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Overview

This report covers a key part of the project – the co-ordination of the Investment Plans prepared in order to try to deliver the key targets of the project. These key targets were to achieve a significant reduction in the energy consumed by the footwear and leather industry and a similar reduction in the emissions of Carbon Dioxide Equivalent by the industries.

The specific outputs and targets of the activities in more detail were:

- Investment plans template.
- Involvement of at least 70 companies
- Involvement of 3 tanneries and 3 footwear from other countries
- Total energy saving of 16,7 mio primary kWh
- Total CO₂ reduction of 3.834 t CO₂e/year
- Reduction in energy consumption and CO₂ emissions by 20% per product unit (sq.m. of leather or pair of shoes with the same production)

Much of the work on co-ordinating the investment planning developed quite late in the project – while investments are effectively going on all the time, the bulk of the investments planned during the project were based on the benchmarking, the site audits and the follow up to them, the development of the database on technical solutions and the database on potential sources of finance. While preparatory work was undertaken throughout much of the project, much of the final data on investment plans, results and savings in energy and CO₂ became available only towards the end of the project.

Briefly, regarding the preparatory work, after an initial discussion of content at the 12-month meeting, the investment plan template, on an Excel Spreadsheet was presented at the 18-month meeting, and an additional targeted workshop on its functionality was delivered at the 24-month meeting.

It was generally agreed that the Investment Plan Template provided an excellent tool for assessing the viability of projects, for calculating payback periods and for presenting proposals to potential financial providers where appropriate. However, for reporting and collating investments plans it was considered to be too elaborate for more straightforward operations, and following the 30-month meeting agreement was reached on a simplified and streamlines Investment and Action Plan Template, which partners were asked to use in order to report.

This, in turn, dovetailed very neatly into the Investment Plan Summary, which was extremely useful for monitoring and co-ordinating progress of all the plans on a collective basis.

Regarding company involvement in considering investment in energy efficiency, a total of 250 companies participated in the benchmarking inventory questionnaire and 75 companies were audited, which was the start of discussions about investments. In total, to date, 54 companies are recorded as having prepared investment plans.

Regarding countries outside the project partnership, although there were discussions with tanneries in Sweden, Austria and Slovenia and with the European Footwear Manufacturers

Association, no companies from other countries have so far prepared an investment and action plan.

Regarding the outputs and results for Investment Plans and Energy/CO₂e Savings a summary of the achievements, in terms of investment plans made and savings of primary energy and CO₂e emissions planned and realised during the project is given in the following two tables.

	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

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.

The following table summarises the overview of savings already achieved and planned.

Savings from Plans		
	mio kWh primary	k tonnes 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

This shows that in terms of energy saving and reduction of CO₂e emissions the totals already achieved - 27.03 million kWh primary energy and 7,774 tons of CO₂e - well exceed the target savings of 16.7 million 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.

With these results so far, the target of a 20% reduction by 2020 looks attainable (see also analysis in D7.5).

Main Energy Efficiency Investments

Broadly, during the project, there were identified three broad types of actions or investments that can be taken to improve energy efficiency. These are:

- Low cost/good housekeeping actions – eg active energy management, good maintenance, insulation, use of natural light
- General energy solutions that could be applicable to a wide range of businesses – eg regarding motors, boilers, compressors, on-site power generation
- Solutions specific to the footwear and leather industries – eg process controls, new/improved machines

From the investments plans and savings reported during the project, the main types of investments realised and planned have been:

- 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

This list indicates a wide variety of investments – in terms of varied technologies, variation in capital costs and variation in payback periods.

For example, Cogeneration systems tend to have a high capital costs (€650,000 to €1.5 million was quoted) but they bring substantial efficiencies in electricity generation and heat from the – normally gas burning – process, and have reasonably quick payback times of 3.2-4.2 years.

Similarly, photovoltaic systems are also capital intensive, although they are efficient, but with payback quoted as 8 years.

The efficiency and potential savings from voltage optimisation, probably more than most other types of investment, depend very much on the individual site; a case study quotes €90,000, but with payback in 2 years.

Installing variable speed drives, boiler optimisers and improving compressor use all tend to incur more moderate costs, and still offer payback in as little as 1 year, although each action needs to be assessed separately. Replacing a compressor will give savings, but potentially with a payback of up to 8 years.

Lighting technology, for instance, has improved very significantly over recent years, with LED lights, high efficiency fluorescent tubes and management systems offering large percentage savings in energy and – potentially – rapid payback of as little as 1-2 years. But this will depend on the individual site and whether fittings and wiring need to be upgraded also.

New process technology – such as tanning drums and spray guns – also offer rapid payback of investment, in as little as 12-14 months.

Country by Country analysis

The experience from the project is that the situation for making investments, and the resulting investment plans varies very much from country to country, depending on the general economic situation in the country, the state of the industry, the local sources and systems for finance and the local sources of technical solutions. It is quite noticeable that while Italy dominates the industries in Europe – representing around two thirds of all production – the country has significantly more than this share of investments, measured by value and by energy savings.

Bulgaria

The financial and industry situation in Bulgaria means that companies have little money available for making investments. The most interesting investments for them are short-term investments and costing modest amounts.

Of most interest and the preferred options for funding are the government Operational Programs with EU funding. There is one program for Competitiveness, which was expected to start in early 2015.

Another program is for Energy Efficiency funding but starting dates are still not set for the next application period. Partly, at least, as a result of this only two small investment plans were prepared by Bulgarian companies – these are long term plans without a determined date.

Italy

In Italy, it has been reported that companies prefer to use local financial institutions for loans or investment facilitations, although these may not offer a targeted financing opportunity or instrument dedicated to energy efficiency while tanneries prefer to use self-financing solutions regarding investments.

However, it is clear that in Italy ESCOs (Energy Service Companies) play a prominent role in financing energy efficiency projects in especially for substantial and longer term investments. Through ESCOs, companies can also benefit from credits in energy efficiency, traded on the open Market (White Certificates). ESCOs can assist companies in obtaining credits even for self-financed investments in Energy Efficiency.

Therefore, an ESCO is able to deliver a comprehensive service (diagnostic services, financing, design, installation, management and maintenance of a technology plant). ESCOs are either self-financed or derive funding from external lenders. Briefly, as well as providing advice and other services, the ESCO finances the purchase of the energy efficient system installed, and the operating company grants to the ESCO a fee equal to the difference of the energy bills before and after investment for a number of years, as contractually agreed in advance. Upon contract expiry, the plant/technology becomes the property of the operating company, who, thus, enjoys the benefits achieved.

It is evident that this system has had a significant impact on the number and type –some very substantial investments – of plans realised in Italy, such as the co-generation plants. While ESCOs exist in other countries, they tend to operate with leasing arrangements on commercial terms and the concept is much less developed than in Italy.

Romania

In Romania, companies generally do not have the funds available to invest and in 2012 and 2013, the economy was flat, with demand low and borrowing for investment on hold.

The economy improved in 2014 and companies were more interested in investing and RoSEFF was identified as a potentially very promising instrument. RoSEFF is a financing program developed by the European Union and European Bank for Reconstruction and Development (EBRD).

RoSEFF supports SMEs to invest in energy efficiency and renewable energy, by providing:

- loans through participating financial institutions (banking institutions)
- free technical consultancy
- EU grants

At the same time there has been some availability of EU grants of 40-70% from structural funds and where possible most companies prefer to apply for the programme with the larger non-reimbursable component.

It seems that the availability of this external funding has encouraged Romanian companies to invest and in the footwear and leather sectors together, 34 investment plans have been developed although most of the investments are relatively small, especially when compared with those in Italy.

Portugal

The industries in Portugal have been reasonably buoyant over recent years, although the project coincided with an economic period in which the companies were analysing the international scenarios and to remain competitive, companies needed to invest in the product, export, marketing and sustainability measures. Generally, the country had to restructure with external assistance and there were conflicting demands on credit and funds were sometimes hindered and SMEs had to prioritize.

Finance for industry operates on a more commercial basis in Portugal. Banks' conditions depend on risk assessment and are negotiated directly with the company on a case-by-case basis.

ESCOs (ESEs in Portugal) have made and supported some investments in energy efficient solutions, namely photovoltaic panels, during the years of 2012 and 2013. However, during 2014 regulations were being revised and this led to a reduction in capacity.

National funds were identified but in 2014 the calls were closed since the actual framework programme (QREN) ended and a new one is beginning (PORTUGAL 2020). Calls are planned for 2015 and will certainly promote energy efficiency. Laws and rules were due to be published during the 1st trimester of 2015.

Overall, there were a reasonable number of investment plans in Portugal, although most were low cost or zero cost actions; there were only one or two substantial investments – in photovoltaic systems

Spain

Spain has been experiencing a difficult economic situation over recent years and companies have found it difficult to access credit. There have been no special credit lines for energy efficiency investments. The industries have also been suffering from international competition and have experienced some contraction over the last few years.

Some banks are reported to have special credit lines for industry investments, but they need to assess cases on an individual basis. In addition, there are plans to relocate sections of the industry, and this discourages non-essential investment in the short term.

Not surprisingly investments in Spain have been limited. Most plans are long term and relatively modest in expenditure, comprising mainly improvements in lighting in the footwear sector and just two plans for compressors in the tannin sector.

United Kingdom

The position in the UK is quite mixed. The general economy and the industries have been reasonably buoyant although they still face strong competition. The leather sector has been operating under a national Climate Change Agreement since 2000 and has already reduced its use of energy, per unit of production, by 20% since then; therefore many of the “easy gains” have already been achieved.

Finance is available to potential borrowers, but almost entirely on a commercial basis and under conditions that many of the companies – especially SMEs – are wary of. Many of the investments planned are relatively small scale – on upgrading lighting systems and motors for drums. Some involve new or refurbished machines, where improved energy efficiency is effectively an added benefit. One company has achieved some major improvements, self funded, to meet customer requirements rather than to just improve energy efficiency per se. Another company came to an individual agreement for a mutually beneficial improvement with a neighbouring organisation.

Conclusions and Lessons for the Future

The results of the project so far are impressive in terms of the savings already realised in energy used and CO₂e emitted, when compared with the original targets. But there is still considerable progress to be made regarding plans yet to be started, or completed.

The results suggest two factors – first; where companies have the funding to proceed, they are keen to do so; and second, that companies know what they want to do, but feel constrained by lack of access to finance on a basis that they are happy with. This also suggests that there will be a legacy from the project, with the various tools available to encourage and support new investment plans as economic and investment conditions improve. We would expect further results to be achieved after the project has ended, in addition to the plans already made and not yet realised.

The overall levels of investments made and planned – individual amounts and length of payback – to a large extent reflect access to government or EU assistance, or other advantageous terms (such as offered by Italian ESCOs – who plan and finance equipment until it is paid for).

Apart from these opportunities, a number of barriers to investment have been 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 wherever possible
- 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 in the current economic climate, most companies need to achieve a rapid payback of no more than 2 years
- While the ESCO system is reported to work well in Italy there are some concerns in other countries about the conditions of the lease arrangements, because companies fear losing control of their own businesses
- The economic climate is still an issue, and colours many companies' thinking about accessing finance

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. The information gathered in the project indicates that 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.

As regards lessons for the future, the main message from the project is that public authorities should look at ways of facilitating access by SMEs to new, energy efficient technologies and to sources of finance in order to adopt them. This could be by offering free or subsidised surveys and advice, clearer incentives, or interest-free loans for approved projects, grants or some form of underpinning of ESCO type arrangements. The key for smaller companies is for arrangements to be reasonably simple and straightforward, and without conditions that companies might consider to be threatening should anything go wrong.

It appears that these arrangements are operating to some extent in some countries – the challenge is to disseminate and implement these good practices more widely.