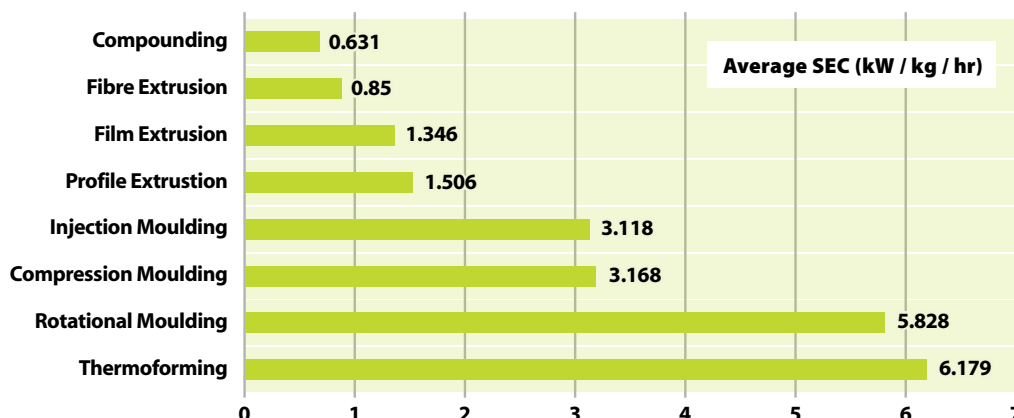
As revealed in a recent study for the "ENER-Plast" project, an energy survey was carried out in both 2008 and 2010 detailing attitudes towards energy and energy management. The results indicate that 53% of companies do not currently have an energy manager (down from 61% in 2008), who regularly monitor energy usage.

As illustrated in the below chart from the "EURECIPE" Project, some of the most energy intensive production processes includes the major moulding technologies and also thermoforming. It is therefore essential for companies to focus on increased energy efficiency.

Energy management should be the responsibility of all personnel within a company, but it is equally important to set some key principles for staff to follow, such as;

- **Management** – managing the essential actions required to set up an energy efficiency programme
- **Monitoring and targeting** – monitoring production and planning efficiency savings
- **Services** – an area where "quick wins" may be achieved
- **Plastics processing & operations** – reviewing plastics processing machinery efficiency and changing behaviour.

This document has been written as an introduction to energy management and readers are encouraged to research the subject of energy efficient production more deeply. There are a number of Member State specific consultancies available, such as the Carbon Trust in the United Kingdom, who can offer practical advice and solutions to your energy management needs. Of course, individuals such as Dr. Robin Kent (Tangram Technology Ltd.) are experts in the field of energy management and offer consultancies in the field.



*Average Specific Energy Consumption (kWh/kg of production) by country. Reproduced with permission from European Best Practise Guide, RECIPE (IEE project), October, 2006*

# Management

Energy management is a continuing process that must become an integral part of any business and should be the responsibility firstly of senior managers to lay out an effective plan and secondly for all staff to follow the plan.

Those companies that continually review their processes and management plans and take action to eliminate waste, will be in the best position to develop competitive advantage, reduce their cost base and innovate.

It is important to consider a holistic approach to management issues relating to energy.

Key attributes to a successful energy management programme include:

- Commitment from top-level management
- Development of management strategies, detailing aims and objectives

- Clearly stated goals on energy efficiency and time-frame
- Communication of goals and achievements throughout all levels of the organisation
- Appointment of 'energy manager' or team to track and implement change
  - Allow manager / team to access all information, energy bills and allow data to be tracked. Establish an energy benchmark.
- Delegation of responsibility and accountability to the appropriate personnel
- Mapping of energy usage throughout the company, by department
  - Look at shift patterns and sales forecasts as a tool to define energy use, energy purchasing and purchasing of energy efficient equipment
  - Establish where and why you are using energy
- Review energy purchasing policy
- Buying energy at short notice is different to energy bought ahead of time

# Processing

The act of processing polymer can account for around 60% of the energy use of a site. Becoming more energy efficient will differ from process to process, but there are some broad principles which remain the same for all polymer processing techniques.

Key attributes to a successful energy management programme include:

- Sustained tracking and assessment of energy use and technology
  - Is the machine running to its maximum performance? Are maintenance records kept? Is energy usage tracked per machine?
- Continuous investigation of potential energy reduction projects
  - All electric injection moulding machines are more energy efficient

than hydraulic machines by between 30 – 60% for instance (depending on the particular moulding and the all-electric machines type)

- Production planning / monitoring production levels
  - Using the right machine for the right job
  - Starting the machine in the correct sequence
  - Standard Operating Procedures to be implemented
  - Establish machine specific shut down parameters
- Monitor scrap levels – don't produce more than you need
- Keep maintenance records for all machines
- Poor quality raw materials may increase the time for processing
- The production of higher energy intensive components should be monitored

# Services and offices

Services can present several opportunities for plastics processors to save energy. Services will often represent ca 40% of the total energy used on site. Saving energy in the office doesn't need great investment, just for employees to adopt some simple energy-saving measures that cost little or nothing in time and money.

- Establish a purchasing policy to include energy efficient products, such as IT equipment.
  - Look into purchasing "energy saving recommended" equipment, air conditioning units and PCs.
- Instill a "greener work ethic"

- Turn off PCs, screens, lighting when not in use – including weekends.
- Install timers where appropriate.
- Review heating and cooling of the office facilities
- Monitor in-process aids
  - Cooling techniques with water and air, for example.
  - Monitor compressors and compressed air usage
  - Monitor stand-by times for machines – turn off correctly when not in use
- Reduce buildings and remove any leakages from equipments and services
- Review materials handling procedures
  - Check polymer delivery equipment for leaks of air or polymer

# Monitoring

Monitoring and targeting is one of the most important areas for effective energy management

- Establish a benchmark of current usage within your company
- Set realistic targets on reducing energy consumption
- Set a realistic point in time to achieve each milestone
- Report on energy efficiency at Board Meetings

- Generate a monitoring scheme, to establish whether above or below your benchmark.
  - Monitor machinery on a half-hourly basis, for instance.
- Application of business investment models to energy projects
- Collate and store all energy data in a central database, to be monitored by the designated energy manager / team
- Establishment of an internal recognition and reward programme for achieving energy goals

# Intelligent Energy Europe

## Project Consortium & Contacts

### Trade Associations

Associação Portuguesa de Indústria de Plásticos, **Portugal** 

[www.apip.pt](http://www.apip.pt)

Association of Hungarian Plastics Industry, **Hungary** 

[www.huplast.hu](http://www.huplast.hu)

Asociación Española de Industriales de Plásticos, **Spain** 

[www.anaip.es](http://www.anaip.es)

British Plastics Federation, **United Kingdom** 

[www.bpf.co.uk](http://www.bpf.co.uk)

European Plastics Converters, **Belgium** (coordinator) 

[www.eupc.org](http://www.eupc.org)

Federatie Nederlandse Rubber en Kunststofindustrie, **The Netherlands** 

[www.nrk.nl](http://www.nrk.nl)

Fédération de la Plasturgie, **France** 

[www.laplasturgie.fr](http://www.laplasturgie.fr)

IK Industrievereinigung Kunststoffverpackungen e.V., **Germany** 

[www.kunststoffverpackungen.de](http://www.kunststoffverpackungen.de)

Vereniging van producenten van Kunststof en rubberartikelen, **Belgium** 

[www.federplast.be](http://www.federplast.be)

### Research Organisations

NL Agency, **The Netherlands** 

<http://www.senternovem.nl>

Fraunhofer – Gesellschaft zur Förderung der angewandten Forschung e.V., **Germany** 

[www.fraunhofer.de](http://www.fraunhofer.de)

### Contact

For further information,  
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Please visit the EUPLASTVOLTAGE website  
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<http://euplastvoltage.eu/en/>