



IND-ECO - Energy Efficient Solutions for the Footwear and Leather Industries

Project Overview

This brochure summarises the highlights from the European Commission co-funded project: "Industry alliance for reducing energy consumption and CO₂ emissions" (IND-ECO). The industry sectors covered were the footwear and leather producing industries, in Bulgaria, Italy, Portugal, Romania, Spain and UK.

Activities in the three-year project included assessing, auditing and benchmarking the situation regarding energy efficiency in the industries at the beginning of the project, scouting and evaluating technical solutions for the industries, exploring potential sources of financial assistance and provision to fund investments, disseminating the information gathered and co-ordinating investment plans by companies in the industry sectors.

The scouting of technical solutions and the exploration of sources of finance resulted in the creation of two databases that can be accessed on the project website: <http://www.ind-ecoefficiency.eu/> Some of the project findings concerned the barriers to investments and while the Esco system is reported to work well in Italy, a number of companies, particularly in the other countries, reported on difficulties with accessibility of finance and unwillingness to subject themselves to the conditions involved. One aim of the project was to develop recommendations to EU policymakers, and the main outcome of this was to find ways to make it easier for SMEs to access finance.

The project had targets for investment plans and achievements for reduction of energy used and Carbon Dioxide equivalent emitted – 80 investment plans and savings of 16.7 Million Kilowatt Hours of primary energy and 3,834 tons of CO₂ equivalent. By the end of the project, the partners had reported 117 investment plans and the total energy and CO₂e savings were well in excess of the targets.

From the returns received by the partners during the project, these were the ten most important energy saving solutions. But it is important not to forget low cost solutions, including good housekeeping, management and monitoring.



Top Ten Energy Saving Solutions

- 1 Cogeneration
- 2 Photovoltaic systems
- 3 Voltage Optimisation
- 4 Inverters/Variable Speed systems for Motors and Drives
- 5 New Boilers/Economisers
- 6 Efficient Compressors
- 7 Heat Exchange
- 8 Energy Efficient Lighting
- 9 Optimisation of Processing
- 10 New Machinery

Introduction to the Industries

The European Footwear and Leather industries have both been challenged by intense international competition over recent years, and they continue to face fierce competition in both the European and export markets. However, both sectors retain a significant presence in Europe and they illustrate the importance of keeping a traditional industrial base in Europe.

EU 28 Footwear and Leather Industry Key Data (2012)

Sector	Turnover (million Euros)	Number of people employed	Number of enterprises
Footwear	25,246	288,500	20,695
Leather	7,150	27,800	1,560

According to CEC (European Confederation of the Footwear Industry) Asia – mainly China – produces 87% of the world's footwear by number of pairs, compared with only 4% produced in Europe. However, when measured in terms of the value of shoes exported, 9 out of the 15 biggest exporters are European countries. Regarding leather production, Europe produces 8 - 9% of total world production, and Italy remains the world's 3rd biggest producer (FAO).



But value is the key to understanding the sector. Many of the shoes and bags etc that are produced in China and the rest of Asia are not made from leather, and if one compares the value of leather and leather products exported, European countries perform well and Italy comes highest – exporting \$18.7 billion – a higher value than even China.

Therefore, the industries in Europe, overall, remain competitive and have a prominent role to protect and develop.

Introduction to the Project and its Objectives

The project “Industry alliance for reducing energy consumption and CO2 emissions” (IND-ECO) was co-funded by the European Commission under the Intelligent Energy Europe Programme. The three year project, launched in 2012, involved 16 partners from 6 EU countries - Bulgaria, Italy, Portugal, Romania, Spain and UK - plus the European trade association for the leather producing industry. The industry sectors covered were the footwear and leather producing industries, and the partners - from both sectors - in the project comprised national and EU trade associations, national research and technical centres, individual shoe and leather producers, the Italian District Association and a specialist consultancy.

The main objectives of the project were:

- to obtain initial primary energy savings and significant CO2e emissions by its end
- to create favourable conditions for many more investments by 2020

In more detail, the objectives included:

- benchmark the industries in terms of energy use
- undertake 70 company energy audits as a basis for developing investment plans
- scout and assess technical solutions for entry into a project database
- investigate sources of potential finance for inclusion in a further database
- achieve agreements with both suppliers of technical solutions and financial providers
- develop an Investment Planning Template to assess the viability of investments co-ordinate at least 80 investment plans with targets for annual reductions of 16,700 million kwh of primary energy, 3,834 tons of CO2e and a 20% reduction in both, per unit of production, by 2020 promoting the project, its aims and findings through the project website, newsletters, national and international workshops, video and publications.

Project Results and Achievements

The achievements of the project include not only the savings in energy and reductions in CO2e emissions realised during the period, plus the savings planned, but also the development of a series of resources and tools to assist companies to engage with the process of improving energy efficiency and to plan for the future. In addition, 75 energy audits were carried out in companies.

Project website: www.ind-ecoefficiency.eu This a key output of the project, which among other things gives links to the two important databases (see below) on technical solutions and potential sources of finance. It is also the repository of a range of useful information and tools for addressing the challenges of improving energy efficiency; www.ind-ecoefficiency.eu/tools.html

Benchmarking A comprehensive benchmarking exercise was undertaken, based on inventory questionnaires completed by 165 footwear companies and 85 tanneries. The complexity of the industries in terms of the range of processes carried out on different sites made the exercises quite difficult, and more detailed explanations can be found on the Ind-Eco website for footwear and tanneries respectively:

www.indecoefficiency.eu/files/indeco_final_workshop_ctcp_footwear_benchmark_final_segF.pdf

www.ind-ecoefficiency.eu/files/1503192intworkshop_tannerybenchmark.pdf

Briefly, for footwear, two main categories of producer were identified:

- factories that carry out the whole process, and
- factories that sub-contract part or all of the cutting and stitching processes.

The results, in summary:

Footwear Benchmarking – All Partner Countries

Indicator	Total Production	Cutting and/or stitching Sub-contracting (part or all)
Average (kWh/pair)	0.7-3.9	0.8-3.6
Kg CO2e/pair	0.3-1.9	0.4-1.7
Minimum (kWh/pair)	0.4	0.2
Kg/CO2e/pair	0.2	0.1
Maximum (KWh/pair)	9.3	6.3
Kg CO2e/pair	4.6	3.1
Number of Companies	108	57

INDECO Footwear energy performance benchmarking 1 – 1.2 kg CO2e/pair

The benchmarking of tanneries was more complex, with three main categories and six sub categories identified, depending on starting material (raw or part processed), output (finished leather or wet stabilised) or type of output (heavy leather sold by weight rather than by area). Examples from three main sub categories are given below – all figures quoted as Energy Performance Indicators (ENPIs) at the 95% confidence level:

The biggest group (32 tanneries) – processing semi-finished and raw material to finished leather:

	Energy used	CO2e
Average	7.0 kWh/SqM	2.9 kg/SqM
Range	4.9 – 9.2 ,,	2.1 – 3.8 ,,

For the category processing raw and limed material to wet stabilised leather (5 tanneries) the ENPIs:

	Energy used	CO2e
Average	3.35 kWh/SqM	1.2 kg/SqM
Range	2.4 – 4.4 ,,	0.9 – 1.6 kg/SqM

For the category processing raw to finished leather, sold by weight (8 tanneries) the ENPIs were:

	Energy used	CO2e
Average	1.86 kWh/SqM	0.79 kg/SqM
Range	1.2 – 2.3	0.6 – 1.0

Project Results for Investment Plans and Energy/CO2e Savings

A summary of the targets and results of the project, in terms of investment plans made and savings of primary energy and CO2e emissions planned and realised is given in the following two tables.

Review of Investment Plans and Savings

By the end of the project, there were 116 Investment Plans (the target was 80). Plans were defined as short, medium or long term investments:

- Short term: planned and completed during the project.
- Medium term: planned and started during the project, but not completed.
- Long term: planned during the project, but not started.

The plans comprise 57 short term plans, 7 medium term, and 52 long term.

While a number of the investments are planned but not started, or not completed, it is encouraging to report that 57 of the investment plans have been planned, started and completed during the term of the project.

Savings from Plans

In terms of energy saving and reduction of CO2e emissions the totals already achieved 27.176 million kWh primary energy and 7,709 tons of CO2e well exceed the target savings of 16,7million kWh of primary energy and 3.834 tonnes of CO2e. If the investments planned but not yet realised are also included, the savings are even higher.

The main types of energy saving investments reported are as listed in the "top ten" along with low cost solutions such as good housekeeping, appropriate insulation, energy management and monitoring.

A number of barriers to investment were identified, notably in regard to access by smaller companies. These constraints, along with the general economic situation, which impacted some countries more than others, go some way to explain why some countries missed their individual targets, while the whole sector met its overall targets.

- Companies – especially SMEs - report that it is difficult to access credit, and subsidies/grants to support energy efficiency are restricted or nonexistent in some countries
- Companies prefer to invest on an "internal" basis
- Companies often have other priorities for their own funds (sales, quality)
- Finance is mainly available on a commercial basis – there are few Grants/subsidised sources and companies need a rapid payback
- While the Esco system is reported to work well in Italy there are some concerns in other countries about the lease arrangements, because companies fear losing control of their own businesses

- Economic climate is still an issue
- In Spain there are plans to relocate tanneries, and this has resulted in a lack of willingness to invest in existing plants

Since the tools arising from the project, along with the impact of discussions and promotion of the project are expected to have a continuing effect, after the formal end of the project, the target of a reduction in energy use of 20% by 2020 remains attainable, especially if the economic situation in most countries begins to ease. Most companies know what they would like to do in terms of investments, they just need a suitable window of opportunity in terms of access to funding and business climate, and they will invest.

Summary of Investment Plans

	Short	Medium	Long	TOTAL
Bulgaria	0	0	2	2
Italy	25	0	1	26
Portugal	15	5	7	27
Romania	10	1	23	34
Spain t	0	0	2	2
Spain f/w	1	0	13	14
UK	6	1	4	11
RoE	0	0	0	0
TOTAL	57	7	52	116

Savings from Plans	Million kWh primary	Thousand tons CO2e
Bulgaria	0.077	0.028
Italy	25.312	7.227
Portugal	1.279	0.328
Romania f	0.452	0.188
Romania t	0.216	0.060
Spain f	0.502	0.115
Spain t	0.088	0.020
UK	4.511	1.084
Short term	27.176	7.709
Medium/Long term	5.261	1.341
TOTAL	32.437	9.050
TARGET	16.700	3.834

Database of Technical Solutions

www.ind-ecoefficiency.eu/solutions.php

Located on the project website is the database of Technical Solutions with over 200 solutions listed (the target number was 150). This is one of the most valuable tools developed during the project – as an illustration, an extract is given below:

In addition, 39 agreements were signed with providers of technical solutions, and 11 letters of support from providers of finance.

Filter Type	Filter Value	Filter Remove
Device Type	Co-generator plant	
Select the filters to use in the search and then click on the Find Device button to find the DEVICE you are looking for.		
SEARCH RESULTS		
Devices		
Device	Supplier	Partner
Cogeneration and micro-cogeneration units	SC SERVELECT Srl	SFERA_FACTOR
CHP unit - Vitobloc 200 Co-generators	RGS OOD - Viessmann distributor	BU_of_LFFLG
Click on the SEARCH RESULT COLUMNS to get detailed information about the device.		

Database on Potential Sources of Finance

www.ind-ecoefficiency.eu/documents.php

Also accessible on the project website is the database on potential sources of finance. Extract from database below:

Country	Type of Provider	Name	Description	Contact Details	Other info	Web
All EU Countries	Information	Access to EU finance	This site will help you to apply for finance supported by the European Union. Selecting in the link your country, you will find some financial intermediaries.			http://europa.eu/youreurope/business/finance-support/access-to-finance/index_en.htm
Belgica	Bank	Triodos Bank	Triodos Bank helps fund businesses or projects which bring positive social, cultural or environmental change.	Tel: 02 548 28 52, lundi au vendredi de 9h à 17h		www.triodos.be/fr/social-profit/
Belgica	Bank	Belfius	Solutions de financement de trésorerie	Tel: 02 222 12 02	www.belfius.be/business/FR/Emprunter/BesoinsDeTrésorerie/CreditDeCaisse/index.aspx	www.belfius.be/business/FR/Emprunter/BesoinsDeTrésorerie/index.aspx
Belgica	Bank	ING Direct Belgium	Business Loans for Short and long Terms also ING Lease	Tel: 02 548 28 52, lundi au vendredi de 9h à 17h		www.ing.be/en/business/lending/Pages/index.aspx?WT.xmenusource=MENU_Lending
Belgica	Bank	KBC	Triodos Bank helps fund businesses or projects which bring positive social, cultural or environmental change.	Tel: 016 43 25 18 Monday to Friday from 8 a.m. to 5p.m. o4b@kbc.be Fax: 016 43 25 28	Credit Renting and leasing	www.triodos.be/fr/social-profit/
Belgica	Bank	BNP ParibasFortis	Leasing Info: http://cpb.bnpparibasfortis.be/Mid-sized-Companies/EN/Product-and-Services/Long-term-Financing/Leasing/page.aspx/12336	+ 32 (0) 2 433 43 32 http://cpb.bnpparibasfortis.be/Mid-sized-Companies/EN/Home-Contact-us/page.aspx/8204Credit	Credit Simulation: https://www.bnpparibasfortis.be/porta/start.asp	http://cpb.bnpparibasfortis.be/Mid-sized-Companies/EN/Product-and-Services/page.aspx/160

List of Partners

APPBR - Romanian Leather and Fur Producers Association

BULFFHI - Branch Union of leather, fur, footwear and haberdashery industry in Bulgaria

CRS - Conciaricerca R&S srl

The Confederation of National Associations of Tanners and Dressers of the European Community

CTCP

DANI - DANI GROUP SPA

IDF - Italian District Federation

ICPI - The national research and development institute for textile and leather

INESCOP - Footwear and related industries research center

LEITAT - Technological Center

PIELOREX - Pielorex Romania

PJ Shoes - Romania

SFERA FACTOR - Association of the Romanian Leather Manufacturers

SOGESCA - Innovation, Environment, Energy and work safety

UKLF - UK LEATHER FEDERATION

Unione Nazionale Industria Conciaria



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