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Procedures and targets

Deliverable 3.3

Implementation procedures and activities

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1 Introduction

1.1 Objective and participants

The objective of PlastVoltage is to prepare and launch a voluntary long-term agreement on energy efficiency for the European plastics converting industry. This project will bring together experience and best practice at national and industry levels, with a view to stimulating a new long-term agreement at European level, resulting in a firm commitment by the sector to achieve long term energy efficiency targets on the European level. Partners – mostly national plastics converters associations - from eight European countries (Belgium, France, Germany, Hungary, Portugal, Spain, The Netherlands and the United Kingdom) directly participate in this project. These countries are significant in the European plastics converting industry, thus they will act as ambassadors in the markets toward increased energy efficiency.

The outcome of PlastVoltage will be a signed voluntary long-term agreement in 2011 on energy efficiency for the plastics converting industry in Europe. Therefore, the direct long-term effect of this project will be cost effective energy savings for the plastics converting industry, in line with the European 20% target for 2020.

Furthermore, this strategic objective will create spin-off effects. On industry basis other European industries are expected to follow the plastics converting example, leading to further industry excellence in energy. At the human level the employees of the targeted companies will be more motivated to achieve greater energy efficiency and in turn to increase energy efficiency in their private life.

It should be noted that the PlastVoltage is unique, and a first initiative ever by an industry to develop a voluntary agreement for energy efficiency on European level. Also, energy efficiency related information needed to develop such an agreement is, if available at all, very variable both in quality and quantity. This applies both to information available on national levels as on European level. Consequently, PlastVoltage will also disclose and structure information on a scale not existing before.

1.2 Scope of this Deliverable

In relation to the pre-study about suitable energy efficiency indicators, policies, voluntary agreement concepts and comparisons of financial aspects (incentives, taxes & investments) versus energy savings (financial & environmental) between countries the WP 3.4 and deliverable D 3.3 should give advice for the next work packages WP 4 and WP 5 Monitoring

Procedures and National Implementation Aspects. The evaluation of the state of the art for voluntary agreements on national level and other branches should even influence WP 6 Long Term Agreement Proposal.

This document is deliverable

- D 3.3: Recommended Implementation Procedures and Activities

The responsible partners for the Deliverable are Fraunhofer (WP leader) and NL Agency (SenterNovem) as co-author. All other partners support the WP leader with information about national implementation procedures.

1.3 Activities

Basically the activities for this deliverable were gathering information from existing legislation, research and dissemination projects and related websites. Projects are running on European Level as well as on National Level. The information gathering was focussed on the following issues, each issue being assigned to one or more of the responsible partners:

- Collection information about implementation procedures on European and national level (all partners)
- Possible implementation procedure and the role of the participants (NL Agency, Fraunhofer)
- Summary report writing (Fraunhofer, NL Agency)

2 Implementation Procedures on European Level

2.1 Concerted Action for the Energy Services Directive (CA ESD)

The **Energy Services Directive (ESD)** was adopted on 5 April 2006. The transposition date for all Member States was 17 May 2008. The overall aim of the ESD is to enhance the cost-effective improvement of energy end-use efficiency. The **Concerted Action for the Energy Services Directive (CA ESD)** was launched by Intelligent Energy Europe (IEE) in May 2008 to provide a structured framework for the exchange of information between the 27 Member States and Croatia during their implementation of the ESD. This active forum will enable each Member State to share its knowledge and experience, and draw on that of others, in order to adopt the most successful approaches towards implementing the Directive and avoid any pitfalls highlighted by others (<http://www.esd-ca.eu>).

The **objectives** of the CA ESD are to enhance and structure the sharing of information and experiences from national implementation and promote good practice concepts in activities to improve and strengthen member states implementation of the ESD and to create favourable conditions for an accelerated degree of convergence of national procedures in ESD related matters.

The work of the CA ESD is structured around **five core themes** covering the key requirements of the ESD:

- **National Energy Efficiency Action Plans**
- The role of the Public Sector
- The role of the Energy Sector
- Auditing, Metering and Billing
- Use of Financial Instruments

The CA ESD is directed solely at the national implementing bodies, as it is designed to contribute to the effective implementation of methodologies and legislation regarding the Directive.

In order to enhance the cost-effective improvement of energy end-use efficiency, the ESD provides the option that Member States (MS) may, amongst other measures, “ensure that **voluntary agreements VA** and/or other market-oriented schemes [...] exist or are set up (ESD Article 6(2)b).

On the basis of Directive 2006/32/EC on end-use energy efficiency and energy services (Energy Service Directive), the Commission plans to draft guidelines, a code of conduct and a certification procedure applicable to all sectors. Member states are required to formulate **National Energy Efficiency Action Plans (NEEAPs)** to implement the ESD Directive on national level. One of the elements in the NEEAP’s can be the introduction of Voluntary Agreements. Most member states have their NEEAP in place, of which several include the VA option.

2.2 Conditions for Successful Voluntary Agreements VA

The culture of co-operation between industry and public administration is the most important pre-condition for a **voluntary agreement VA** to be successful. This could mean that if a good tradition of trustworthy cooperation between the government and the organisations is not part of the administrative history in a given country, it will be difficult and unlikely for an ambitious VA to be successful from the outset. The availability of an adequate budget is also considered very important by most countries.

The success of a VA can be “measured” by some quantitative indicators and an adequate monitoring system should be always envisaged. Most MS with VAs in place consider their VAs to be successful, even though areas for improvement were mentioned. Strong and early involvement from all players is recognised as a success factor. (www.lta-uptake.eu)

The negotiation phase is approached heterogeneously in the different MS: in some countries such a phase doesn’t exist at all whilst in others it is considered to be of great importance.

VAs have no legal basis for implementation in almost all countries at present.

Objectives and targets should be agreed to be as realistic as possible by both parties.

The incentives employed to date were considered effective, above all because they compel companies to stay in the agreement. No MS declared the presence of any direct penalty in their schemes, the real penalty being the pay back of incentives given.

Accompanying measures and the involvement of a neutral agency are also considered important for success.

All the items mentioned have been extracted from success stories and can therefore constitute a good basis upon which to build a new VA. This will be especially useful for countries with little experience in managing VAs, also bearing in mind that any VA must be designed to suit local and specific conditions and requirements and the importance of the long duration of such a commitment (Nino Di Franco, ENEA, (IT), May 2010, www.esd-ca.eu).

According to the **National Energy Efficiency Actions Plans NEEAPs**, voluntary agreements are good practice in the industry of the following EU member states: Belgium, Denmark, Finland, Greece, Netherlands, Portugal, Slovenia, Spain, Sweden and the United Kingdom. (euPlastVoltage, WP 2 Report, Deliverable 2.1-2.3).

2.3 EU Action Plan for Energy Efficiency

The objective of the EU's Action Plan for Energy Efficiency¹ is to control and reduce energy demand and to take targeted action on consumption and supply in order to save 20% of annual consumption of primary energy by 2020 (compared to the energy consumption forecasts for 2020). This objective corresponds to achieving approximately a 1.5% saving per year up to 2020.

The Commission included in the Action Plan all measures presenting the best cost-efficiency ratio, i.e. those with the lowest environmental cost over the life cycle, which do not overrun the budget given for investments in the energy sector. Some are priority measures, and should therefore be adopted without delay, whilst others are to be implemented throughout the six-year period set for the Action Plan.

The Action Plan includes **several types of measures to facilitate investments designed to boost energy efficiency**. The Commission also calls on the banking sector to offer financing opportunities tailored to small and medium enterprises (SMEs) and enterprises providing energy efficiency solutions (businesses providing energy services). In addition, the private banking sector, the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB) and other international financial institutions will facilitate the establishment of public-private partnerships.

In industry and commerce, there are substantial opportunities to use energy more efficiently and thus reduce energy consumption. This helps to protect the climate and cuts costs for

¹ <http://europa.eu/scadplus>

companies. Industry's economically viable potential for energy saving by the year 2020 amounts to between 20 and 40 percent of consumption.

Electrical drive systems alone account for around two-thirds of industry's electricity consumption. The use of electronic speed regulators could cut consumption by 15 percent, thereby saving more than 4000 megawatts - equivalent to the output of three to four large power stations. This potential must be exploited to the full (Values for Germany, www.bmu.de). In Polymer processing electric drives play an important role in energy consumption.

2.4 EU standard for energy management (EN 16001)

A European standard for energy management has been recently issued by the European standardisation issue CEN/CLC/TF. National standardisation institutes implement this standard in member states (euPlastVoltage, WP 2 Report, Deliverable 2.1-2.3).

The standard EN 16001 Energy Management has to be implemented on national level by national standardisation institutes (www.cen.eu). The worldwide standard on energy management will be developed now (based on the EU standard for now) and will be issued as ISO/DIS 50001 (www.iso.org).

3 European collaborative projects for energy efficiency in the polymer industry

Besides the political, legislative and administrative problems in realizing the energy savings in polymer processing the Commission supports the industry in developing tools and guides by funding collaborative dissemination projects. These projects have mainly the goal to support the industry with all necessary technical information to fulfil the European energy saving targets. These tools could be very helpful to stimulate voluntary agreements on national level and international by showing the energy and cost saving possibilities. The National Associations for Plastic Processing should inform widely their members about the project results, outcomes and web tools in forefront of starting voluntary agreement negotiations.

3.1 Reduced Energy Consumption in Plastics Engineering (RECIPE)

RECIPE was 3-year project started in 2005 to support the European plastics processors with the knowledge, justification and tools needed to reduce their energy consumption through the **implementation of best practice and the introduction of new technologies**. This industry comprises more than 27,000 companies (more than 80% SMEs) employing more than one million people, and with total sales of over 100 billion Euros. If it were possible to reduce energy consumption across the industry by 10%, this would result in an annual reduction in CO₂ emissions of more than 3 million tonnes.

Achieved results and deliverables:

- A **European Best Practice Guide** for the plastics processing industry, published in 6 languages, distributed in printed form and made available to download from the project website.
- An **interactive toolkit** to enable companies to evaluate energy consumption and look closely at individual processes within the plant. It will provide guidance on efficiency and highlight key plant areas where the most substantial energy and costs savings can be made most easily.
- A **'Cost of Ownership Model'** to enable processors to calculate the cost of operating a piece of equipment over its projected lifetime, based on energy efficiency and projected usage.

- **Benchmark energy usage in plastics processing companies** across Europe in 2005 to establish where variations exist from 'typical' usage and understand how companies view and manage their energy consumption.

The results of the '**2005 Benchmarking Survey of Energy Consumption and Adoption of Best Practice**' show that there is a low level of energy management awareness within the plastics processing industry. It also demonstrated that there is a need for the RECIPE project in order to increase the understanding of the business benefits of lower energy consumption. The survey has generated enough information to set benchmarks for specific energy consumption across Europe, and enables processors to calculate their own consumption and compare themselves against the European average.

Energy costs are frequently a secondary consideration after machine, staff and material costs within the plastics processing industry. However, energy efficiency should be a key contributor to improving productivity and is an essential part of good management. The documents produced by the RECIPE consortium offer practical advice on how to improve energy efficiency in the industry and will help companies save energy by improving operating practices and procedures. There is a large variation in the cost per unit of energy, types of fuel utilised and attitudes towards energy issues across Europe.

3.2 From design to manufacturing: Instruments for reducing the energy consumption and carbon emissions of the polymer industry and its supply chains (ENER-Plast)

ENER-Plast will provide the European polymer industry and its supply chain industries with the knowledge, justification, information resources and tools needed to reduce their carbon footprint and environmental impact. The project presents a systematic approach to energy management and climate change and cuts through the many complexities to help companies understand and manage their energy consumption (www.enerplast.eu).

Expected and/or achieved results

- A '**European Energy & Environmental Legislation Guide for the European Polymer Industry**'

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

Although the project has not been completed it is possible to draw the following preliminary conclusions:

The legislation survey conducted for the '**European Energy & Environmental Legislation Guide for the European Polymer Industry**' illustrated that there is a substantial amount of legislation that the industry must comply with both at a European and national level. In some cases, there is also regional legislation to comply with.

There is still a lack of awareness in the industry when it comes to legislation. This is demonstrated by the fact that only 58% of respondents to the '**Survey of Attitudes towards, and understanding of, European Environmental and Energy Legislation**' were aware of existing legislation covering energy in their country. Legislation covering CO₂ gets more publicity, but when it comes to Government policy on wider energy issues, industry is not always of these.

There is a need for an industry specific '**Carbon Impact Calculator**'. Following the launch of ENER-Plast there has been a number of enquiries from companies wanting to know how to calculate their carbon emissions and where to go for further information. It is anticipated that the calculator will be an important application for the industry.

ENER-Plast is a timely and important project for the European polymer industry and its supply chains. For example, it was recently reported that UK plastics firms face 100% energy price hikes, (PRW.com, 15/08/08) and in France energy prices are constantly rising at high rates and in 2008 prices rose by approximately 12%. High energy costs and rising raw material prices have made it difficult for many companies to complete. The future of the European industry may depend on how the issue of energy consumption and its increasing cost is managed.

There are a number of companies that are currently leading the way in energy management and energy efficiency within the polymer industry. This has been demonstrated by the number of companies wanting to participate as a **Beacon Company**. These companies are

an excellent example to other organisations as to how they can save energy, reduce their carbon footprint as well as reduce their costs.

3.3 Energy Management Training for European Plastics Processors - ENERGYWISE PLASTICS

ENERGYWISE Plastics, a two-year project funded by the Transfer of Innovation strand of the European Commission's Lifelong Learning Programme, will develop an **elearning platform** and training materials for those working within the plastics industry to increase their knowledge and understanding of energy management.

Using a 'blended learning' approach ENERGYWISE Plastics will **provide interactive online modules and supporting hard-copy resources** focusing on three different areas within an organisation: management, processing and peripherals.

ENERGYWISE Plastics based on the results and content of the energy saving projects RECIPE and ENER-Plast. ENERGYWISE Plastics is managed by iSmithers, working with a consortium of 7 partners from across Europe including the British Plastics Federation, the Danish Technological Institute, ASCAMM (Spain) and Fraunhofer-ICT (Germany) (<http://www.energywiseplastics.eu/>).

3.4 LTA Uptake – Long Term Agreement on Energy Efficiency

The EU LTA Uptake project resulted in a web based toolkit for policymakers, energy agencies and companies/sectors to develop tailor made voluntary agreements. The toolkit is tested and implemented by member states and resulted so far in 3 VA's (www.ltauptake.eu). This toolkit is very useful for implementation of the PlastVoltage VA on national level. (see additional chapter 6).

3.5 BESS -Benchmarking and Energy Management Schemes for SMEs

The primary objective of the project is to promote widespread use of best practice energy management and benchmarking tools and to improve energy efficiency in industrial small and medium-sized enterprises (SMEs), with particular focus on the food and drink industry.

The project website (www.bess-project.info) offers an e-learning scheme which contains all information a company needs for implementing energy management. The developed

handbook is a supportive tool within the BESS project which leads the SME in logical steps through the implementation process of energy management. Most tools which are available within an e-learning scheme are included in a handbook and references to the e-learning scheme are given consequently.

It is recommended to download certain tools like the full energy management checklist or the business case from the website as they contain automatically calculations and data interpretations. Basically the handbook can be used by industrial SMEs of all branches and sectors. It contains horizontal measure lists that are useful for all branches. Sector specific information is offered as a separate attached document. Within the BESS project sector specific information for bakeries, meat processing industries and dairies has been developed.

Five main areas are of interest to be transferred and used in euPlastVoltage:

- Self assessment list
- Book keeping
- Targeting & monitoring
- Measure lists
- Energy action plan
- Benchmark

The web-based BESS toolkit (www.bess-project.info) might be extended to the plastic converting sector. One quick and easy way is by adding the sector specific measure lists and by extending the benchmark application. The project partner NL Agency is still responsible for this toolkit, so the possibilities for the extension of the toolkit should be proofed and discussed. Additional the consortium partners of (ex)BESS - responsible for maintenance etc. - could be involved in due time.

4 Implementation Procedures on National Level

The adoption of the Energy Service Directive in the member states leads to national energy efficiency policy measures and actions. On the ESD-CA website the national reports demonstrate and underline the country specific commitment to energy efficiency policy in general and the national implementation of the ESD in particular (<http://www.esd-ca.eu/Reports/National-Summary-Reports>).

4.1 Example Germany

In **Germany** as an example an important step for the implementation of the ESD is the “Integrated Energy and Climate Program” [Integriertes Energie- und Klimaprogramm (IEKP)] which was introduced by the Federal Government on 23. /24. August 2007 in Meseberg where important key points of the program were decided upon, constituting the so called “Meseberg Resolutions” (Meseberger Beschlüsse). For dealing with the challenges faced in energy and ecology issues, a forward-oriented energy and climate policy has to accomplish a more efficient use of energy as well as more renewable energies, therefore minimising CO₂-emissions with appropriate technologies and change of behaviour. A specification with more concrete measures was conducted by decisions of the cabinet on 5 December 2007 and on 18 June 2008.

The documented measures are in general relevant for the industry. Some of the measures are relevant for the polymer processing industry too. In this chapter part only the relevant measures for the polymer processing industry are summarized. More detailed information could be delivered from the original sources.

In Germany there is a support programme “Special Fund on Energy Efficiency in Small and Medium-Sized Companies“: This fund was established in February 2008 and it provides low interest credits for energy efficiency measures in small and medium-sized companies. Additionally it also provides subsidies for energy audits. The “Special Fund on Energy Efficiency in Small and Medium-Sized Companies“ offers cheap credits to promote investments. Activities saving at least 15% respectively 20% of energy are promoted. 100% of the eligible investment costs are financed, at the maximum 10 Mio Euro. There are more funds for 2009 offered by the measures package of the government, in order that the rate (starting by 1,86%) is particularly attractive and that already this year additional credits amounting to 300 Mio. Euro could be confirmed. (<http://www.kfw-mittelstandsbank.de>).

The legal implementation of remaining issues of the ESD will be accomplished by enacting the planned law on the increase of energy efficiency (**Energieeffizienzgesetz - EnEfG**). This legislation project contains, according to its broad field of applications and in conformity with Article 2 of the ESD, a complex cross-sectional matter with effects on a broad range of topics on the political, societal and economical sphere.

Besides the EnEfG, BMWi has in January 2009 established the **Federal Energy Efficiency Center (Bundesstelle für Energieeffizienz - BfEE)** at the Federal Office of Economics and Export Control (**Bundesamt für Wirtschaft und Ausfuhrkontrolle - BAFA**) in Eschborn.

The main tasks of the BfEE are the following:

- Establishment of a monitoring system for the collection and calculation of the effects of energy efficiency measures in Germany
- Demonstration of the attainment of the ESD energy saving target
- **Preparation of the German national energy efficiency action plans**, covering strategies and measures applied in order to reach the energy saving target of the ESD
- Information of citizens and enterprises on the energy efficiency actions of the public sector
- Support of BMWi in the context of the Energy Demand Management Committee and the Concerted Action

In the course of the EnEfG, it is planned to assign the BfEE with additional tasks in the context of ESD implementation.

"Energy Efficiency Awards" for companies

The "Energy Efficiency Award," which features 30,000 EURO in total, was sponsored within the framework of the Initiative EnergieEffizienz by the Deutsche Energie-Agentur (dena) – the German Energy Agency in collaboration with the "Deutsche Messe" and was presented at the "Hannover Messe". Three companies were recognized with the "2009 Energy Efficiency Award" for their trendsetting projects aimed at increasing energy efficiency.

Permanent Secretary at the Germany Federal Ministry of Economics and Technology Jochen Homann presented the 15,000 EURO first prize to ebm-papst Mulfingen GmbH & Co. KG, a manufacturer of motors and fans. Bosch Brewery GmbH & Co. KG received the second prize, while the third prize went to the chemistry division of Evonik Industries AG. The efficiency projects of all three companies allowed them to achieve above-average cost savings in their manufacturing processes (www.dena.de). Energy Awards are drivers for companies to invest in energy saving measures whilst having a big benefit from the public relation effect.

“Energy Efficiency Round Tables” and “Energy Efficiency Networks”

Coming from Switzerland the idea of round table discussion groups grows up in the last years in Germany leading to energy savings up to 30 % partly and 10% per year in the average. The idea is to bring different companies and branches together to avoid confidently conflicts when sharing information about energy saving measures in the companies.

Companies have to pay a small fee for participation in such an “energy efficiency table”.

(www.30pilot-netzwerke.de).

Energy Efficiency Networks help to discover in companies potential for energy saving and therefore reduce costs. Mostly there are ten to fifteen companies participating in an Energy Efficiency Network. The companies are continuously in interchange and are able to benefit from the experiences of all participants. Thus Energy Efficiency Networks are a useful instrument to promote the energy efficiency in companies. Experiences from Switzerland and the south of Germany show that participating companies can reduce their energy costs by 10 percent. All in all 3 Million Euro of energy costs every year were saved in several networks.

(<http://www.industrie-energieeffizienz.de/energieeffizienz-netzwerke.html>)

1.1 Example UK

The **UK** has a full implementation of the ESD requirements. Full and formal transposition has been completed. (<http://www.esd-ca.eu/content/download/16887/24727/file/UK.pdf>)

The UK Government has published the UK LowCarbon Transition Plan, a route map to a low carbon country. The Transition Plan is the most systematic response to climate change of any major developed economy, and sets standards.

(http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx).

This includes the work of the Carbon Trust the Carbon Reduction Commitment, which stimulates large public and private sector organisations to change behaviour and infrastructure through introducing new financial and reputational drivers, and Climate Change (<http://www.carbontrust.co.uk/Pages/Default.aspx>).

Agreements to incentivise energy intensive businesses to take action to use energy more efficiently are even possible. Great Britain also plans to introduce **smart metering** for all final business, public sector and domestic customers. In May 2009, the Government issued a consultation setting out its approach in detail. In December 2009, the Government responded

to that consultation, and put in train a preparatory programme that is intended to lead to the installation of smart meters in all properties in Great Britain by the end of 2020.

In the industrial sector the largest electricity consumers not already covered by the EU-Emissions Trading Scheme are required to pay a Climate Change Levy, a market orientated scheme. The Climate Change Levy applies to such industrial users of energy who in return for meeting emission limits are entitled to a discount from the Climate Change Levy. In the SME sector along with small user elements of the public sector the Government has entered into Voluntary Agreements with energy suppliers in Great Britain which ensure that final customers are offered energy services. These agreements also cover supplies of fuels other than gas and electricity to residential and commercial customers and public sector. In Northern Ireland, similar Voluntary Agreements have also been entered into with all the eligible fuel sectors covering electricity, gas, heating oil, LPG, solid fuels and renewables through a mixture of agreements with trade associations and individual suppliers that cover the residential and commercial customers and public sectors for all fuel types.

Climate Change Agreement for the Plastics Sector - BPF Energy

In April 2000, the UK Government announced the introduction of a "Climate Change Levy", from April 1st 2001. The Climate Change Levy (CCL) is a tax on the use of energy in industry, commerce and the public sector. There are offsetting cuts in employers' National Insurance Contributions and additional support for energy efficiency schemes and renewable sources of energy. The aim of the CCL is to encourage businesses to become more energy efficient and reduce their greenhouse gas emissions.

The levy is charged on taxable supplies. Taxable supplies are certain supplies of the following taxable commodities:

- electricity
- natural gas as supplied by a gas utility
- petroleum and hydrocarbon gas in a liquid state
- coal and lignite
- coke, and semi-coke of coal or lignite
- petroleum coke

The Department of Energy and Climate Change recognised the need to give special consideration to energy-intensive industries with regards to climate change, given their energy use and their need to compete internationally.

Consequently, energy-intensive industries can obtain an 80 percent discount from the Climate Change Levy, provided they meet challenging targets for improving their energy efficiency or reducing their carbon emissions.

Climate Change Agreements (CCAs) set the terms under which eligible companies may claim the levy reduction.

CCAs have a two-tier structure:

- Sector-level agreements between DECC and the sector or trade association (known as umbrella agreements). These set out sector targets, the sector and DECC's obligations, and the procedures for administering the agreements.
- Individual agreements between DECC and the facility operator (known as underlying agreements). These set out the targets the facility needs to meet, the operator and DECC's obligations, and the procedures for administering the agreements.

In October 2009 the **British Plastics Federation BPF** entered into a **Climate Change Agreement (BPF CCA)** with the **Department of Energy and Climate Change (DECC)** for the plastics sector. The agreement will be administered by BPF Energy Ltd on behalf of the BPF. The qualifying fuels under this agreement are electricity and LPG.

Under the current agreement and depending upon the site's process eligibility, approved sites are able to claim a discount of up to 80% on the **climate change levy (CCL)** featured on their energy provider invoice.

The costs of BPF Energy Ltd administering the scheme on behalf of the BPF are met by charging a one-off joining fee and annual fee to each approved site receiving the CCL discount. BPF Energy Ltd has appointed Inenco (Energy Consultants) to assist them in the administration of the scheme. Entry into the current scheme closed 31/12/09 with 267 sites approved and receiving discount on their climate change levy (CCL).

The content of all UK climate change agreements is currently under review and all sectors are engaged in a consultation process on proposed changes with the Department of Energy and Climate Change. It is unlikely that the form and content of the 'New Scheme' will be

known before autumn 2010, at which time the process for application and approving new sites wishing to join the BPF CCA will be posted on this website

(<http://www.bpf.co.uk/CCA/Default.aspx>).

Under the current CCA scheme, data on production and consumption records to satisfy quantitative requirements of scheme must be submitted to DECC, via the Trade Association, which is submitted annually. Currently, allowing for some underperformance, Carbon Credits can be purchased under the EU Emissions Trading System. How this develops from 2010, is currently under discussion/negotiation with the Government.

The 'baseline year' for the current CCA is 2006. If you fail to meet your target and don't buy allowances to make up the shortfall then you will fall out of the agreement. This then could allow for capture under the CRC Energy Efficiency Scheme (CRC) and loss of discount of CCA. (http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/crc/crc.aspx) ['user guides' are available from this website].

In the **Annex A** a copy of the template for the CCA is depicted. As BPF is a partner in the EUPlastVoltage project this template will be discussed in the consortium for possible adoption.

1.2 Example Spain

In Spain a resolution of February 23, 2010 with disposition dated on 12.03.2010 from the Institute for Energy Diversification and Saving of Energy, laying down the rules and regulations for the call 2010 (**Institute for Energy Diversification and Energy Saving IDEA Program**) to support strategic investment projects in energy saving and efficiency within the Plan 2008-2012 **Action Strategy for Energy Saving and Efficiency in Spain** SMEs which invest in machinery, equipment or other actions which are responsible for significant energy savings, and if it can be shown, may receive financial support, up to 80% of the eligible costs of investment, by the IDEA. It is an opportunity to change equipment and / or to make any deferred investment with minimal cost.

The minimum investment has to be € 500,000 and the maximum of 20 million €. Projects may also occur, at the sector level within these minimum and maximum values, understanding as such a set of projects in companies in the same sector with similar objectives and energy technology, provided that in all such enterprises, they exist in three

different regions. There is no limitation on the number of businesses or investment that each want to do.

1.3 Example Portugal

In Portugal companies have to consider, till now, the following resolutions:

- Resolution from the Council of Ministries (not yet a law) concerning the National Action Plan for Energy Efficiency
- Program for SMEs, supporting renewable energies with the purpose of promoting energy efficiency.

1.4 Example The Netherlands

The Netherlands have made commitments in the Kyoto agreement to reduce its emissions of greenhouse gases by 6% in 2008 – 2012 in comparison to 1990. Energy efficiency improvement will make an important contribution in reaching this objective. Since the early 1990's, the Ministry of Economic Affairs has been making **long-term agreements LTA's** (or covenants) with various energy-intensive sectors as part of Dutch energy policy. The voluntary agreements, or LTA's, are aimed at promoting energy savings in the Netherlands.

LTA is successful

Over the past 15 years LTA1 and LTA2 have led to an overall energy efficiency improvement of more than 2% per year; at the end of 2007 there are more than nine hundred participating companies from almost 30 sectors. LTA is successful. Not only because of the savings percentage. Even more important is the fact that the participants deal with energy in a systematic manner. Energy forms a fixed part of their business operations. Another factor for success: LTA is constantly evolving. The first covenants focused primarily on process efficiency. In LTA2 energy management outside the direct process (chain efficiency) and the use of renewable energy also became an important point of interest for the LTA participants.

LTA3

In 2007 the Dutch cabinet introduced its new policy plans. They included ambitious objectives in the field of climate and energy, set down in the programme of activities entitled 'clean and efficient'. That led to the 'sustainability agreement' in which VNO-NCW, MKB Nederland and LTO make clear agreements with the national government. In the last

15 years LTA proved to be a successful instrument. Due to that fact the LTA participants have decided to intensification, broadening and extending of the LTA2 covenant. That led to LTA3, which has a term of validity until 2020. On 1 July 2008 the LTA2 participants signed LTA3.

Four long-term agreements are implemented in the Netherlands

- **LTA1:** 1999 - 2010 (Supermarkets en Netherlands railways)
- **LEE:** 1999 - 2020 (ETS enterprises)
- **LTA3:** 2001 - 2020 (non-ETS enterprises)
- **LTA-e+:** 2007 - 2011 (Flower bulb growers and mushroom growers)

Information about the agreements is available on the website:

<http://www.senternovem.nl/LTA/index.asp> . In the Annex B the content of LTA3 is depicted.

5 Establishing Energy Management

5.1 EU standard for energy management (EN 16001)

A European standard for energy management has been recently issued by the European standardisation issue CEN/CLC/TF. National standardisation institutes implement this standard in member states. Companies could be certified according to this standard in the future.

EN 16001 represents the latest best practice in energy management building upon existing national standards and initiatives. The standard specifies the requirements for an **Energy Management System EnMS** to enable organizations to develop and implement a policy, identify significant areas of energy consumption and target energy reductions.

EN 16001 is suitable for any organization – whatever the size, sector or geographical location. It is particularly relevant if companies operate in an energy intensive industries or facing GHG emission legislation. (<http://www.bsigroup.com/en/Assessment-and-certification-services/management-systems/Standards-and-Schemes/EN-16001-Energy-Management>)

Benefits of EN 16001 Energy Management

- **Reduce costs**
Reduce energy costs via a structured approach to identifying, measuring and managing your energy consumption.
- **Improve business performance**
Drive greater productivity by identifying technical point solutions and affecting behavioural change to reduce energy consumption.
- **Engage top management**
Position energy management in the boardroom as a key business issue.
- **Comply with legislation**
Meet current or future mandatory energy efficiency targets and/or the requirements of GHG emission reduction legislation.
- **Reduce your GHG emissions**
Meet stakeholder expectations or obligations now and in the future.
- **Formalise energy policy and objectives**
Create respect for the energy management policy and embed energy efficient thinking in your organization.

- **Integrate your management systems**
Align your EnMS with existing management systems for incremental benefit.
- **Secure energy supply**
Understand your energy risk exposure and identify areas of the organization at greatest risk.
- **Drive innovation**
Develop opportunities for new products and services in the low-carbon economy of the future.
- **Flexible and scalable**
Applicable to any organisation, large or small and from any industry.

6 Setting up Energy Monitoring and Benchmarking Schemes

Energy Monitoring Systems provide the ability to monitor electric equipment kWh usage, peak demand, current, active power, reactive power, voltage and total harmonic distortion at remote locations. Then benchmarking is possible and energy reporting and energy demand control over the internet are upcoming possibilities for companies with more than one site.

Benchmarking for small companies is very well described in the [BESS project](#) and on the website. The BESS pilot web-based benchmark application makes it possible to benchmark energy performance against other European participating companies, in an anonymous and confidential way (http://alpha.cres.gr/bess/servlets/bessStatic/en/ex_index.html).

For polymer processing companies in the RECIPE project a manager toolkit was developed to make a benchmark possible for companies in a specific branch like injection moulding, thermoforming, blow moulding or extrusion. The companies have to deliver energy consumption values per year or other time unit and values for the amount of treated or processed material (www.recipe.eu). In most cases the companies only could deliver this kind of information. In **Annex A** you will find the template from BBF for the Climate Change Agreement. With this template a monitoring of the energy consumption in relation to the amount of production is possible.

There is still a gap of information to close for calculating the branch related energy consumption in relation to the amount of material processed as described in Deliverable 3.1 and WP 2 report. The exact information how many polymeric materials are processed with which processing technique is not available. New Monitoring schemes in relation to Energy Efficiency Monitoring should overcome this problem by asking process related material amounts.

In the following work packages in EuPlastVoltage a detailed proposal for the monitoring procedure will be established.

7 The Long Term Voluntary Agreement Process

The EU LTA Uptake project resulted in a web based toolkit for policymakers, energy agencies and companies/sectors to develop tailor made voluntary agreements. The toolkit is tested and implemented by member states and resulted so far in 3 VA's (www.ltauptake.eu). This toolkit is very useful for implementation of the PlastVoltage VA on national level.

First, the EUPC will set up a voluntary agreement with national plastic associations. This agreement we call an 'Umbrella Agreement' (UA), since it also contains possible structures (or recipes) how to implement voluntary agreements (VA) on a national base in a later stage. Both are visualised schematically in the figure below:

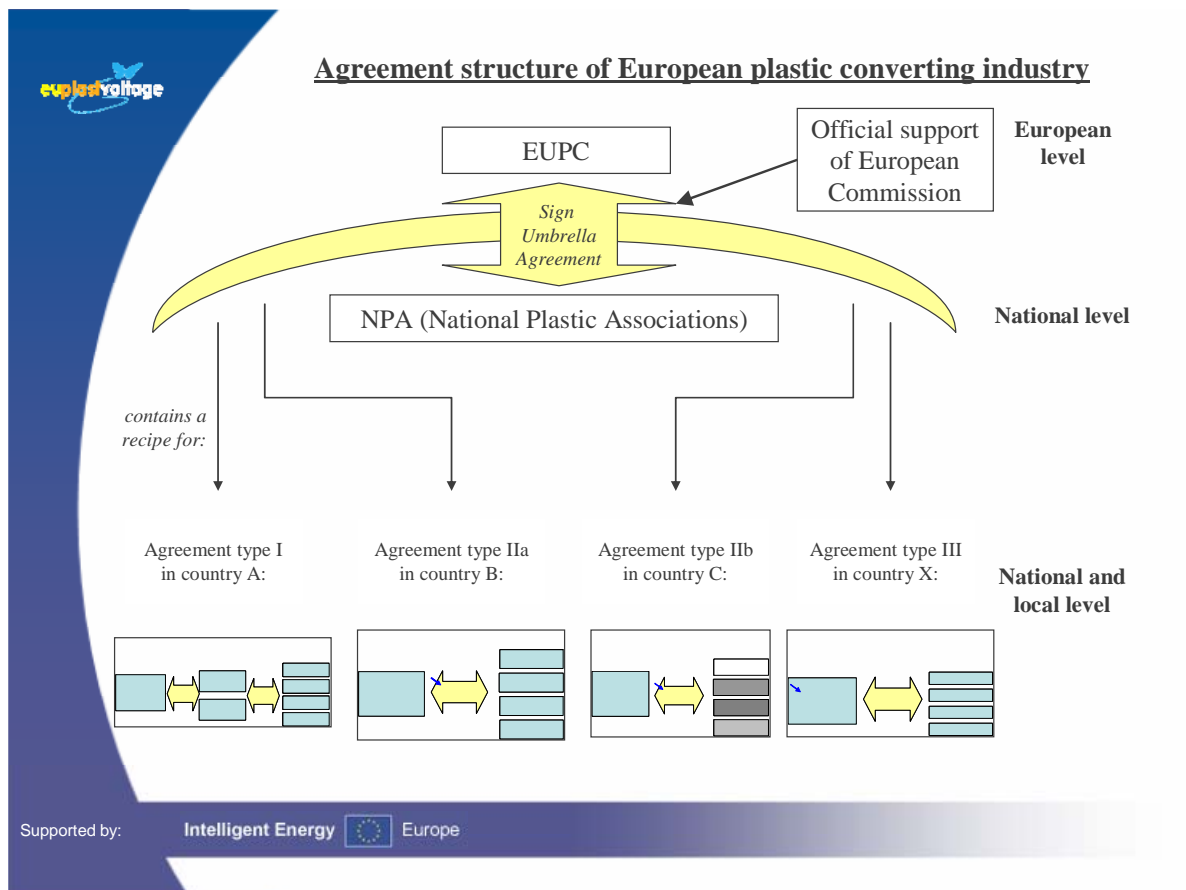


Figure 6.1: European Umbrella Agreement leading to several National Agreement types

As shown, the **Umbrella agreement (UA)** will be signed between the EUPC and preferably all national plastic associations (NPA's). It is aimed to also achieve the 'Official support of the European Commission'. The UA works as an umbrella (as visualised) for all national VAs, which may be different types of agreements. Differences can be e.g. whether the national

authority is involved, or whether the agreement is identical or can be altered for the companies that sign it. More about the possible structures of *national* agreements is explained in Deliverable 2.1.-2.3 which can be inserted as a separate section of the Umbrella Agreement.

Before a Voluntary Agreement VA can be negotiated and established, one should bear in mind that the most important step in the process is to inform and convince all the other parties that are needed in the agreement.

- On a European level this can be the other European NPA's that are not a partner in this EU PlastVoltage project, but are also aimed to sign the UA.
- On a national level this can be the companies that will be asked to sign the agreement or an accession document to it. Or this can be an occasional national government.

Information on this very important initiation and negotiation phases can be found in the www.ltauptake.eu toolkit. In this Deliverable only some focus could be given to:

- The role of the participants in relation to implementation procedures
- LTA planning and implementation timeframe
- **Target setting** and impact assessment calculation examples
- Model table of content for agreement document

All parties involved in the LTA process

Before starting an LTA, key players need to be identified and their roles, tasks and responsibilities need to be determined during preliminary talks between potential partners, resulting in a letter of interest or a letter of intent (LOI). In most cases this is a result of task 'Identification of common will' in the starting phase.

The list of key players is not strictly dedicated to the before mentioned key players. Tasks and responsibilities might be delegated to others as a result of negotiations between the key players. Traditionally there are four types of players in an LTA: authorities, companies, but also sector associations and possibly an independent energy agency or a consulting independent operator.

Authorities and companies are parties to the convention and make commitments within the agreement. The role of **sector associations** may be very different from one country to

another: from implementing the basic promotion of the agreement, up to being in charge of a large part of the administrative burden for the companies, and sometimes collecting data and organising the reporting.

The **energy agency** or independent agency acts as a link between partners, collecting data, providing the methodological support, and ensuring confidentiality of data. In just a few pages, this tool briefly describes the tasks that can be dedicated to those key players, thus allowing you to select the distribution of tasks most suitable for your country. As an example the role for sector associations are described (www.lta-uptake.eu):

Sector association

A sector association or a cluster of associations should represent a large number of companies/ organisations who have reasonably similar characteristics regarding their products, services and production process.

Within the LTA agreement scheme sector association tasks and responsibilities

- proposing sector LTA goals (based on each sector's targets)
- proposing criteria for energy-efficient technology implementation (e.g. payback period < 5 years)
- proposing developments and modifications to the LTA scheme based on a harmonised national/ regional legislative framework
- promoting the LTA to its members to getting as many supporting signatures as possible
- motivating, assisting and supporting its members in actively fulfilling their LTA obligations
- ensuring provision of monitoring and reporting data, relevant to the LTA scheme
- participating in discussion forums regarding LTAs
- guiding and training participants in the wide scope of LTA subjects
- proposing or coordinating the determination of sector-specific measure lists
- encouraging their members to join the agreement
- keeping an up-to-date record of participants and contact persons
- actively inform their members about the development and implementation of the agreement
- providing support and assistance on the implementation of the agreement and on energy efficiency improvements to the participants
- appointing a representative to the board of the agreement

- defining annual sector reporting and data collection, or subcontracting it to (several) representative members or a third party
- providing advice to the enterprises on the reporting procedure
- participating in development and demonstration projects together with other parties
- participating in the development and modification of the agreement scheme together with other parties

Five phases are identified in the development of LTAs: preparation, initiation, negotiation, implementation and evaluation. For each phase a step-by-step list of tasks, defining the tasks for key actors, and sets the terms of the convention is described in the webtool from the LTA-Uptake project. This timeframe could be adopted for the national adoption of the voluntary umbrella agreement.

The **definition of targets** must be linked to the availability of data needed to measure whether or not these targets are met. Targets should be SMART (Specific, Measurable, Appropriate, Realistic and Timed).

8 Issues to be addressed next in EuPlastVoltage

The Deliverable 3.3 shows that there is a lot of European and National implementation of the Energy Service Directive ESD running and on the way. The Voluntary Agreement VA on the national level therefore should be as flexible as possible to incorporate these procedures and the benefits of them in the VA.

The success of the European Umbrella Agreement UA lies in its implementation on national levels, therefore WP 5 (Implementation aspects) is highly important. This Deliverable 3.3 gives the necessary information, about the information sources needed, to be used in the next WP's of the EuPlastVoltage project. Specifically it describes where to find energy saving measures in polymer processing, monitoring and benchmarking templates, and how to find information on time frame and content of national voluntary agreements.

9 ANNEX

9.1 ANNEX A BPF Climate Change Agreement Form

Please complete a separate **BPF1** Form for EACH SITE and return to
climatechange@bpf.co.uk or fax to 020 7972 9006

Contact Details	
Company Name	
Address	Post Code :
Telephone	
Fax	
Email	
Contact Name	

Multiple sites	
How many eligible sites are you completing a BPF1 form for	

SITE DETAILS			
Type of operation – refer to page 2			
Type of products manufactured			
Energy Consumption / Cost in 20XX			
	Electricity	Natural Gas	LPG
Annual Unit Consumption kWh			
Annual Cost £			
Any other Fuels Used			

British Plastics Federation Membership	
Are you a member of the BPF?	Yes <input type="checkbox"/> No <input type="checkbox"/>
In addition to the many benefits of BPF Membership, you will also receive a 50% discount	



on your BPF CCA Partner fees.

If you would like more information please tick this box

Plastics Processes Eligibility: (subject to final approval by DECC's lawyers)

"Plastics processing" refers to the production of a plastics material, or semi-finished or finished products by the application of heat and pressure to, or by a chemical reaction using plastics powder, granules, shredded waste or liquids. The different techniques embraced by this overall process descriptions are:-

Product	* kg produced in 20XX	Product	* kg produced in 20XX
Injection Moulding		EPS (Expanded Polystyrene) Moulding of Shapes and Blocks	
Reaction Injection Moulding		Expandable materials processing (such as Expandable Polystyrene)	
Compression Moulding (including hot and cold press moulding)		Mixing and Compounding	
Transfer Moulding		Calendering	
Structural Foam Moulding		Powder Coating (including Dip Moulding)	
Direct Screw Transfer Moulding (DST) Moulding		Sintering	
Rotational Moulding (Including slush moulding)		Thermoforming (including Vacuum Forming)	
Flexible Foam Moulding (including dual component processing)		Pultrusion	
Blow Moulding by various processes		Filament Winding	
Casting		Spread Coating	
Resin Transfer Moulding			

* Please indicate the weight of product produced in 20XX. If more than one process takes place on the same site, please indicate the production involved in each.

Directly Associated Activities:

Include compressed air, chillers and water pumps.

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