

EN



EUROPEAN COMMISSION

Brussels, 8.3.2011  
SEC(2011) 275 final

**COMMISSION STAFF WORKING PAPER**

***Progress report of the Energy Efficiency Action Plan 2006***

*Accompanying document to the*

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Energy Efficiency Plan 2011**

COM(2010) 109 final

# PROGRESS REPORT OF THE ENERGY EFFICIENCY ACTION PLAN 2006

## TABLE OF CONTENTS

1.	EEAP 2006: Structure and objective .....	3
2.	Achievements in the ten priority actions.....	4
2.1.	Priority action 1: Making products more energy efficient.....	5
2.2.	Priority action 2: Making buildings more energy efficient.....	10
2.3.	Priority action 3: Making power generation and distribution more efficient .....	14
2.4.	Priority action 4: Energy efficiency in transport through higher fuel efficiency of cars .....	19
2.5.	Priority action 5: financing energy efficiency investments for SME and Energy Service Companies (ESCOs) .....	25
2.6.	Priority action 6: spurring energy efficiency in the new Member States.....	29
2.7.	Priority action 7: a coherent use of taxation .....	33
2.8.	Priority action 8: raising energy efficiency awareness .....	35
2.9.	Priority action 9: Energy Efficiency in built-up areas .....	39
2.10.	Priority action 10: Fostering energy efficiency worldwide.....	40
3.	Achievements in energy services .....	43
3.1.	Main objectives of the Energy Services Directive.....	43
3.2.	Level of implementation .....	44
3.3.	Expected impact of the Energy Services Directive.....	45
3.4.	Overall assessment .....	46
4.	Overall contribution of the energy efficiency action plan .....	47
4.1.	General achievements and limitations .....	47
4.2.	Contribution of the EEAP to the energy saving objective in 2020.....	48
4.3.	Way forward – A new Framework on Energy Efficiency Policies.....	48
	Annex 1: Status of EEAP implementation by measure (as of October 2010) .....	50

In the light of Europe's 2020 energy and climate goals, political leaders committed in 2007 to reduce by 20%<sup>1</sup> the EU's primary energy consumption compared to a projection.<sup>2</sup> Ahead of Member States' political endorsement, the Commission had already tabled in October 2006 an Action Plan for Energy Efficiency (EEAP 2006)<sup>3</sup> as a first major step towards achieving the 20% energy saving potential. A midterm review of this Action Plan was foreseen to assess the progress achieved.

The aim of the following report is to present the progress realized with the implementation of the Action Plan until the end of the third quarter of 2010. It will focus on the ten priority actions put forward by the Commission.

Emerging strengths and flaws of the Plan and of its measures will be identified and conclusions will be drawn, serving as valuable input for the new European energy efficiency plan.

## **1. EEAP 2006: STRUCTURE AND OBJECTIVE**

Building on the experience gained with a first Energy Efficiency Action Plan<sup>4</sup> adopted in 2000, the Commission tabled in 2006 a more detailed and all encompassing second Energy Efficiency Action Plan for implementation between 2006 and 2012.

The objective of the EEAP 2006 was to "mobilise the general public and policy-makers at all levels of government, together with market actors, and to transform the internal energy market in a way that provides EU citizens with the globally most energy-efficient infrastructure, buildings, appliances, processes, transport means and energy systems". It also aimed at encouraging citizens to use energy in the most rational manner.

The EEAP is structured into six priority areas covering the main energy-using sectors under which 85 (sub-) measures are grouped. Ten priority actions were selected to be initiated immediately and implemented as soon as possible for maximum effect (see table 1). The portfolio of measures proposed is comprehensive although heterogeneous in terms of

- type (e.g. regulatory, market-based, fiscal, support and information as well as voluntary instruments),
- sectors addressed (buildings, products, services, energy transformation and distribution, transport)
- level of implementation (EU, national, regional, city) and
- stakeholders involved (governments, private sector, citizens).

---

<sup>1</sup> This cost-effective saving potential has been previously estimated by the Commission in its 2005 Green Paper on Energy Efficiency. See COM(2005) 265 final.

<sup>2</sup> 7224/1/07 REV 1: Presidency Conclusions of the European Council of 8/9 March 2007

<sup>3</sup> COM(2006) 545 final

<sup>4</sup> COM(2000) 247 final

In addition to the sectoral approach, cross cutting issues such as energy related behaviour, financing and international cooperation are addressed. This all-encompassing approach of the Action Plan reflects the complexity of tackling energy efficiency through policies and measures.

**Table 1:** Structure of the Energy Efficiency Action Plan 2006

85 (sub-) measures	6 priority areas	10 priority actions
	SECTORS	
<ul style="list-style-type: none"> <li>• <b>Regulatory instruments</b></li> </ul>	<b>Energy-using products</b> <b>Energy services</b>	(1) Appliance & equipment & minimum energy performance standards
	<b>Residential, commercial &amp; public buildings</b>	(2) Building performance requirements and very low energy buildings
<ul style="list-style-type: none"> <li>• <b>Economic &amp; market-based instruments</b></li> </ul>	<b>Energy transformation</b>	(3) Making power generation and distribution more efficient
	<b>Transport</b>	(4) Achieving fuel efficiency of cars
<b>HORIZONTAL ISSUES</b>		
<ul style="list-style-type: none"> <li>• <b>Information &amp; support programs</b></li> <li>• <b>Voluntary actions</b></li> </ul>	<b>Financing</b>	(5) Facilitating financing of energy efficiency investments for SME and Energy Services Companies
	<b>Economic incentives</b>	(6) Spurring energy efficiency in the new MS
	<b>Energy pricing</b>	(7) Coherent use of taxation
	<b>Energy behaviour</b>	(8) Raising energy efficiency awareness (9) Energy efficiency in cities
	<b>International partnerships</b>	(10) Foster energy efficiency worldwide

At the time of adoption, it was estimated that the full implementation of the measures proposed have the potential to reduce primary energy consumption by approximately 14% in 2020<sup>5</sup> compared to a projection. It is worth noting, that the Action Plan itself does not aim at reducing energy consumption by 20% in 2020. To the contrary, it states that further action would subsequently be required to reach this goal by 2020.

## 2. ACHIEVEMENTS IN THE TEN PRIORITY ACTIONS

EEAP 2006 defined ten priority actions covering the main energy-using sectors and key horizontal issues. As mentioned in the introduction, this assessment of the EEAP will focus mainly on the achievements in these ten priority actions.

The findings presented in this report are mainly based on input provided by COM services.<sup>6</sup> The objective is to provide an appraisal of the progress achieved with the implementation of the priority actions. Quantification will be made wherever possible and meaningful, based on expected impacts calculated in impact assessment analysis. Quantifications will be adjusted as best as possible, based on the observed implementation reality. It is important to understand the quantifications provided as rough estimates which cannot simply be added to give an overall impact. It is proposed to look at the progress made in each priority action separately and to provide an overall assessment of the EEAP's impact based on the energy model PRIMES.

<sup>5</sup> SEC(2006) 1174, SEC(2006) 1175

<sup>6</sup> Interservice Steering Group on Energy Efficiency and Joint Research Center of the Commission

A question into which this assessment will not look further is whether the absolute energy savings realised by energy efficiency gains in buildings, products, cars, etc. could be possibly offset by growing disposable incomes translating *inter alia* into more products and cars owned, and increases in thermal comfort, leisure activities and travelling distances. This is the so-called "rebound" effect. It has been assessed that for most consumer energy services in OECD countries, this effect is unlikely to exceed 30%.<sup>7</sup> As this effect would be relevant for every energy efficiency improvement measure and its order of magnitude depends strongly on the end-use sector, policy makers should in general reflect on it when designing policies, but this aspect will not be taken into account in this evaluation exercise.

## **2.1. Priority action 1: Making products more energy efficient**

Households consume approximately a quarter of total final energy and 30% of total electricity. Heating systems, cold appliances (refrigerators and freezers), lighting and water heating systems are responsible for more than half of the electricity consumed in households.<sup>8</sup> Energy consumption can be significantly lowered in a cost-effective way through a set of policies transforming the market towards more energy efficient products. The setting of minimum efficiency and labelling requirements is widely recognized as one of the most effective policy tools in the area of energy efficiency.

Against this background, the Action Plan defined as its first priority action for the Commission to update the labelling and energy performance standards for appliances and other energy-using products on the basis of the Labelling and Ecodesign Directives. To this end, the Commission committed to:

- Adopt ecodesign requirements for 14 priority product groups<sup>9</sup> with a view to having all of them approved by the end of 2008 (2.1.1);
- Revise the Framework Directive 92/75/EC on Labelling to reinforce its effectiveness and to upgrade the existing Labelling classifications (2.1.2).

The labelling and the setting of minimum energy performance standards for products are complementary policies, i.e. products covered by implementing measures adopted under the Ecodesign Directive are generally mirrored in the implementing measures adopted under the Energy Labelling Directive. This leads to reinforced impacts of the two legal instruments since minimum standards drive out poorly performing energy products from the markets, while labels provide transparency and information to consumers, indirectly encouraging innovation and development of best performers.

### **2.1.1. Selected eco-design requirements for 14 product groups**

The Ecodesign Directive (2009/125/EC) provides the framework for setting minimum performance requirements for environmental aspects of energy-using and energy-related products that are placed onto the market. Although products are assessed with a lifecycle perspective, energy consumption during use is generally the main environmental impact of the product. The requirements for each product are set by means of implementing measures

---

<sup>7</sup> UK ERC (2008): The Rebound Effect: an assessment of the evidence for economy-wide energy savings from improved energy efficiency.

<sup>8</sup> Bertoldi, P. and Atanasiu, B. (2009): Electricity consumption and efficiency trends in the European Union - Status Report 2009. European Commission, JRC Ispra.

<sup>9</sup> Product groups: Boilers, water heaters, computers, imaging, televisions, standby, chargers, office lighting, street lighting, room air, motors, cold commercial, cold domestic and washing.

adopted by the Commission assisted by a regulatory committee (pre-Lisbon legislation). Implementing measures are Commission regulations which are directly applicable and do not require transposition into national law. National authorities are responsible for market surveillance. These authorities verify that all products (including imports) placed on the market and/or put into service meet the specific ecodesign requirements for that product.

The implementing measures seek to target both manufacturers and consumers, by promoting better product design that will result in improved environmental performance, lower energy consumption, and ultimately lower costs. Thus, the individual measures either directly or indirectly affect all EU citizens as well as virtually all EU industry or retail sectors through the design, manufacture, sale and use of products covered by the requirements.

The original Ecodesign Directive (2005/32/EC) has been transposed by all Member States and the transposition of its 2009 recast will necessitate a mere adaptation of national law. As it stands today, the implementation of the Ecodesign Directive is progressing well. In line with the requirements defined in priority action 1 of the EEAP, implementing regulations **have been adopted in 9 of the selected 14 priority groups**, covering domestic, industrial and commercial appliances.

The expected savings achieved by the implementation of the Ecodesign Directive and its implementing measures in 2010 are negligible. This is due to the fact that the ecodesign measures are largely starting to enter into effect from 2010 onwards and will then take some years for their effect to be felt fully (as existing products are replaced during their normal life-cycles). Nonetheless, some products meeting ecodesign requirements will already be on the market in advance of mandatory implementation dates, delivering environmental benefits. It should be noted that energy saving gains from the purchasing of energy-efficient appliances will have a cumulative effect and are not simply 'one-off' savings – thus, earlier implementation of standards by industry is of added value. Certain measures such as requirements for the standby consumption of electric appliances will also have an effect beyond the EU as manufacturers of goods traded worldwide will implement the same technology on all their models irrespective where they will be shipped.

The implementation of the nine measures adopted thus far has been estimated to deliver up to **341 terawatt hours (TWh)** of energy savings by 2020 (equating to **70 million tonnes of oil equivalent (Mtoe) primary energy savings<sup>10)</sup>**, which is equivalent to circa 12% of the current EU's total electricity consumption. The estimated savings are detailed in table 2.<sup>11</sup>

These saving figures include the combined effect of Ecodesign and labelling as well as installation requirements under the Recast Energy Performance of Buildings Directive<sup>12</sup>, where applicable. These energy savings will be supplemented as further implementing measures are adopted. For 2010 and 2011, priority implementing measures covering boilers, water heaters and air conditioners will be adopted, estimated to generate savings of a further 102 Mtoe in 2020, if all are adopted in full.

---

<sup>10</sup> The conversion from final electricity consumption expressed in TWh into primary energy consumption expressed in Mtoe is based on the generally accepted assumption that there is a 40% efficiency rate for the generation and transmission of electricity. 1 TWh electricity consumption = 2,5 TWh primary energy consumption = 0,215 Mtoe.

<sup>11</sup> See results of studies carried out at: [http://ec.europa.eu/energy/efficiency/studies/ecodesign\\_en.htm](http://ec.europa.eu/energy/efficiency/studies/ecodesign_en.htm)

<sup>12</sup> 2010/31/EU

**Table 2:** Adopted implementing measures ranked by expected savings in 2020

Implementing measure	Regulation	Date of application <sup>13</sup>	Estimated savings by 2020, TWh
1. Electric motors	640/2009	16.06.2011	140
2. Televisions	624/2009	20.08.2010	43
3. Street & office lighting	245/2009	13.04.2010	38
4. Domestic lighting	244/2009	01.09.2009	37
5. Standby & off mode electrical power consumption	1275/2008	08.01.2010	35
6. Glandless circulators	641/2009	01.01.2013	27
7. External power supplies	278/2009	27.04.2010	9
8. Domestic fridges & freezers	643/2009	01.07.2010	6
9. Simple set-top boxes	107/2009	25.02.2010	6
<b>TOTAL</b>			<b>341</b>

Source: [http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/product-groups/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/product-groups/index_en.htm)

### 2.1.2. Implementation and revision of the Labelling Directive

The Labelling Directive 92/75/EEC requires manufacturers to declare the energy efficiency class of their product and to have it displayed by means of a label at the point of sale (e.g. shops). With the Labelling Directive, the energy label became a key instrument for fostering energy efficient products.

The labelling classes for each type of appliance are set by means of implementing measures adopted by the Commission. The measures seek to target consumers by providing potential purchasers of household appliances with comparable and credible standardised information on the actual efficiency performance of the products when in use. This helps consumers to make an informed purchasing decision. It thus indirectly targets manufacturers who will be influenced by the effects that the labelling has on sales of designs.

The framework Directive has applied from July 1993. Implementation of the Labelling Directive has proven to be so successful in stimulating manufacturers to build class A appliances that higher classes are needed for most appliances. Thus, it can be shown that, as a direct result of this legislation, manufacturers have brought onto the market energy-efficient products.<sup>14</sup> The model of labelling has been copied by other countries worldwide, suggesting that the measure is effective.

In addition to the implementation of the Labelling Directive, the Commission proposed its recast as a priority for immediate action, with the aim of:

- Extending its scope beyond household appliances to include industrial and commercial equipment;
- Extending its scope to energy-related products (those which do not consume energy but contribute to energy conservation when in use (e.g. insulated windows));

<sup>13</sup> The dates are related to the time of application of the first stage requirement. The multiple dates of application, ranging between end 2009 and beginning 2013, allow performance requirements to be raised on an incremental basis and industry to adapt product design.

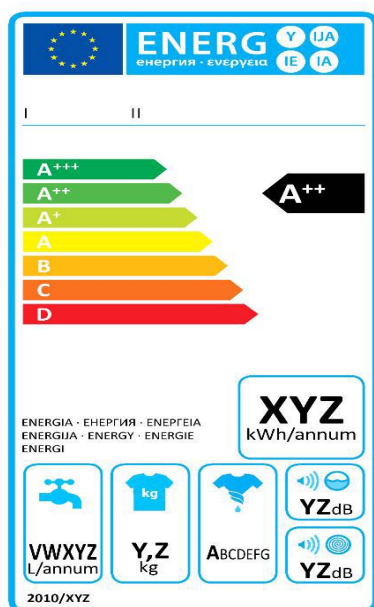
<sup>14</sup> For the successful market transformation towards higher penetration rates of energy efficient cold appliances, washing machines and dishwashers see Bertoldi, P. and Atanasiu, B. (2009): Electricity consumption and efficiency trends in the European Union - Status Report 2009. European Commission, JRC Ispra.



- Upgrading existing labelling classifications;
- Linking the Directive to public procurement;
- Strengthening provisions linked to advertisement.

With the recast Directive 2010/30/EU adopted by the European Parliament in May 2010, the scope of the Energy Labelling Directive has been aligned with the scope of the revised Ecodesign Directive, which was already extended to energy-related products in 2009. In line with the priority action defined by the EEAP, the recast of the Labelling Directive extends the new labelling scheme to a wider range of products in the commercial and industrial sector, including energy-using and energy-related products. It is also the legal basis to extend the scope to other consumer products such as televisions, water heaters and boilers. With the adoption of the revision the existing labelling classification for each product will be upgraded through delegated acts. The revision sets out that the label is to be based on a A to G scale, a maximum of 3 more classes may be added on top of class A and these new classes will be named A+, A++ and A+++.

**Figure 1:** New label layout for washing machines



The following delegated acts for the household sector were adopted by the Commission in September 2010:

- Televisions
- Household electric refrigerators, freezers and their combinations
- Household washing machines and dishwashers

In the course of 2011 delegated acts on boilers, air-conditioners, water heaters and laundry dryers will follow. An updated label on lighting will be adopted in 2011.

Future products to be legislated in the near future are e.g. commercial refrigerators, vending machines and display cabinets in the commercial sector.

It is estimated that the full implementation of the Labelling Directive results in energy savings corresponding to **27 Mtoe annually by 2020.**

The EU's energy labelling requirements can lead to some increase in operating costs for manufacturers and retailers. However, at least in the case of white goods manufacturing, operations have become more profitable, costs reduced and the efficiency improved with help of technological development and guidance towards more efficient and profitable appliances by the energy label, despite the fears of manufacturers when the policy action was initially introduced in the nineties.<sup>15</sup>

### **2.1.3. Making products more energy efficient: overall assessment of the priority action**

The first priority action has been initiated and implemented with success, though with some delays regarding the original timeline for the adoption of the ecodesign requirements. This delay was mainly due to an overly ambitious time table given the available resources. It will have a substantial impact by 2020. The impact could be further enhanced with appropriate information on products running costs to consumers *inter alia* with trained salespersons in retail shops.

Two possible issues could reduce the expected impact of European product policies: the rebound effect and the absence of proper enforcement (market surveillance) by Member States (MS) to ensure that products placed on their national markets meet the ecodesign and energy labelling requirements. For the second issue, an administrative cooperation group between MS market surveillance authorities has been set up by the Commission in order to ensure a proper enforcement of this policy. The rebound effect will be difficult to overcome, as it is inherent to any policy measures tackling efficient uses of energy in products and not energy behaviours, i.e. limiting the quantity of products used.

Further work will be carried out in the next years to prepare and adopt further ecodesign implementing measures for additional product groups, reflecting *inter alia* the 2009 revision of the Ecodesign Directive to cover energy-related products, i.e. products which can directly or indirectly affect energy consumption. As a complementary policy, labelling requirements for the same product groups will be adopted in parallel whenever possible and meaningful.

### **2.1.4. Other product related measures**

In addition to the measures explicitly mentioned as priority actions, other product related measures were put forward by the EEAP 2006 and implemented:

- The implementation and amendment of the Energy Star Agreement on office equipment has been finalized. A new 5-year Energy Star Agreement was concluded between the EU and the US in the end of 2006. The impact of the Programme has been reinforced by the provisions of Regulation (EC) 106/2008 which obliges central government authorities of Member States and EU institutions to procure equipment not less efficient than Energy Star. Criteria for computers, displays and imaging equipment have been strengthened and are expected to trigger about 30 TWh annual savings by 2020. Criteria for additional product groups, including servers, data storage, and small network equipment are being developed and should become applicable in 2011 and 2012.
- The adoption of voluntary agreements with manufacturers on ecodesign requirements for the product groups of complex set-top boxes, imaging equipment, machine tools and

---

<sup>15</sup> SEC(2008) 2862

medical imaging equipment is on the way. A first agreement on complex set-top boxes is about to be finalized.

## **2.2. Priority action 2: Making buildings more energy efficient**

Energy used in residential, commercial and public buildings for space and water heating, cooling, ventilation, lighting, etc. makes up 40% of the EU's final energy consumption. The major Community legislation addressing the energy performance of buildings is the Energy Performance of Buildings Directive (EPBD) of 2002. The Action Plan tackles energy efficiency in buildings by pushing for the full implementation of the EPBD and by putting forward its revision - as the second priority action. To this end, the EEAP included the following measures to make buildings more energy efficient:

- Expanding substantially the scope of the Directive to include the majority of buildings;
- Proposing EU minimum performance requirements for new and renovated buildings;
- Developing in collaboration with the buildings sector a strategy for very low energy or passive houses by the end of 2008;
- Setting a good example by leading the way, as far as the Commission's own buildings are concerned.

Before considering progress achieved in the realisation of this second priority action, it is necessary to provide an overview of the implementation status of the 2002 EPBD, as one important measure of the Action Plan and as a logical element leading to its recast.

### **2.2.1. Implementation status of 2002 Energy Performance of Buildings Directive**

The Energy Performance of Buildings Directive (2002/91/EC) was adopted in 2002. Its main objective is the promotion of cost-effective improvement in the overall energy performance of buildings, whilst taking into account local conditions and requirements. It covers energy needs for space and water heating, cooling, ventilation and lighting. It does not fix concrete EU-wide minimum energy performance requirements, but obliges MS to define comprehensive methodologies, requirements and inspection and certification regimes to rate the energy performance of buildings at a national/regional level.

MS had to transpose the Directive by January 2006. For certain provisions, an additional period of three years could be applied, i.e. until January 2009<sup>16</sup>, which most MS opted for. In practical terms MS thus had effectively up to 7 years to fully implement this legislation. Despite this long period of time, EPBD implementation has to be seen as in continuous progress since not all countries have yet fulfilled all the requirements to their full extent. As a result of a thorough conformity check analysis carried out by the Commission on the transposition of the Directive in national legislation, clarification needs have been identified in 15 MS.

When considering impacts achieved, one of the key merits of the EPBD has been to bring the relevance of energy efficiency in buildings onto political agendas, integrate it into building codes and improve its visibility for citizens. Implementing the EPBD has been a major challenge for many MS. Indeed, prior to its adoption in 2002, about ten Member States did

---

<sup>16</sup> Upon notification to the Commission, MS could, because of lack of qualified and/or accredited experts, have an additional period of three years to apply fully the provisions of Articles 7, 8 and 9 (i.e. until 4.1.2009).

not have regulations in place addressing energy consumption in buildings. There are several countries with success stories showing a major change in the energy performance of their new building stock as well as regarding market uptake of innovative systems and technologies, where the EPBD regulations have had a catalysing effect.<sup>17</sup> It is very likely that in the absence of the EPBD, the situation would have remained in most MS as it was prior to 2002.<sup>18</sup>

The following major achievements have been triggered by the adoption of the EPBD:

- Establishment of a common understanding among all 27 MS on how to set minimum energy performance requirements<sup>19</sup> and on how to calculate the energy performance of buildings;
- Average tightening of energy performance requirements by 15 % to 30%;<sup>20</sup>
- Improved comfort level and indoor air quality in houses;
- Development of 31 building related CEN standards, which can be promoted internationally and facilitate market entrance for European companies in e.g. China, India and the US. The EPBD is perceived as the most ambitious and comprehensive building legislation worldwide;
- Introduction of a Concerted Action<sup>21</sup> to assist MS in their implementation process and facilitate the exchange of best practices and lessons learned in this complex and fragmented area;
- Enhanced data collection on the quality of the EU building stock through the certificate scheme.

Alongside the positive developments witnessed in the buildings sector across Europe, it is also important to draw the attention to the main shortcomings identified in the implementation process of the Directive as well as in the legal provisions themselves, which led to delays in transposition:<sup>22</sup>

- Ambiguous formulations of some legal provisions in the Directive lead to different implementation practice in the MS;
- Limited scope of the Directive: in relation to renovation<sup>23</sup> it addresses only 28% of the existing buildings stock;<sup>24</sup>
- Some MS were not well prepared to meet the level of complexity set out in the Directive; this led to limited or insufficient resources foreseen for implementation;
- Low level of ambition in the implementation process;<sup>25</sup>

---

<sup>17</sup> For a country specific assessment of EPBD implementation see EC (2008): EPBD Buildings Platform - Country reports 2008.

<sup>18</sup> This assessment is confirmed by many stakeholder associations in their reports, e.g. the report of the Royal Institution of Chartered Surveyors (RICS) "Towards an Energy Efficient European Building Stock" of December 2009.

<sup>19</sup> U-values are now commonly used for building elements and kWh/m<sup>2</sup> values for full refurbishments/new built.

<sup>20</sup> INIVE (2010): Stimulating increased energy efficiency and better buildings ventilation, p. 118.

<sup>21</sup> It has been initiated in 2005. This network/platform had a positive impact on effective, speedy and powerful implementation of the provisions of the 2002 EPBD.

<sup>22</sup> See SEC(2008) 2864; eceee (2009): eceee views on the Energy Performance of Buildings Directive recast proposal.

<sup>23</sup> EPBD provisions call on MS to require that certain minimum energy performance levels are met when existing buildings above 1000 m<sup>2</sup> undergo a major renovation. However, in a number of Member States, this 1000 m<sup>2</sup> threshold has been lowered or abolished so that all buildings that undergo major renovation have to fulfil certain energy performance requirements.

<sup>24</sup> Reference to the building stock of EU-15, as the EPBD was adopted in 2002.

- Weak mechanisms for feedback and for ensuring compliance.

The first of two of these limitations of the EPBD were addressed in the recast proposal tabled by the Commission at the end of 2008.

### 2.2.2. Recast of the Energy Performance of Buildings Directive

The Action Plan identified the recast of the 2002 EPBD as the key priority action in the building sector. The objectives were defined as substantially expanding the Directive's scope, proposing minimum EU performance requirements for new and existing buildings, and developing a deployment strategy for very low energy or passive houses.

The Commission tabled the EPBD recast proposal in November 2008.<sup>26</sup> The European Parliament and the Council agreed on a recast Directive in May 2010 and the new legislation entered into force in July 2010.<sup>27</sup> MS must transpose the new Directive from July 2012. The objectives for the recast set out in the EEAP were addressed as follows:

- **Scope:** The scope has been extended to include basically all existing and new buildings, as the 1000 m<sup>2</sup> threshold was abolished in all relevant articles. However, MS have the possibility not to apply minimum performance requirements for certain categories of buildings such as industrial sites and historical buildings.<sup>28</sup>
- **Setting harmonised minimum energy performance requirements at EU level for new and renovated buildings:** This proposal of the EEAP 2006 proved to be unfeasible given the important differences in prevailing calculation methods defining the energy performance of a building.<sup>29</sup> In addition, local conditions (e.g. climate, culture, history) shaping the features of the building stock in each country seemed to be too disparate to allow for meaningful harmonized minimum energy performance requirements at EU level. This issue was solved in the recast by introducing an obligation on MS to perform a cost effectiveness assessment in order to set cost-optimal minimum requirements.<sup>30</sup> This minimum performance level is to be calculated based on a comparative methodology framework, which is to be defined in detail under a Comitology process in 2010-2011. In the years up to 2020, a (comparative) benchmarking method will be applied to set standards for all buildings, existing and new ones. From 2020 on, 'nearly zero energy'<sup>31</sup> standards' will be applied for new buildings (from 2019 for new public buildings).

---

<sup>25</sup> Experience with certificates shows that some are of very poor quality and do not provide sufficient nor correct information, raising questions about their overall usefulness. Similar limitations results from the inspections schemes for boilers and air-conditioning systems, as their role has not been properly defined in the Directive. Further, the energy performance requirements set by MS do not fully meet expectation with regard to their level of ambition. At present there are many MS that do not have cost-optimal requirements.

<sup>26</sup> COM(2008) 780. The original planning foresaw a proposal for 2009.

<sup>27</sup> Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010.

<sup>28</sup> Article 4(2) of Directive 2010/31/EU

<sup>29</sup> See INIVE (2010): Stimulating increased energy efficiency and better building ventilation, p.72-75.

<sup>30</sup> This means the energy performance level which leads to the lowest cost during the estimated lifecycle. See definition 14 in Article 2 of Directive 2010/31/EU.

<sup>31</sup> A nearly zero-energy building has a very high energy performance and the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site nearby. See definition 2 in Article 2 of Directive 2010/31/EU.

- **Strategy for very low energy or passive houses:** The EEAP proposed that the Commission takes "the necessary steps, in collaboration with the building sector, to develop a deployment strategy, with a view to moving towards this type of house as a standard in new construction in the medium term, as the appropriate technologies become commercially available". The recast chose a different approach by introducing a provision to ensure that as of January 2021 all new buildings will be nearly zero-energy buildings.<sup>32</sup> In addition, MS will have to draw up national plans on how to increase the number of nearly zero-energy buildings in their country taking into account their relative starting positions and national circumstances. These national plans are to set intermediate targets for 2015. Further information on the policies and financial or other measures adopted to promote nearly zero-energy buildings have to be included. As regards the existing building stock, MS need to develop policies and take measures (e.g. targets) in order to stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings. The plans will be evaluated by the Commission, based on which a report will be published reflecting the progress made by MS in increasing the number of nearly zero-energy buildings. On the basis of this report, the Commission will develop an action plan and, if necessary, propose measures to increase the number of those buildings and encourage best practices as regards the cost-effective transformation of existing buildings into nearly zero-energy buildings.<sup>33</sup>

### **2.2.3. Exemplary role of the public sector to tackle Commission's own buildings**

The Commission committed itself as a public authority to set a good example by leading the way with its own buildings. The objective was to certify all Commission buildings within the EMAS system and to extend EMAS certification to other EU institutions. As of September 2010, almost 40% of Commission's buildings in Brussels are EMAS registered and the remaining buildings will be gradually certified until 2014.<sup>34</sup> Further, energy efficiency and legal conformity is now integral part of the procurement procedures for new buildings. The European Parliament is EMAS registered for their three sites in Brussels, Luxembourg and Strasbourg. The Committee of Regions and the Economic and Social Committee are starting the implementation of an Environmental management system in line with EMAS while the Council has not yet started registration activities of its buildings.

In this light, the exemplary role of public authorities has also been explicitly tackled in the recast of the EPBD. Indeed, from 2019, public authorities that occupy and own a new building shall ensure that the building is a nearly zero-energy building. Public authorities should become early adopters of energy efficiency improvements measures and should implement the recommendations included in the energy performance certificate as soon as feasible.

### **2.2.4. Making buildings more energy efficient: overall assessment**

The priority action defined for the building sector has been successfully initiated in the course of 2008 and finalized in November 2008 with a recast proposal tabled by the Commission for the 2002 EPBD. The recast EPBD is expected to have a major impact on the future final energy consumption in buildings. Next to reducing energy consumption, the renovation

---

<sup>32</sup> For the public sector this provision needs to be implemented already 2 years earlier.

<sup>33</sup> See Article 9 of Directive 2010/31/EU.

<sup>34</sup> Nine additional buildings will be registered with EMAS in 2010.

process of the existing building stock as well as the construction of nearly zero-energy houses will have significant quantitative and qualitative impacts on employment. The impact assessment accompanying the EPBD recast proposal estimated a positive direct job effect of up to 450,000 new employments in the construction sector. The key benefit of these job creations is that they are benefiting local businesses, many of which are SMEs. In order to deliver the "deep" renovations in terms of improved energy performance and the roll out of new nearly zero-energy buildings the qualifications of the involved workforce need to be strongly improved through adequate professional training measures and adapted university curricula. The higher level of qualifications of the workforce as well as the acquired knowledge on state-of-the-art low energy buildings will bring an additional competitive edge to the European building industry.

The impacts of the recast EPBD will materialize only in a few years time. However, some factors could further enhance the implementation process in MS, such as the EPBD Concerted Action, dedicated financial incentives (e.g. tax-exemptions, green mortgages) as well as the allocation of European Regional Development Funds<sup>35</sup> for energy-efficiency improvements and renewable energy measures in housing (see 3.6).

All in all, energy consumption in the building sector will only be drastically reduced when the building stock of today, which also reflects to a great extent the future building stock in 2050 (renovation rate averaging 1% to 2% across MS) is effectively transformed towards low energy buildings. Increasing the renovation rate of existing building is the key. The recast EPBD is an important step forward, as it sets the legal framework. Beyond all, owners (public commercial and residential) need to be strongly incentivized to invest in improving the energy performance of their buildings. Innovative financing concepts and skilled construction workforce are needed to realise the needed transformation until 2050. In the coming 10 years, the course needs to be set. The public sector could lead by example by starting the renovation process in its own buildings.

### **2.3. Priority action 3: Making power generation and distribution more efficient**

The third priority area for action is power generation and distribution. About 30% of the EU's primary energy consumption is consumed by the energy sector, mainly for transforming energy into electricity and heat, and for distributing it. The average transformation efficiency for electricity generation is of around 40%. Further, losses in the transmission and distribution of electricity are referred to be often as high as 10%. Consequently, the EEAP 2006 concluded that this sector had a large potential for energy savings and defined as priority action for immediate initiation to make power generation and distribution more efficient. For this purpose, the Commission intended to:

- Develop minimum binding efficiency requirements for new electricity, heating and cooling capacity lower than 20 MW and consider, if necessary, such requirements for larger production units (2.3.1);

---

<sup>35</sup> Since May 2009, all MS have the opportunity to use up to 4% of their allocation from the European Regional Development Fund for energy-efficiency improvements and renewable energy measures in existing housing so as to support social cohesion, i.e. the EU can co-finance national or regional schemes to promote the installation of double glazing, wall insulation or solar panels. Previous legislation gave only new MS limited possibilities to use support from the ERDF for housing. It however remains to be seen to what extent these new possibilities will be used.

- Develop with the energy supply industry guidelines on good operating practices for existing capacity to raise average generation efficiency for all plants (2.3.2);
- Agree on guidelines on good regulatory practices to reduce transmission and distribution losses (2.3.3);
- Propose a new regulatory framework to promote the connection of decentralised generation (2.3.4).

In addition to Priority Action 3 other measures were listed in the Annex to the Communication on the EEAP 2006. These measures could be summarised as actions to implement, amend and improve the Directive 2004/8/EC on the promotion of Cogeneration.

### **2.3.1. Minimum binding efficiency requirements for new electricity, heating and cooling capacity lower than 20MW and larger production units**

The threshold of 20 MW was set to address generation which is not covered by the EU emissions trading scheme (ETS). This specific measure requires addressing a large number of different, often custom-made equipments and production units, the efficiency of which to a great extent depends on the system they are part of. Such efficiency measures are costly to develop and create a risk of being too stringent (command and control measure) and not well-adapted to fast changing technical solutions. Since the cost of such measures risk to be larger than the benefits, efforts have been spent on other, more cost-effective energy efficiency measures that should be exploited first. For that reason, the measure has not been concluded, but may become timely at a later stage, when other options have been exploited.

Nevertheless, efforts have been made to address energy efficiency in combustion installations. In the context of the Integrated Pollution Prevention and Control Directive 2008/1/EC (IPPC), all installations with a rated thermal input of above 50 MW have to be operated in such a way that energy is used efficiently, and one of the issues to be taken into account in determining Best Available Techniques (BAT) for a process is its energy efficiency. In order to promote the energy efficiency provisions of the IPPC Directive a special horizontal Reference Document on Best Available Techniques addressing generic energy efficiency issues was prepared and adopted in February 2009 (ENE BREF).<sup>36</sup> It aims at improving energy efficiency in industrial installations, including also smaller production units for electricity, heating and cooling. According to the IPPC Directive the competent authorities issuing IPPC permits in Member States are required to determine the permit conditions based on BAT, taking into account certain local considerations. However, ENE BREF does not set minimum energy efficiency requirements and reference documents are not of compulsory nature, as the Member States have also here the discretion to use other references to apply BAT. In addition, for activities prescribed in the ETS Directive, MS may choose not to impose requirements relating to energy efficiency in respect of combustion units emitting carbon dioxide on the site. However, in such cases, energy efficiency requirements still apply to all associated activities on the site (i.e. not directly emitting carbon dioxide within the same installation).

A similar BREF for Large Combustion Plants<sup>37</sup> was adopted in July 2006 and includes some useful elements regarding energy efficiency both for heating plants, power plants and CHP, although the main focus is on plants that have a capacity above 50 MW.

<sup>36</sup> EC (2009): Reference Document on Best Available Techniques on Energy Efficiency

<sup>37</sup> EC (2006): Reference Document on Best Available Techniques on Large Combustion Plants



The revised IPPC Directive<sup>38</sup> will strengthen the role of BAT and BREF in setting specific conditions for new industrial installations. The scope will however remain above 50 MW installed capacity and MS will still be able to deviate from the standard for certain technical reasons or local circumstances if they can prove that the costs of implementing the standards would be disproportionate compared to environmental benefits.

### **2.3.2. Development with supply industry guidelines on good operating practices for existing capacity to raise average generation efficiency for all plants**

Concerning the second action point to raise generation efficiency in existing plants, no specific guidelines on good operating practices have been developed in cooperation with the supply industry. Nevertheless, both BREF on Large Combustion Plants and on Energy Efficiency can be considered as such guidelines, since they were developed during extensive consultation process with the supply industry and do provide guidelines on good operating practices. The BREF on energy efficiency provides information on techniques to be considered to achieve energy efficiency at the installation level as well as in energy-using systems, processes or activities. These techniques focus on areas such as energy efficiency management systems, planning and establishing objectives and targets, energy efficient design, effective control of processes, maintenance, as well as measurement and monitoring, energy audits and benchmarking.<sup>39</sup>

Further, in the context of the Internal Energy Market, the EU has adopted a Third Legislative Package<sup>40</sup> where energy efficiency provisions have been introduced. However, these provisions are vague and do not create strict legal requirements for Member States to make energy efficiency a mandatory condition for the generation (only electricity), transmission, distribution, supply and storage (only gas) of energy (electricity/gas).

### **2.3.3. Guidelines on good regulatory practices to reduce transmission and distribution losses**

Concerning the third action point, the Commission committed to work closely with the Council of European Regulators (CEER) and the European Regulators Group for Electricity and Gas (ERGEG) to agree on good regulatory practices to reduce transmission and distribution losses. Preliminary discussions have taken place, but as it stands today no agreement has been reached with CEER and ERGEG. This is however an issue that needs to be kept for future and further discussed with the new Agency for the Cooperation of Energy Regulators (ACER), ERGEG's successor organisation.

### **2.3.4. A new regulatory framework to promote the connection of decentralized generation**

In Article 16 of Directive 2009/28/EC, access, transmission and distribution as well as the dispatch of decentralised generating installations using renewable energy sources (RES) is

---

<sup>38</sup> The new Industrial Emission Directive 2010/75/EU combines seven existing air pollution directives, notably the Integrated Pollution Prevention and Control (IPPC) Directive, obliging around 52,000 industrial and agricultural installations to obtain environmental permits. The measurement stick is the implementation of BATs, or the most effective technologies that can provide high levels of environmental protection while balancing cost and benefits.

<sup>39</sup> EC (2009): Reference Document on Best Available Techniques on Energy Efficiency, chapter 2 and 3.

<sup>40</sup> See Directives 2009/72/EC and 2009/73/EC

promoted. Indeed, MS shall provide either priority access or guaranteed access to the grid-system of electricity produced from RES and ensure that when dispatching electricity generating installations, transmission system operators shall give priority to generating installations using renewable energy sources. However, the provision does not foresee that distribution system operators give priority to RES when dispatching generating installations.

In the framework of the Third Legislative Package put forward in 2009, Directive 2009/72/EC concerning common rules for the internal market in electricity promotes the priority dispatch of RES in accordance of Article 16 of Directive 2009/28/EC. In the case of the dispatch of generating installations producing combined heat and power, MS only may require the system operator to give priority, i.e. the provision does not impose on MS to make it mandatory to give priority to CHP installations.<sup>41</sup> Such priority dispatched however should be granted by transmission system operators to high efficiency CHP installations in accordance with the CHP directive that makes the grid access and dispatch rules applicable to CHP by reference. This obligation is however not spelled out in a clear unambiguous way as can be seen in the different interpretation by Member States. Overall, a strong framework for distributed generation is still missing, since access and dispatch issues at distribution level are not yet sufficiently addressed in the existing renewable, CHP and internal energy market legislation.

As the new regulatory framework of the Third Legislative Package will only enter into force in March 2011, it is yet not possible to assess how MS will transpose the provision promoting the dispatch of decentralised generation into their national laws and how it will evolve in practice. Yet due to soft wording, generating installations producing combined heat and power are in a weaker position compared to those using RES when it comes to prioritising connection and dispatch at the transmission level.

In the framework of the EEAP 2006, no other activities are in the pipeline to further promote the connection of decentralised generation, especially when producing combined heat and power. As this is still seen as an important field for action, this issue should be reassessed when elaborating new priority actions in a new Energy Efficiency Plan.

### **2.3.5. Promotion of cogeneration through the Combined Heat & Power Directive**

In addition to the priority actions stated above (2.3.1 – 2.3.4) to make power generation and distribution more efficient, other measures related to the implementation of the Combined Heat and Power Directive (CHP - 2004/8/EC) have been listed in the EEAP 2006 as having a scope for reducing losses in distribution networks. A short assessment of the measures related to the implementation of the CHP Directive is therefore provided in this report.

The purpose of the CHP Directive is to increase energy efficiency and improve security of supply within the EU by creating a framework for the promotion and development of high-efficiency cogeneration.

Regarding the CHP measures listed in the EEAP, most of them have not been completed yet but are ongoing, although with delay. For the time being, the main sources of information regarding the implementation progress with the CHP Directive are the reports submitted with significant delays by most of the MS to the Commission pursuant Article 10 of the Directive. One key aspect of these reports is the analysis of the national potential for the application of

---

<sup>41</sup> Articles 15 (3) and 25 (4)

high-efficiency cogeneration, including micro-generation. In the context of this national analysis Member States were asked to identify heat demand suitable for CHP as well as the potential for waste heat. The full assessment of these reports is expected to be finalized early 2011. Based on these reports and in consultation with stakeholders, the Commission will report on the implementation of the Directive including the examination of the various support mechanisms.

Work has also been done in the field of minimum efficiency standards. A study has been launched to investigate how to best propose minimum efficiency requirements for district heating based on a new norm. Final results are expected for 2011. Further, minimum efficiency requirements for micro CHP equipment will be addressed under the Ecodesign framework, with a new implementing measure on boilers, for adoption by the Commission in 2011.

Next to the ongoing work, the task of harmonising calculation methods for high efficiency CHP has been completed with the adoption of a Commission Decision<sup>42</sup> in November 2008, establishing detailed guidelines for the calculation of electricity from cogeneration. Already in December 2006, another Commission Decision established harmonised efficiency reference values for separate production of electricity and heat.<sup>43</sup>

In the lifespan of the EEAP 2006, it was already foreseen to inquire how to amend the CHP Directive to strengthen its impact on the promotion of CHP. This action has already been initiated with the launch of a study which will be looking at different options to strengthen the provisions of the CHP directive and to ensure that the cost-effective economic potential is fully used in the EU. These include stronger support for distributed generation, i.e. specific network rules for connecting CHP to distribution networks, targets for realising national potentials, better integration with heat demand through the support of district heating & cooling, promotion of industrial clusters, better harmonisation of guarantees of origin as the basis of support schemes, etc. In that context, it could also be possible to consider the option to have stricter requirements for market regulators to promote CHP.<sup>44</sup>

One of the main achievements of the CHP Directive has been to codify at the EU level the definition of high efficiency cogeneration.<sup>45</sup> The CHP Directive for the first time established a regulatory framework to promote cogeneration. However, the CHP directive proved to be less effective than desired in promoting cogeneration in those MS not already having been active in this area beforehand. When the EEAP was proposed, 10.9%<sup>46</sup> of the electricity consumed in the EU was generated using this technology. Today, the proportion is around 11%<sup>47</sup>, although the potential has been assessed of being 20% in 2020. The share of electricity generated from CHP varies across Member States, ranging from 0.3% in Cyprus to more than

---

<sup>42</sup> Commission Decision (2008/952/EC) establishing detailed guidelines for the implementation and application of Annex II to Directive 2004/8/EC.

<sup>43</sup> Commission Decision (2007/74/EC) establishing harmonised efficiency reference values for separate production of electricity and heat in application of Directive 2004/8/EC.

<sup>44</sup> ERGEG/ CEER have included the promotion of CHP as one element to be reported on by the national regulatory authorities in their annual contribution to Commission's benchmarking report on the progress in creating the internal gas and electricity market.

<sup>45</sup> A saving of a minimum of 10% primary energy compared to separate production of heat and electricity based on the same fuel is now guaranteed by a plant of high efficiency cogeneration.

<sup>46</sup> Data for 2006. See Eurostat Data in focus 22/2008

<sup>47</sup> Data for 2008. See Eurostat Data in focus 7/2010

40% in Latvia and in Denmark. This variation is only partially due to differences in potentials and mostly due to the differences in how actively CHP is promoted.

The main barriers preventing the uptake of cogeneration in MS are mainly:<sup>48</sup>

- Current legislation does not define any legal obligations for MS to realise their national CHP potential within a certain period of time;
- Implementation has been weak so far: for example many MS completed reporting only six years after the entry into force of the Directive and some are still lagging behind;
- Efforts in the areas of grid connection, regulation and administration, and financing need to be further reinforced;
- MS typically have identified CHP opportunities in either industrial cogeneration or district heating according to their history. Cooling, micro CHP and bio-energy opportunities are in many cases unexplored.

### **2.3.6. More efficient power generation and distribution: overall assessment**

The priority action to make power generation and distribution more efficient is one of the ten priority actions of the EEAP 2006 which has not been fully addressed. This is mainly due to the high cost, the complexity, and the strong stringency of the required measures, that made this effort for the time being not proportionate to the foreseeable results in this area, taken into account that it is already partially covered by market instruments with similar goals, e.g. to trigger energy efficiency improvements. Such market instruments are the internal energy market and the EU emission trading scheme. Overall, while there is potentially significant scope for energy efficiency improvements and energy savings in this sector, which cannot be fully exploited via the above mentioned market instruments due to the persistence of specific barriers, priority was given to efforts promoting energy efficiency in areas with higher and more swiftly realisable saving and cost-effective potentials. As a result this priority action was so far only partially implemented under the current EEAP period. A new regulatory framework was established with the Third Legislative Package, introducing voluntary elements for MS to promote connection of decentralised generation. Decentralised generation received further support under the new Renewable Directive, but this also left considerable discretion for MS as regards implementation at distribution level. In addition, although no specific guidelines were developed to raise the average generation efficiency of all plants, the BREF on energy efficiency adopted in 2009 can be seen as following the same objective.

### **2.4. Priority action 4: Energy efficiency in transport through higher fuel efficiency of cars**

The transport sector plays a central role in the European economy and as such accounts for a third of final energy consumption. 98% of the energy consumed in this sector is fossil fuel, making it a major source of greenhouse gas emissions and of import dependency.

Energy efficiency in transport is addressed in the Action Plan by measures on the fuel efficiency of cars, development of markets for cleaner vehicles, tyre pressure, efficiency of urban, rail, maritime and aviation transport systems, as well as changing transportation behaviour.

---

<sup>48</sup> See also the conclusions drawn by the Code project under <http://www.code-project.eu>

The focus of this report lays on the priority action defined in the EEAP 2006 for the transport sector, namely to achieve fuel efficiency of cars. To this end, the Commission, being determined to address energy efficiency and CO<sub>2</sub> emissions from cars, committed to propose:

- A legislation to ensure that a 120 g CO<sub>2</sub>/km target is achieved by 2012 through a comprehensive and consistent approach, in accordance with the agreed EU objective (2.4.1).
- Propose to strengthen EU requirements of labelling of cars (2.4.2).

#### **2.4.1. Emission performance standards for new passenger cars: 120 g CO<sub>2</sub>/km by 2012**

Achieving higher fuel efficiency in passenger cars addresses over 60% of the fuel consumption in the road transport sector, which accounts for over 80% of the overall energy consumption of the total sector.

Despite the economic and financial crisis, the number of new registered vehicles in EU15 in 2009 was 3% higher than in 2000 (also due to scrappage schemes implemented by MS as a response to the crisis). Overall CO<sub>2</sub> emission from road transport (passenger cars and trucks) between 1990 and 2007 increased in the EU27 by 29%.

The objective of reducing CO<sub>2</sub> emissions from cars has been on the European political agenda since more than 15 years as shown in table 5. In 1995, the EC adopted its first Community Strategy for reducing CO<sub>2</sub> emissions from cars. At that time, the European average fuel efficiency for new passenger cars was about 186 g CO<sub>2</sub>/km.

The Community CO<sub>2</sub> reduction strategy was based on three pillars: voluntary commitments from the car industry to cut emissions, improvements in consumer information and the promotion of fuel-efficient cars by means of fiscal measures.

The progress achieved by 2005 with the voluntary commitments was assessed to go towards the 140 g CO<sub>2</sub>/km target by 2008/2009, but in the absence of additional measures, the EU objective of 120 g CO<sub>2</sub>/km would not be met at a 2012 horizon.<sup>49</sup> As an outcome, the Commission considered necessary to resort to a legislative approach.

In line with the commitments made in the context of the EEAP 2006, the European Commission adopted in February 2007 a revised strategy to reduce CO<sub>2</sub> emissions from passenger cars and light-commercial vehicles (so called light-duty vehicles) through an integrated approach looking at fuel economy improvements, other technological improvements and use of biofuels.<sup>50</sup> As a next step a Commission proposal<sup>51</sup> for a regulation to reduce CO<sub>2</sub> from passenger cars was put forward in December 2007. The adoption followed in April 2009 as Regulation (EC) No 443/2009, setting emission performance

---

<sup>49</sup> This assessment has proven to be correct, as in 2008, the fuel efficiency average for new passenger cars registered by ACEA was 152,3 gCO<sub>2</sub>/km. In 2009 the averages for JAMA and KAMA were 142.6 and 141.8 respectively.

<sup>50</sup> See COM(2007) 19 final (07.02.2007): Communication on the results of the review of the Community Strategy to reduce CO<sub>2</sub> emissions from passenger cars and light-commercial vehicles.

<sup>51</sup> See COM(2007) 856 final: Proposal for a regulation on setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO<sub>2</sub> emissions from light-duty vehicles

standards for new passenger cars as part of Community's integrated approach to reduce CO<sub>2</sub> from light-duty vehicles.

**Table 3:** Overview of policy developments to reduce CO<sub>2</sub> emissions from cars

Year	Policy development
1995	Adoption of Community Strategy for reducing CO <sub>2</sub> emissions from cars.
1998	ACEA - European Automobile Manufacturers' Association adopts a commitment to reduce average emissions from new cars sold to 140 g CO <sub>2</sub> /km by 2008.
1999	JAMA - Japanese Automobile Manufacturers' Association and KAMA - Korean Automobile Manufacturers' Association adopt commitment to reduce average emissions from new cars sold to 140 g CO <sub>2</sub> /km by 2009.
February 1999	EC Recommendation 1999/125/EC on the reduction of CO <sub>2</sub> emissions from passenger cars takes into account ACEA's commitment and recommends the achievement of a CO <sub>2</sub> emission target of 140 g/km CO <sub>2</sub> by 2008.
June 2000	EC establishes a scheme to monitor the average specific emissions of CO <sub>2</sub> from new passenger cars in accordance with Decision No 1753/2000/EC of the European Parliament and of the Council of 22 June 2000.
February 2007	Adoption of two parallel EC Communications: <ul style="list-style-type: none"> <li>• Communication setting out the results of the review of the Community Strategy to reduce CO<sub>2</sub> emissions from passenger cars and light-commercial vehicles;</li> <li>• Communication on a Competitive Automotive Regulatory Framework for the 21st Century (CARS21).</li> </ul> The Communications underlined that progress had been made towards the 140 g CO <sub>2</sub> /km target by 2008/2009, but that the Community objective of 120 g CO <sub>2</sub> /km would not be met by 2012 in the absence of additional measures.
December 2007	Adoption of Commission proposal (COM(2007) 856) for a Regulation on emission performance standards for new passenger cars to reach an average of 130 gCO <sub>2</sub> /km by 2012.
April 2009	<b>Regulation (EC) 443/2009</b> setting emission <b>performance standards for new passenger cars</b> as part of the Community's integrated approach to reduce CO <sub>2</sub> emissions from light-duty vehicles.
October 2009	Adoption of <b>EC legislative proposal</b> to reduce CO <sub>2</sub> emissions from <b>light commercial vehicles</b> (vans)

Key elements of the adopted Regulation for new passenger cars are:

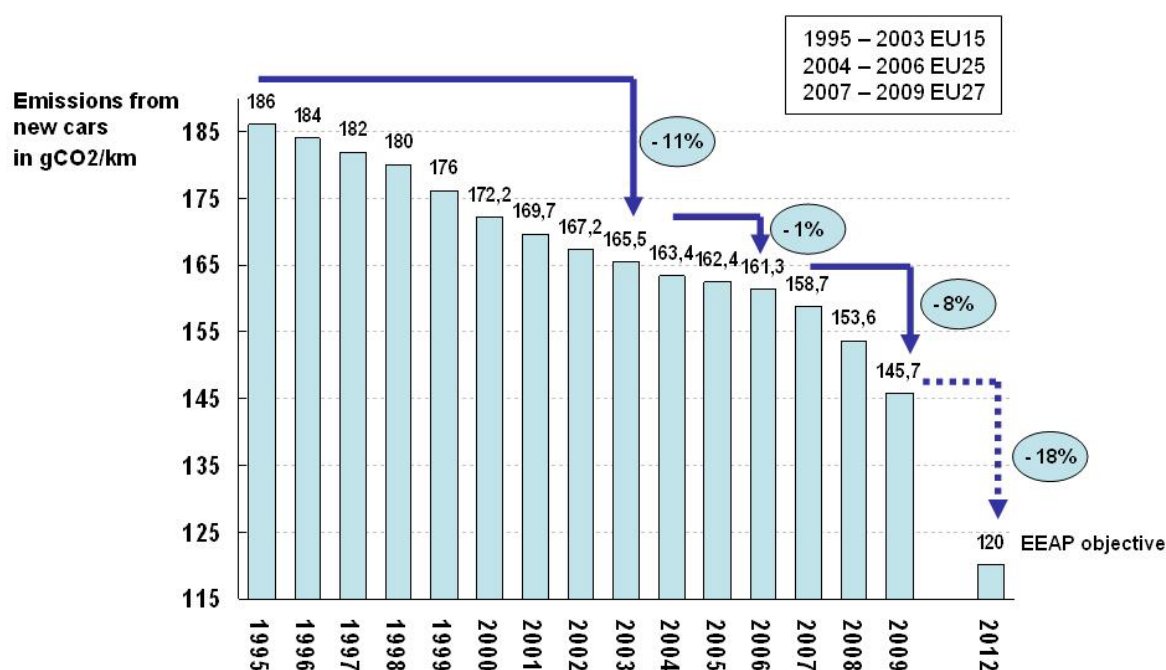
- **Limited value curve:** By means of improvement in vehicle motor technology the fleet average to be achieved by all new cars registered in the EU by 2015 is 130 gCO<sub>2</sub>/km. A so-called limit value curve implies that heavier cars are allowed higher emissions than lighter cars while preserving the overall fleet average.
- **Phasing-in of requirements:** In 2012, 65% of each manufacturer's newly registered cars must comply on average with the limit value curve set by the legislation. This will rise to 75% in 2013, 80% in 2014 and 100% from 2015 onwards.
- **Lower penalty payments for small excess emissions until 2018:** If the average CO<sub>2</sub> emissions of a manufacturer's fleet exceed its limit value in any year from 2012, the manufacturer has to pay an excess emissions premium for each car registered. This premium amounts to € for the first g/km in excess, €15 for the second g/km, €25 for the third g/km and €5 for each subsequent g/km. From 2019, the first g/km will cost €5.

- **Long-term target:** A target of 95 gCO<sub>2</sub>/km is specified for the year 2020. The modalities for reaching this target and the aspects of its implementation, including the excess emissions premium, will have to be defined in a review to be completed no later than the beginning of 2013.
- **Eco-innovations:** Due to the outdated test procedure used for vehicle type approval, certain innovative technologies cannot demonstrate their CO<sub>2</sub>-reducing effects under the type approval test. As an interim procedure until the test procedure is reviewed by 2014, manufacturers can be granted a maximum of 7g/km of emission credits on average for their fleet if they equip vehicles with innovative technologies, based on independently verified data.

It becomes evident that it is unlikely that the EEAP objective of an equivalent of 120 gCO<sub>2</sub>/km will be achieved in 2012 when the new regulation delays to 2015 the full entry into force of this target and that many of the additional implementing measures (tyre pressure monitoring systems, tyre rolling resistance limits for new passenger cars, gear shift indicators) have different dates for entry into force, usually later than 2012. This timeframe and the overall ambition have been amended compared to the 2007 proposal from the Commission. The co-legislators decided to delay to 2015 the full entry into force of the regulation to encompass concerns of the industry as to the cost of achieving this target. However, during co-decision an additional 2020 target of 95 g/km was introduced which compensates for this delay of the short-term objective and adds planning certainty to the industry that now can work towards a longer-term perspective.

Although an average reduction of 3,3 gCO<sub>2</sub>/km per year over a period of 20 years (1995-2015, see graph 1) was a rather slow progress, the new regulation will set a much firmer path downwards in terms of gCO<sub>2</sub>/km reduction (starting from 158.7 in 2007 to planned 95 in 2020).

**Graph 1:** Evolution of emission from new cars 1996 -2009



## 2.4.2. Strengthening EU requirements for labelling of cars

In general, empirical studies show that consumers value the fuel economy and environmental friendliness of cars as one of the lowest priorities in their purchasing decision. Moreover, it is often stated that consumers are relatively short-sighted regarding perceived future fuel savings from buying a fuel-efficient car. Similar to the labelling of products, the availability of running costs information through a car label, reinforces the impact of the regulation on emission standards.

The first Directive (1999/EC/EC) relating to the availability of consumer information on fuel economy and CO<sub>2</sub> emissions in respect of the marketing of new passenger cars dates from 1999. Its objective was to ensure that information relating to the fuel economy and CO<sub>2</sub> emissions of new passenger cars offered for sale or lease in the Community is made available for consumers in order to enable consumers to make an informed choice. This choice is to be based on the following type of information that must be provided to the consumers:

- A fuel economy label for all new cars to be displayed at the point of sale;
- A poster (or a display) showing the official fuel consumption and CO<sub>2</sub> emissions data of all new passenger car models displayed or offered for sale or lease at or through the respective point of sale;
- A guide to fuel economy and CO<sub>2</sub> emissions;
- Promotional literature containing official fuel consumption and specific CO<sub>2</sub> emissions data for the passenger car model to which it refers.

This fuel efficiency labelling Directive was intended as a tool in raising awareness. However, a study based notably on reports provided by MS has been carried out in 2005 coming to the conclusion that its impact has not been visible with labels varying strongly in quality across MS.<sup>52</sup> That is why the Commission decided to adopt an amending proposal to improve the effectiveness of this Directive and to define it as a priority action for the transport sector in the EEAP 2006. The review has been announced however, the timeline for this adoption is not yet available. Key aspects for consideration will be:

- Extended scope of the labelling scheme to light-commercial vehicles;
- Harmonised design of the label;
- Energy efficiency classes for raising consumer awareness at the time of car purchase;
- Definition of light environmentally enhanced vehicles;
- Indication on the label of the annual running costs;
- Vehicle tax levels as a function of CO<sub>2</sub> emissions and fuel consumption.

The review of the fuel efficiency labelling will be put forward again by the upcoming White Paper on transport foreseen for adoption in early 2011.

## 2.4.3. Higher fuel efficiency of cars and strengthened labelling: overall assessment

The priority action of the EEAP for the transport sector has not been fully implemented as the CO<sub>2</sub> emissions standards will come into force with delay in 2015 and the work on the review of the fuel efficiency labelling Directive has been initiated but not finalized yet. However, the Commission has already started targeting emissions from road transport beyond passenger

---

<sup>52</sup> ADAC (2005): Study on the effectiveness of Directive 1999/94/EC relating to the availability of consumer information on fuel economy and CO<sub>2</sub> emissions in respect of the marketing of new passenger cars, final report.



cars, by proposing a regulation on setting emission performance standards for light-commercial vehicles.<sup>53</sup> Further, CO<sub>2</sub> emissions standards for Heavy Duty vehicles will be proposed.

To conclude, the progress made in this priority action is not satisfactory and need to be further addressed, *inter alia* in the new Energy Efficiency Plan as well as in the upcoming White Paper on transport.

#### 2.4.4. Other key measures in the transport sector

In addition to the priority action defined, there have been various positive developments as regards the other transport measures proposed in the EEAP 2006. As completed measures are to be mentioned (see also annex 1):

- A Regulation on the **labelling of tyres with respect to** fuel efficiency and other essential parameters (EC No. 1222/2009) was adopted in November 2009 and will apply to the MS from November 2012. The Regulation requires the provision of information on tyre parameters relating to the rolling resistance (influencing fuel consumption), wet grip (influencing safety) and external rolling noise. It seeks to target consumers by providing potential purchasers of tyres with labels that allows them to make informed choices. It thus indirectly targets manufacturers who will be influenced by the effects that the labelling has on sales of designs. **The labelling of tyres will contribute positively to improving the fuel efficiency of cars and is expected to contribute to some 15 Mtoe (cumulated 2012-2020) primary energy savings by 2020.**
- A new Directive 2009/33/EC on **the promotion of clean and energy-efficient road transport vehicles** entered into force in May 2009. This directive aims at accelerating the market introduction of clean and energy efficient vehicles through public procurement. In the long term this should contribute to reduce their costs through economies of scale, resulting in a progressive improvement of the whole vehicle fleet. MS need to transpose this directive by 4 December 2010. By December 2012 a first assessment report on the application of the Directive, the actions taken by MS and the possible need of further EU actions will be elaborated.
- Directive 2010/40/EU on the framework for the deployment of intelligent transport systems in the field of road transport and for interfaces with other modes of transport entered into force on 26 August 2010. This Directive establishes a framework in support of the coordinated and coherent deployment and use of Intelligent Transport Systems (ITS) within the EU, in particular across the borders between the MS, and sets out the general conditions necessary for that purpose. This legal instrument will contribute to an acceleration of the deployment and use of ITS in Europe: according to several studies, ITS have a potential up to 10%-15% reduction of greenhouse gas emissions, if they are deployed widely and across all possible applications.

---

<sup>53</sup> EC (2009) Proposal for a Regulation on Setting emission performance standards for new light commercial vehicles as part of the Community's integrated approach to reduce CO<sub>2</sub> emissions from light-duty vehicles, COM(2009) 593, Brussels.

- In September 2007 the communication of a **Green Paper “Towards a new culture for urban mobility”** was followed by the adoption in September 2009 of the **Action Plan on Urban Mobility** with 20 actions in six thematic areas.
- For **air transport**, which is responsible for 14% of the energy consumption in the sector, political agreement was reached to include it in the EU Emissions Trading Scheme as of 2012. Further, the Sesar Joint Undertaking was established in spring 2007 to promote energy efficiency in this sector.
- In the **rail sector**, the legal framework for rail transport has been established and MS need to implement it to increase interoperability. The EU railway legislation tackles the negative trend in a modal split in freight transport with the rail sector losing its market share. Therefore its impact can be seen in terms of modal shift towards more sustainable and energy-efficient mode of transport (railways).

Other or related transport measures are in the process of implementation, such as:

- Support of EU-wide deployment of **real-time traffic and travel information (RTTI)** and **traffic management systems** and the establishment of guidelines *inter alia* for the deployment of **Intelligent Truck Parking** through the EasyWay project, which was supported with €100 million over the 2007-2009 period. A follow-up proposal for the period 2010-2011 has been submitted and negotiations on EasyWay II are currently ongoing and should be concluded by the end of the year. Considering all actions together an impact of 5 to 10% reduction in the road transport energy consumption by 2020 has been estimated, **representing a total reduction of energy consumption between 1.2 and 2.4% in EU total final energy demand by 2020.**

## **2.5. Priority action 5: financing energy efficiency investments for SME and Energy Service Companies (ESCOs)**

As described in the EEAP 2006, although many energy efficiency measures are fully cost effective with very short payback periods, they are not always undertaken due to financial barriers. In this light, the Action Plan defined a priority action aiming at facilitating appropriate financing of energy efficiency investments for SME and Energy ESCOs. For this purpose the Commission committed to:

- Call upon the banking sector to offer finance packages specifically aimed at SMEs and ESCOs to adopt energy efficiency savings identified in energy audits (2.5.1)
- Make access to Community financing, such as Green Investment Funds, available for promoting eco-innovations (2.5.2).

### **2.5.1. Financial packages for SMEs and ESCOs**

In cooperation with the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB) Group, the Council of Europe Development Bank (CEB) and the Kreditanstalt für Wiederaufbau (KfW), several financial packages specifically aiming at SMEs or involving ESCO finance have been created, such as:

- **Energy Efficiency Finance Facility (EEFF)**

In April 2007, the EC established the EEFF in cooperation with three international financial institutions (EBRD, EIB & CEB/KfW). The objective of this facility is to achieve savings in

energy consumption and reduction in CO<sub>2</sub> emissions, facilitated through the provision of financing to financial institutions in Beneficiary Countries to increase their investment portfolios in energy efficiency projects. Under the Facility, the financial institutions provide loan financing through participating banks, together with EC grant support. EC funds will be used to provide technical assistance for implementation support and financial incentives to i) sub-borrowers and ii) participating banks.

The EBRD model used, in particular in Bulgaria<sup>54</sup>, has demonstrated its ability to create a market for energy efficiency and renewable energy financing with 8 commercial banks involved and with €25 million of financing leveraged by €5 million of concessional funding in the form of technical assistance grants and incentives. Based on the experience in Bulgaria, and reflecting local conditions, this model has now been rolled out in ten other EBRD countries of operations for a total EBRD financing of €1.1 billion. A project has recently been approved which will mobilize €1 million from EU resources under the EEFF 2006 programme to launch a capacity building and transfer of skills technical cooperation assignment, designed to strengthen the administrative capacity of the institutions that will be in charge with implementing the EUR 200 million grant scheme in Bulgaria (ERDF funded).

- **Sustainable energy finance through related Financing Facilities**

In 2010, the Commission reshaped a number of earlier instruments with the intention of refocussing support to current European energy and climate objectives, in particular with respect to the 2020 objectives for energy savings and reduction of CO<sub>2</sub> emissions. In June 2010, a new SME Energy Efficiency sub-window was developed for the purpose of facilitating SME investments for energy efficiency and renewable energy measures generally targeting CO<sub>2</sub> emissions reductions. Under this sub-window, of particular relevance is the Polish Sustainable Energy Financing Facility which was established within a few weeks of a formal agreement on the reshaping of the EBRD SME Finance facility. EBRD will provide up to €50 million senior debt to financial intermediaries in Poland, for on-lending to finance investments in energy efficiency or renewable energy. The Facility is supported by approximately €30 million of EC grant incentives for end borrowers. Similar modifications are being created in facilities targeting action in municipalities and involving all four of the abovementioned banks.

- **European Local Energy Assistance (ELENA)**

In order to facilitate the mobilisation of funds for investments in sustainable energy at local level, the Commission in cooperation with the EIB has established in 2009 the ELENA technical assistance facility, financed through the Intelligent Energy Europe Programme. The facility, implemented by the EIB, provides co-financing for project development services in order to prepare and launch bankable sustainable energy investments. The financial support is provided to local and regional public authorities and bodies acting on their behalf. The investment programmes supported should contribute to the 2020 energy and climate objectives and need to have a minimum leverage factor of 25. Investment areas for which technical assistance can be provided are *inter alia* the refurbishment of public and private buildings (including social housing), district heating and cooling networks as well as

---

<sup>54</sup> For success stories see also the website of EBRD: [http://www.bulgaria-eueeff.com/pages/eueeffbg\\_success\\_stories\\_en.htm](http://www.bulgaria-eueeff.com/pages/eueeffbg_success_stories_en.htm)

decentralised cogeneration systems, urban transport, and the local infrastructure including smart grids and information and communication technologies.

While this facility is targeting local and regional public bodies, it also effectively promotes energy service companies as the public entities frequently look for their involvement to carry out the energy efficiency investments. In just over one year of operation, ten ELENA projects have been approved which will provide approximately €18 million in grants to final beneficiaries with a view to mobilizing about €1.5 billion in investments over three year project lifetimes.

- **Energy Efficiency financing facility established under the European Economic Recovery Programme (EERP)**

In 2009 a programme was established by regulation<sup>55</sup> to aid economic recovery for Europe in the energy sector by granting €3.98 billion by the end of 2010. In the event of unspent funds, the EERP Regulation states that Commission will propose an amendment of the EERP with regard to funding energy efficiency and renewable energy projects. On 31 May 2010 the Commission presented in this respect its proposal, which provides for the creation of a dedicated financial instrument to support the development of energy efficiency and renewable energy projects in particular in urban settings. As result of a swift and constructive negotiation process during the 2nd half 2010, the Council of Ministers and the European Parliament agreed in December 2010 to the European Commission's proposal to allocate approximately EUR 146 million (i.e. 3.7% of the total EERP envelope) towards such a new financing facility dedicated to sustainable energy. This EU contribution comes from EERP funds mobilised in 2009 which could not immediately be allocated to projects in the 1st phase of the EERP.

The new facility will take the form of a dedicated investment fund, complemented by technical assistance and awareness raising. The initial shareholders of the fund will be the EU and the European Investment Bank. In addition to the EU contribution to the fund (about 125 M€) the EIB will invest up to EUR 75 million into the facility resulting in a total fund volume of about EUR 200 million. The Commission, in cooperation with the EIB, aims to launch this facility in the second quarter of 2011. Other financial institutions at Member State level have been invited and could join the fund afterwards. The final size of the fund will depend on additional investors (public but also private) and the eventual investment portfolio.

The EU investment into the fund will be placed as risk capital into a "European Energy Efficiency Fund". This fund, which will be operated by a professional fund manager, will provide finance for investment projects by addressing market needs, preferably at municipal and local level. The fund will cover a large range of financial products such as senior and junior loans, guarantees or equity participation. In addition, about EUR 20 million of the EU funding will be made available as grants for project development services (technical assistance) related to technical and financial preparation of projects. Finally, awareness raising activities for national/regional authorities managing Cohesion/Structural funds in the field of sustainable energy are also envisaged.

Potential beneficiaries are public authorities (e.g. municipalities), at local and regional level, and public or private companies, which are acting on behalf of those public authorities, such

---

<sup>55</sup> Regulation (EC) no 663/2009 of 13 July 2009. It allocates respectively €2,365 million to gas and electricity infrastructure projects, €65 million to offshore wind electricity projects (OWE) and €1,050 million to carbon capture and storage projects (CCS).

as local energy utilities, Energy Service Companies (ESCOs), district heating combined heat and power (CHP) companies or public transport providers.

This fund will invest in energy saving, energy efficiency and renewable energy projects, particularly in urban settings, which have a measurable and substantial impact on economic recovery within the EU. As regards energy saving/efficiency investments, promoted by local, regional and (where justified) national public authorities, these could include measures in public and private buildings; investments in efficient combined heat and power (CHP), incl. micro-cogeneration and district heating/cooling networks; investment in decentralised renewable energy sources, including micro-generation; clean urban transport; the modernisation of infrastructure, such as street lighting and smart grids, as well as investment in renewable energies with a potential for innovation and growth.

### **2.5.2. Promotion of eco-innovations**

For the period 2007-2013, the Entrepreneurship and Innovation Programme (EIP), one of the three pillars of the Competitiveness and Innovation Framework Programme (CIP), has earmarked €433 million for eco-innovation. Out of this budget, €200 million have been allocated to the High Growth and Innovative SME Facility (GIF) in view of supporting eco-innovation as well as other types of innovations in SMEs. GIF allows for the EU budget to participate in venture and risk capital funds set up to provide equity to small businesses in their early development and expansion stages. When the focus of these funds is mainly on eco-innovative SMEs, the EU participation, through the European Investment Fund, can be higher than normal thresholds (up to 50% compared to 25%).

So far, the uptake from the market has been very satisfactory. Four agreements with Venture Capital funds (from 4 MS) investing in Eco-innovation have been signed with EU commitments of more than €50 million. Different types of eco-innovations, e.g. related to renewable energy sources, energy efficiency or waste and water treatment are financed by the funds. In an interim evaluation of the EIP, the efficiency of the GIF in terms of leverage has been highlighted.<sup>56</sup> The impact of this instrument on energy efficiency improvements or energy savings generated through eco-innovation in SMEs is yet not foreseeable as GIF is operational only since 2008 and investment periods are usually 5 years and beyond. An overall assessment will be possible at the end of the programme in 2013. Moreover, the discussions related to the next multiannual financial perspective of the Commission for 2014 - 2020, should also be used as an opportunity to propose possible refinements of the instrument.

In the framework of the regulation on CO<sub>2</sub> emission standards for cars, eco-innovations are as well promoted (see 2.4.1).

### **2.5.3. Facilitating financing of energy efficiency investments: overall assessment**

Financing energy efficiency is a complex task as the investments projects are often very small and dispersed. With the cooperation engaged with International Financial Institutions on the financing of energy efficiency investments, the Commission has already made a major contribution to facilitate appropriate financing for SMEs and ESCOs. Credit lines from IFIs and other public sector banks, notably KfW, have provided an important source of finance to energy efficiency projects often through intermediated finance through local banks. While not

---

<sup>56</sup> GHK 2009: Interim evaluation of the entrepreneurship and innovation programme DG Industry-European Commission

a pre-requisite, effective use is often made of EU funding in order to provide technical assistance to either the participating bank for capacity building, or for supporting measures to final beneficiaries, such as energy audits and other project development services. However, it is evident that more innovative financial tools are needed to meet the investing challenge in energy efficiency.

## **2.6. Priority action 6: spurring energy efficiency in the new Member States**

The EEAP 2006 acknowledges that the potential for energy efficiency improvements is particularly large in the new MS and that energy efficiency is one of the priorities in the framework of cohesion policies. Against this background, the Action Plan defined as a priority action to spur energy efficiency in the new MS by:

- Encouraging European Regional Policy to deploy its national and regional programmes to promote more intensive investment to improve energy efficiency, in particular in the new Member States, including in the multi-family and social housing sectors (2.6.1).
- Promoting networking amongst Member States and regions to ensure financing of best practices in energy efficiency (2.6.2).

### **2.6.1. European regional policies (structural and cohesion funds) as instruments to promote energy efficiency**

The European Council agreed in December 2005 on the budget for the 2007-2013 period and allocated €347 billion on Structural and Cohesion Funds, of which 81.5% are planned to be spent in the "Convergence" regions. Based on simplified procedures, nearly all of the 436 programmes covering all EU regions and Member States were agreed before the end of 2007. The radical shift in their priorities means that one quarter of resources is now earmarked for research and innovation and about one third on environmental infrastructure and measures combating climate change, including energy efficiency.

Financial support equivalent to 1.2% of the total budget or €4.4 billion are allocated to energy efficiency, cogeneration and energy management in the industrial, commercial, residential and public sectors. Until May 2009 support to residential buildings under the ERDF was possible but restricted to the EU12 and under limited conditions.

Looking into the achievements so far, the following assessment can be made:

First, major progress towards promoting more intensive investments in energy efficiency improvements through EU Regional Policy has been achieved with the adoption of two key regulatory amendments, initiated in the context of the European Economic Recovery Plan and adopted in May 2009<sup>57</sup> and June 2010<sup>58</sup>, respectively, relating to the:

- **Extension of the scope of financial support for housing to all MS:** From now on, all MS have the possibility to support the housing sector with up to 4% of their national ERDF allocations, also in view of supporting social cohesion. This amendment represents an additional potential of up to €8 billion at EU level that could be reallocated from other

---

<sup>57</sup> Regulation (EC) No 397/2009 on the European Regional Development Fund as regards the eligibility of energy efficiency and renewable energy investments in housing

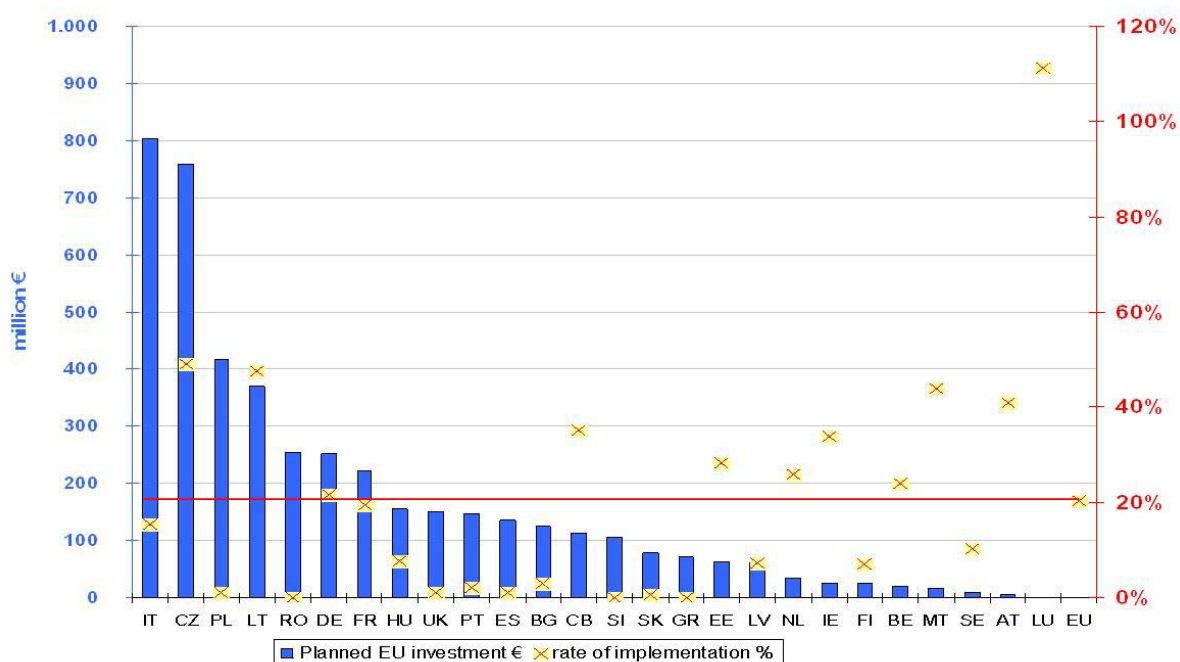
<sup>58</sup> Regulation (EU) No 539/2010 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund as regards simplification of certain requirements and as regards certain provisions relating to financial management, see Article 44.

allocations in the present programmes for energy efficiency in housing, depending on to what extent the MS will chose to use these new possibilities.

- **Combination of Structural funds with private sector financing:** As part of an operational programme, Structural Funds can now finance expenditures in respect of an operation comprising contributions to support:
  - Financial engineering instruments (e.g. JEREMIE) for enterprises, primarily small and medium-sized ones, such as venture capital funds, guarantee funds and loan funds;
  - Urban development funds, that is, funds investing in public-private partnerships and other projects included in an integrated plan for sustainable urban development (e.g. JESSICA); By the end of September 2010, seven JESSICA funds with an energy component are implemented in six MS, committed to invest a total of €784 million in energy efficiency measures and renewable energies infrastructure in cities.
  - Funds or other incentive schemes providing loans, guarantees for repayable investments, or equivalent instruments, for energy efficiency and use of renewable energy in buildings, including in existing housing. The first such fund established in Europe was set up in Greece in July 2010.

Second, the picture concerning the effective use of the €4.4 billion allocated for energy efficiency in the MS shows a mixed result, but in general terms it is progressing at a slow pace. In autumn 2009, the overall EU average selection rate of projects in this area was 20% (to be compared with 27% for Cohesion Policy as a whole). Nevertheless, a number of MS offer some positive examples with a good level of selected projects (see graph 2), such as Czech Republic (49%), Lithuania (48%), Malta (44%), Austria (41%), Ireland (34%), Belgium (33%), Estonia (28%), the Netherlands (26%) and Germany (22%).

**Graph 2:** Planned investments and rate of implementation in energy efficiency projects 2007-2013



Source: Strategic report 2010

Other MS present insufficient progress. Overall, the implementation of the energy priorities is advancing faster in the Regional Competitiveness and Employment (RCE) regions than in the Convergence ones.<sup>59</sup> Further, it is important to mention that not all investments in energy efficiency, *inter alia* in public buildings, are covered by the €4.4 billion allocation. Indeed, in a number of operational programmes of the 12 new MS, support to for example the educational and health sectors include the refurbishment of schools or hospital buildings. In this context, energy efficiency investments are included but not accounted for under the particular allocation to energy efficiency measures.

Third, fourteen MS<sup>60</sup> reported having action in support of energy efficiency and renewable energy investments in the housing sector, following the priorities of the Recovery Plan, with or without modification of the Operational Programmes, and Estonia and Latvia were active in this area already from the outset of the period, which was possible in EU12.

To conclude, it can be said that the financial resources available to MS from Structural and Cohesion Funds are not sufficiently channelled into investments to promote energy efficiency improvements. To this end, the Commission Communication "Regional Policy contributing to sustainable growth in Europe 2020"<sup>61</sup> sets out how managing authorities can realign current Regional Policy programmes to Europe 2020 sustainable growth objectives, among them the energy efficiency target. Regions and cities are encouraged to seize the new opportunities in energy investments in buildings and to accelerate investments in renewable energies and energy efficiency, according to their local energy potential. In this context, the importance of using Technical Assistance to facilitate the preparation of a pipeline of projects is singled out.

### **2.6.2. Networking to ensure financing of best practices in energy efficiency**

Since the adoption of the EEAP at the end of 2006, different types of schemes have been implemented to exchange information about best practices and ensure their financing. The main instrument in this context is the Intelligent Energy Europe Programme (IEE) established in 2003 to promote renewable energy sources and unlock the potential for energy efficiency in Europe. Although IEE is a relatively small financing programme (€250 million over 2003-2006 and €730 million over 2007-2013), it acts as a catalyst for further investments and contributes to the development of effective EU energy policy, as well as national/ regional policy making. The IEE programme also acts as a mechanism for testing and relaying new ideas, piloting of initiatives which are later scaled-up or rolled out to other Member States.

The first IEE programme (referred to as IEE-1) started in 2003 and ended in December 2006. Projects financed under IEE-1 lasted between two and three years and started delivering results from 2007 onwards. More than 300 projects were supported and about half of them aimed at overcoming the market barriers to energy efficiency. Seventeen IEE-1 projects exclusively addressed networking and exchanging knowledge between countries and regions to ensure financing of best practices in energy efficiency. These projects covered best practices in financing, promoting energy services and procurement routines to local authorities, energy performance contracting, white certificates as well as innovative schemes tailored to refurbishment of social housing.

---

<sup>59</sup> See [http://ec.europa.eu/regional\\_policy/policy/reporting/cs\\_reports\\_en.htm](http://ec.europa.eu/regional_policy/policy/reporting/cs_reports_en.htm).

<sup>60</sup> BE, BG, DK, EL, ES, FR, IT, LT, LV, MT, NL, PL, PT, UK

<sup>61</sup> COM(2011) 17, 26.1.2011



The second IEE programme (IEE-2) started in 2007 and runs until 2013. The funding rate for beneficiaries increased from 50% to 75% to encourage *inter alia* the participation of organisations from new MS. Among the IEE-2 projects supported so far, four are especially worth mentioning as being directly in line with the priority action defined:

- **Concerted Action (CA) on the Energy Services Directive (ESD)** (2008-2011): This strategic 3-year action involves all MS and aims to achieve a certain degree of convergence across Europe in the implementation of the ESD Directive. One of the five core themes of the CA is on the use of financial instruments. It looks in particular on how to repeal and amend legislation that impedes or restricts the use of financial instruments for energy savings in the market for energy services; how to introduce funds for energy efficiency; how to design and implement tariff systems that promote energy efficiency; The Concerted Action is foreseen to be continued beyond 2011.
- **ChangeBest project**<sup>62</sup> (2009-2012) aims to foster the development of energy service companies.
- **EESI project**<sup>63</sup> (2009-2012) aims to promote energy performance contracting, in particular in pilot projects within the public sector.
- **FRESH project**<sup>64</sup> (2009-2012) aims also at fostering energy performance contracting but targeting social housing refurbishment.

The above-mentioned actions builds on so-called 'soft measures' – exchange of best practices, capacity building, promotion and dissemination – which impacts are by nature difficult to quantify in terms of energy savings. For the listed networking projects it is yet too early to assess their impacts as they have only started in 2009. However, wherever impacts of similar soft measures could be assessed, they proved to be very high compared to the level of Community support. As an example the IEE ClearSupport project (2007-2009) established Project Service Facilities in Latvia, Lithuania, Poland, Czech Republic and Greece to assist housing associations, municipalities and building project developers on project identification, documentation and financing. At the end of September 2009, 218 renovation projects had been triggered by the ClearSupport project, representing about 18,000 tons of CO<sub>2</sub> savings. Overall the expected investment triggered by this project was more than 20 times the Community contribution.<sup>65</sup>

### 2.6.3. Spurring energy efficiency in new Member States: Overall assessment

The Commission has taken decisive steps to trigger energy efficiency investments in new Members States through the EU Regional Policy and through the exchange of Best Practices, in particular through the Intelligent Energy Europe programme.

As shown in chapter 2.6.1, the challenge is that the financial resources available to MS from Structural and Cohesion Funds are not sufficiently channelled into investments to promote energy efficiency improvements. Hence the Commission will have to provide additional orientation and good practices to regional policy managing authorities and stakeholders in order to strengthen the instrument of regional policies to increase energy efficiency in new Member States. Moreover, to facilitate the take up of the financial allocations offered by EU Regional Policy to support energy efficiency, particularly for the building sector,

---

<sup>62</sup> [www.changebest.eu](http://www.changebest.eu)

<sup>63</sup> [www.european-energy-service-initiative.net](http://www.european-energy-service-initiative.net)

<sup>64</sup> [www.fresh-project.eu](http://www.fresh-project.eu)

<sup>65</sup> [www.clearsupport.eu](http://www.clearsupport.eu)

opportunities for further synergies will be explored between energy policy instruments such as IEE (including its ELENA technical financing facility operated by the EIB) and the Covenant of Mayors. The IEE programme in particular offers the possibility to support capacity building of managing authorities, like it has been done in certain projects.<sup>66</sup> More generally the programme should continue to offer support to organisations from new MS to team up with partners in EU15 and develop concrete actions to trigger investment in energy efficiency, in particular in areas which offer a significant savings potential like the refurbishment of apartment blocks.

## **2.7. Priority action 7: a coherent use of taxation**

The Action Plan stated that experience has shown that taxation, as a means to internalise external costs, was a powerful tool in promoting energy efficiency. Therefore the Commission defined as a priority action to achieve a coherent use of taxation by committing to the following measures in the EEAP 2006:

- Prepare a Green Paper on market based instruments (2.7.1);
- Revise the Energy Taxation Directive to facilitate a more targeted and coherent use of energy taxation by integrating notably energy efficiency considerations and environmental aspects (2.7.2);
- Consider the costs and benefits of using tax credits as incentives for enterprises, on one hand, to promote the increased production of certified energy-efficient appliances and equipment and for consumers, on the other hand, to promote the purchase of such appliances and equipment (2.7.3).

### **2.7.1. Green paper on market based instruments for environment and other policy purposes**

The Commission adopted in March 2007 a Green paper<sup>67</sup> on market-based instruments (MBIs) for environment and related policy purposes. Market-based instruments, such as taxes, charges and tradable permit schemes provide a flexible and cost-efficient means for reaching given policy objectives. In the Green Paper, the Commission explores a wide range of areas where the use of market-based instruments including taxation could be promoted further, such as energy consumption, environmental impact of transport and other areas of environment policy. More in particular the Green paper explores possible ways forward with the Energy Taxation Directive 2003/96/EC to make it more supportive of the EU energy and environmental policies in line with the EEAP 2006. The Green paper also addresses broader issues such as environmental tax reforms and role of taxation and fiscal instruments in general in the context of the integrated energy and climate change agenda of the EU.

Based on the Green paper, the Commission launched in July 2007 a broad public consultation on advancing the use of MBIs for environment and energy related policy purposes in the Community. One outcome of the consultation was the suggestion to expand their use as an environment policy tool.<sup>68</sup>

---

<sup>66</sup> See [www.promoscene.eu](http://www.promoscene.eu)

<sup>67</sup> COM(2007) 140 final

<sup>68</sup> The analysis of the replies to the Green Paper have been published, see SEC(2009) 53 final; [http://ec.europa.eu/environment/enveco/pdf/analyse\\_doc.pdf](http://ec.europa.eu/environment/enveco/pdf/analyse_doc.pdf)

### 2.7.2. Revision of the Energy Taxation Directive

The current version of the Energy Taxation Directive (ETD) was adopted in October 2003 and entered into force on January 2004, but derogations applied in several areas. It creates an EU-wide system for the taxation of all energy products. The most important points of the current Community framework for energy taxation are:

- Energy products are only be taxed when used as motor or heating fuel, not when used as raw materials, while electricity is taxed irrespective of its use;
- Exemption of energy products or electricity used to produce electricity and electricity used to maintain the ability to produce electricity;
- The "levels of taxation" applied by the Member States may not be lower than the minimum rates set in the Directive.
- MS are allowed to differentiate between commercial and non-commercial diesel used for transport, and specific provisions apply to the taxation of commercial diesel;
- Business use of energy products can be taxed at a lower rate than non-business use;
- Energy products used for international air transport and navigation remain exempt from taxation (due to the existence of international commitments);
- MS can choose to exempt, among other things, electricity from renewable energy sources and energy used for trains, metros, trams or trolley buses.

The approach has been so far to provide for necessary minimum common rules to prevent a situation where differences in national energy taxation policies create distortions on the internal market. However, the current legislative framework does not explicitly incorporate environmental policy considerations. Without a revision, the current inconsistent treatment of energy sources in the ETD will remain, therefore taxation will not steer energy efficiency in a coherent way. Member States may refrain from actively using the taxation instrument for environmental policy purposes such as increasing energy efficiency. Therefore a revision of the ETD is necessary to provide a more robust framework for MS committed to pursue with the ambitious energy and environmental objectives through taxation.

### 2.7.3. Tax credits as incentives for enterprises and consumers

The Commission published in December 2008 a study on **"the costs and benefits associated with the use of tax incentives to promote the manufacturing of more and better energy-efficient appliances and equipment and the consumer purchasing of these products."**<sup>69</sup>

The study deals with the fiscal instruments that could potentially be used to promote energy efficiency in the EU. It focuses on direct fiscal incentives (subsidies, tax credits to consumers and to manufacturers) and compares their costs and benefits with those of conventional tax instruments (energy taxation) and a regulatory measure. The costs and benefits are assessed for four different appliances selected for their high energy saving potential: refrigerators, washing machines, boilers and compact fluorescent lamps. In each case the assessment is carried out for two different EU Member States in order to capture the impact of different using patterns, price levels and market penetration of products. The countries included in the analysis are France, Denmark, Italy and Poland.

---

<sup>69</sup> Biointelligence Services for European Commission/ DG TAXUD (2009): Study on the costs and benefits associated with the use of tax incentives to promote the manufacturing of more and better energy-efficient appliances and equipment and the consumer purchasing of these products, Final Report. [http://ec.europa.eu/taxation\\_customs/common/publications/studies/index\\_en.htm](http://ec.europa.eu/taxation_customs/common/publications/studies/index_en.htm).

The study draws the following conclusions:

- Energy taxation appears as the most cost-effective policy to promote energy efficiency in the EU;
- Subsidies and tax credits have, however, a considerable potential of generating energy savings. In some cases energy savings induced by subsidy schemes (direct subsidies or tax credits) exceed those generated by energy tax increases manifold (e.g. refrigerators in France and Denmark). The subsidy schemes tend to have, however, higher welfare costs than the increases of energy taxation, which makes their benefit- cost balance in some cases negative (e.g. refrigerators in France);
- The comparison of different incentive instruments reveals that direct subsidies and tax credits to consumers are much more cost effective than tax credits to manufacturers. In the latter case the welfare costs/ ton of CO<sub>2</sub> (€650 in Italy and €234 in Poland) exceed by far all the reasonable estimates of the CO<sub>2</sub> externality, and hence such policies would cost much more to the society than the benefits they could generate;
- The regulatory measure (removing class B refrigerators or lower from the market) also turns out to have a relatively low capacity to generate energy savings compared with other policy options and therefore a fairly negative benefit- cost balance;

The study was meant to inform the policy-makers about the costs and benefits of using direct tax incentives to promote the purchases of energy-efficient products. It remains in the competence of the Member States to use such instruments.

#### **2.7.4. Coherent use of taxation: overall assessment of the priority action**

A coherent use of taxation is of paramount importance to trigger energy efficient behaviour. The Commission has put forward a Green paper on market based instruments and a study on tax incentives in the context of the EEAP's priority action on taxation. However, the main priority was to table a proposal for a revised energy taxation directive, which has not been finalized yet. Only once a revised energy taxation directive would enter into force, will a decisive step be achieved towards a more coherent use of taxation. Moreover they are still many taxation schemes in place which are inconsistent with our energy and climate objectives, such as the company car taxation benefits granted by legislation of various MS as it supports additional car use and also bigger, more polluting vehicles.<sup>70</sup> Taxation is thus an area which needs further attention, keeping in mind its strong subsidiarity character.

#### **2.8. Priority action 8: raising energy efficiency awareness**

The Action Plan acknowledges that the efficient use of energy requires factors that motivate, facilitate and reinforce rational and responsible behaviour. Important predisposing elements for rational market behaviour are institutional capacity, awareness, and clear, credible and accessible information in energy-using technologies and techniques. Moreover, education and training are required for all stakeholders, and information technology is vital. It is against this background that the EEAP 2006 defined as priority action to raise energy efficiency awareness by developing through Community programmes:

- Education and training plans and programmes for energy managers in industry and utilities (2.8.1);
- Teaching aids for primary, secondary and vocational educational curricula (2.8.2).

---

<sup>70</sup> See European Commission (2010): Taxation Paper – Company Car Taxation, Working paper 22 [http://ec.europa.eu/taxation\\_customs/resources/documents/taxation/gen\\_info/economic\\_analysis/tax\\_papers/taxation\\_paper\\_22\\_en.pdf](http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_papers/taxation_paper_22_en.pdf)

### 2.8.1. Education and training plans for energy managers in industry and utilities

Education and training plans cover a wide range of aspects. These are detailed out in the annex of the EEAP and include *inter alia*:

1. Promotion of energy management schemes
2. Energy efficient procurement guidelines
3. Guidelines on how to promote energy efficient products
4. Training toolkits for industry, SMEs and the public sector
5. Reference document on Best Available Techniques on Energy Efficiency
6. Involvement of the Intelligent Energy Europe Programme

#### ***Promotion of energy management schemes***

With the Eco-Management and Audit Scheme, EMAS, a voluntary environmental management system (EMS) was established, under which companies and other public organisations evaluate, manage and continuously improve their environmental performance. EMAS has been operative since 1995<sup>71</sup> and was originally restricted to companies in industrial sectors. Since 2001 EMAS has been open to all economic sectors including public and private services.<sup>72</sup> EMAS was strengthened by the integration of EN/ISO 14001 as the environmental management system required by EMAS, by adopting an attractive EMAS logo to signal EMAS registration to the outside world, and by considering more strongly indirect effects such as those related to financial services or administrative and planning decisions. Amending the EMAS regulation was explicitly listed as an EEAP measure and the latest revision (EMAS III) came into effect on 11 January 2010. Currently, more than 4,400 organisations and approximately 7,600 sites are EMAS-registered.

In 2009, the Commission<sup>73</sup> analyzed the costs and benefits of EMAS registrations and found convincing evidence for a number of benefits, including reduced costs for resources and waste management, risk minimisation, regulatory compliance, regulatory relief, improved relations with internal and external stakeholders, and achieving competitive advantage. For SMEs, gaining access to public contracts was highlighted as a key benefit. For SMEs in the supply chain EMAS registration of client companies can have a direct impact. A growing number of small companies will need to demonstrate (or have already demonstrated) a recognised track record of regular, positive environmental management. In fact, often supplier companies are required to have EMAS registration in order to gain market access. For instance, in industry sectors close to the customer, suppliers note that their clients request EMAS registration. To help SMEs with establishing the EMAS, a specific toolkit has been developed.<sup>74</sup>

The Commission committed to lead by example and started the EMAS registration process of its own buildings. The registration of all buildings will be finalized by 2014. The European Parliament is EMAS registered for their three sites Brussels, Luxembourg and Strasburg (see 2.2.3).

#### ***Energy efficiency procurement guidelines***

---

<sup>71</sup> Council Regulation (EEC) No 1836/93

<sup>72</sup> Regulation (EC) No 761/2001

<sup>73</sup> European Commission (2009): Study on the Costs and Benefits of EMAS to Registered Organisations

<sup>74</sup> <http://ec.europa.eu/environment/emas/toolkit/index.htm>

While no energy efficiency procurement guidelines have been put forward, the Commission adopted in 2008 a communication “Public procurement for a better environment”<sup>75</sup> to promote Green Public Procurement (GPP) as voluntary instrument for public authorities. GPP is defined as “a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured.”

Green purchasing is also about influencing the market. By promoting and using GPP, public authorities can provide industry with real incentives for developing green technologies and products. In some sectors, public purchasers command a large share of the market (e.g. public transport and construction, health services and education) and so their decisions have considerable impact.

A dedicated toolkit<sup>76</sup> was designed for use by public purchasers and by GPP trainers or for integration in general public procurement training courses and workshops.

The Commission is following the GPP guidelines for its own procurement activities.

### ***Reference document on Best Available Techniques on Energy Efficiency***

In the context of the IPPC Directive, a Reference Document on Best Available Techniques on Energy Efficiency has been adopted in 2009 (see 2.3.1), which features exhaustive information on Energy Efficiency Management Systems (ENEMS) and the different techniques supporting its implementation is provided, such as:<sup>77</sup>

- Planning actions and investments in an integrated way to continuously minimise the environmental impact of an installation;
- Considering the installation and its systems as a whole, using energy efficiency design and selecting energy efficient process technologies for new and upgraded installations;
- Increasing energy efficiency by increasing process integration, and refreshing the energy ENEMS periodically;
- Maintaining sufficient staff expertise;
- Communication of energy efficiency issues;
- Effective process control and maintenance;
- Monitoring and measuring energy usage;
- Energy auditing;
- Monitoring and benchmarking energy efficiency levels for installations and processes.

### ***Guidelines on how to promote energy efficient products***

Guidelines<sup>78</sup> have been prepared to facilitate the implementation of the regulation on ecodesign requirements for standby and off-mode power consumption of electrical and electronic household and office equipment ((EC) No 1275/2008), in particular for SMEs. Moreover, a brochure has been prepared on how ecodesign can help the environment by making products smarter, which was disseminated via the Europe Enterprise Network.

---

<sup>75</sup> COM (2008) 400

<sup>76</sup> [http://ec.europa.eu/environment/gpp/toolkit\\_en.htm](http://ec.europa.eu/environment/gpp/toolkit_en.htm)

<sup>77</sup> EC (2009): Reference Document on Best Available Techniques on Energy Efficiency, chapter 2.

<sup>78</sup> [http://ec.europa.eu/energy/efficiency/ecodesign/doc/legislation/guidelines\\_for\\_smes\\_1275\\_2008\\_okt\\_09.pdf](http://ec.europa.eu/energy/efficiency/ecodesign/doc/legislation/guidelines_for_smes_1275_2008_okt_09.pdf)

## *Intelligent Energy Europe Programme*

In addition, many activities have been initiated to raise energy efficiency awareness in industry and SMEs in particular, under the umbrella of the Intelligent Energy Europe Programme. Some key projects targeting SMEs to optimize their energy use are:

- **CHANGE (09/2008-08/2010):**<sup>79</sup> Supports SMEs in optimising their energy use by developing a European network of intelligent energy advisors at Chambers of Commerce and Industry (CCIs) and by kick-starting or enhancing concrete assistance to SMEs. This project, co-ordinated by EUROCHAMBRES involves 61 CCIs from 12 European countries. As a result of the project, more than 60 specifically trained Chamber advisors operate as "first ports of call" for SMEs in energy matters. Facilitating their access to information, organising information events, and encouraging businesses to take energy pre-checks, this advisors will bridge the gap between SMEs and existing services available on the market. Further, a reference manual for business organisations on how to advise SMEs on energy topics has been prepared in June 2010.
- **ENGINE (10/2007-03/2010):**<sup>80</sup> Addresses managing and technical staff in SMEs of the automotive, metal and wood processing sectors as well as food industries and energy efficiency advisors in professional associations, Chambers of Industry and Commerce, energy service companies or relevant stakeholders in public authorities in the partner regions. The activities include specific energy efficiency checks for the SMEs and training for potential and existing energy advisors to support capacity building on both sides. Aims at setting up regional networks and promotional campaigns for energy efficiency in producing industries.

### **2.8.2. Teaching aids for primary, secondary and vocational educational curricula**

In the framework of the IEE Programme, about 20 energy education projects which involve over 200 beneficiaries from 26 MS have been launched. Around 5,000 schools across Europe have benefited directly from the actions with a huge replication potential to many millions of students, teacher and parents.

In Summer 2006, the Commission already launched a raising awareness campaign "You control climate change". The Campaign website<sup>81</sup> has a dedicated section for schools, to enable teachers to use the provided teaching material in the classroom on a voluntary basis.

In this context, the EEAP 2006 put forward a proposal to launch a vocational educational initiative on energy efficiency, which has not been initiated yet. However, a similar initiative 'Build up skills: Sustainable Building Workforce' will be launched by the Commission in 2011 in the framework of the IEE programme.

### **2.8.3. Achieving more energy efficiency awareness: overall assessment**

Promoting energy efficiency awareness is a key to promote the use of energy efficient products (lighting, appliances, cars) as well as the implementation of energy efficiency improvements measures by households, private companies and the public sector.

---

<sup>79</sup> <http://www.eurochambres.eu/Content/Default.asp?pageid=232>

<sup>80</sup> <http://www.engine-sme.eu/>

<sup>81</sup> [http://ec.europa.eu/environment/climat/campaign/index\\_en.htm](http://ec.europa.eu/environment/climat/campaign/index_en.htm)

In the context of the EEAP 2006, the measures defined for priority action have been almost all finalized. The issue remains nevertheless relevant and should be further tackled in future policies. The role of training, especially for the labour force, becomes even more imperative as a well trained staff (workers) is a prerequisite to implement some key energy efficiency policies such as the renovation of the existing building stock with a view of improving its overall energy performance (see 2.2.3).

## 2.9. Priority action 9: Energy Efficiency in built-up areas

About three quarters of the population in the EU live in built-up areas in or around cities and this urbanization trend will continue. Such urban areas consume 80% of the energy in the EU and emit about the same share of greenhouse gases. Shaping energy consumption patterns in built-up areas is in the hands of the responsible regional and local authorities. Consequently, triggering stronger commitment of cities and regions to act is key to reduce energy consumption at local level. To this end, the Commission defined as the ninth priority action to create a:

“Covenant of Mayors” bringing together in a permanent network the mayors of 20-30 of Europe’s largest and most pioneering cities. The aim is to exchange and apply best practices thereby improving energy efficiency significantly in the urban environment, where local policy decisions and initiatives are important, including transport.

The Commission implemented this priority with a much more ambitious approach, upon which cities and regions commit formally to go beyond the objectives of the EU in terms of CO<sub>2</sub> reduction (more than 20% by 2020), by drafting and implementing Sustainable Energy Action Plans, subject to scrutiny by the Commission services. Covenant signatories accept termination of their involvement in the Covenant in case of non respect of their own commitment. The commitment is unilateral and not conditional to any kind of support by the EU. Covenant cities also commit to provide reports outlining the progress of their Action Plans. In order to allow smaller municipalities to be in a position to commit to the Covenant principles, the Commission signs agreements with the so called Supporting Structures, national and sub-national admin such agreements have been signed so far.

The Covenant procedure was launched in January 2008. After a consultation period, representatives from cities and regions submitted to the Commission a final version of the Covenant text in October 2008. From that moment on, cities and regions start to adhere. By February 2009, when the first Covenant Ceremony took place at the European Parliament, 370 cities had joined. For the second Ceremony in May 2009, the Covenant consisted of 1680 signatories. The 2000<sup>th</sup> signatory adhered in October 2009. More than 132 million people are living in a EU Covenant territory. The expected results in CO<sub>2</sub> tons avoided exceed 145 million tonnes per year by 2020. More than € billion have been mobilised in just one year of full operation.

### *Overall assessment*

So far the investment by the Commission to facilitate the Covenant has been relatively small. The most important investment is linked to the **European Local Energy Assistance facility (ELENA - see 2.5.1)** operated by the European Investment Bank. Only through ELENA, almost €900 million were mobilised in Covenant territories in just 10 months in 2010 with an EU support of less than € million. Besides, the Covenant of Mayors will be extended to the European Neighbourhood Policy countries with a € million Decision in 2010. Through the



Covenant, more than €300 million from the Cohesion Funds have been used in energy efficiency actions in local settings.

In technical terms, several hundred Sustainable Energy Action Plans have been produced and submitted, with impressive results. UN agencies, other international organisations, multinational companies and foreign governments are requiring access to that information in order to develop new approaches.

The Covenant attracted from the inception moment lots of media attention and high support by top decision-makers at EU and national level.<sup>82</sup> They have also taken the Covenant message to other fora, often outside the EU (for instance, in China, USA or Latin America).

The main advantage of the Covenant lays in its bottom-up approach and full application of the subsidiarity principle. The role of the Commission is limited to provide a EU dimension and some supporting instruments and to guard the respect of the commitments. Because of that, it can be managed with very limited resources and high effectiveness.

However, it will take some additional years to show whether the energy saving potential channelled through the Covenant of Mayors will be fully tapped. The success of the Covenant cities and regions will also to some large extent depend on provided financial and technical support. To this end, the Commission would need to further reinforce the Covenant, *inter alia* with additional resources to effectively tackle energy use in urban buildings and transport.

## **2.10. Priority action 10: Fostering energy efficiency worldwide**

The last priority action of the EEAP is to foster energy efficiency worldwide. To this end, the Commission stated it would take the initiative to reach a framework agreement with key external trading partner countries and international organisations. The agreement would focus on improving energy efficiency in end-use sectors and energy transformation and use a large number of policies and measures.

### **2.10.1. The international Partnership on Energy Efficiency Cooperation (IPEEC)**

The priority action has taken the form of the International Partnership for Energy Efficiency Cooperation (IPEEC). This is a major Commission initiative in the G8 context which was officially launched in 2009. It is a high level forum for enhancing and coordinating joint efforts to accelerate the adoption of sound energy efficiency improvement practices. The Partnership provides a forum for discussion, consultation and exchange of information. The present 15 members are the G8, the EU and the emerging economies Brazil, China, India as well as Australia, Mexico, and South Korea. IPEEC is open to all countries wishing to contribute to energy efficiency. A number of dedicated Task Groups work on issues such as sustainable buildings, energy management, and efficient equipment and appliance deployment. Meetings take place on a regular basis.

### **2.10.2. Other measures addressing energy efficiency worldwide**

In addition to the creation of IPEEC, the EEAP 2006 put forward more measures fostering energy efficiency beyond the EU, such as:

---

<sup>82</sup> Presidents Barroso, Buzek, Van der Brande, Bresso, Zapatero and others have attended Covenant ceremonies and expressed full support.

- Strengthening of energy efficiency in energy and trade treaties, agreements, dialogues and other cooperation frameworks;
- Increasing international cooperation on measurement methods for minimum efficiency requirements and labelling;
- Voluntary agreements with export industries on information, minimum efficiency requirements and labelling;
- Creation of an international network for dissemination of information and advice on efficient technologies.

### ***Stronger energy efficiency focus in cooperation frameworks***

The focus on energy efficiency in the EU's bilateral relations has definitely increased. Cooperation on energy efficiency is systematically covered in negotiations on legal framework agreement with third countries. These agreements are often complemented by 'energy dialogues' with individual third countries or groups of countries and which take place on a regular basis including exchanges on energy efficiency (e.g. Brazil, India, Russia, the Gulf region). Energy efficiency is also included in Action Plans designed in the framework of the European Neighbourhood Policy.

Moreover, improving energy efficiency measures and energy savings is covered in several Memoranda of Understanding on energy between the EU and third countries: China is a notable example. Regarding the ACP countries, EU-Africa Energy Partnership was launched in December 2007, featuring energy efficiency as one of its key elements. This partnership will be supported by concrete projects developed under a Thematic Program on environment and sustainable management of natural resources including energy as well as the EU-Africa Infrastructure Partnership. Worth mentioning is also the Action Plan on Sustainable Industrial Policy which has a strong focus on international cooperation.

### ***International cooperation on measurement methods for minimum efficiency requirements and labelling***

Cooperation on measurement methods are a focus in IPEEC which has a dedicated Task Group on the development of energy efficiency indicators, led by France. The issue is incidentally also being discussed in bilateral relations with major partners such as Russia.

### ***International network for dissemination of information and advice on efficient technologies***

The collaboration by members of the G8 + G5 in the context of the so called 'Heiligendamm Process' focused on extensive exchange of information on energy efficiency in buildings. This process was formally ended in 2009 but is being extended and actively taken up in the framework of IPEEC which has a specific Task Group on sustainable buildings.

### ***Voluntary agreements with export industries on information, minimum efficiency requirements and labelling***

The 'Energy Star' programme (see 2.1.4) contains a voluntary agreement on a label for office equipment. It is being applied in the EU, the US and also Japan. It has been renewed and reinforced in 2006 and is expected to be renewed again in 2011.

### **2.10.3. Fostering energy efficiency worldwide: overall assessment**

The EU has significantly intensified its efforts to include energy efficiency in its international relations. Intensified cooperation should continue to take place, *inter alia* in the context of IPEEC. The objective is to facilitate actions that yield high energy efficiency gains. Harmonisation of energy efficiency legislations at global level remains complicated by the existence of diverging approaches in the USA, Japan and Europe.

### 3. ACHIEVEMENTS IN ENERGY SERVICES

While not explicitly selected as priority for the Commission to take immediate action, promoting the uptake of a market for energy services is nevertheless a priority area of the EEAP 2006. Against this background, this report looks into the achievements realized so far with the implementation of the key legislation on energy services.

#### 3.1. Main objectives of the Energy Services Directive

The Energy Services Directive (ESD) is a framework directive on end-use energy efficiency. The purpose of the ESD is to enhance the cost-effective improvement of energy end-use efficiency by:

- Creating the conditions for the development and promotion of a market for energy services;
- Providing mechanisms, incentives and institutional, financial and legal frameworks to remove existing market barriers and imperfections;
- Triggering energy efficiency action in various areas (i.a. public sector);
- Coordinating and monitoring saving activities through regular national energy efficiency action plans.

The realisation of the directive's principle objective, i.e. the cost-effective improvement of energy end-use efficiency in the MS, will be achieved by setting energy savings targets of 9% for 2016, underpinned by interim targets for 2010. In other measures, the ESD sets out provisions which create the conditions needed for the development and promotion of a market for energy services and for the delivery of other energy efficiency improvement measures for final consumers.

#### **Box 1:** The ESD target and the overall European energy saving objective

It should be noted that the ESD target setting and the overall European 20% primary energy saving target are difficult to compare for several technical reasons:

- The 9% ESD target is based on final energy consumption, excluding final use of the ETS installations or military use. In order to calculate the contribution to the 2020 primary energy saving target, the specific final energy targets need to be converted into primary energy. The outcome will depend on the national features of the saving measures, especially how many measures target electricity savings. The actual share of electricity savings versus heat savings under the ESD determines how big the ESD impact will be in primary terms.<sup>83</sup>
- The 20% target aims at saving 368 Mtoe primary energy in 2020 compared to a projection. In the ESD, the connection between achieved savings and the resulting energy use level is looser as only 9% energy end-use energy savings have to be proven but not their impact on final or primary energy consumption.

<sup>83</sup> This effect will be smaller for countries that already applied a weighting factor for electricity (default co-efficient is 2.5, see Annex II of the ESD).

- The ESD target is set for 2016. The question is how much policy measures implemented as a result of the ESD will contribute towards the 2020 target in the 2016-2020 period.
- Although the base year (5-year average) of the ESD should not be normalised (ESD Annex I), the energy savings under the ESD should be normalized, e.g. for weather conditions (see ESD Annex IV).
- A share of early action savings (achieved before 2008 but after 1991/95<sup>84</sup>) can be counted towards the target on the condition that they have a lasting effect. Early action savings achieved between 1991/95 and 2005 are already part of the PRIMES 2007 baseline (the fixed benchmark baseline for the 20% objective) and therefore do not contribute to the 20% target. Only early action implemented in 2006 and 2007 contributes to the 2020 target.

In addition to setting end-use energy saving targets, the Directive obliges the Member States to prepare three national energy efficiency action plans (NEEAP) in which they report on their saving activities. The public sector is expected to fulfil an exemplary role in achieving the objectives of this Directive and must invest, maintain and ensure that related expenditure on energy-using equipment is spent bearing energy-efficiency in mind. Rules on improved consumer information and energy consumption are spelt out as are provisions on better metering and the billing of energy consumption.

Depending on the chosen measures to achieve the saving targets, the impacts of the ESD can overlap with national implementation impacts from other Directives such as EPBD, ecodesign or labelling (see chapters 2.1, 2.2). This underlines the character of the ESD as framework Directive which was designed to back up and strengthen the implementation of other Directives that focus on end-use energy efficiency.

### **3.2. Level of implementation**

Member States had to transpose the Directive by May 2008. In the beginning, transposition of the Directive was slow with 20 reasoned opinions for non-communication issued by the Commission in February 2009. However, in the end of 2009 and beginning of 2010, the process of adoption of relevant national legislative and non-legislative measures in MS accelerated. In October 2010, 24 MS communicated full transposition while three Member States had a status on incomplete transposition with indication that the transposition in the countries would be closed by the end of 2010.

Under the ESD, MS were also specifically required to adopt and submit their first NEEAP to the Commission not later than 30 June 2007. The first NEEAP were supposed to stimulate the translation of energy saving objectives into concrete and coherent measures and actions at the level of each MS. For many Member States this has been the first time they had to prepare such comprehensive national energy saving strategies and some delays with adoption of NEEAPs occurred. It was only in July 2008, i.e. a year after the deadline set in the Directive that the Commission was in receipt of all NEEAPs.

The assessment in the first NEEAPs indicated that a number of MS had been successful in setting comprehensive frameworks for harnessing possibilities to reduce energy consumption

---

<sup>84</sup> For details, see Annex I of the Energy Services Directive.

cost-effectively. Yet, there have been some Member States which had some more difficulties in setting such frameworks.<sup>85</sup>

Following bilateral communications with the Commission some MS (e.g. Lithuania, Hungary) on their own initiative revised their first NEEAP and adopted new significantly upgraded sets of policy measures. Some other MS adopted targets going beyond strict ESD obligations and looking at primary energy savings objectives with a time horizon for 2020.

In order to support MS in transposing the Directive the Commission has set up a Concerted Action on the ESD (see chapter 2.6.2). The exchanges between MS carried out under the framework of the Concerted Action clearly helped with quicker implementation of new energy saving measures in many MS. These exchanges revealed also that even though the economic crisis created restrictions on public spending necessary for the proper implementation of many key measures set in the first NEEAP, a number of MS decided to introduce new policy measures in addition to their NEEAP as they considered smart investments in energy savings as an important instrument to improve energy security, create new jobs and fight against fuel poverty.<sup>86</sup>

### 3.3. Expected impact of the Energy Services Directive

As explained in chapter 3.1 the impact of the ESD may be overlapping with other EEAP instruments, depending whether MS make use of these instruments to reach the ESD's saving target. The full overview of ESD measures accountable for the end energy saving target will only be known as a result of the reporting in the second and third NEEAPs. However, it is possible to draw some first conclusions in terms of impacts out of the first NEEAPs and several research studies which have been signed out to this effect:

- The 2009 analysis from Fraunhofer ISI (as part of the EU-27 Energy Savings Potential study).
- The Commission's own assessment with help of PRIMES 2007 (benchmark baseline for the ESD) and PRIMES 2009 (including recession and additional policies effect).

Based on the level of ambition claimed by the MS in their first NEEAPs, the *final* energy savings in Mtoe triggered by the ESD that could be achieved if MS manage to reach their national targets would have an accumulated effect of **ca. 112-120 Mtoe**.<sup>87</sup> The number includes “early actions” taken by some MS before the adoption of ESD.<sup>88</sup>

An assessment by Fraunhofer et al. (2009)<sup>89</sup> concluded that about one third of the cost-effective saving potential of the ESD sectors has been covered by the NEEAP targets. They estimated a cost-effective energy saving potential for activities covered by the ESD **of at least 180 Mtoe of final energy use in 2016**.

---

<sup>85</sup> Synthesis of the complete assessment of all 27 National Energy Efficiency Action Plans, Commission Staff Working Document, 23.6.2009 (SEC 2009/889 final)

<sup>86</sup> For example: a new revolving funds for energy efficiency in housing established in Estonia, Lithuania or a new support schemes for energy saving introduced in Ireland.

<sup>87</sup> In some MS, the savings expected by some MS from the implementation on ESD are sometimes higher than their official commitments for final energy saving targets.

<sup>88</sup> Some “early actions” include measures implemented in MS back in 1991.

<sup>89</sup> See Ecofys and Fraunhofer ISI. 2010. The feasibility of binding energy savings targets in the EU. Draft report.

In their first NEEAP, MS attributed approximately one third of their savings to early actions before 2007 (which is allowed under the Directive). This would leave a net saving impact of 120 Mtoe final energy for the ESD for the period 2007-2016. With the assumption that 25% of the saving measures are targeting electricity consumption and using the conversion factor of 2.5 this would translate into some 165 Mtoe primary energy savings by 2016. This gross saving figure includes savings which can also be attributed to other measures. If we assume that some 60% of the measures taken up in the NEEAPs rest on other EU legislation, the net additional saving effect triggered by the ESD can be estimated at some 66 Mtoe primary energy savings for 2016. With the assumption that MS will continue their constant efforts on energy savings beyond 2016, net additional savings could reach some **95 Mtoe primary energy savings in 2020**.

PRIMES 2007 can be considered the benchmark baseline for the ESD. PRIMES 2009 includes the national implementation measures of the ESD (as reported in the NEEAPs). With the help of both scenarios, the impact of new energy efficiency policies on end-users can be determined. As PRIMES 2009 does include the impact of the recession, we need to distinguish between the clear policy impact and the impact of the recession. The analysis will be done for industry, residential, tertiary and transport sector separately.

However, by analysing PRIMES, a net impact of ESD on final energy savings in 2020 could be reduced down to 50 Mtoe. This more cautious figure can be attributed to different assumptions about the share of other EU policy measures counted in the ESD target, different lifetimes attributed to the measures or different assumptions about rebound effects.

### **3.4. Overall assessment**

The analysis shows that the underlying idea of the Energy Services Directive, that is triggering additional energy savings by setting a framework and backing up other savings Directives, has delivered positive results. As the Directive only tackles a special segment of the energy consumption side and is limited in scope and time, the benefits in terms of savings however stay considerably below the tangible potential. Further savings could be achieved by broadening the scope of the Directive as well as the obligations set by the Directive. This could be done by:

- Discussing revised options for target setting which are closer linked to directly reducing energy consumption;
- Stepping up provisions on cross-cutting measures such as financing, consumer information;
- Turning the national energy efficiency action plan from a reporting tool into overall strategic policy documents to capture all energy savings and better describe the national energy efficiency policies;
- Stepping up the obligations for the energy suppliers and integrating supply side efficiency.

These items will be looked at in detail once results of the mid-term evaluation of the Energy Services Directive are available, delivering further in-detail results.

#### 4. OVERALL CONTRIBUTION OF THE ENERGY EFFICIENCY ACTION PLAN

The EEAP was proposed by the Commission with a view to move the EU towards reaping the 20% energy saving potential described in its Green Paper on Energy Efficiency and to maintain Europe's position as one of the most energy-efficient regions in the world. Although the EEAP is still in implementation until 2012, the first comprehensive assessment presented with this progress report unveils important achievements in most priority areas and priority actions addressed.

##### 4.1. General achievements and limitations

The very broad approach followed by the EEAP 2006 has the strong merit of addressing numerous ways for improving energy efficiency and provides for the first time an overarching European framework for energy efficiency measures in different sectors, addressing different stakeholders through different types of measures.

The implementation of the EEAP has triggered significant positive developments by driving for new, better and implemented energy efficiency legislation: With over 20 legislative measures in its portfolio, the EEAP strongly pushed for the implementation of existing key Community legislation targeting efficient uses of energy *inter alia* in buildings (EPBD), products (Ecodesign, labelling), services (ESD), in energy transformation (CHP) and in rail transport. It further strengthened selected key legislation by putting forward their revision (EPBD, ecodesign and labelling Directives). Moreover it introduced new legislation addressing fuel efficiency of cars (minimum emission standards, labelling of tyres) and the uptake of clean vehicles through public procurement. EEAP further supported the implementation process of legislative measures with targeted instruments such as financing (e.g. ERDF, ELENA), Reference Documents on Best available techniques, guidelines, and promoted the exchange of best practices in energy efficiency, *inter alia* through the creation of information platforms (e.g. Concerted Actions in buildings and energy services, Bucharest Forum, etc.) within the EU but also internationally (e.g. IPEEC). It is undisputed that these achievements bring Europe closer to the EEAP's overarching objective to deliver the most energy-efficient infrastructure, buildings, appliances, processes, transport means and energy systems.

Looking at the detailed level of measures proposed, it can be noted that the majority of the priority actions have been initiated and finalized (see chapter 2) and that the majority of the 85 measures proposed in the EEAP have been completed or are in the process of being finalized. Only a few have not been addressed now (see annex 1).

Despite the strong impact, in contrast, some aspects of the EEAP limit its overall effectiveness. Indeed, its approach of listing 85 measures lead to a political reality where the Plan is often perceived as a technical document more than a strong and visible political commitment to energy efficiency and savings. Although an overarching aim was defined, it lacks clear objectives for the different sectors and the measures proposed are not directly interlinked. Further, the EEAP is mainly conceived as (priority) actions to be taken by the Commission, while the success of many measures depends to a large extent on their level of implementation in Member States (e.g. in the case of legislation) and the interplay with supportive measures (e.g. financing).



## 4.2. Contribution of the EEAP to the energy saving objective in 2020

In addition to the assessment of the individual progress made with each priority action (chapter 2), it is imperative to provide an appraisal of the overall contribution of the Plan towards the 2020 energy saving objective. Such an overall review is a complex task when approaching it from a bottom-up perspective, i.e. by adding up savings from single measures, to generate an aggregated impact. Indeed, overlaps resulting from interacting measures targeting the same sector would need to be identified and accounted for when compiling the overall impact. As an alternative, a top-down approach can be used to estimate the overall impact of the EEAP measures. To this end, the Energy Model called PRIMES, developed by the Technical University of Athens on behalf of the Commission, was used.

At the time of the EEAP's adoption in 2006, it was estimated that it had the potential to deliver 14% energy savings by 2020 compared to a baseline scenario of the Energy Model PRIMES. To observe the effects at the macroeconomic level, it is necessary to compare the changes between the baseline used for the EEAP impact assessment<sup>90</sup> and the newest available one taking into account the impact of major EEAP measures implemented until the end of 2009 as well as other economic developments affecting primary energy consumption. This suggests that the energy efficiency policies are expected to deliver not 14% but about half of the savings objective in 2020.

However, it should be pointed out that these projections do not take into account policies in the pipeline, especially the forthcoming ecodesign implementing measures as well as adopted policies in full such as the recast Energy Performance of Buildings Directive. This would have an additional impact on reducing future consumption.

## 4.3. Way forward – A new Framework on Energy Efficiency Policies

The experience gained with the implementation of the EEAP is valuable for the design of any new European framework for energy efficiency policies. The following main conclusions can be drawn:

- A full and ambitious application of existing energy efficiency legislation by Member States is crucial to deliver the full potential of energy savings in practice;
- As energy savings are realized at national and local level, it is important to steer and mobilize action at all levels of government;
- Supporting tools need to be strengthened or expanded further to increase the impact of legislation, such as National Energy Efficiency Plans, monitoring systems, access to financing and training;
- More ambitious measures are needed to tackle energy consumption in all sectors;
- An overarching energy efficiency framework with a longer term perspective is needed to trigger lasting political commitment towards energy efficiency improvements and energy savings. It needs to be streamlined and focused on main policy objectives, containing clear priorities without getting too technical.

Any new framework should imperatively build upon the experiences gained with the implementation of the EEAP 2006 and propose additional policies to close the gap and realize

---

<sup>90</sup> The baseline used for the EEAP assessment dates from 2005. This baseline has been updated in 2007 taking into account all energy efficiency policies and measures adopted until the end of 2006. As the assumption for the Gross Inland Consumption of energy are the same between the two baselines, it is recommend to use the baseline update from 2007 to coincide better with the implementation start of the new Energy Efficiency Action Plan in 2006.

its aspiration to mobilise the general public and policy-makers, and to provide EU citizens with energy-efficient infrastructure, buildings, appliances, processes, transport means and energy systems.

## ANNEX 1: STATUS OF EEAP IMPLEMENTATION BY MEASURE (AS OF OCTOBER 2010)

1. Dynamic energy performance requirements for products, buildings and services			
Measure	Description of implementation	Status	
1.1	Implementation of the Eco-Design Directive (2009/125/EC, ex 2005/32/EC)	<b>Implementation</b> is ongoing. <b>Amendment:</b> A recast of the Ecodesign Directive entered into force in November 2009 as Directive 2009/125/EC (OJ L 285/10, 31.10.2009). This has extended the scope to include all energy-related products. The Commission now has a mandate to bring forward, where appropriate, for detailed implementing acts on the eco-design of products.	Ongoing <b>Completed</b>
1.1.1	Co-ordinate eco-design requirements, labelling and incentives	<ul style="list-style-type: none"> <li>• Energy Labelling is taken into account as a complementary policy option to minimum efficiency requirements when considering measures relating to the individual product groups in the preparatory work carried out under the Eco-design Directive.</li> <li>• Synergies have been developed with the US Energy Star Program.</li> <li>• There is now greater coherence in laying down eco-design requirements as part of provisions for public procurement tendering.</li> </ul>	Ongoing
1.1.2	Develop eco-design requirements for 14 priority product groups	<ul style="list-style-type: none"> <li>• Ongoing analysis for 25 priority product groups.</li> <li>• 8 detailed measures to implement the Directives were adopted in 2009 as regards: <ul style="list-style-type: none"> <li>– Simple set-top boxes ((EC) No 107/2009)</li> <li>– Non-directional household lamps ((EC) No 244/2009)</li> <li>– Fluorescent lamps without integrated ballast, for high intensity discharge lamps and for ballasts and luminaires able to operate such lamps ((EC) No 245/2009)</li> <li>– Efficiency of external power supplies ((EC) No 278/2009)</li> <li>– Electric motors ((EC) No 640/2009)</li> <li>– Glandless standalone circulators and glandless circulators integrated in products ((EC) No 641/2009)</li> <li>– Televisions ((EC) No 642/2009)</li> <li>– Household refrigerating appliances ((EC) No 643/2009)</li> </ul> </li> </ul>	Ongoing
1.2	Develop eco-design requirements for additional product groups	<ul style="list-style-type: none"> <li>• Preparatory studies on additional product groups underway, including <ul style="list-style-type: none"> <li>– Fans</li> <li>– Dishwashers</li> <li>– Washing Machines</li> <li>– Electric pumps</li> <li>– Water heaters</li> <li>– Boilers</li> <li>– Personal computers and electronic displays</li> </ul> </li> </ul>	Ongoing

		<ul style="list-style-type: none"> <li>- Air conditioning and ventilation</li> <li>- Commercial refrigerators</li> <li>- Laundry dryers</li> <li>- Vacuum cleaners</li> <li>- Solid fuel combustion</li> </ul> <ul style="list-style-type: none"> <li>• Draft measures for these product groups will be submitted to the Regulatory Committee from 2010 onwards.</li> </ul>	
1.3	Support self-commitments to deliver energy savings	<ul style="list-style-type: none"> <li>• Work on-going for the adoption of voluntary agreements for 4 product groups: <ul style="list-style-type: none"> <li>- Complex set-top boxes</li> <li>- Imaging equipment</li> <li>- Machine tools</li> <li>- Medical imaging equipment</li> </ul> </li> </ul>	Ongoing
1.4	Implementation and amendment of the Labelling Framework Directive (92/75/EC)	<p>Implementation is ongoing.</p> <p><b>Amendment:</b> A recast of the Labelling Directive 92/75/EC entered into force June 2010 as Directive 2010/30/EU (OJ L 153/1, 18.06.2010) The recast includes the extension of the scope to energy-related products.</p>	<p>Ongoing</p> <p><b>Completed</b></p>
1.4.1	Propose Commission Directives for energy labelling of gas water heaters and electric water heaters	Preparatory work completed. Directives will be tabled for adoption in 2010.	Ongoing
1.4.2	Prepare additional labelling implementing measures and revise existing labels, with a view to re-scale them every 5 years with only 10 – 20 % having A-label status and verifying life-cycle costs and expected energy savings	New labels for boilers, water heaters and televisions are being prepared.	Ongoing
1.4.3	Launch a comprehensive survey on the implementation of the Directive	The study will be launched in 2010.	Ongoing
1.5	Implementation and amendment of the Energy Star Agreement on office equipment	The implementation is ongoing.	Ongoing
1.5.1	Conclude a new 5-year Energy Star Agreement	New Agreement concluded in December 2006.	<b>Completed</b>
1.5.2	Propose amending Regulation (EC) No 2422/2001 on a Community energy efficiency labelling	Regulation (EC) No 106/2008 adopted in January 2008, including compulsory Energy Star efficiency levels to be used in public procurement.	<b>Completed</b>

	programme for office equipment		
1.5.3	Develop stronger energy efficiency criteria for office equipment	<ul style="list-style-type: none"> <li>• Ongoing process with US Environmental Protection Agency.</li> <li>• In 2009 revised criteria for imaging equipment, computers and displays were agreed (Commission Decisions 2009/347, 489 and 789).</li> <li>• In 2010 revised criteria for servers should be agreed. On-going work for four additional product groups.</li> </ul>	Ongoing
1.6	Implementation and amendment of the Energy End-Use Efficiency and Energy Services Directive (2006/32/EC)	<p><b>Implementation:</b></p> <ul style="list-style-type: none"> <li>• Reasoned opinions were sent in February 2009 to 20 MS for non-communication of transposing measures (17.05.08 was deadline of transposition by MS). Bilaterals with MS being in situation of not fully transposed Directive; By 20.07.2010: 4 open cases on non-communication of full transposition.</li> <li>• All MS have submitted their first NEEAPs. Summary report on the NEEAPs assessment was published in June 2009 (SEC(2009) 889). Template for the 2<sup>nd</sup> NEEAP has been prepared.</li> <li>• Recommendations on common methods and indicators (draft) to measure and verify energy savings have been sent to relevant Committee (EDMC).</li> <li>• A Concerted Action was launched in June 2008 to assist the MS with the implementation of the Directive.</li> </ul> <p><b>Amendment:</b> A study to investigate the issues at stake has been launched. Final results expected for 2011.</p>	Ongoing
1.6.1	Prepare a Memorandum of Understanding (MoU) on energy efficiency in co-operation with CEER through ERGEG	MoU on energy efficiency problematic as not all regulatory authorities have competences in end-use energy efficiency. Measure has been postponed for the time being. However, regular discussions on energy efficiency with CEER/ ERGEG are taking place in various fora (eg. Citizen's Energy Forum).	Not realised
1.6.2	Assess a Community-wide White Certificate Scheme	Internal Commission study on Community-wide Certificate Scheme realised. Results indicate that a Community-wide White Certificate Scheme is not recommendable even though national schemes for white certificates can be considered as useful for promoting energy efficiency.	<b>Completed</b>
1.6.3	Improve coherence of national public procurement guidelines on energy efficiency	<ul style="list-style-type: none"> <li>• 16.07.08: Communication on Green Public Procurement, setting the 50% (political) target for GPP (where "green" means compliant with endorsed common core GPP criteria) and establishing a process of cooperation with the Member States to identify environment criteria for inclusion in tender documents (as part of the Sustainable Consumption and Production and Sustainable Industrial Policy action plan).</li> <li>• The training toolkit which includes a strategic, legal and practical module, the latter with examples of GPP criteria for inclusion in tender documents, has been finalised and can be downloaded from <a href="http://ec.europa.eu/environment/gpp/training_toolkit_en.htm">http://ec.europa.eu/environment/gpp/training_toolkit_en.htm</a>. The toolkit includes GDP criteria for the following products: construction, food and catering services, office IT equipment, gardening products and services, transport, electricity, cleaning products and services, textiles, furniture and paper.</li> </ul>	<b>Completed</b>

		<ul style="list-style-type: none"> <li>• Buying Green! A handbook on environmental public procurement (2004) is a practical guideline for public authorities and contracting parties to support the introduction and use of GPP. The handbook explains in concrete terms how environmental considerations can be integrated at each stage of public procurement procedures and clarifies the legal possibilities as introduced by public procurement directives.</li> <li>• An overview survey was carried out in 2009 and beginning of 2010 to analyse national energy efficiency procurement measures in the EU; Results will be shared with the MS in 2010</li> <li>• Publication of a Green Paper on the modernisation of EU public procurement policy: Towards a more efficient European Procurement Market (COM(2011) 15 final).</li> </ul>	
1.6.4	Seek agreement on more stringent and harmonised criteria for voluntary agreements to significantly increase energy efficiency	<ul style="list-style-type: none"> <li>• Existing Voluntary Agreement schemes has been assessed with a view to identify their strengths and weaknesses. Recommendations for criteria have been developed.</li> <li>• Internal overview survey was carried out in 2009 and beginning of 2010; Results have been shared with the MS in April 2010.</li> </ul>	<b>Completed</b>
1.6.5	Issue a mandate for a European norm (EN) for energy audits	<ul style="list-style-type: none"> <li>• CEN/CENELEC Working Group on Energy Auditing was established in 2008</li> <li>• CEN mandate for energy audits is under preparation to support the work of CEN/CENELEC</li> </ul>	Ongoing
1.6.6	Will consider and propose as appropriate more detailed metering and billing requirements	<ul style="list-style-type: none"> <li>• An internal study investigated MS experience with advanced metering and billing. It assessed the potential for energy savings achieved through these measures.</li> <li>• Facilitation of exchanges between MS on that topic is ensured by the ongoing ESD Concerted Action.</li> <li>• More detailed metering and billing requirements are also covered in the Third internal energy market package with Directives 2009/72/EC and 2009/73/EC.</li> </ul>	<b>Completed</b>
1.6.7	Consider supporting or establishing a centre to identify and improve emerging and existing technologies	<ul style="list-style-type: none"> <li>• Energy efficiency is addressed by a number of European programmes and initiatives. The Energy Theme of the current Research Framework Programme (FP7, 2007-2013) focuses on increasing the efficiency in energy generation for all energy technologies, the efficient energy use in the manufacturing industry, poly-generation and socio-economic research.</li> <li>• The Strategic Energy Technology Plan proposed by the Commission is the technology pillar of the EU's energy and climate policy. It is a blueprint for Europe to develop a world-class portfolio of affordable, clean, efficient and low emission energy technologies through coordinated research.</li> </ul>	<b>Completed</b>
1.7	Implementation and amendment of the Energy Performance of Buildings Directive (2002/91/EC)	<p><b>Implementation:</b></p> <ul style="list-style-type: none"> <li>• Infringement cases for non-communication are open for 2 MS.</li> <li>• A thorough conformity check is currently being carried out for the transposition of Art. 7, 8 &amp; 9 for which 23 MS requested an additional 3-year period (until 01/2009).</li> <li>• The Concerted Action on the EPBD (2005 – 2010) brings together the national implementing bodies in a forum for exchange of experience on its effective, practical implementation. The outcome of almost 20 Intelligent Energy Europe projects on the topic were fed directly into this</li> </ul>	Ongoing

		<p>forum, whilst the majority of them can claim direct uptake of their outcome within either national and regional legislation/tools or the proposed recast. The consolidated, practical experiences of the national bodies expressed via the Concerted Action were the basis for the recast proposal.</p> <p><b>Amendment:</b></p> <ul style="list-style-type: none"> <li>• A recast of the Energy Performance of Buildings Directive entered into force in July 2010 as Directive 2010/31/EU (OJ L 153/13, 18.06.2010). MS have to transpose it by July 2012.</li> </ul>	<b>Completed</b>
1.7.1	Propose an expanded role for the public sector to demonstrate new technologies and methods	The exemplary role of the public sector has been strengthened in the recast EPBD. By the end of 2018 all new buildings built for public authorities shall be nearly zero energy. MS taking into account the leadership role of the public sector shall develop policies and measures to stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings. Public authorities should become early adopters of energy efficiency improvements by having to comply with the requirements of the EPBD earlier than other sectors. Public authorities are also encouraged to implement the recommendations included in the energy performance certificate as soon as feasible.	<b>Completed</b>
1.7.2	Propose lowering significantly the threshold for minimum performance requirements for major renovations	The threshold was completely abolished in the recast Directive 2010/31/EU. With this the scope of the Directive has been extended to include basically all existing and new buildings.	<b>Completed</b>
1.7.3	Propose minimum performance requirements (kWh/m <sup>2</sup> ) for new and renovated buildings and some components with a target for new buildings to approach the level of passive houses from 2015.	<ul style="list-style-type: none"> <li>• Setting EU-level harmonised cost-optimal minimum energy performance requirements for the various types of new and renovated buildings has proven to be an unfeasible option because of the very different local conditions (e.g. climate, culture, history, taxation, labour costs). This issue was solved through the provisions in the recast that Member States set minimum energy performance requirements for buildings with a view to achieving cost-optimal levels. This means the energy performance level which leads to the lowest cost during the estimated lifecycle.</li> <li>• The level of ambition of these nationally set equipments will be checked using the European comparative methodology framework, which shall be defined in detail under a Comitology process in 2010-2011. If there are major discrepancies MS would have to justify in writing why the gap exists and if the gap cannot be justified then they have to send a plan of how they plan to close it.</li> <li>• MS have to draw national plans for the increasing the number of nearly zero-energy buildings (e.g. close or more ambitious to the passive houses) and include in them intermediate target for their share of new build in 2015. The nearly zero energy consumption will be the norm for new buildings by the end of 2020 (and end of 2018 for new buildings occupied by public authorities).</li> </ul>	<b>Completed</b>
1.7.4	Consider proposing binding requirements to install passive	<ul style="list-style-type: none"> <li>• These requirements were considered in a more holistic way in the recast EPBD. Firstly, these</li> </ul>	<b>Completed</b>

	heating and cooling technologies	are more explicitly stated as elements in the common general framework for the calculation of energy performance of buildings (see Article 3 and Annex 1 of Directive 2010/31/EU). Secondly, these elements are commonly part of nearly zero energy buildings.	
1.7.5	Propose measures for Member States to provide financing for highly cost-effective investments	<ul style="list-style-type: none"> <li>Financial incentives are addressed in the recast Directive 2010/31/EU. Art. 10 foresees that in view of the importance of providing appropriate financing and other instruments to catalyse the energy performance of buildings and the transition to nearly zero-energy buildings, MS shall take appropriate steps to consider and report on the most relevant such instruments in the light of national circumstances.</li> <li>As an obligation from the recast EPBD, the Commission will prepare a report on financing and may consider to make proposals with respect to the available Union instruments.</li> </ul>	<b>Completed</b>
1.8	Implementation of the Construction Products Directive (89/106/EEC)	<p>Implementation is ongoing.</p> <p><b>Amendment:</b></p> <ul style="list-style-type: none"> <li>The Commission has adopted on 23/05/2008 a proposal for a Regulation on Construction Products, which will replace the existing “Construction Product Directive” (89/106/EEC). The proposal aims at strengthening a “common technical language” for expressing the performance of construction products, thus simplifying and clarifying the present situation. A clarification of procedures leading to CE marking is introduced as well, to reduce costs for manufacturers, whilst ensuring that the declaration of performance accompanying the product is accurate and reliable. Specific measures are introduced to reduce the burden for manufacturers and additional provisions are foreseen for micro-enterprises.</li> <li>The proposal was examined by the EP in a 1st Reading in April 2009 and the Council reached a political agreement in late May 2010. After the official transmission of the Council's Common position to the Parliament, the procedure for the 2nd Reading will start and it is envisaged to be completed in January 2011.</li> </ul>	Ongoing
1.8.1	Introduce energy efficiency aspects in construction product standards whenever relevant	<ul style="list-style-type: none"> <li>The CPD and the current proposal for a Construction Products Regulation do not impose minimum energy performance of products but set common requirements for testing and certifying the declared performances of the construction products, including those related to energy economy and heat retention.</li> <li>Minimum requirements are expected to be developed in the framework of eco-design and labelling, or other EU legislative measures.</li> </ul>	<b>Completed</b>
<b>2. Improving energy transformation</b>			
<b>Measure</b>		<b>Description of implementation</b>	<b>Status</b>
2.1	Develop minimum efficiency requirements for new electricity, heating and cooling capacity <b>lower than 20 MW</b> and consider if necessary such requirements for	<ul style="list-style-type: none"> <li>No direct measure was proposed to set minimum efficiency requirements for new electricity, heating and cooling capacity lower than 20MW.</li> <li>The following measures define best available techniques with strengthen application in the scope of the IPPC recast for plans above 50MW: <ul style="list-style-type: none"> <li>A reference document on Best Available Techniques regarding Energy Efficiency was</li> </ul> </li> </ul>	Not realised



	larger production units	<p>adopted in spring 2009 and aims at improving energy efficiency in industrial installations, including also smaller production units for electricity, heating and cooling.</p> <ul style="list-style-type: none"> <li>- A similar Reference Document on Best Available Techniques for Large Combustion Plants was adopted in July 2006 and includes some useful elements regarding energy efficiency both for heating plans, power plans and CHP.</li> <li>• The IPPC Directive will be revised (merging of IPPC with 6 other Directives related to industrial emissions). Political compromise on the proposal was reached in June 2010 and will be voted in July at the second reading in the EP.</li> <li>• The recast Directive on Industrial Emissions will strengthen the role of BAT and BREF in setting specific conditions in permits for industrial installations. The Commission original proposal covered plants above 20MW. However, in ongoing negotiations under the co-decision procedure the threshold has been raised to plants above 50MW only.</li> </ul>	
2.2	Develop with supply industry guidelines on good operating practices for existing capacity	See 2.1. Both reference documents mentioned under 2.1 provide industry with guidelines on good operating practices.	<b>Completed</b>
2.3	Issue a mandate for a European Norm for a certification scheme for heat and electricity plant engineers	Discussions to issue a mandate for a European Norm have taken place. The need for such a mandate is still under discussion.	Ongoing
2.4	Agree guidelines in co-operation with CEER through ERGEG on good regulatory practices to reduce transmission and distribution losses	Commission has had discussions with European energy regulators groups (CEER/ERGEG) without agreeing on concrete further steps.	Not realised
2.5	Propose a new regulatory framework for the promotion of grid access and connection of decentralised generation	A new regulatory framework for the promotion of grid access and connection of decentralised generation has been adopted with Directive 2009/72/EC (OJ L211 of 14.8.2009)	<b>Completed</b>
2.6	Implementation and amendment of the Directive on the Promotion of Cogeneration (CHP) (2004/8/EC)	<p><b>Implementation:</b></p> <ul style="list-style-type: none"> <li>• Reports by MS are currently being assessed (reports on national potentials, guarantees of origin, administrative barriers and solutions and progress made with the implementation).</li> <li>• In 2008, Commission issued a Communication on the progress made with the implementation of the CHP Directive.</li> </ul> <p><b>Amendment:</b></p> <ul style="list-style-type: none"> <li>• A new report on the implementation of the Directive including the evaluation of national support schemes is scheduled in 2011.</li> </ul>	Ongoing  Ongoing
2.6.1	Accelerate harmonisation of the calculation methods for high-efficiency CHP	A Commission Decision on detailed guidelines for CHP electricity calculation has been adopted in November 2008.	<b>Completed</b>

2.6.2	Reach agreement on a harmonised electronic Guarantee of Origin	The initiative for a harmonised CHP Guarantee of Origin will not be launched before the national schemes have been evaluated in 2011 and stakeholders have been consulted.	Ongoing
2.6.3	Propose stricter requirements for market regulators to promote CHP	<ul style="list-style-type: none"> <li>MS have been asked to include this element in their reports on the analysis of the national potential required under Article 6 of the CHP Directive.</li> <li>The evaluation of the reports will be completed in early 2011.</li> <li>The issue has now also been included in the guidelines for reporting by the regulators (CEER/ERGEG).</li> </ul>	Ongoing
2.6.4	Propose to require Member States to identify heat demand suitable for CHP	<ul style="list-style-type: none"> <li>MS have been asked to identify this aspect in their reports on the national potential required by the CHP Directive.</li> <li>The evaluation of the reports will be completed early 2011.</li> </ul>	Ongoing
2.6.5	Propose that Member States be required to identify in national potentials waste heat potential	<ul style="list-style-type: none"> <li>MS have been asked to include this element in their reports on national potential required under Article 6 of CHP Directive.</li> <li>The evaluation of the reports will be completed in 2011.</li> </ul>	Ongoing
2.6.6	Propose minimum efficiency requirements for district heating based on new norm	Study to investigate this issue has been launched and final results are expected for mid 2011.	Ongoing
2.6.7	Seek to adopt a European Norm and a minimum efficiency requirement for micro CHP	The eco-design implementing measure under preparation on boilers will among other equipments cover micro CHP equipment.	Ongoing
<b>3. Moving on Transport</b>			
<b>Measure</b>		<b>Description of implementation</b>	<b>Status</b>
3.1	Measures, including legislation if necessary, to meet through a comprehensive and consistent approach a 120 g CO <sub>2</sub> /km target by 2012. This target should be met based on the achievement of a 140 g CO <sub>2</sub> /km target through a voluntary agreement by 2008-2009	<ul style="list-style-type: none"> <li>Regulation on Emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO<sub>2</sub> emissions from light duty vehicles entered into force in June 2009 (Regulation (EC) No. 443/2009). New registered vehicles will have to reach an EU average specific emissions target of 130g CO<sub>2</sub>/km by means of improvement in vehicle motor technology, starting with 65% in 2012, 75% in 2013, 80 in 2014 and 100% from 2015 onwards. A further reduction of 10 g CO<sub>2</sub>/km will be delivered by other technological improvements and by an increased use of sustainable biofuels as part of Community's integrated approach. Long-term target of 95g CO<sub>2</sub>/km is set for the year 2020.</li> <li>The voluntary agreement refers to the agreement between the European Automobile Manufacturers Association (<i>ACEA</i>) and the European Commission to limit the amount of CO<sub>2</sub> emitted by new passenger cars sold in Europe. Signed in 1998, the agreement sought to achieve an average of 140 g/km of CO<sub>2</sub> by 2008 for new passenger vehicles sold by the association's cars in Europe. However, the target has not been achieved as the average for the whole car market for 2008 was 153.7 g/km. Therefore a regulation was proposed to replace the voluntary agreement.</li> </ul>	<b>Completed</b>
3.2	Strengthen efforts to develop	<ul style="list-style-type: none"> <li>Directive 2009/33/EC entered into force in May 2009 (OJ L120/5, 15.05.2009). MS need to</li> </ul>	<b>Completed</b>

	markets for cleaner, smarter, more energy-efficient and safer vehicles, following a Commission proposal for a Directive on the promotion of clean road transport vehicles (COM(2005) 634)	<p>transpose this Directive by 4 December 2010.</p> <ul style="list-style-type: none"> <li>• To facilitate the implementation process, the Commission has launched an internet site on clean and energy efficient vehicles displaying a legislation guide, a lifetime calculator, information on joint procurement and references to Community funded projects in the field.</li> <li>• March 2010: Launch in the framework of it Action Plan on Urban Mobility the preparation of information and database on clean and energy efficient road transport vehicles ('Clean Vehicle Portal').</li> <li>• By 12/2012, a first assessment report on the implementation of the Directive is expected.</li> </ul>	
3.3	Strengthen EU-wide real-time traffic and travel information (RTTI) systems and traffic management (TEN-T)	<ul style="list-style-type: none"> <li>• Commission has supported financially the EasyWay project in the trans-European transport network programme (TEN-T) for the period 2007-2009 (total budget: 500 M€ with an EC contribution: 100 M€). This project, covering more than 20 MS, deals among others with the development of targeted Deployment Guidelines to ensure harmonised and accelerated deployment of RTTI and traffic management systems on the trans-European Road Network. A follow-up proposal (2010-2011) has been submitted under the 2009 MAP Call/ ITS and has been evaluated. Negotiations on this follow-up will start as soon evaluations confirmed successful conclusion of the first phase (2007-2009).</li> <li>• Commission adopted on 16 December 2008 the ITS Action plan and a Framework Directive proposal for the deployment of ITS across Europe. Several actions of the ITS Action Plan, notably regarding EU-wide RTTI and traffic management, have been launched in 2009, with results expected in 2010 and 2011. EP adopted in July 2010 a legislative resolution approving EC's position at first reading with a view to the adoption of a directive of the European Parliament and of the Council on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport. Legislative procedure is completed, awaiting publication in Official Journal.</li> </ul>	Ongoing
3.4	Encourage financing for market introduction of efficient vehicles	<ul style="list-style-type: none"> <li>• July 2009: Launch of the European Green Car Initiative, which includes a large-scale demonstration project on electric vehicles.</li> <li>• Call closed on 14.01.2010</li> <li>• Project expected to start in the beginning of 2011.</li> </ul>	Ongoing
3.5	Propose an amended Directive (1999/94/EC) relating to the availability of consumer information on fuel economy and CO2 emissions in respect of the marketing of new passenger cars	The revision of the measure is planned, the specific timeline for adoption still to be determined.	Ongoing
3.6	Issue a mandate for a recognised European Norm and international standard to measure tyre rolling	<ul style="list-style-type: none"> <li>• 23.5.08: Commission adopted a proposal on car general safety which includes the mandatory fitting of tyre pressure monitoring systems on new cars, and maximum values for rolling resistance of new tyres, to be implemented as of 2012.</li> </ul>	Ongoing

	resistance	<ul style="list-style-type: none"> <li>See 3.8 for the proposal for labelling for rolling resistance.</li> </ul>	
3.7	Work towards minimum efficiency requirements for mobile air-conditioning (MAC) systems	A draft proposal for a Regulation addressing energy efficiency of MACs is currently being prepared by Commission services.	Ongoing
3.8	Propose a labelling scheme for tyres	Regulation (EC) No 1222/2009 adopted November 2009.	<b>Completed</b>
3.9	Facilitate voluntary agreements and propose other measures on accurate tyre pressure monitoring schemes	A regulation on compulsory fitting of tyre pressure monitoring systems on new vehicles is being prepared (see 3.6)	Ongoing
3.10	Consider compulsory fitting of tyre pressure monitoring systems on new vehicles	See 3.6.	Ongoing
3.11	Submit a Green Paper on urban transport putting forward joint solutions based on concrete measures that have been successfully tested, including, if appropriate, infrastructure use and road and congestion charges	<ul style="list-style-type: none"> <li>25.09.2007: Adoption of Green Paper "Towards a new culture for urban mobility" putting forward a broad set of measures.</li> <li>30.09.2009: Adoption of the Action Plan on Urban Mobility with 20 actions in six thematic areas.</li> </ul>	<b>Completed</b>
3.12	Propose legislation to harmonise requirements to promote fuel efficiency in drivers education curricula and support projects	<ul style="list-style-type: none"> <li>Pilot project supported by IEE Programme ongoing.</li> <li>Measure planned. The specific timeline for adoption still to be determined.</li> </ul>	Ongoing
3.13	Promote energy efficiency in the aviation sector through SESAR	The Sesar Joint Undertaking was established in spring 2007.	<b>Completed</b>
3.14	Propose legislation to include the aviation sector in the EU Emissions Trading Scheme	<ul style="list-style-type: none"> <li>A proposal for a directive was presented by the Commission in December 2006.</li> <li>Political agreement was reached on the scheme in July 2008, and entry into force was in February 2009.</li> <li>The aviation sector will be included in the European Emission Trading Scheme from 2012.</li> </ul>	<b>Completed</b>
3.15	Exploit the potential for optimising hull cleaning of ships	<ul style="list-style-type: none"> <li>Regulation 782/2003 has been modified by comitology in 2007-2008 with a Commission Regulation adopted in June 2008. The aim of this EU legislation concerns the protection of the marine environment for the release into the sea of hazardous substances contained in certain coating used to maintain the hull of ships.</li> <li>Hull maintenance can amount to a 5% difference in energy requirements. Hull cleaning is only a part of the maintenance options. A single action of the EU is overrated. It should be integrated in technical and operational measures to optimize ships' energy efficiency as they are developed by the International Maritime Organization.</li> </ul>	<b>Completed</b>

3.16	Realise savings benefits of shore-side electricity for harboured ships by proposing legislation	Ongoing consultation on proposal that would oblige harboured ships to use electricity instead of diesel engines, which decreases CO2 emissions.	Ongoing
3.17	Promote short sea shipping and the motorways of the sea	<ul style="list-style-type: none"> <li>• Programme COM(2003)155 adopted for the promotion of short sea shipping containing set of 14 actions to be implemented between 2003 and 2010.</li> <li>• Action Plan for the establishment of a European Maritime transport space without barriers adopted in 2009 (COM(2009)10). First measures to be implemented in 2012.</li> </ul>	Ongoing
3.18	Implement the legal framework for rail transport	The legal framework is there and MS have to properly implement to increase interoperability. COM monitors the implementation of the legal framework.	<b>Completed</b>
<b>4. Financing energy efficiency, economic incentives and energy pricing</b>			
<b>Measure</b>		<b>Description of implementation</b>	<b>Status</b>
4.1	Seek to identify and remove legal barriers in Member States to use Energy Service Companies (ESCOs), and contracting instruments for energy efficiency	<ul style="list-style-type: none"> <li>• Joint Research Center of the Commission is analysing the development of the ESCOs market on a regularly basis and publishing the results of their studies as well as organizing workshops.</li> <li>• Around 10 IEE programme projects have aimed at removing the market barriers faced by ESCO's in Europe.</li> </ul>	<b>Completed</b>
4.2	Develop local revolving funds affiliated through close cooperation with EBRD, EIB Group and other IFIs	<ul style="list-style-type: none"> <li>• Facilitation of financing of energy efficiency in cooperation with the EIB (including JESSICA/JEREMIE initiatives) and EBRD (MoU between the Commission and EBRD in respect of reinforcing cooperation in the energy field).</li> <li>• Role of IFIs considered in the operation of IEE, with a view to 2009 WP onwards.</li> <li>• IEE WP2010 foresees support for the creation of revolving funds for energy efficiency.</li> </ul>	<b>Completed</b>
4.3	Facilitate the emergence with EBRD, EIB Group and other IFIs of public-private partnerships to attract funding for debt financing, guarantees and venture capital for SMEs, ESCOs and other enterprises offering energy services	Discussions are ongoing.	Ongoing
4.4	Facilitate leveraging of financing for energy efficiency projects, including the multi-family and social housing sectors, in the new Member States through the Structural and Cohesion funds	<ul style="list-style-type: none"> <li>• Regulation 397/2009 of the Council and the European Parliament of 6/5/2009 allowed Member States to use the European Regional Development Fund (ERDF) for energy efficiency and renewable energy investments in existing housing, so as to support social cohesion. Up to 4% of the total ERDF allocations (approx. €8 billion) could be reallocated, if Member States decide to re-programme accordingly.</li> <li>• European local energy assistance (ELENA) established by COM and EIB in December 2009 facilitating the mobilisation of funds for investments in sustainable energy at local level. ELENA support covers a share of the cost for technical support that is necessary to prepare, implement and finance the investment programme, such as feasibility and market studies,</li> </ul>	Ongoing

		structuring of programmes, business plans, energy audits, preparation for tendering procedures - in short, everything necessary to make cities' and regions' sustainable energy projects (energy efficiency and RES) ready for EIB funding or other funding from e.g. Structural Funds.	
4.5	Promote networking amongst Member States and regions to ensure financing of best practices in energy efficiency	<ul style="list-style-type: none"> <li>• Out of the 200 projects supported by the Intelligent Energy Europe programme to unlock the potential for energy efficiency in all end-use sectors, more than 20 have specifically aimed at networking and exchanging knowledge between countries and regions to ensure financing of best practices in energy efficiency.</li> <li>• Noteworthy project is the Concerted Action on the Energy End-Use Efficiency and Energy Services Directive (2008-2011). This strategic 3-year action involves all 27 Member States and aims to achieve a certain degree of convergence across Europe in the implementation of the Directive. One of its five core themes is on the use of financial instruments.</li> </ul>	Ongoing
4.6	Promote use of public-private energy efficiency funds and finance packages for SMEs and public sector for energy audits and specific energy efficiency investments identified in energy audits with EBRD, EIB Group and EU Structural and Cohesion funds.	<ul style="list-style-type: none"> <li>• Energy Efficiency Finance Facility launched by the Commission in 2006. This facility aims to support energy efficiency investments in the industry and building sectors in Bulgaria, Romania, Croatia and Turkey. The financial support is provided through EBRD, EIB and KfW as loans or risk sharing to local financial institutions and through Community grant resources allocated as investment incentives and/or consultancy costs.</li> <li>• JASPERS is developing several operations combining grants from EU Structural and Cohesion funds with loans.</li> <li>• EIB is developing other initiatives in this area, e.g. to support the Covenant of Mayors initiative.</li> </ul>	Ongoing
4.7	Encourage the use of Community financing such as Green Investment Funds, co-financed by CIP, for SMEs in view of promoting eco-innovation solutions	<ul style="list-style-type: none"> <li>• For the period 2007-2013, €433 mio have been earmarked for Eco-innovation under one of the CIP pillars - the Entrepreneurship and Innovation Programme (EIP).</li> <li>• Part of this money, more than €200 mio has been allocated to the High Growth and Innovative SME Facility (GIF), which supports eco-innovation but also other types of innovation. The facility allows the EU budget to participate in venture and risk capital funds set up to provide equity to small businesses in their early and expansion stages. When the focus of these funds is mainly on eco-innovative SMEs, the EU participation, through the European Investment Fund, can be higher than normal thresholds (up to 50% compared to 25%).</li> </ul>	Ongoing
4.8	Consider costs and benefits of tax credits as incentives for enterprises to produce more and better energy-efficient appliances and equipment; and for consumers, to promote the purchase of such appliances and equipment	<ul style="list-style-type: none"> <li>• The final report on "the costs and benefits associated with the use of tax incentives to promote the manufacturing of more and better energy-efficient appliances and equipment and the consumer purchasing of these products" was published by DG TAXUD in January 2009.</li> <li>• The study was meant to inform the policy-makers about the costs and benefits of using direct tax incentives to promote the purchases of energy-efficient products. It remains in the competence of the Member States to use such instruments.</li> </ul>	<b>Completed</b>
4.9	Prepare a Green Paper on indirect taxation (2007) and subsequently	<ul style="list-style-type: none"> <li>• Adoption in March 2007 of a Green Paper on market-based instruments for environment and related policy purposes</li> </ul>	Ongoing

	review the Energy Tax Directive (2008) to incorporate better energy efficiency and environmental considerations	<ul style="list-style-type: none"> <li>Proposal for a review of Energy Taxation Directive under discussion in the Commission.</li> </ul>	
4.10	Propose a special tax arrangement for commercial diesel, aiming at narrowing excessive differences in tax levels between MS in order to increase energy efficiency in the transport haulage sector by reducing "tank tourism"	Proposal submitted in 2007 (discussion in the Council currently adjourned in view of possible proposal for comprehensive ETD revision).	<b>Completed</b>
4.11	Call upon the Council to adopt Commission proposal (COM2005/261) to relate vehicle taxation to CO <sub>2</sub> performance, and invites Member States to already introduce these modifications into the tax reforms they may be considering	Proposal tabled in 2005. Still subject to discussion in the Council.	<b>Completed</b>
<b>5. Changing energy behaviour</b>			
<b>Measure</b>		<b>Description of implementation</b>	<b>Status</b>
5.1	Lead by example by EMAS certifying all Commission buildings (2007-2009) and propose extending to other EU Institutions (2010)	<ul style="list-style-type: none"> <li>23 Commission buildings are EMAS registered (December 2005). 8 will be registered until the end of 2010. EMAS will be gradually extended to cover all Commission-owned buildings during the period 2009 - 2014.</li> <li>The energy efficiency and legal conformity is now integral part of the procurement procedures for new buildings.</li> <li>The European Parliament is EMAS registered for their three sites Brussels, Luxembourg and Strasbourg</li> <li>The Committee of Regions and the Economic and Social Committee are starting the implementation of an Environmental management system in line with EMAS.</li> <li>The Council has not yet started with any kind of registration of its buildings.</li> </ul>	Ongoing
5.2	Strengthen energy efficiency guidelines by amending the EMAS regulation	<ul style="list-style-type: none"> <li>The revision of EMAS Regulation is one of measures under the Action Plan for Sustainable Consumption and Production and Sustainable Industrial Policy adopted in July 2008</li> <li>The revised EMAS Regulation was adopted in November 2009 (in force as of 11 January 2010)</li> </ul>	<b>Completed</b>

5.3	Adopt energy efficiency Commission procurement guidelines (2008), promote energy management schemes, guidelines on how to promote energy-efficient products, and training toolkits for industry, SMEs and the public sector and present IPPC reference document	<ul style="list-style-type: none"> <li>• Communication on green public procurement has been adopted as part of the Action Plan for Sustainable Consumption and Production and Sustainable Industrial Policy (16.07.2008).</li> <li>• The Commission has launched a web-based GPP Training Toolkit in 2008. The main aim is to make it easy for Member States and procurement practitioners to apply GPP.</li> <li>• A reference document on Energy Efficiency (IPPC 2008/1/EC) was adopted in spring 2009 (see 2.1).</li> </ul>	Ongoing
5.4	Propose recommendation to Member States for energy security and climate change dimension in national educational curricula (2007); Community programmes will provide relevant information material and teaching guidelines	<ul style="list-style-type: none"> <li>• Summer 2006: Launching of raising awareness campaign "You control climate change". It has a dedicated section for schools, to enable teachers to use the provided teaching material in the classroom on voluntary basis.</li> <li>• IEE Programme has supported about 20 energy education projects which involve over 200 beneficiaries from 26 MS. Around 5,000 schools across Europe benefit directly from the actions with a huge replication potential to many millions of students, teacher and parents.</li> </ul>	Ongoing
5.5	Propose a vocational educational initiative on energy efficiency	Under the IEE a new initiative "BUILD UP Skills: Sustainable Building Workforce" will be launched in 2011	Ongoing
5.6	Create a 'Covenant of Mayors'.	<ul style="list-style-type: none"> <li>• January 2008: Covenant launched during Sustainable Energy Week 2008.</li> <li>• The Covenant of Mayors now represents more than 126 million citizens across 41 countries. Since its launch in 2008, the initiative has grown to include more than 1800 towns and cities. Together these signatories are working towards a cleaner and greener future for their citizens.</li> </ul>	<b>Completed</b>
5.7	Create and operate new networks in Sustainable Energy Europe (SEE) Campaign	<ul style="list-style-type: none"> <li>• Second phase of the campaign included in the 2008 IEE Work Programme.</li> <li>• Programme extended until 2011.</li> </ul>	Ongoing
5.8	Organise a competition in each Member State with a view to award a prize for the most energy-efficient school	<ul style="list-style-type: none"> <li>• Out of the 20 energy education projects supported by the IEE programme in the field of education, several contain an important competition element.</li> <li>• Dec. 2009: start of the preparation of a European-wide competition to award the most energy efficient practices in schools. The first competition will be launched in the school year 2010/2011 and a second will follow in 2011/2012. The competition aims at awarding (a) the most significant energy efficiency measures in schools, and (b) the most advanced practices to introduce intelligent energy education in schools. A budget of 1.8 million has been earmarked under the IEE programme to cover these activities</li> </ul>	Ongoing
5.9	Involve the Executive Agency for Competitiveness and Innovation, as well as the national, regional and local energy agencies in the	<ul style="list-style-type: none"> <li>• Strong involvement of EACI and national, regional and local energy agencies in the Intelligent Energy Europe programme which energy efficiency funding priorities are fully in line with the Action Plan.</li> <li>• To date, the IEE programme has supported more than 250 projects to unlock the potential for</li> </ul>	Ongoing



	implementation of the Action Plan	end-use energy efficiency in buildings, products, industry, transport, communities, education, and services, using a combination of measures, tools, actors and target groups. The national, regional and local energy agencies have been very active in IEE and rank among the first beneficiaries.	
<b>6. International partnerships</b>			
<b>Measure</b>		<b>Description of implementation</b>	<b>Status</b>
6.1	Launch an initiative for an International Framework Agreement on Energy Efficiency	<ul style="list-style-type: none"> <li>The international agreement has taken the form of an international partnership: the International Partnership for Energy Efficiency Cooperation (IPEEC) has been established following a Commission initiative within the G8 framework. The Partnership was launched in May 2009. Members include the G8 + Australia, Brazil, China, India, Mexico, South Africa and South Korea. The EU has become a member in January 2010.</li> <li>The IEA will host IPEEC's secretariat.</li> </ul>	<b>Completed</b>
6.2	Propose voluntary agreements (commitments) with export industries on information, minimum efficiency requirements and labelling	<ul style="list-style-type: none"> <li>See point 1.3</li> </ul>	Completed
6.3	Strengthen energy efficiency in energy and trade treaties, agreements, dialogues and other cooperation frameworks	<ul style="list-style-type: none"> <li>Focus on energy efficiency in EU bilateral agreements has increased: the issue is systematically covered in negotiations on legal framework agreements with third countries (TCA, PCA, enhanced agreements, etc.) as well as Action Plans negotiated in the framework of the European Neighbourhood Policy.</li> <li>Specific collaboration frameworks on energy efficiency are being established: e.g. under the EU-US Energy Council and with the Gulf countries. Dialogues with relevant countries such as Brazil, China, India are held on a regular basis.</li> <li>The Action Plan on Sustainable Industrial Policy has a strong focus on international cooperation. Several bilateral and multilateral discussions on sectoral agreements are ongoing. First on cement, steel, aluminium and then on pulp and paper and tyres.</li> <li>ACP countries: EU-Africa Energy Partnership was launched in December 2007. One of its key elements is energy efficiency. This political dialogue is supported by concrete projects developed under a Thematic Program.</li> <li>Improvement of energy efficiency measures and energy savings is also covered in several MoU on specific energy efficiency issues between the EU and important third countries such as China (on buildings).</li> <li>Several projects exist that provide technical assistance to third countries in the field of energy efficiency in particular in the ENP area.</li> </ul>	Ongoing
6.4	Increase international co-operation on measurement methods for	The International Energy Agency's 4E (Efficient Electrical End-use Equipment) Implementing Agreement is the platform for this work.	Ongoing

	minimum efficiency requirements and labelling		
6.5	Create an international network for dissemination of information and advice on efficient technologies	G8 + G5 collaboration in the "Heiligendamm Process" focused on energy efficiency; information exchange notably on energy efficiency in buildings. Will be continued under IPEEC (see 6.1).	<b>Completed</b>

**Explanations:**

- A measure is labelled as "ongoing" when the activities to implement the measure have been initiated. Many measures can only be "completed" at the end of the EEAP implementation period, which is 2012.
- Whenever the measure has been fully implemented it is labelled as "completed".
- Whenever a measure has not been addressed yet for whatever reason, it is labelled as "not realised".

**Background documents:**

**COM (2006) 545 final:** Action Plan for Energy Efficiency: Realising the Potential.

**SEC (2006)1173:** Commission Staff working document accompanying document COM (2006) 545 final.

**SEC (2006)1174:** Impact assessment accompanying document COM (2006) 545 final.

**SEC (2006)1175:** Executive summary of the Impact Assessment accompanying document COM (2006) 545 final