Energy efficiency in industry

Lightening the energy load

Intelligent Energy Europe

Project report

Energy efficiency

24 projects funded by the **Intelligent Energy – Europe programme**

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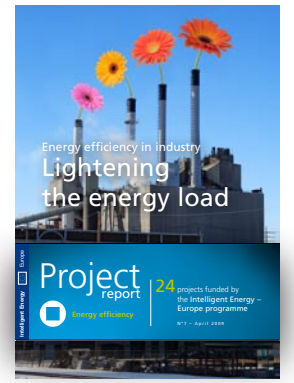

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Editorial information

Project Reports are published by the Executive Agency for Competitiveness and Innovation of the European Commission (EACI). The reports showcase projects funded across the European Union by the Intelligent Energy – Europe programme (IEE), which promotes energy efficiency and renewable energy. The projects are presented by theme and contain contact details for participants to help build a network of project participants across the EU. The reports are available in English, French and German.

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More details on the IEE programme and the EACI are available online (http://ec.europa.eu/intelligentenergy).
Useful tools and guidebooks resulting from IEE and other projects can be downloaded from the Intelligent Energy e-library (http://www.iee-library.eu).

Energy efficiency

Introduction

As stated in the review 'European Energy and Transport Trends to 2030 – Update 2007[1]', industry has been greatly influenced by the increased globalisation and integration of the world economy since 1990 and also by the enlarged EU economy. Industrial firms are targeting their products at a broader market where there is tougher competition, yet, at the same time, opportunities for increasing returns to scale. In such an environment, industrial firms are restructuring to obtain greater productivity from inputs as well as better product quality.

The same publication reports that energy consumption in industry, taken as a whole and excluding use of energy products such as feedstock in petrochemicals, accounted for nearly 28% of total final energy demand in 2005, down from about 34% in 1990. The industry restructuring that took place in the 1990s, especially in central and eastern European countries, has been the driving force behind a large reduction in energy intensity of industrial value added, with an average annual reduction of 2.2% for 1990–2000, followed by a reduction of about 1.1% per year on average for 2000–05. The fuel mix also changed significantly in industry between 1990 and 2005: the proportion of solid fuels in industrial energy consumption fell from 21.5% in 1990 to 13.1% in 2005, while gas and electricity recorded 34.5% and 29.9% respectively in 2005.

Although industrial energy intensity is projected to continue to fall, overall consumption, particularly of electricity, looks set to experience steady growth. This trend, against a backdrop of continuously rising or uncertain industrial energy costs, calls for concrete actions to make European industries more energy efficient, thereby increasing their competitiveness, protecting the environment and improving Europe's energy security.

The EU Energy Efficiency Action Plan estimates that the energy-saving potential of the manufacturing industry alone is still about 25% on aggregate. European legislative initiatives such as the Emissions Trading Scheme, the Energy End-Use Efficiency and Energy Services Directive (2006/32/EC), or the Cogeneration Directive (2004/8/EC), are all key instruments for tapping into the enormous potential that exists in the industry sector.

However, work is also needed on the ground, at all levels, to convert policy into actions. The Intelligent Energy – Europe (IEE) programme has been supporting such work, where the focus is on removing non-technological barriers to end-use energy efficiency and renewable energy sources. For industry, these barriers include: the low level of awareness among decision-makers of the potential benefits; the lack of capacity; and the high upfront costs of new investments, especially

1. European Energy and Transport Trends to 2030 – Update 2007, European Commission, 2008.

for small and medium-sized enterprises (SMEs) with limited or no resources and which may not see energy costs as a priority when it comes to cost competitiveness.

The IEE programme has so far granted financial support to about 30 promising projects tackling energy efficiency potential. Some projects look at more general aspects while others are specifically oriented towards industry branches. The 23 industry projects presented here run for 2–3 years on average, with consortia varying in size from four to 23 partners, and involving practically all Member States as well as non-EU members.

The projects addressing industrial energy efficiency from a general perspective provide guidelines, tools and support for energy management, including auditing and benchmarking tools. These are designed to help SMEs set up energy management systems themselves in their operations. The projects also identify opportunities for energy savings across different industry sectors. For instance, the ExBESS project offers SMEs a benchmarking tool for comparing their energy consumption with a large number of other companies from the same sector.

For small, local, craft businesses such as bakeries, joinery shops, etc., the E-Check project successfully developed a tailor-made self-audit tool.

Several projects focus on training and capacity-building activities in energy management, particularly for SMEs (EUREM.NET, CHANGE, IEC-SME), or on promoting the development of more affordable energy performance contracting services for small businesses, as in EFFI. There is also one project, aIM 4 SMEs, which promotes the use of automatic detailed monitoring and targeting technology (intelligent metering) to help SMEs identify and exploit energy-saving opportunities.

Ten projects are specifically targeted at individual industry sectors. The sectors covered so far include the food and drink industry, dairy farming, textile producers and finishers, plastics processors and polymer producers, wine producers, graphic media (print and packaging), the ceramic industry, surface finishing industries, metal foundries and chemical SMEs. There is also one ongoing project dealing with voluntary Long-Term Agreements in industry (EU LTA Uptake).

Finally, four projects promote polygeneration, including combined heat and power (CHP) in both large industry and SMEs.

All projects share the ultimate goal of reducing primary energy consumption by 20% compared to projections for 2020. They have shown once more that energy efficiency and rational use of resources are by far the most effective ways to improve security of supply, reduce carbon emissions and foster competitiveness.

This brochure aims to raise awareness among the readers of these industry projects funded by the Intelligent Energy – Europe programme. The reader will find useful key facts about the projects as well as web links to further information.

Numbers tell the story

> CONTACT DETAILS

COORDINATOR

Nick Morris

**Leicester City Council,
United Kingdom**

+44 1162995123
Nick.Morris@leicester.gov.uk
http://www.aim4smes.com/

PARTNERS:

EAV – Energetická Agentura Vysociny, z. s. p. o., Czech Republic

Energieagentur Waldviertel, Austria

Sonnenplatz Großschönau GmbH, Austria

De Montfort University, United Kingdom

Energy Control Group Ltd, United Kingdom

Instituto de Engenharia Mecânica, Portugal

LABELEC – estudos, desenvolvimento e actividades laboratoriais, S.A., Portugal

Association of Municipalities Polish Network 'Energie Cités' (PNEC), Poland

1

Automatic Intelligent Metering for Small and Medium-sized businesses

aIM 4 SMEs

Duration: 12/2007–11/2009

Objectives

With rising fuel prices, SMEs need access to training and independent advice on energy efficiency to help them reduce costs and stay competitive. This project aims to assist SMEs in using automatic detailed monitoring and targeting technology (intelligent metering). The detailed metering will cover a diverse range of SMEs. The data collected on energy and water usage will be analysed to identify energy-saving opportunities. The information will form part of energy-awareness training provided to staff and also part of an on-site energy survey. The training will be incorporated into a certified training programme for staff so that they can continue analysing data after project completion.

Results

> Automatic monitoring of energy (electricity, gas, heat, etc.) and water data in 75–100 SMEs from a range of sectors (manufacturing, commercial, etc.) in five different European countries.
> Businesses able to analyse and use energy data.
> Building users trained in energy efficiency with relevance to their own building.
> A bureau service to support participating SMEs in energy monitoring and analysis.
> Increased awareness among SMEs of automatic intelligent metering and its applications, benefits and potential for savings.
> Energy and CO_2 savings of about 10–25% in businesses taking part.

Budget: €865 668
(EU contribution: 50%)

2

Integrated benchmarking and self-assessment tool – Wine Industry
AMETHYST

Duration: 1/2007–12/2008

Objectives

The project AMETHYST aimed to develop a benchmarking and self-assessment tool for small and medium-scale wine producers in several European countries, together responsible for nearly 80% of EU wine production (and over 50% of global production). The tool was expected to give wineries insight into their energy and water efficiency and the potential for improving these levels. Based on previous experience with wineries, it was estimated that savings of more than 20% could be obtained in a cost-effective way. This would result in reductions in peak electricity use and CO_2 emissions, and would increase profit among wineries across the EU.

Results

> Country versions of the benchmarking and self-assessment tool for Germany, Spain, France and Italy were made available on the project website.
> A user guide for the tool is also available on the website.
> Reports from eight workshops held in major wine regions were produced (two for each country) and describe the initial experiences with the tool in the four countries.
> 125 wineries were trained in using the tool.

Budget: €300 966
(EU contribution: 50%)

Grapes turn green

> CONTACT DETAILS

COORDINATOR

Wina Graus, Maarten Neelis

Ecofys BV, Netherlands

+31 306623324/306623241
W.Graus@ecofys.nl
M.Neelis@ecofys.nl
http://www.amethyst-project.eu

PARTNERS:

Chambre d'Agriculture de la Gironde, France

Forschungsanstalt Geisenheim (Geisenheim Research Center), Germany

Università Cattolica del Sacro Cuore, Italy

BestErgy Soluciones Energéticas, S.L., Spain

Mixing chemicals with care

> CONTACT DETAILS

COORDINATOR

Andrea Weigel

Conseil Européen de l'Industrie Chimique, Belgium

+32 26767367
awe@cefic.be
http://www.cefic.org/en/careplus.html

PARTNERS:

CERTIQUALITY SRL ISTITUTO DI CERTIFICAZIONE DELLA QUALITA, Italy

Agria SA, Bulgaria

EES – Energy Efficient Systems Ltd, Bulgaria

KAUMET JSC, Bulgaria

SC SVILUPPO CHIMICA S.P.A., Italy

Delta Energy and Environment Ltd, United Kingdom

DEGUSSA GOLDSCHMIDT ITALIA SRL, Italy

ILSA spa, Italy

Krajowa Agencja Poszanowania Energii S.A. (KAPE), Poland

Polska Izba Przemysłu Chemicznego, Poland

Zakład Chemiczny 'Silikony Polskie' Sp. z o.o., Poland

FOSFAN SPÓŁKA AKCYJNA, Poland

3

Training chemical SMEs in responsible use of energy

CARE+

Duration: 10/2008–9/2011

Objectives

The chemical industry recognises the large potential for energy efficiency in SMEs, although energy consumption is not always seen as a priority. This project looks to bridge the gap between the potential and the current practice in chemical SMEs, which account for 20% of the 56 million tonnes of oil equivalent energy use in this sector. The project will conduct a needs assessment and develop best practices and appropriate delivery mechanisms for SMEs in Bulgaria, Italy and Poland. The material and mechanisms will then be tested with two SME partners per country. The material and approach will be fine-tuned and a roll-out campaign undertaken to reach a number of SMEs per country.

Results

> Best Practice Manual and Self-Audit Guide.
> Information on energy-efficient technologies and energy management systems disseminated to SMEs.
> Training and auditing to show SMEs energy efficiency reserves and the cost-effectiveness of improved practices and technologies.
> Special investment schemes proposed to help with introducing energy efficiency measures in SMEs.
> Improved energy efficiency performance in the sector.

Budget: €798 565 (EU contribution: 75%)

4

Energy-saving concepts for the European ceramic industry

CERAMIN

Duration: 11/2006–10/2009

Objectives

This projects aims to decrease energy use in the production processes of the European ceramic industry, resulting in both cost and greenhouse gase reductions. The ceramic industry is a large energy consumer, with energy costs at just over 30% of total costs. Within Europe, €26 billion of ceramic products are produced every year. National partners will use questionnaires and visits to monitor the situation in representative ceramic businesses. The data and descriptions collected and analysed will be used to develop benchmarks and guidelines for best practices, which will be promoted through an EU-wide competition. A new label (EEE – extraordinarily energy-efficient products) will also support these activities.

Results

> Definition phase(s) have been completed and a number of documents are available for download from the website, e.g. energy consumption statistics and a methodology for verifying energy savings.
> The branches with greatest energy-saving potential have been identified or confirmed.
> Despite the financial and trading difficulties being experienced by the sector, approximately 50 individual companies are actively taking part in the data collection and verification phase, leading to the award of the EEE label.

Budget: €930 538 (EU contribution: 50%)

The art of saving

> CONTACT DETAILS

COORDINATOR

Gerd Schroeder

Institut für Energetik und Umwelt gemeinnützige GmbH, Germany

+49 3412434427
Gerd.Schroeder@ie-leipzig.de
http://www.ceramin.eu

PARTNERS:

Société Française de Céramique, France

KI Keramik-Institut GmbH, Germany

CERAM Research Ltd, United Kingdom

ETA Energia Trasporti Agricolture srl, Italy

Instytut Szkla i Ceramiki, Poland

CENTRE RECURSOS D'INICIATIVES I AUTOCUPACIÓ, SL, Spain

Energy 'ports of call' open for business

> CONTACT DETAILS

COORDINATOR

Ben Butters

EUROCHAMBRES – Association des Chambres de Commerce et d'Industrie européennes aisbl, Belgium

+32 22820850
butters@eurochambres.eu
http://www.eurochambres.eu/change

PARTNERS:

Chambre de Commerce et d'Industrie de Marseille Provence, France

Magyar Kereskedelmi és Iparkamara, Hungary

Wirtschaftskammer Österreich (WKÖ), Austria

Fédération des Chambres de Commerce et d'Industrie de Belgique, Belgium

Bulgarian Chamber of Commerce and Industry, Bulgaria

UnionCamere, Italy

Malta Chamber of Commerce and Enterprise, Malta

Consejo Superior de Cámaras Oficiales de Comercio, Industria y Navegación de España, Spain

Handelskammaren Mälardalens Service AB, Sweden

Krajowa Izba Gospodarcza, Poland

Hrvatska gospodarska komora (HGK), Croatia

5

Chambers promoting intelligent energy for SMEs
CHANGE

Duration: 9/2008–8/2010

Objectives

CHANGE aims to help SMEs optimise energy use through its European network of intelligent energy advisors at Chambers of Commerce and Industry (CCIs) and through the practical assistance it offers SMEs. The project will involve 61 CCIs from 12 European countries. The trained and experienced Chamber advisors will act as 'first ports of call' for SMEs in energy matters. They will bridge the gap between SMEs and existing services on the market by providing them with access to information, organising events and encouraging businesses to conduct energy pre-checks. A survey will also help improve the service and identify the barriers that prevent businesses from adopting energy efficiency techniques.

Results

> More than 60 Chamber employees operating as 'first ports of call' for businesses – mainly SMEs – on 'intelligent energy' issues.
> Information made easily available for European SMEs via CCI websites and targeted seminars/workshops.
> Energy pre-checks in businesses, conducted or facilitated by CCIs.
> Survey of factors positively or negatively influencing the uptake of energy efficiency measures or renewable energy sources by businesses.
> Manual with guidance and best practices for SMEs – a reference document for participants and new Chamber advisors and a basis for similar future training.

Budget: €2 662 723
(EU contribution: 75%)

6

European campaign for the development and documentation of 1 000 small-scale cogeneration projects in European cities and towns

COGEN CHALLENGE

Duration: 1/2005–12/2007

Objectives

The three-year COGEN CHALLENGE project included an intensive 18-month information campaign on the benefits of small-scale cogeneration in European cities and regions. Small-scale cogeneration is defined as installations with a maximum capacity of 1 000 kWe. It is typically used in houses, apartments, hospitals, universities, office buildings, airports, swimming pools, leisure centres, hotels, greenhouses, and many industries. The project looked to address economic, technical and administrative barriers and the general lack of information, which prevent wider use of this promising technology.

Results

> Successful European information campaign reaching many local and regional actors across Europe through a series of about 30 workshops, seminars and media events.
> An extensive library of fact sheets, brochures, best practices, contact lists and calculation tools has been produced.
> More than 1 000 small-scale and micro-cogeneration projects across Europe have been documented, demonstrating that small-scale cogeneration is feasible, reliable and adaptable to the needs of many users.
> Five new regional information and support facilities/facilitators for small-scale cogeneration have been set up in five different European countries.

Budget: €780 726 (EU contribution: 50%)

Joint effort, big impact

> CONTACT DETAILS

COORDINATOR

Stefan Craenen

The European Association for the Promotion of Cogeneration, Belgium

+32 27728290
stefan.craenen@cogen.org
http://www.cogen-challenge.org

PARTNERS:

Rhônalpénergie-Environnement (RAEE), France

Klima-Buendnis/Alianza del Clima e.V., Germany

Stadt Frankfurt am Main – Dezernat Bildung, Umwelt und Frauen – Energiereferat, Germany

Grazer Energieagentur Ges.m.b.H. (GEA), Austria

Institut de Conseil et d'Etudes en Développement Durable asbl, Belgium

FUNDACION ASTURIANA DE LA ENERGIA, Spain

Energie-Cités (EC), France

Jozef Stefan Institute (JSI), Slovenia

Strategic drive to reduce GHG

> CONTACT DETAILS

COORDINATOR

Thomas Bouquet

The European Association for the Promotion of Cogeneration, Belgium

+32 27728290
thomas.bouquet@cogeneurope.eu
http://www.d-ploy.eu

PARTNERS:

SUEZ Energie Services, France

Energy Consulting Network A/S, Denmark

OMV Cogeneration GmbH, Austria

Electrabel, Belgium

Solvay S.A., Belgium

British Sugar plc, United Kingdom

A.E. Sociedad Anonima, Slovenia

7

Deploying large-scale polygeneration in industry
D-ploy

Duration: 11/2006–10/2008

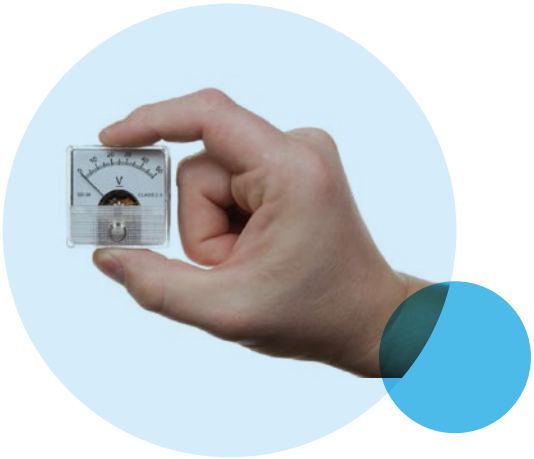
Objectives

D-ploy aimed to understand why there had been so few industrial polygeneration projects in certain European industrial sectors in recent years. The project therefore looked at technologies used in four sectors (food, pulp and paper, refineries and chemicals) and the drivers behind new projects. The project included both industry consultants and major industrial operators of co/polygeneration plants and was directed at policymakers and industry stakeholders. Policy recommendations were provided to help boost polygeneration projects to the benefit of company competitiveness, increased European supply security, and overall reductions in greenhouse gases (GHG).

Results

> Detailed map of heat loads in the EU providing estimates of the energy and CO_2 saving potential of polygeneration.
> Assessment of EU legislation affecting industrial polygeneration, including the impact of the EU ETS (Emissions Trading Scheme) on projects/installations.
> Overview of the financial challenges to industrial polygeneration with a focus on appraisal methodologies and risk perception.
> Analysis of Phase III of the EU ETS and recommendations on how to harness the scheme with regard to promoting polygeneration.

Budget: €615 732 (EU contribution: 50%)



8

From colleague to colleague: Energy Checks in small and Medium Craft Enterprises

E-Check in Craft SMEs

Duration: 2/2005–3/2007

Objectives

This project aimed to develop a standardised, easy-to-use energy check tool for SMEs in five different crafts in five countries: Bulgarian carpenters, German bakers, Irish small food producers, Greek bricklayers/glaziers/painters and Spanish meat producers. The purpose was to swiftly identify substantial and easily achievable energy-saving potential within each SME checked. The project used existing published knowledge and put it into practice in the SMEs. The project also looked to promote renewable energy sources and energy services in the targeted SMEs, and to help participants create new business opportunities as Energy-Checkers.

Results

> An E-Check tool for five crafts in each of the five participating countries was developed.
> The partners compiled training materials for craft workers to become Energy-Checkers.
> One hundred and eighty (nearly twice the target figure) craft workers were trained as Energy-Checkers.
> Two hundred and sixty-one SMEs were audited by Energy-Checkers.
> A marketing concept for the Energy Check in Bulgaria, Germany, Ireland, Greece and Spain was developed.

Budget: €903 352 (EU contribution: 50%)

Check it out!

> CONTACT DETAILS

COORDINATOR

Ricarda Rieck

B.&S.U. Beratungs-und Service-Gesellschaft Umwelt mbH, Germany

+49 2213777686
rrieck@bsu-berlin.de
http://www.energy-check.org

PARTNERS:

Tipperary Energy Agency Ltd, Ireland

Handwerkskammer zu Leipzig, Umwelt- und Transferzentrum, Germany

Zentrum für Umwelt und Energie der Handwerkskammer Düsseldorf, Germany

National and Kapodistrian University of Athens (NKUA), Greece

Energy Agency of Plovdiv (EAP), Bulgaria

National Chamber of Skilled Crafts – Bulgaria, Bulgaria

PLOVDIV CHAMBER OF COMMERCE AND INDUSTRY, Bulgaria

FUNDACION ASTURIANA DE LA ENERGIA, Spain

Asociacion de Investigación de Industrias Cárnicas del Principado de Asturias, Spain

> CONTACT DETAILS

COORDINATOR

Michiel Steerneman

Energy Experts International BV, Netherlands

+31 26 32 56 323
m.steerneman@eei.nl
http://www.eeei.info

PARTNERS:

Handwerkskammer Münster, Germany

Athens Technological Educational Institute, Greece

ENERGO Group S.A. (ENERGO), Greece

ENVIROS s.r.o., Czech Republic

Heves Megyei Kereskedelmi és Iparkamara, Hungary

Bergische Universität Wuppertal, Germany

Stichting KVGO Dienstencentrum, Netherlands

9

European Energy Efficiency Improvement in the graphic media industry

EEEI

Duration: 1/2007–3/2009

Objectives

The EEEI project looked to remove the barriers that prevent graphic media SMEs from reducing their energy use, by showing energy use and costs and promoting energy and cost reduction in partner countries. Partners were able to visualise energy use and costs through an awareness campaign, the development and application of benchmarking tools and measures, and the promotion of voluntary agreements. These efforts were combined with: an energy management system aimed at reducing energy consumption through expert training in companies; financial benchmarks; and specific tools, including action plans. Results will be disseminated by national workshops and at a European conference.

Results

> European synthesis report on an inventory and assessment of energy efficiency, analysis of barriers and best practice within SMEs in the partner countries.
> Industry awareness paper tool, company awareness tool, benchmark tool for the industry, measure list, and energy-management standard.
> Results of benchmark.
> Measure list concerning energy reduction potential.
> Presentation materials for workshops, conferences and newsletters for the target group.

Budget: €1 391 887
(EU contribution: 50%)

Snapshots of energy efficiency

10

Efficient Implementation of energy services in SMEs

EFFI

Duration: 9/2006–2/2009

Objectives

The project aimed to see appropriate and cost-efficient 'intelligent' energy services used in SMEs. The services should be technically appropriate and match the real capabilities of SMEs. Competition between energy service providers as well as appropriate economies of scale are needed for cost-effective projects in SMEs. To achieve this, the project looked to introduce an independent organisation or 'energy service market operator' (ESMO). This should stimulate market development and trigger the introduction of energy efficiency measures. Large-scale marketing alongside pilot 'energy service market' projects were planned for 20–35 SMEs in Germany, Estonia, Slovenia and Slovakia.

Results

> Design of an innovative model for the energy service market, which is attractive for SMEs and other parties (e.g. ESCOs and financial organisations).
> Successful pilot projects for testing the new energy service market.
> Contribution to the development of a market for energy services.
> Communicating energy efficiency to SMEs.

Budget: €547 701 (EU contribution: 50%)

New market opportunities

> CONTACT DETAILS

COORDINATOR

Alexandra Waldmann

Solvera Lynx, Informacijske tehnologije v industriji in energetiki, d.o.o., Slovenia

+386 12425766
alexandra.waldmann@solvera-lynx.com
http://effi.energetika.net/

PARTNERS:

OÜ Energiasäästubüroo, Estonia

Berliner Energieagentur GmbH (BE), Germany

Regionalni center za okolje za srednjo in vzhodno Evropo, Podružnica Ljubljana, Slovenia

A winning formula

> CONTACT DETAILS

COORDINATOR

Christoph Brunner

Joanneum Research Forschungsgesellschaft mbH, Austria

+43 3168762413
christoph.brunner@joanneum.at
http://www.iee-einstein.org

PARTNERS:

ENVIROS s.r.o., Czech Republic

Österreichische Energieagentur (AEA), Austria

The European Association for the Promotion of Cogeneration, Belgium

E4-Experts energía exergía economía ecología SL, Spain

Dipartimento di Meccanica e Aeronautica – Università 'La Sapienza' di Roma, Italy

Krajowa Agencja Poszanowania Energii S.A. (KAPE), Poland

Steng-nacionalni center za cistejsÂ¡o proizvodnjo d.o.o. (STENG), Slovenia

University of Maribor, Faculty of Civil Engineering, Slovenia

Ajuntament de Sabadell, Spain

Cámara Oficial de Comercio e Industria de Madrid, Spain

Cestec SpA (CESTEC), Italy

11

Expert system for an INtelligent Supply of Thermal Energy in INdustry
EINSTEIN

Duration: 9/2007–8/2009

Objectives

EINSTEIN aims to contribute to widespread implementation of integral energy-efficient solutions for thermal energy supply in selected industrial sectors. A holistic integral approach is required and should include possibilities for reducing demand using heat recovery and process integration as well as an intelligent combination of existing affordable heat (and cooling) supply technologies. The project also looks to develop a tool kit for thermal energy auditing in an effort to reduce cost and improve audit quality. At least 300 energy auditors, industrial technicians and other relevant actors will be trained to use the tool and at least 90 companies will take part in an auditing campaign.

Results

> The EINSTEIN tool kit, a new methodology for low cost, efficient audits focused on optimising thermal energy demand and supply in industry, available for download on the website.
> Distribution of 2 500 copies of the complete EINSTEIN tool kit, including the expert system software tool and the guidelines in six European languages.
> 200 auditors trained to apply the EINSTEIN auditing tool kit and act as multipliers. 90 industrial companies audited.
> Development of a simplified version of the expert system software tool for web-based self-assessment.

Budget: €927 000 (EU contribution: 50%)

A tapestry of green practices

12

Promotion of Energy Management Practices in the Textile industries of Greece, Portugal and Spain
EMS-TEXTILE

Duration: 1/2005–6/2007

Objectives

EMS-TEXTILE aimed to promote energy management practices in the textile industries of Bulgaria, Greece, Spain and Portugal. The practices were based on previous experience with environmental and energy management applications worldwide. Project partners and potential end-users worked together to develop and distribute energy audit and benchmarking tools and energy management support publications. Work included the creation of a transnational experience exchange network, helpline desks, training seminars and pilot implementations. Dissemination activities included workshops, articles, leaflets and presentations of project results at national and EU events.

Results

> Energy management standard and guidelines for implementation.
> Energy Audit Tool for identifying energy-saving opportunities and energy-performance assessment.
> Energy Consumption Benchmarking Tool for quick comparative evaluation of energy performance.
> Energy Management Manual for improving the company's energy efficiency.
> Case study presentations on the pilot implementations carried out during the project.

Budget: €650 000 (EU contribution: 50%)

> CONTACT DETAILS

COORDINATOR

Thanasis Manoloudis

SIGMA Consultants Ltd, Greece

+30 2310242801
A.Manoloudis@sigmaconsultants.gr
http://www.ems-textile.net

PARTNERS:

Hellenic Fashion Industry Association, Greece

Black Sea Regional Energy Centre (BSREC), Bulgaria

Bulgarian Association of Apparel and Textile Producers and Exporters, Bulgaria

Centro Tecnológico das Industrias Têxtil e do Vestuário de Portugal, Portugal

Asociacion de la Investigacion de la Industria Textil, Spain

Carbon footprints on the right track

> CONTACT DETAILS

COORDINATOR

Suzanne Wilkinson

Smithers Rapra Technology Ltd, United Kingdom

+44 1939252435
swilkinson@rapra.net
http://www.enerplast.eu

PARTNERS:

Centre d'Animation Régional en Matériaux Avancés, France

Pôle Européen de Plasturgie, France

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

Univerzita Tomase Bati ve Zline, Czech Republic

SIRRIS (formerly CRIF-Wallonie), Belgium

The British Plastics Federation, United Kingdom

Centro Tecnológico da Indústria de Moldes, Ferramentas Especiais e Plásticos, Portugal

Instituto de Soldadura e Qualidade (ISQ), Portugal

Slovenian Tool and Die Development Centre, Slovenia

Asociacion de Investigacion de Materiales Plasticos, Spain

13

From design to manufacturing: instruments for reducing the energy consumption and carbon emissions of the polymer industry and its supply chain

ENER-Plast

Duration: 11/2007–10/2010

Objectives

SMEs in the European polymer industry are under increasing pressure from lower wage economies, new EU legislation and rising energy and material prices. Volatile oil prices, buoyant global demand for energy products and rapid economic growth in China and India have resulted in testing business conditions, with optimism and confidence at an all time low. ENER-Plast will provide the industry and its supply chain industries with the knowledge, justification, information resources and tools needed to reduce their carbon footprint. The project offers a systematic approach to energy management and climate change and helps companies understand and manage their energy consumption.

Results

> A 'European Energy & Environmental Legislation Guide for the European Polymer Industry'.
> A suite of tools to lead a company through product, material and mould design, equipment selection, manufacturing, assembly and distribution, whilst assessing the energy consumption at each stage.
> A 'Carbon Impact Calculator'.
> A guide to 'Energy Efficiency in the Mould and Tool Industry'.
> An interactive, web-based 'Guide to Energy Efficient Design and Sustainable Manufacturing with Polymers'.

Budget: €1 264 700
(EU contribution: 50%)

Driving energy efficiency

14

Energy Efficiency in small and medium-sized enterprises
ENGINE

Duration: 10/2007–3/2010

Objectives

ENGINE aims to help the engine of the European economy, SMEs, become more energy efficient. The project addresses management and technical staff in SMEs in the automotive, metal and wood processing sectors and food industries as well as energy efficiency advisors in professional associations, Chambers of Industry and Commerce, energy service companies or public authorities. Project activities include specific energy efficiency checks for SMEs as well as training for potential and existing energy advisors to support capacity building. ENGINE is also looking to set up regional networks and conduct promotional campaigns for energy efficiency in producing industries.

Results

> Information and motivation campaigns on energy efficiency/energy services to accelerate market launch.
> Five hundred key market actors in round tables and motivation events to drive a top-down momentum.
> Two hundred and fifity trained energy auditors brought together in expert pools and networks in Germany, Italy, Austria, Sweden and the United Kingdom.
> Fifty-six energy efficiency checks implemented and evaluated in different industrial branches to show the broad variety of different options for SMEs.
> Results disseminated nationally and throughout Europe.

Budget: €790 261
(EU contribution: 50%)

> CONTACT DETAILS

COORDINATOR

Roland Pätzold

Target GmbH, Germany

+49 51190968850
steege@targetgmbh.de
http://www.engine-sme.eu

PARTNERS:

Ambiente Italia srl, Italy

Energon Energie- und Umweltmanagement GmbH, Austria

Österreichische Energieagentur (AEA), Austria

AGIMUS GmbH Umweltgutachterorganisation & Beratungsgesellschaft, Germany

IVF Industrial Research and Development Corporation, Sweden

KanEnergi Sweden AB, Sweden

Severn Wye Energy Agency Limited (SWEA), United Kingdom

Finding common ground

> CONTACT DETAILS

COORDINATOR

Herman Gels

SenterNovem, Netherlands

+31 302147837
h.gels@senternovem.nl
http://www.ltauptake.eu

PARTNERS:

Motiva Oy (Motiva), Finland

Centre for Renewable Energy Sources (CRES), Greece

ENVIROS s.r.o., Czech Republic

ECONOTEC, Belgium

Sofia Energy Agency, Bulgaria

Swedish Energy Agency (STEM), Sweden

Krajowa Agencja Poszanowania Energii S.A. (KAPE), Poland

New Energy Performance AS (NEPAS), Norway

15

European uptake of successful implementations of industrial LTA's as a part of voluntary agreements on energy savings

EU LTA UPTAKE

Duration: 9/2007–6/2009

Objectives

EU LTA UPTAKE is developing a tool kit for setting up Long-term Voluntary Agreements (LTAs) on energy efficiency that can bring mutual benefits to industry and public administrations alike in the form of energy cost savings, less environmental legislation, less administrative burden, improved environmental image and achievement of environmental targets. The LTA approach has proven a success, with more than 30% energy savings in several industrial SME sectors over the past decade. The project will provide instruments to any stakeholder willing to implement LTAs to achieve their national or sectoral targets for greenhouse gases emission reductions. The key players in LTAs are industrial associations, relevant authorities and independent experts.

Results

> Overview of LTA experience in Europe (achieved).
> Definition of support tools (achieved).
> Active expert platform with representatives from industries and public authorities, partly trained in conducting LTA processes and able to provide feedback on the tool kit (expected).
> Three pilot LTAs signed (expected).
> Tool kit, validated by the expert platform (expected).

Budget: €805 624
(EU contribution: 50%)

16

Training and network of European Energy Managers
EUREM.NET

Duration: 12/2006–5/2009

Objectives

The project aims to expand the successful 'European EnergyManager' training program EUREM to nine other EU countries. Each of the new countries is organising at least one training course. Each course participant develops a concrete project designed to improve his/her company's energy performance. In cooperation with all partners, a European certificate 'European EnergyManager' is being introduced. Support for all energy-related questions is offered via a web-based knowledge and exchange platform. This platform is designed to become the central interaction point for all European EnergyManagers.

Results

> Two hundred highly trained EnergyManagers (actually 346 energy managers trained to date) with 200 energy concepts for energy-efficient measures: best practice projects with an average reduction potential of 400 MWh/a of energy and €20 000 of cost savings per training participant (in total: 80 000 MWh/a and €4 000 000, but these figures too are likely to be exceeded in view of the greater number of trainees).
> Updated and extended EUREM-standard training material in all languages of the partners involved in the project.
> A web-based, EU-wide learning and knowledge platform focused on the needs of EnergyManagers and a website for the public with descriptions of content and concepts, examples of training material and completed projects, and feedback from participants.
> A European certificate 'European EnergyManager' for successful graduates of the EUREM training program.
> EnergyManager training introduced in 13 EU countries and established nationally.

Budget: €1 442 339 (EU contribution: 49%)

Educating for energy change

> CONTACT DETAILS

COORDINATOR

Robert Schmidt

Industrie- und Handelskammer Nürnberg für Mittelfranken, Germany

+49 9111335-299
rschmidt@nuernberg.ihk.de
http://www.energymanager.eu

PARTNERS:

AMBIENTE ITALIA SRL Istituto di Ricerche, Italy

Camera di Commercio Italo-Germanica, Italy

EnPro Engineers Bureau Ltd, Estonia

Ammattienedistämislaitossäätiö AEL, Finland

ARENE, AGENCE RÉGIONALE DE L'ENVIRONNEMENT ET DE L'ÉNERGIE D' ILE DE FRANCE, France

Industrie- und Handelskammer Nürnberg für Mittelfranken, Germany

Centre for Renewable Energy Sources (CRES), Greece

Deutsch-Tschechische Industrie- und Handelskammer, Czech Republic

Wirtschaftskammer Österreich (WKÖ), Austria

ESCAN, S.A., Spain

Energy Institute, United Kingdom

Krajowa Agencja Poszanowania Energii S.A. (KAPE), Poland

Câmara de Comércio e Indústria Luso-Alemã, Portugal

Jozef Stefan Institute (JSI), Slovenia

Putting the green back into pastures

> CONTACT DETAILS

COORDINATOR

Oonagh McNemey

Iberian Productivity and Innovation Centre, Spain

+34 652839215
omcnerney@ipic.cat
http://www.dairyenergy.eu

PARTNERS:

Institut für Energiedienstleistungen GmbH, Germany

Feltalálói és Kutató Központ Kft, Hungary

Malta Industrial Innovation for SMEs, Malta

Lleters de Catalunya, Llet Nostra,SCCL, Spain

Gesund Lantbruk HB, Sweden

Royal Association of British Dairy Farmers, United Kingdom

Centre de Recerca e Investigacio de Catalunya, Spain

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Getting Energy Reduction on agendas in Industrial Manufacturing Operations
GERONIMO

Duration: 10/2007–9/2009

Objectives

The GERONIMO project focuses on breaking down the time, resource and knowledge barriers that prevent SME dairy farmers in Europe from becoming more energy efficient on their farms or from exploiting renewable energy opportunities. Using a dynamic bottom-up approach where dairy farmers and related groups communicate the real needs, barriers and hopes of the sector, the project will produce a user-focused web-based platform providing dairy SMEs with access to information technology, tools and financial support enabling them to bring energy efficiency and renewable energy sources to their farms. The portal will be widely deployed across Europe and will benefit from a strong branding campaign.

Results

> A dynamic web portal full of content and effective in stimulating dairy farmers to embrace energy efficiency and renewable energy sources (RES). It will provide access to information on technologies and tools enabling them to take steps towards placing energy issues on their operational agenda, as well as directing them towards suitable funding schemes, mechanisms, grants and financial incentives in their region.

> The web portal will offer GERONIMO SME dairy farms the potential to achieve average on-farm energy savings of at least 100 kWh/cow/annum, which for the average dairy farm would translate into savings of over 1580 kWh per farm in their first year using the portal.

> By the end of the project, it is envisaged that 20% of GERONIMO users will have begun to implement some form of energy efficiency practice or measure on-farm and 10% will have started to exploit some form of RES. A further 40% will plan to do so in the near future.

> Beyond the funding period, dairy associations and cooperatives from across the enlarged Europe will be committed to continuing the work started by this initiative and GERONIMO will have gathered sufficient momentum to continue to permeate the European dairy industry, leading to sustained energy efficiency, uptake of RES, reduction in CO_2 emissions, as well as long-term monetary savings, in turn strengthening the competitiveness of European dairy farmers.

> Best practice will have been sourced and documented, and it is expected that GERONIMO will benefit other areas of the European agro-food industry, such as meat supply chains, horticulture, etc.

Budget: €1 152 444
(EU contribution: 50%)

Setting the energy standard

18

Improving Energy Competence on SME level

IEC-SME

Duration: 1/2007–6/2009

Objectives

The IEC-SME project aims to create a standard procedure which is simple, efficient, transnational, sustainable and non-profit, in an effort to improve energy competence among SMEs. It also aims to introduce a targeted (benchmarking) process to help SMEs understand their energy performance, offer recommendations for improvements, set up a database of energy performance data to help monitor progress, promote greater visibility of best practices, and enable business support organisations to provide energy-related assistance to local SMEs through trained staff.

Results

> Four training modules.
> Three training events; training and certification of at least 25 trainees.
> A benchmarking mechanism for five industry sectors.
> Two hundred and twenty SME energy performance reports; seven regional partner reports; five regional reports.
> Website, quarterly newsletter, several brochures and transnational meetings and seminars for providing information.

Budget: €1 571 050 (EU contribution: 47%)

> CONTACT DETAILS

COORDINATOR

Kishor Pala

Birmingham Chamber of Commerce and Industry, United Kingdom

+44 1216071832
kpala@neac.eu.com
http://www.iecsme.eu

PARTNERS:

Handwerkskammer zu Leipzig, Umwelt- und Transferzentrum, Germany

Institute IREGIA e.V. at Chemnitz Universtity of Technology, Germany

Sächsisches Landesamt für Umwelt und Geologie, Germany

Staatliche Studienakademie Glauchau, Germany

Grazer Energieagentur Ges.m.b.H. (GEA), Austria

Weizer Energie-Innovations-Zentrum GmbH, Austria

Foundation Valencian Region-European Region, Spain

La Associacion de Investigacion y Desarollo en la Industria del Mueble y Afines, Spain

Promoción Económica de Moncada SA, Spain

Agencia Energètica de la Ribera, Spain

Valencia Official Chamber of Commerce, Industry and Shipping, Spain

Healthy ingredients for greener plastics

> CONTACT DETAILS

COORDINATOR

Suzanne Wilkinson

Smithers Rapra Technology Ltd, United Kingdom

+44 1939252435
sturner@rapra.net
http://www.eurecipe.com

PARTNERS:

Pôle Européen de Plasturgie, France

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

Danish Technological Institute, Denmark

CRIF-Wallonie, Belgium

The British Plastics Federation, United Kingdom

Applus + Norcontrol S.L.U. (Applus Norcontrol), Spain

Asociacion de Investigacion de Materiales Plasticos, Spain

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Reduced Energy Consumption in Plastics Engineering

RECIPE

Duration: 1/2005–12/2007

Objectives

The European plastics processing industry faces intense competition from lower wage economies and rising energy prices. The industry has more than 27 000 companies (more than 80% SMEs) employing more than one million people, and total sales of over €100 billion. If its energy consumption could be reduced by 10%, this would result in an annual reduction in CO_2 emissions of more than 3 million tonnes. To stay competitive, a business must have an effective energy management process, good market knowledge and an awareness of technology and support mechanisms. RECIPE aimed to provide the industry with the knowledge, justification and tools required for reducing their energy consumption.

Results

> A European Best Practice Guide for the plastics processing industry was produced and published in six languages, distributed in printed form and made available for download on the project website.
> An interactive tool kit was developed to enable companies to evaluate energy consumption and look closely at individual processes within the plant. It provides guidance on efficiency and highlights key plant areas where the most substantial energy and costs savings can be made.
> A 'Cost of Ownership Model' was developed to enable processors to calculate the cost of operating a piece of equipment over its projected lifetime, based on energy efficiency and projected usage.
> RECIPE benchmarked energy usage in plastics processing companies across Europe in 2005 to establish where variations exist in 'typical' usage and to understand how companies view and manage their energy consumption.
> Sixteen seminars were held to demonstrate the latest developments in technology, local energy schemes, funding opportunities and the interactive tools developed by RECIPE.

Budget: €894 376 (EU contribution: 50%)

Smooth sailing

20

Advanced tools for SURFace finishing processes to optimise ENERGY efficiency

SURFENERGY

Duration: 9/2008–8/2011

Objectives

SURFENERGY supports the introduction of energy efficiency measures in SMEs from the surface finishing and printed circuit sector. The aim is to inform manufacturing companies about energy management systems, their potential benefits, and the different options available. The project addresses the non-technological barriers that prevent energy efficiency measures being introduced, by offering an interactive software tool kit, process benchmarking, intelligence on emerging technologies, and integration with environmental assessment. The tool kit will be rigorously evaluated and targeted dissemination will take place through trade associations and other routes.

Results

> Interactive software tool kit, based on technological analysis of generic processes, to facilitate energy efficiency solutions. The tool kit will be rigorously tested in SME end-users.

> Energy efficiency benchmarking component of the tool kit to be used for collecting, analysing and reporting data for generic processes currently in industrial use. Prior benchmarking approaches will be developed and tailored to the needs of the target audience. This approach will enable industrial manufacturers to compare performance against an industry standard and will act as an important stimulus for implementing energy monitoring and management.

> Intelligence gathering on new, emerging technologies and market drivers. 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. The target audience will therefore be informed about the energy efficiency implications of emerging technologies and market/economic/society drivers that may have an impact on their operations in the short to medium term.

> A simplified/streamlined Life Cycle Analysis approach will complement the detailed energy flow assessment and help set out the environmental issues related to materials flow, including emissions into the air and water, water usage, etc.

> Increased awareness in the targeted manufacturing sectors through dissemination among trade associations and other routes 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.

Budget: €1 075 861 (EU contribution: 75%)

> CONTACT DETAILS

COORDINATOR

Ian Dalrymple

C-Tech Innovation Limited, United Kingdom

+44 1513472908
ian.dalrymple@ctechinnovation.com
http://www.surfenergy.eu

PARTNERS:

SYNDICAT NATIONAL DES ENTREPRISES D'APPLICATIONS DE REVETEMENTS ET TRAITEMENTS DE SURFACE, France

PROTECTION DES METAUX, France

ENV-AQUA SOLUTIONS LTD, United Kingdom

BESEL. S.A., Spain

European Institute of Printed Circuits, Netherlands

Cast iron savings

> CONTACT DETAILS

COORDINATOR

Mirva Seppänen

Technology Centre Hermia Ltd, Finland

+358 408204602
mirva.seppanen@hermia.fi
www.foundrybench.fi

PARTNERS:

Institut fuer Giessereitechnik gGmbH, Germany

Insinööritoimisto AX-LVI Oy, Finland

Centre Technique des Industries de la Fonderie, France

FUNDACIÓN INASMET, Spain

SweCast AB, Sweden

The International Meehanite Metal Co Ltd, United Kingdom

INSTUTUT ODLEWNICTWA, Poland

21

Foundry energy efficiency Benchmarking

Foundrybench

Duration: 1/2009–12/2011

Objectives

Foundries are energy-intensive production units, therefore the main project goal is to foster energy efficiency and rational energy use in the metal casting sector. The project involves eight partners who are recognised consultants, research institutes and foundry industry associations. Foundrybench will help at least 15 foundries improve their energy efficiency by offering clear information on energy use and flows. Based on this, a guide to the best energy-saving solutions will be provided. The project also aims to provide an online database and Energy Efficiency Index for the metal casting industry. Foundrybench will actively promote benchmarking results among foundries and policymakers.

Results

> Raised awareness of opportunities for reducing energy use.
> Spreading of best practices for energy efficiency improvement in the foundry sector.
> Good practice guide and database of best energy-saving practices in foundries, containing practical information on energy-saving solutions and their effect on energy consumption and costs.
> Well-targeted foundry-specific benchmarking tool, based on uniform and professional assessment of foundry energy use and applicable to different foundries, product types and climatic conditions.
> Common energy efficiency audit system for European foundries.

Budget: €1 529 861
(EU contribution: 75%)

A healthy cocktail

22

OPTimum Integration of POLYGENeration in the food industry
OPTIPOLYGEN

Duration: 1/2005–12/2006

Objectives

Polygeneration involves transforming multiple primary energy sources into multiple energy outputs. The food industry is an area where considerable amounts of energy of various forms are consumed and where by-products represent a potential source of renewable energy. OPTIPOLYGEN aimed to reveal the potential of polygeneration in the European food industry, identify possible technical and non-technical gaps related to polygeneration applications, and promote polygeneration applications as a route to sustainability in the food industry.

Results

> A full map of polygeneration potential in the European (EU-15) food industry.
> Accessible database on polygeneration plants operating and classified plant data.
> Identification of technical barriers which might prevent the use of renewables in hybrid systems with conventional CHP (combined heat and power) and trigeneration in the food industry, with possible solutions proposed for this.
> Promotion of polygeneration applications in the European food industry through improved awareness among stakeholders.
> Compilation of information on polygeneration applications in the food industry in existing best practice guides.

Budget: €586 402 (EU contribution: 50%)

> CONTACT DETAILS

COORDINATOR

Athanassios Katsanevakis

ESTIA Consulting & Engineering S.A., Greece

+30 2310487501/2
tkats@estiaconsulting.gr
http://www.optipolygen.org

PARTNERS:

Gaia Group Oy, Finland

The Serres Institute of Education and Technology, Greece

FORCE Technology, Denmark

Österreichischer Energiekonsumenten-Verband (ÖEKV), Austria

The European Association for the Promotion of Cogeneration, Belgium

Chalex Research Ltd, United Kingdom

Energy for Sustainable Development Ltd (ESD), United Kingdom

Instituto Superior Técnico, Portugal

> CONTACT DETAILS

COORDINATOR

Miett Tajthy-Carmelitano

SenterNovem, Netherlands

+31 302147953
m.tajthy@senternovem.nl
http://www.bess-project.info

PARTNERS:

Sustainable Energy Ireland, Ireland

Motiva Oy (Motiva), Finland

Centre for Renewable Energy Sources (CRES), Greece

Österreichische Energieagentur (AEA), Austria

Lithuanian Energy Institute (LEI), Lithuania

BEKK Consulting AS, Netherlands

Instituto para la Diversificación y Ahorro de la Energía, Spain

Swedish Energy Agency (STEM), Sweden

Jozef Stefan Institute (JSI), Slovenia

SenterNovem, Netherlands

New Energy Performance AS (NEPAS), Norway

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Benchmarking and Energy Management Schemes in SMEs

BESS

Duration: 1/2005–4/2007

Objectives

BESS aimed to support food and drink SMEs improve their energy efficiency. An energy management system is a must when dealing with energy matters and tapping into energy-saving potential, especially given the increasing energy costs. Because SMEs often lack the personnel and knowledge to do this, BESS set out to provide tools to help them, including benchmarking schemes and management support tools.

Results

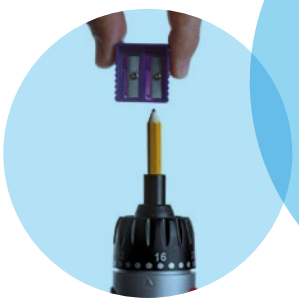
> At least 55 pilot companies from the food & drink industries in 11 European countries tested the energy management support and benchmarking tools, including the e-learning system, and provided feedback to enable the BESS consortium to produce tools that meet the real needs of SMEs.

> A fully operational interactive web-based benchmarking and e-learning system for implementing energy management was developed to increase the adoption of energy efficiency measures in SMEs.

> A handbook, recommendations for policymakers for follow-up activities, and other dissemination activities to promote use of the tools created, raised awareness among SMEs and policymakers of the SME benchmarking and energy management applications.

> A quantitative baseline and target setting scheme was developed for the sectors involved in the BESS pilot scheme.

Budget: €1 335 831 (EU contribution: 50%)



Sharper tools for better results

24

Expanding the Benchmarking and Energy Management Schemes in SMEs to more Member States and candidate countries

ExBESS

Duration:9/2007–5/2009

Objectives

ExBESS, the follow-up programme to BESS, is looking to widen the target group to include the textile industry, breweries and industrial laundries. It is also aiming to update the tools developed under BESS, including extending the benchmarking scheme to new sectors, and branching out into eight more countries.

ExBESS, and its predecessor BESS, represent an opportunity for European SMEs to improve their energy efficiency, reduce energy costs and take part in an international benchmarking scheme.

Results

> At least 80 pilot companies from the food & drink, brewery, textile and laundry sectors in eight European countries will test all the updated BESS tools. The feedback will be used to make the tools even more user-friendly and in line with the real energy management requirements of SMEs.
> A fully operational, updated, interactive web-based benchmarking and e-learning system.
> A handbook for SMEs.
> Recommendations for policymakers for follow-up activities.
> Dissemination activities similar to BESS.

Budget: €636 949 (EU contribution: 50%)

> CONTACT DETAILS

COORDINATOR

Miett Tajthy-Carmelitano

SenterNovem, Netherlands

+31 302147953
m.tajthy@senternovem.nl
http://www.bess-project.info

PARTNERS:

CNA – Confederazione Nazionale dell'Artigianato e della Piccola e Media Impresa, Italy

Centre for Renewable Energy Sources (CRES), Greece

ENVIROS s.r.o., Czech Republic

Wetenschappelijk en Technisch Centrum van de Belgische Textielnijverheid, Belgium

Ekodoma, Latvia

Technological Centre for the Portuguese Textile and Clothing Industry (CITEVE), Portugal

Krajowa Agencja Poszanowania Energii S.A. (KAPE), Poland

Romanian Agency for Energy Conservation, Romania

Energy Centre Bratislava (ECB), Slovakia

New Energy Performance AS (NEPAS), Norway

Energy efficiency

Find out more online

Intelligent Energy – Europe programme

Learn more about the Intelligent Energy – Europe programme online (http://ec.europa.eu/intelligentenergy).

The site provides guidance on how to apply for funding (http://ec.europa.eu/energy/intelligent/call_for_proposals/index_en.htm) and how to implement your project once you get funding (http://ec.europa.eu/energy/intelligent/implementation/index_en.htm).

The Executive Agency for Competitiveness and Innovation

Find out about the EACI, the Agency that manages the IEE programme, online (http://ec.europa.eu/eaci/).

European Commission – Energy and Transport

More information about what the European Commission is doing in the field of energy and transport is available online (http://ec.europa.eu/dgs/energy_transport/index_en.htm).

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Energy efficiency in industry

Lightening the energy load

European industry, notably the SME sector, is facing many challenges today, including tough competition on the international stage and strict environmental legislation in Europe. Foundries, food and drink producers and plastic manufacturers are just some examples of industrial SMEs where energy consumption and waste are significant, in terms of cost to the business and impact on the environment.

To help industry deal with these and other challenges, the Intelligent Energy – Europe initiative continues to support projects with real aims and practical solutions that benefit businesses, the environment and citizens. This brochure provides an overview of some of these projects and illustrates that industry can be both profitable and 'green'.

http://ec.europa.eu/intelligentenergy

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