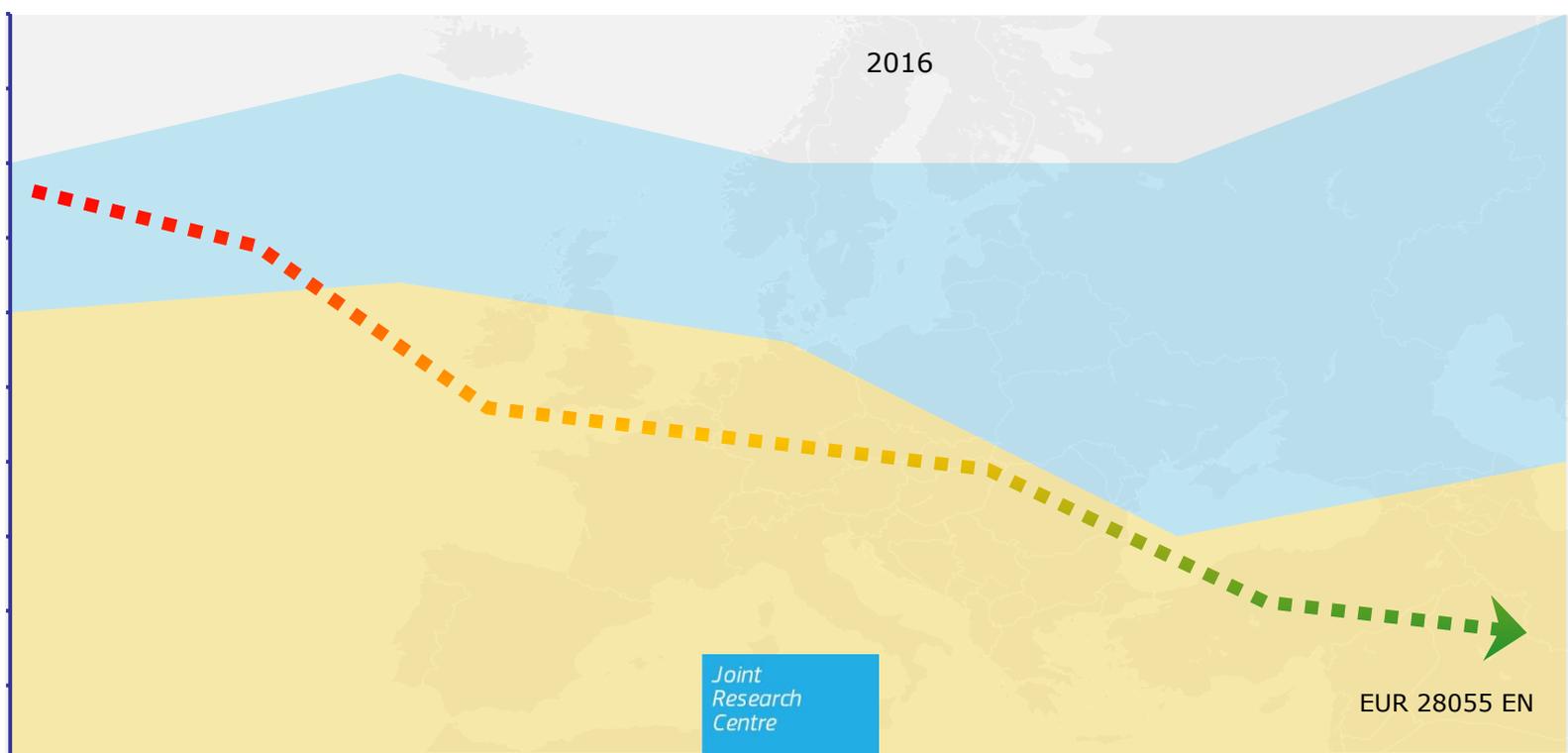


# Assessment of the first National Energy Efficiency Action Plans under the Energy Efficiency Directive

*Synthesis Report*

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**Title** Assessment of the first National Energy Efficiency Action Plans under the Energy Efficiency Directive

#### Abstract

The Energy Efficiency Directive was adopted in 2012, establishing indicative targets for 2020 and a set of binding measures in various sectors of the economy at national level. In compliance with the Directive's provisions, Member States are required to present the progress and efforts made in the so-called National Energy Efficiency Action Plans (NEEAPs) every three years, starting from 2014. This report, which analyses the 2014 plans submitted by Member States, provides an overview of the national energy efficiency targets, outlines planned or implemented end-use and supply level measures and evaluates the energy savings resulting from the implementation of these measures.

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This report analyses information presented in the National Energy Efficiency Action Plans of 2014. Any subsequent changes or updates notified by Member States after the submission of the plans are not covered herein.

## **Executive summary**

In the context of the EU's energy and climate package, the EU has set a target of 20 % reduction in the EU primary energy consumption by 2020. To help the EU reach its target, the Energy Efficiency Directive (EED) was adopted in 2012, establishing a set of binding measures in various sectors of the economy at national level. The provisions of the Directive require that all EU Member States set national indicative targets and implement policy measures that improve energy efficiency at all stages of the energy chain, including measures taken to improve the efficiency of the supply sector.

In compliance with the Directive's requirements, Member States presented the progress and efforts made in the so-called National Energy Efficiency Action Plans (NEEAPs) in 2014, the first NEEAP reporting requirements under the EED. The NEEAPs have provided a strategic platform for Member States to set energy efficiency targets, outline planned or implemented end-use and supply level measures and evaluate the energy savings resulting from the implementation of these measures.

All Member States have now set indicative energy efficiency targets for the year 2020 in order to fulfil the provisions of Article 3 of the EED. While the latest available primary energy consumption data show that we are likely to overall reach the 2020 target at the EU – in part due to the impact of the economic crisis as well as energy efficiency improvements – the combined primary consumption at the EU level based on the reported national values in NEEAPs is less ambitious than the EU target. In particular, the primary energy consumption sums to 1542 Mtoe, instead of the EU target of 1483 Mtoe. The collective 2020 energy consumption target compared to the PRIMES 2007 projections in 2020 amount to 16.8% in terms of primary energy. Following several target updates communicated by Member States in 2015, the collective target has now been revised to 1527 Mtoe of EU28 primary consumption which is equivalent to 17.6%.

With regards to the obligation on energy companies to achieve yearly energy savings of 1.5% annual sales to final consumers (EED Article 7), most Member States notified information on their Energy Efficiency Obligations Schemes (EEOSs) and alternative measures. In certain cases, the sum of the expected savings is found to be larger than the savings required by the targets (Austria, Cyprus, Denmark, Finland, Ireland, Malta, and the UK), while for others, the reported savings of the measures are not enough to reach the target. Four Member States are planning to rely on EEOSs alone, twelve Member States will use a mixture of EEOSs plus alternative measures and ten Member States will use only alternative measures. Of the 18 countries with an EEOS in their territory, Ireland, Slovenia, Austria, Bulgaria, Spain, Lithuania, Malta, Latvia, Estonia, Hungary, Luxembourg and Croatia plan to put obligations for their energy suppliers for the first time.

Several NEEAP measures reported by the Member States stem from the implementation and enforcement of other EU directives or regulations. These include measures implemented in compliance with the Energy Performance of Buildings Directive (Directives 2010/31/EU, 2002/91/EC), Ecodesign and Energy Labelling Directives (Directives 2009/125/EC, 2005/32/EC, 2010/30/EU), Regulation (EU) No 333/2014 on

CO2 emissions from new passenger cars, Internal Market for Electricity (2009/72/EC) and Gas (2009/73/EC) Directives and the Emission Trading Scheme. The description of policy measures was provided with varying degree of detail. Typical policy information included the policy type, implementation timeframe, sectors targeted and short descriptions. Good examples categorised information according to general information (e.g. Category; Duration; Target groups; Measure description; relevant webpage), implementation details (e.g. Geographical scope; Budget and financial resources, Implementing authority), achieved/expected impact, calculation methodology, assumptions as well as monitoring & verification.

While the majority of the measures presented in the NEEAPs are existing measures the EED has also been a driver for new measures in Member States. In addition to the establishment of Energy Efficiency Obligation Schemes, new or updated policy measures in the area of financing, information exchange, regulations as well as transport-related measures have been identified. On the other hand, Member States with long tradition in energy efficiency policy such as Finland, Germany and France largely rely on existing measures, which are periodically reinforced and aligned with the new requirements of the EU directives. While the energy savings generated by each measure has not always been quantified in the NEEAP, savings realised by the residential sector were found to be particularly important for all Member States, as well as measures of financial or fiscal nature. For certain countries, the share of the savings to be achieved in 2020 by each sector is presented, demonstrating how each sector contributes towards the achievement of the target. A more systematic approach towards reporting of measures is generally recommended for future NEEAP submissions in order to ensure that a set of minimum information is reported across all Member States.

## Introduction

Major changes in the way we use energy to meet our needs are necessary in order to reduce the negative effects of energy production and consumption as well as move towards a more sustainable and competitive future economy. Energy efficiency constitutes one of the cornerstones of the European Union's 2020 strategy, serving as a catalyst for the EU long-term transition to sustainable energy sources.

The need to increase energy efficiency in the EU was first acknowledged in the Conclusions of the European Council meeting of 8-9 March 2007, and based on agreements made in June 2010, the EU set a target of 20 % reduction in the EU primary energy consumption by 2020. This target results in a reduction of 368 Mtoe and consumption levels of 1 474 Moe in 2020 compared to 2007 primary energy consumption projections of 1 842 Moe in 2020<sup>1</sup>. Reiterating the importance of energy efficiency in the overall EU economy, the European Council in 2011 concluded that present trends were not on track and more efforts were needed to deliver its target. Following Croatia's accession in the Union in 2013, the baseline primary energy consumption was revised to 1 853 Moe and primary energy savings to 370 Mtoe, leading to EU28 consumption of 1 483 Mtoe in 2020.

The Energy Efficiency Directive (the EED or the Directive), adopted in 2012, laid down the foundation for more actions to be taken in order to put the EU on track. The Directive, which is a key part of the EU's overall climate and energy legislative package, requires EU Member States to set indicative national energy efficiency targets and legally binding measures to help the EU reach its 20% energy efficiency target by 2020. In particular, all EU Member States are required to implement policy measures that improve energy efficiency at all stages of the energy chain from production to final consumption.

In compliance with the Directive's requirements, Member States presented the progress and efforts made in the so-called National Energy Efficiency Action Plans (NEEAPs) in 2014, the first NEEAP reporting requirements under the EED. The full timeline of NEEAP reporting requirements is shown in Figure 1. As the final round of the NEEAPs under the ESD coincided with the submission of the first NEEAPs<sup>2</sup> under the EED, these were replaced by the first EED NEEAP. The NEEAPs are regarded as strategic national policy documents placing energy efficiency at the heart of energy policy. They outline national energy efficiency targets and detail actions put in place to ensure that energy savings are generated in all sectors of the economy. The previous experience gained through the submission of NEEAPs under the Energy Services Directive 2006/32/EC (ESD)<sup>3</sup> has provided a strong foundation upon which Member States have continued to develop and strengthen their energy efficiency policy strategies. While only a few Member States have had experience with preparing energy efficiency policy strategies prior to the ESD adoption, the ESD experience has helped Member States move from a simple list of measures to comprehensive strategies that plan, monitor and report the efforts made in energy efficiency in the various sectors of the economy. Improvements especially for New Member States (EU13) are now noted due to this experience built up over the years with the ESD implementation.

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<sup>1</sup> The projections are based on EU27 energy baseline scenario results of the Primes 2007 model

<sup>2</sup> The first NEEAPs also request information on the progress of the ESD targets (see Figure 2).

<sup>3</sup> In compliance with the ESD, the first and second ESD NEEAP were due in 2007 (a year after the entry into force of the ESD) and 2011

The EED is more ambitious than its predecessor ESD, covering various sectors of the economy. In addition to energy efficiency measures at the end-use level, Member States are obliged to report measures taken to improve the efficiency of the supply sector, which also count towards the EED energy efficiency targets. These, inter-alia, include promotion of efficient heating and cooling systems, in particular those using high-efficiency cogeneration, and uptake of demand response measures. An obligation on energy companies to achieve 1.5% energy savings among their customers every year has been set as well as a requirement for the public sector to renovate annually 3% of central government building stock. Mandatory energy audits for large enterprises are prescribed and long-term strategies for the renovation of the national building stock are required.

As per the Directive’s requirements, the European Commission’s responsibilities include evaluating the plans and assessing the extent to which Member States have made progress towards the achievement of the national indicative energy efficiency targets and towards the implementation of the Energy Efficiency Directive in general. As with the analysis of previous plans under the ESD, the Joint Research Centre has undertaken the task of evaluating the first National Energy Efficiency Action Plans of the EED (NEEAP 2014) and the results of this work are presented in this Report. This report analyses information presented in the National Energy Efficiency Action Plans of 2014 and any subsequent changes or updates notified by Member States after the submission of the plans are not covered herein.

**Figure 1.** Timeline of National Energy Efficiency Actions Plans under the ESD and EED



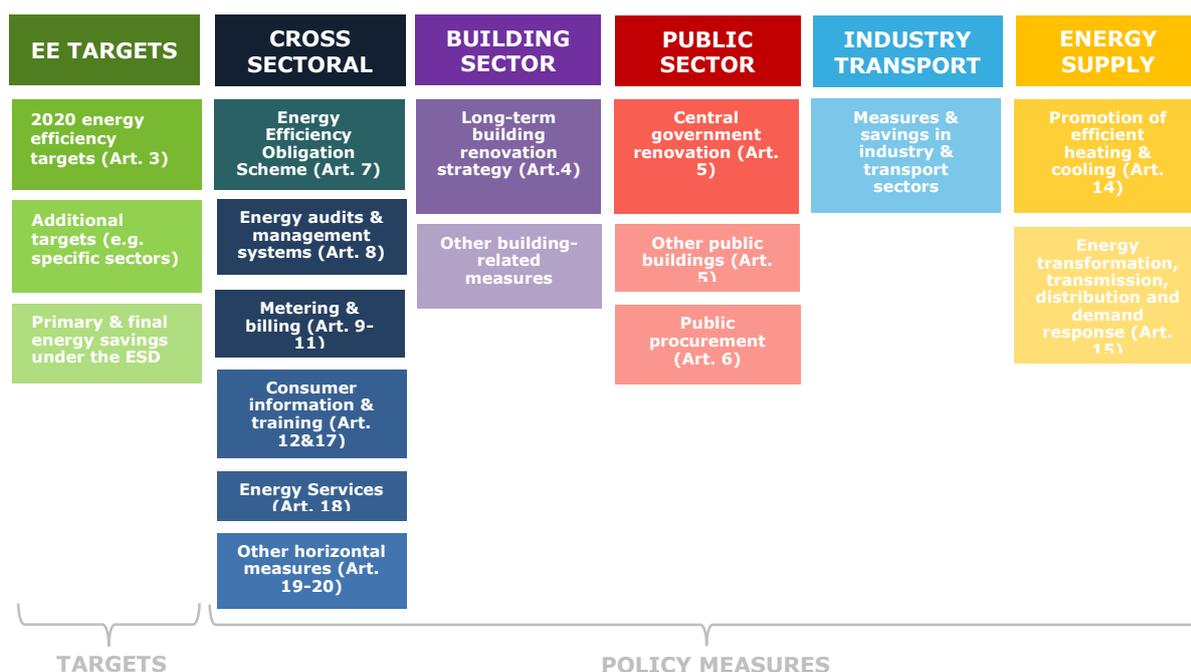
The structure of the Report is as follows. Chapter 1 presents the results of the general assessment of the NEEAPs, focusing on the compliance with the template established under the Commission Implementing Decision 2013/242/EU. A review of the targets and savings reported in the NEEAPs is presented in Chapter 2. This includes Articles 3, 5, 7 and other energy efficiency targets. Chapter 3 provides an evaluation of measures to improve energy efficiency in end-use sectors (buildings, public sector, industry, transport) as well as energy supply sector. A discussion of the NEEAPs and the conclusions are then drawn. The Annexes appended to the Report present the reporting requirements under the NEEAPs as well as policy matrices summarising the main policy measures identified in each NEEAP.

# NEEAP completeness review

## 1.1 Use of NEEAP template

As per Article 24(2) second paragraph of the EED, the European Commission published a NEEAP template through its implementing decision 2013/242/EU<sup>4</sup> of 22 May 2013 to support Member States with the NEEAP reporting requirements. While the NEEAPs were legally required to report on the information specified in the EED Annex XIV Part 2, the template encouraged Member States to adopt a common structure by listing all compulsory elements<sup>5</sup> outlined in the Directive's provisions together with explanatory notes. The NEEAP template followed the structure outlined in Figure 2. To complement the template published by the European Commission, additional guidelines were published in the Commission Staff Working Document "Guidance for National Energy Efficiency Action Plans"<sup>6</sup>. This guidance note provided further advice on the compulsory elements to be reported as well as additional complementary information to be considered in order to increase the comprehensiveness of these strategic policy reports.

**Figure 2.** Structure of National Energy Efficiency Action Plans according to the template proposed by the European Commission



A few differences between the reporting requirements under Part 2 of Annex XIV of the EED and the template of the implementing decision 2013/242/EU are noted. Specific reporting requirements for Articles 4, 6, 9-11, 12, 17, 19(2) and 20 are not included in Annex XIV Part 2. However the first sentence of the second paragraph of Annex XIV Part 2 states that the NEEAPs shall provide information on measures adopted or planned to be adopted in view of implementing the main elements of the Directive and on their related savings. The reporting requirements for these specific articles are therefore indirectly

<sup>4</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D0242&from=EN>

<sup>5</sup> The elements of the template are listed in Annex A

<sup>6</sup> [https://ec.europa.eu/energy/sites/ener/files/documents/20131106\\_swd\\_guidance\\_neeaps.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/20131106_swd_guidance_neeaps.pdf)

covered by this sentence. Some variations in the level of detail of the information according to Annex XIV Part 2 and EC template are also observed (see Annex A for more details).

The existence of the template was overall positively perceived and resulted in more homogeneous reporting among Member States compared to past NEEAPs submitted under the ESD. The template and guidance documents made available by the European Commission were applied to different extents, resulting in various level of detail provided by the Member States both on targets and energy end-use and supply side measures. Only Germany, France and Portugal opted for a different reporting structure, while all remaining countries followed the proposed template structure. In general, the NEEAPs first outlined an overview of the energy efficiency targets set according to Article 3, followed by the progress made on targets of the Energy Services Directive (ESD)<sup>7</sup> and the existence of additional energy efficiency related targets beyond the ones requested by the Energy Efficiency Directive. This was followed by a description of all policy measures adopted – or planned to be adopted – in order to meet the Directive’s specific requirements. In compliance with the template and Article 24(2), implementation details of horizontal measures such as Energy Efficiency Obligation Schemes (EEOSs) were outlined followed by measures targeting each end-use sector (buildings, public sector, industry, transport) and energy supply sector. Good examples of measure reporting were identified in various NEEAPs (e.g. Finland, Austria, Netherlands, Czech Republic, Cyprus, Greece, Ireland), which used a more harmonised and structured way of reporting their measures.

Given that one of the JRC’s assessment tasks focused on checking if all template elements were sufficiently addressed, the remaining chapter presents the results of the NEEAP completeness which is based on the elements listed in the EC template. The completeness check was carried out by determining if each element was addressed adequately, partially or whether it was missing. To facilitate the comparison of the results<sup>8</sup>, a scoring system was adopted: 0 points were allocated for missing information, 0.5 points for partly addressed/unclear information and 1 for adequately sufficient information. The summarising score was determined by averaging the scores of all elements across all NEEAPs for a certain section or article. The higher the score, the more complete information was overall provided on each section or Article of the Directive. Figure 3, Figure 4 and Figure 5 summarise the results of this check by each section of the EC template: targets and savings, horizontal and sectoral measures. These are discussed in more detail below.

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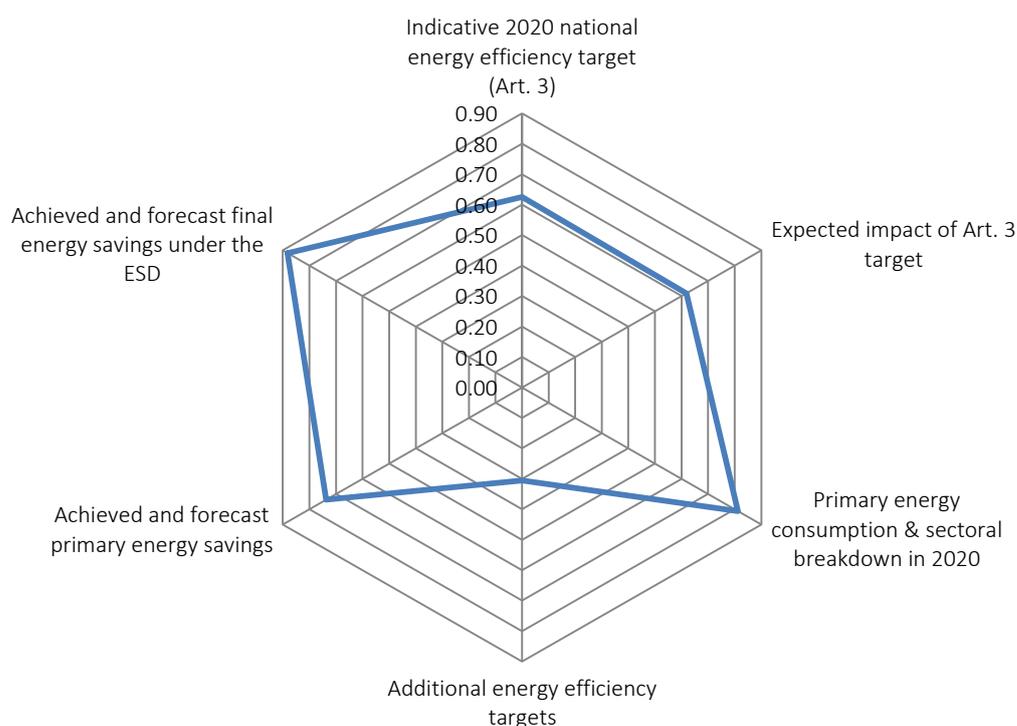
<sup>7</sup> Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services

<sup>8</sup> See Annex D for the list of mandatory elements

## 1.2 Reporting of targets and savings

The reporting completeness of targets and savings in the NEEAPs is summarised in Figure 3, while a more detailed overview of Article 3 reporting by Member State is given in Table 1. In terms of primary energy, 2020 consumption targets were reported by all Member States, while information on primary energy savings in 2020 was only given by 19 Member States (Germany and Denmark only gave percentage of energy savings with respect to year 2008 and 2006, respectively). A total of 26 Member States reported their targets in terms of final energy consumption and 20 Member States in terms of final energy savings<sup>9</sup>. Energy intensity figures were only reported by Greece, Spain and Sweden. Although this was not a reporting requirement, information on the baseline scenario considered and the connection with the PRIMES model was generally limited, with only a handful of Member States providing explicit information on the baseline consumption levels in 2020. The availability of targets and underlying data are presented and discussed in more detail in Chapter 2.

**Figure 3.** Results of completeness check of EU28 NEEAPs according to the elements of Section 2 (Overview of targets and savings) listed in the EC template



The sectoral breakdown of energy consumption was provided by only 15 Member States. This information was missing for 8 Member States (Austria, Czech Republic, Finland, Greece, Latvia, Poland, Slovakia, Spain) and partial information was provided in the remaining 5 (Cyprus, Germany, Denmark, Ireland and Italy). Despite the recommended breakdown proposed in the EC guidance document for NEEAPs, the sector categorisation opted by Member States often varied, making cross-country analysis difficult to undertake.

<sup>9</sup> The Czech Republic, Netherlands and Slovakia have reported cumulative energy savings, which seem to correspond to the savings of Article 7 rather than the savings under Article 3.

Additional energy efficiency targets were reported only by a small number of Member States (see Chapter 2 for more details). The national intermediate target for nearly zero energy buildings (nZEB) for the year 2015 were reported by the Brussels and Flanders Regions of Belgium, Denmark, Ireland, Malta, Slovenia, while the 2020 nZEB target was outlined by Belgium and Denmark. Slovenia and Greece stated that 100% of newly constructed buildings are expected to be NZEB by 2020 without details on the definition of nZEBs. In total, 12 Member States reported other energy efficiency targets beyond the EED requirements.

The achieved primary energy savings by the time of reporting were reported in 16 countries, while the forecast primary energy savings were reported by 21. In the context of ESD, all Member States reported on their achieved final energy savings, except Lithuania and Romania. The forecast savings in energy end-use by 2016 were given by all Member States except Bulgaria, Romania, Czech Republic, France, Portugal, Slovakia and Romania.

**Table 1.** Review of Article 3 target reporting by Member State (Con: Consumption, Sav: Savings, BAU: Baseline)

Included in NEEAP 2014       Not included in NEEAP 2014

(a) Primary energy

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	
Con																													
Sav																													
BAU																													

(b) Final energy

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	
Con																													
Sav																													
BAU																													

### 1.3 Reporting of energy efficiency policy measures

To meet the national targets set in accordance with the Directive's requirements, Member States were requested to present existing and if necessary propose new energy efficiency policy measures and actions in their NEEAPs. According to the Directive's Annex XIV Part 2(a), estimations of expected savings for 2020 and savings achieved by the time of the reporting had to be notified for every measure or package of measures/actions. By doing so, the likelihood of reaching the target in each Member State can be assessed as well as the relative contribution of each policy measure against the national targets. Table 2 provides an overview of the countries which have given a breakdown of the energy savings to be achieved by each measure under Articles 3 and 7. It is clear that an evaluation of the ambition of the overall national policy framework against the targets set is not possible for all Member States as energy savings of the measures, in particular the ones contributing towards the achievement of the targets under Article 3, have not been specified by many countries.

**Table 2.** Availability of breakdown of Article 3 and 7 target savings by measures

	Available			Partially available			Not available							
	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU
Article 3		1	1	1								1		
Article 7	2													
	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK
Article 3		3												4
Article 7														

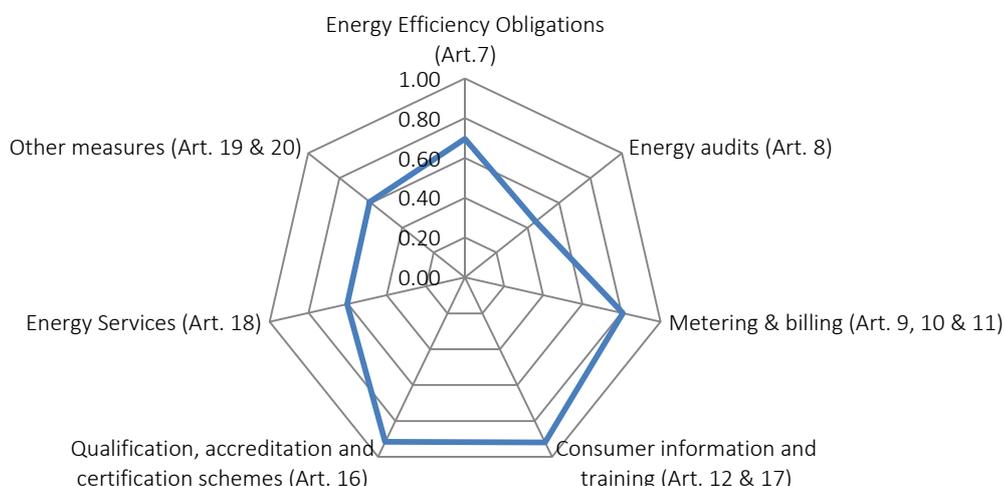
**Notes:**

- Partially available      The savings of some measures are only available
- 1                              Only by group of measures
- 2                              All Article 7 measures except the obligation scheme
- 3                              For transport-related measures, the savings are reported for groups of measures
- 4                              The savings of the measures contributing to the ESD target for the year 2020 are provided instead.

### Horizontal measures

A total 11 articles under the EED are of cross-sectoral level. These include energy efficiency obligations on energy suppliers (Article 7), energy audits and energy management systems (Article 8), metering and billing (Articles 9, 10, 11), consumer information and training (Articles 12 and 17), qualification, accreditation and certification schemes (Article 6), energy services (Article 18), other measures to promote energy efficiency (Article 19), and energy efficiency national fund, financing and technical support (Article 20).

**Figure 4.** Evaluation of information provided by Member States for horizontal measures in the NEEAPs according to the elements listed in the EC template



For Article 7, Member States were obliged to include descriptions of the EEOSs referred to in Article 7(1) or alternative measures adopted in application of Article 7(9). In total, 18 countries have adopted or planned to adopt an EEOS in their territory (see Table 6Table 6). Of these, Bulgaria, Denmark, Hungary, Luxembourg and Poland aim to meet the requirements of Article 7 solely through EEOSs, while the rest through a mixture of EEOSs and alternative measures. A few countries provided limited information on the EEOSs primarily due to the fact that the schemes are at a planning phase and thereby lack of experience. These included Austria, Estonia, Croatia, Lithuania and Latvia. In terms of alternative measures, all countries reported information about their measures. Belgium<sup>10</sup>, Cyprus, the Czech Republic, Germany, Greece, Finland, the Netherlands, Portugal, Romania and Sweden plan to implement Article 7 through alternative measures only. Estonia, Lithuania, Latvia, Malta and Belgian Regions of Brussels and Flanders provided limited information about their alternative measures.

The national coefficients chosen for converting the energy content of selected fuels for end use in accordance with Annex IV were notified by the Brussels-Capital Region of Belgium, Bulgaria, Finland, Croatia, Italy and Latvia. The Flanders region of Belgium and Cyprus provided coefficients for electricity only. For the remaining countries, no coefficients in accordance with Article 7 in the NEEAPs were found.

For the implementation of Article 8 on energy audits, Member States laid down several measures including legislations supporting the implementation of energy audits. As per Annex XIV requirements, Member States had to state the number of energy audits carried out, number of energy audits carried out specifically in large enterprises and number of large companies in their territory. These numbers were generally missing from the NEEAPs. The lack of reporting was often explained by the lack of a central system systematically recording and tracking energy audits carried out over each Member State's territory. In certain cases, the number of energy audits performed as part of a policy instrument supporting these audits was instead provided (e.g. Austria, Estonia and Germany, Sweden).

<sup>10</sup> It should be noted that the Flanders Region of Belgium has an obligatory "action" scheme

On metering and billing (Articles 9-11), Germany was the only country which did not list any relevant measures (e.g. no information was provided on individual consumption meters in multi-apartment buildings). It stated that no conclusions on the smart meter service market could be made due to analytical difficulties. For Articles 12&17, all Member States have provided information about existing measures targeting consumer information and training programmes. Examples of countries with partly adequate information included Bulgaria which has only stated that the electricity distributors publish information about energy-savings methods on their websites but did not outline any other measures (e.g. information campaigns or trainings) and Estonia which has not provided information on measures promoting behavioural change among small energy consumers. For qualification, accreditation and certification schemes (Article 16), Greece stated that there is currently no qualification, certification and accreditation of qualifications for providers of energy services, energy auditors, energy managers and installers of energy-related components. The Greek NEEAP however mentioned that the project «BUILD UP Skills - Greece» has helped to prepare the necessary procedures for the training and skills of the building sector workforce and develop a national road map for the integration of training on intelligent energy solutions for buildings in the mainstream curricula and practice of building professionals. Portugal has not outlined any specific Article 16 measures in the NEEAP, however ADENE undertakes regular trainings towards the formation of professionals in the areas of energetic certification of buildings, energy management systems auditors, designers, municipal energy managers, energy management in industry, etc. All other countries have provided information on qualification, certification and accreditation schemes with a varying degree of detail.

In the context of energy services (Article 18), Member States were required to provide information on adopted or planned measures that stimulate their national energy services market, a qualitative review of current status and future market developments of the national market for energy services together with a link to the list or interface of available energy service providers in the country. The latter was not available in several cases, e.g. Malta, Latvia, Italy, France, Estonia, Germany, Bulgaria, Portugal, Romania and Slovenia. Plans to create such a list/interface were reported by Croatia, Luxembourg, Slovakia and Sweden. The list/interface of available energy service providers was identified for Austria, Cyprus, Czech Republic, Denmark, Finland, Greece, Netherlands, Spain, Poland and the UK. The qualitative review of national market for energy services was generally not provided with great level of detail, especially with regards to information on future market developments. Austria, France and Germany provided comprehensive reviews.

Article 19 was covered with a varying level of detail. Bulgaria, Cyprus, Estonia, Finland, Italy, Latvia, Lithuania, Malta, Portugal and Sweden have not reported any relevant measures. Among the reported measures, Denmark, France and Germany have undertaken or plan to undertake revisions in ownership and or tenant acts in order to address legal issues with regards to the split incentive barrier. Other measures in this area include minimum energy efficiency standard for privately rented housing and non-domestic property from 2018 in the UK and Roof insulation requirement for rented properties in the Flanders Region of Belgium.

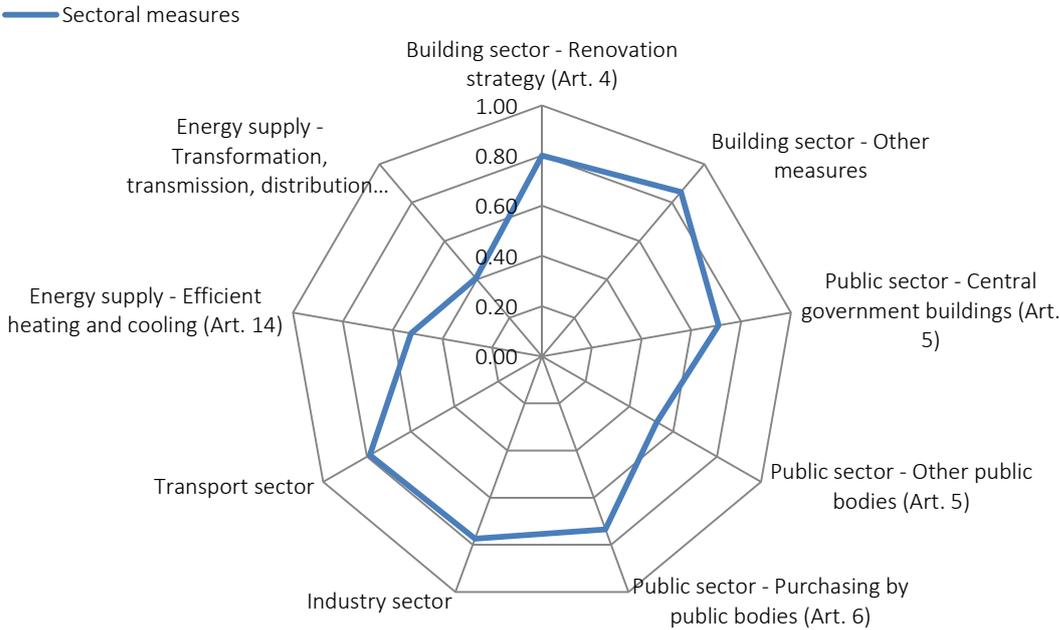
For Article 20, Ireland, Italy, and the Netherlands reported plans to establish a national energy efficiency fund, while Latvia, Estonia and Lithuania have stated that discussions on the introduction of such a fund are currently underway. Denmark and the UK do not consider that there is a need to set up a national energy efficiency fund at present, while Germany, Malta, Finland, France, Czech Republic, Slovakia and Sweden have not reported any relevant information on the creation of an energy efficiency fund. Other

countries (Austria, Bulgaria, Cyprus, Croatia, Greece, and Portugal) have had existing funds for a number of years.

**Sectoral measures**

Article 4 on the renovation strategy for the national building stocks, either formed part of the National Energy Efficiency Action Plans or were reported as separate notifications to the Commission. Half of the Member States included their renovation strategies in their NEEAPs (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Finland, Hungary, Italy, Latvia, Luxembourg, the Netherlands, Poland, Sweden and the UK). The strategies were requested to consist of five sections outlined in the Directive, which were covered with a varying level of detail. In particular, it was observed that the overview of the national building stock generally covered the non-residential building to a lesser extent. The section on forward-looking perspective to guide investment decisions was largely weak, with limited data notified on investment costs, sources of funding etc. The same applied on the quantification of savings and wider benefits. Detailed information on the overview of the residential building stock was however provided by most Member States and all Member States presented a variety of planned and/or existing policy measures targeting the building sector.

**Figure 5.** Evaluation of information provided by Member States for sectoral measures in the NEEAPs according to the elements listed in the EC template



With regards to measures in the public sector, previous analysis has shown that around two thirds of the Member States (18 MSs) will implement the requirements of Article 5 on central government renovation through alternative measures, with the remaining one third opting for the default approach. According to Annex XIV Part 2, Member States were requested to include the list of public authorities which have developed an energy efficiency plan. The Flanders region of Belgium, Germany, Denmark, Estonia, Spain and Croatia have notified a list of public bodies that have on-going energy efficiency plans,

while Finland, Wallonia (Belgium), Croatia, Malta, the Netherlands, and Cyprus have simply stated the number of bodies with action plans without listing details of the affiliated bodies. The Covenant of Mayors initiative was mentioned as the main tool for establishing sustainable energy action plans for local authorities in Croatia, Cyprus, Germany, France, Denmark and Italy. Austria, Belgium, Bulgaria, Greece, Ireland, Latvia, Lithuania, Malta, Portugal, Sweden and the UK have not addressed this point in their NEEAPs.

For public procurement under Article 6, all Member States have presented steps to ensure central government purchases of products, services and buildings of high EE performance, while measures taken/planned to encourage other public bodies to do likewise were missing for Wallonia, Flanders, Italy, and Portugal.

For Article 14, Member States were requested to give information on the progress achieved in implementing the comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating/cooling referred to in Article 14(1). Due to the fact that in many countries this assessment is under development (deadline for submission to the European Commission is 31 December 2015), no details were available at the time of writing of the NEEAPs. Only France, Spain, Denmark and Germany provided more information on the procedure and methodology for carrying out a cost benefit analysis to satisfy EED Annex IX criteria.

Conversely, the reporting on the assessment of the EE potential of national gas and electricity infrastructure under Article 15 was generally weak. For at least 10 Member States, information on the on-going assessment was missing and the majority of the countries did not outline the timetable for the introduction of adopted measures. This is partly due to the fact that the assessment was still on-going at the time of reporting. For demand response measures under Article 15, no information was outlined by Austria, Flanders region of Belgium, Cyprus, Portugal and Sweden, while for many other countries the information was weak. Finland, the Netherlands and the UK have stated that they already have in place some demand response measures such as time-of-use tariffs and real-time pricing. For policy measures in industry and transport sectors, various efforts have been reported in the NEEAPs. Missing elements were often the savings arising from the measures, where 6 Member States (Belgium, Estonia, Greece, Latvia, Malta, Sweden) provided no quantitative data on the impact of the measures for industry and 7 Member States (Belgium, Estonia, Greece, Lithuania, Latvia, Malta, Sweden) provided no quantitative data on the impact of the measures for transport, respectively.

# Energy Efficiency targets and their impact in 2020

## 1.4 Article 3

In accordance with Article 3, Member States had to set indicative energy efficiency targets – based on either primary or final energy savings, primary or final energy consumption or energy intensity – in view of the overall target of 20% reduction in EU primary energy consumption by 2020. Table 3 provides an overview of the various indicators reported in the NEEAPs. Collectively, the combined primary consumption at the EU level based on the reported values sums to 1542 Mtoe, corresponding to a target of 16.8%. Based on several target updates communicated by Member States in 2015 after the submission of the NEEAPs, the collective target has now been revised to 1527 Mtoe of EU28 primary consumption (corresponding to 17.6%). The collective final energy consumption target excluding Lithuania and Portugal amounts to 20.2%<sup>11</sup>. The least used indicator reported was energy intensity where only Greece, Spain and Sweden reported energy intensity targets for 2020.

As explained in the introduction, the EU target corresponds to a 20 % reduction in the EU primary energy consumption by 2020 compared to the 2007 BAU primary energy consumption projections in 2020. As several Member States have not specified their baseline scenario values for the year 2020 (Table 1), it is not possible to derive the percentage energy consumption reduction that each national target corresponds to. Denmark reported a 12.6% reduction in primary energy consumption and 7.2% in final energy consumption reduction with respect to 2006, while Germany reported a 20% primary energy consumption reduction with respect to 2008. Slovenia mentioned that the targeted final energy consumption will result into 20% savings of the energy consumption expected in 2020 according to a business as usual scenario.

Given that the EU target has been set using the PRIMES 2007 baseline scenario projections, a comparative analysis of the primary energy consumption targets set by the Member States and the national projected 2020 baseline consumption as set by the PRIMES 2007 model is made (

Figure 5). The graph shows the national targets set according to the NEEAPs, the PRIMES 2007 projections for 2020 and the corresponding consumption if a 20% reduction in the PRIMES 2007 projections is applied. This analysis shows that only a few Member States (Bulgaria, Greece, Spain, Ireland, Italia, Lithuania, Latvia, Portugal and Sweden) will achieve savings equal or above the savings prescribed by the Primes 2007. The targets of all remaining countries correspond to energy savings which are below the 20% of PRIMES 2007 values.

Information on the baseline scenario considered by the Member States and the connection with the PRIMES model was also examined. In general, only a handful of Member States providing explicit information on the baseline consumption levels in 2020. A comparison between the absolute energy savings with respect to the reported baseline consumption levels was made for the countries with the necessary data availability. The results, shown in Figure 6, indicate that percentage reduction in energy consumption is

<sup>11</sup> This was computed by comparing: (1) the NEEAP final energy consumption of EU28 except Portugal and Lithuania which did not communicate the relevant values with (2) the PRIMES 2007 final energy consumption of EU28 except Portugal and Lithuania

generally lower than the 20% target set at the EU level. Exceptions include Malta, Spain and the UK which reported savings equivalent to 27%, 26% and 20%, respectively.

**Table 3.** Article 3 target savings & consumption levels reported in NEEAPs 2014

	Target primary energy consumption in 2020 [Mtoe]	Target primary energy savings in 2020 [Mtoe]	Target final energy consumption in 2020 [Mtoe]	Target final energy savings in 2020 [Mtoe]
<b>AT</b>	31.5	5.73	26.3	4.78
<b>BE</b>	43.7	9.60	32.5	7.10
<b>BG</b>	16.9	1.59	8.6	0.72
<b>CY</b>	2.2	0.38	1.8	-
<b>CZ</b>	39.6	-	24.4	4.6*
<b>DE</b>	276.6	20% (wrt 2008)	194.3	-
<b>DK</b>	17.8	12.6% (wrt 2006)	14.7	7.2% (wrt 2006)
<b>EE</b>	6.5	0.43-0.48	2.8	0.43
<b>EL</b>	24.7	-	18.4	-
<b>ES</b>	121.6	41.20	80.1	-
<b>FI</b>	35.9	-	26.7	4.5
<b>FR</b>	236.3	-	131.4	-
<b>HR</b>	11.1	-	7.0	0.40
<b>HU</b>	24.1	2.2	16.6	1.7
<b>IE</b>	13.5	2.75	11.2	-
<b>IT</b>	158.0	20.05	126.0	15.5
<b>LT</b>	6.5	-	-	0.74
<b>LU</b>	4.5	-	4.2	0.23
<b>LV</b>	5.4	0.67	4.5	0.45
<b>MT</b>	0.7	0.26	0.5	0.05
<b>NL</b>	60.7	16.03*	52.1	11.51*
<b>PL</b>	96.4	13.6	71.6	-
<b>PT</b>	22.5	2.40	-	2.00
<b>RO</b>	43.0	10	30.3	-
<b>SE</b>	43.4	-	30.3	-
<b>SI</b>	7.1	-	5.1	20% (wrt 2020)
<b>SK</b>	16.4	3.57*	9.0	2.28*
<b>UK</b>	175.0	20% (wrt 2020)	129.2	18% (wrt 2020)
<b>TOTAL</b>	1544		1060**	

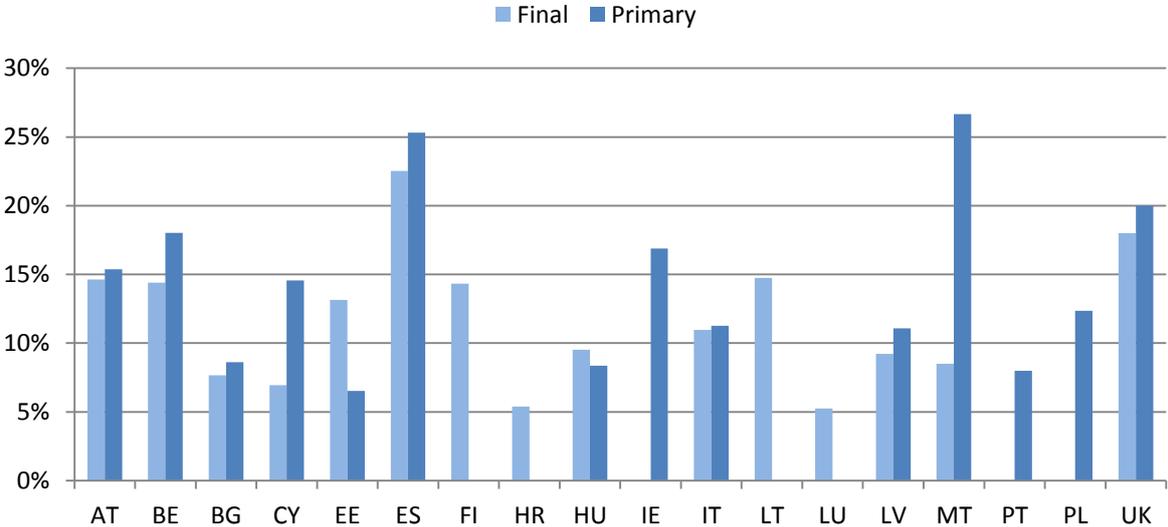
\* Cumulative energy savings for the period 2014-2020

\*\* Excluding PT and LT

The discussion of the energy efficiency targets needs to take into consideration the impact of the economic crisis in Europe in recent years. An update of the PRIMES model in 2013 (PRIMES 2013) reveals lower projections for the baseline energy consumption until 2020. The significant difference in the trajectory between PRIMES 2007 baseline projection and latest PRIMES update in 2013 in terms of primary energy is illustrated in Figure 8. This can be largely attributed to the impact of the crisis. The historical EU27 primary energy consumption indicated in Figure 8 drops below the PRIMES 2007 and 2013 projections after 2006 and after 2010, respectively, while the latest available historical data for 2013 show that there is only an about 5% energy savings needed to reach the 2020 target. Therefore, despite the fact that the NEEAP targets set by Member States correspond to 17.6% and not 20% of primary energy savings, the current situation, in part due to the impact of the crisis, shows that we are likely to reach overall the 2020 target at the EU level.

A few clarifications on the setting of Article 3 targets are needed. The Netherlands notified a target of 482 PJ of final *cumulative* energy savings, corresponding to end-use efficiency improvements only. The connection between the Article 3 and Article 7 targets is not clear as the cumulative energy savings target is set as part of the implementation of Article 7 but also presented as the overall target for 2020<sup>12</sup>. Article 3 energy savings expressed in cumulative terms were also reported by Slovakia and the Czech Republic. These savings correspond to the savings reported in Article 7. While Germany reported a 20% primary energy consumption reduction with respect to 2008, the percentage reduction of the primary energy consumption of 2020 (=276.6Mtoe) compared to 2008 consumption (=314.4Mtoe) is 12%.

**Figure 6.** Share of NEEAP energy savings against projected baseline consumption levels in 2020 as reported in NEEAPs (Please note that for AT, IE, IT, LV and MT the BAU was derived by summing the target consumption levels and savings reported in 2020)

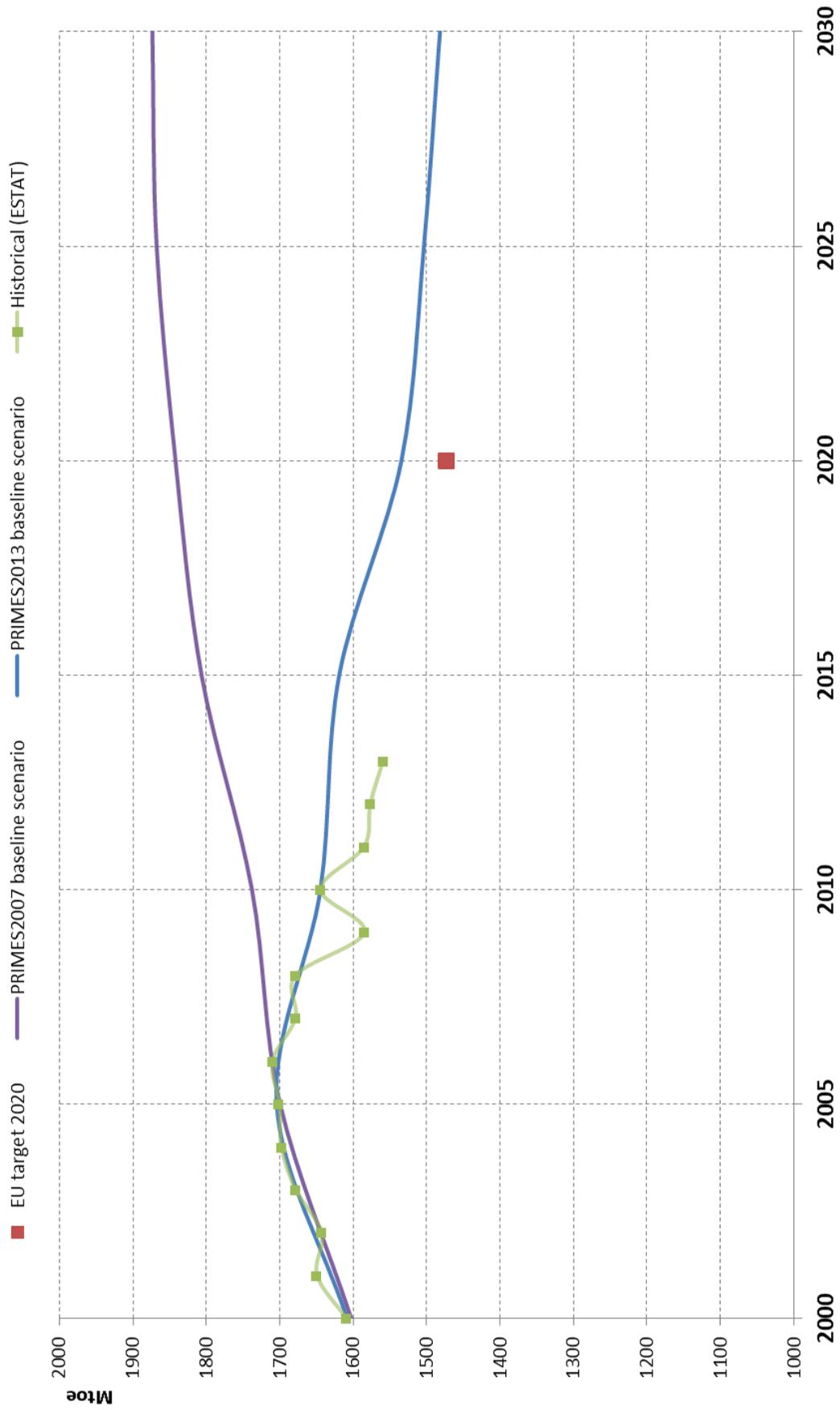


<sup>12</sup> The separate notification for Article 7 dated December 2013 states that the cumulative final energy saving target to be achieved in order to comply with Art. 7 requirements is 482 PJ. It also states that 100 PJ of additional annual final savings by 2020 will be achieved as part of the Energy Agreement. In the NEEAP, the overall 2020 target is stated to be 482 PJ, while the Article 7 target is stated as 100 PJ. Overall, no explicit reference to Article 3 has been made in the NEEAP.

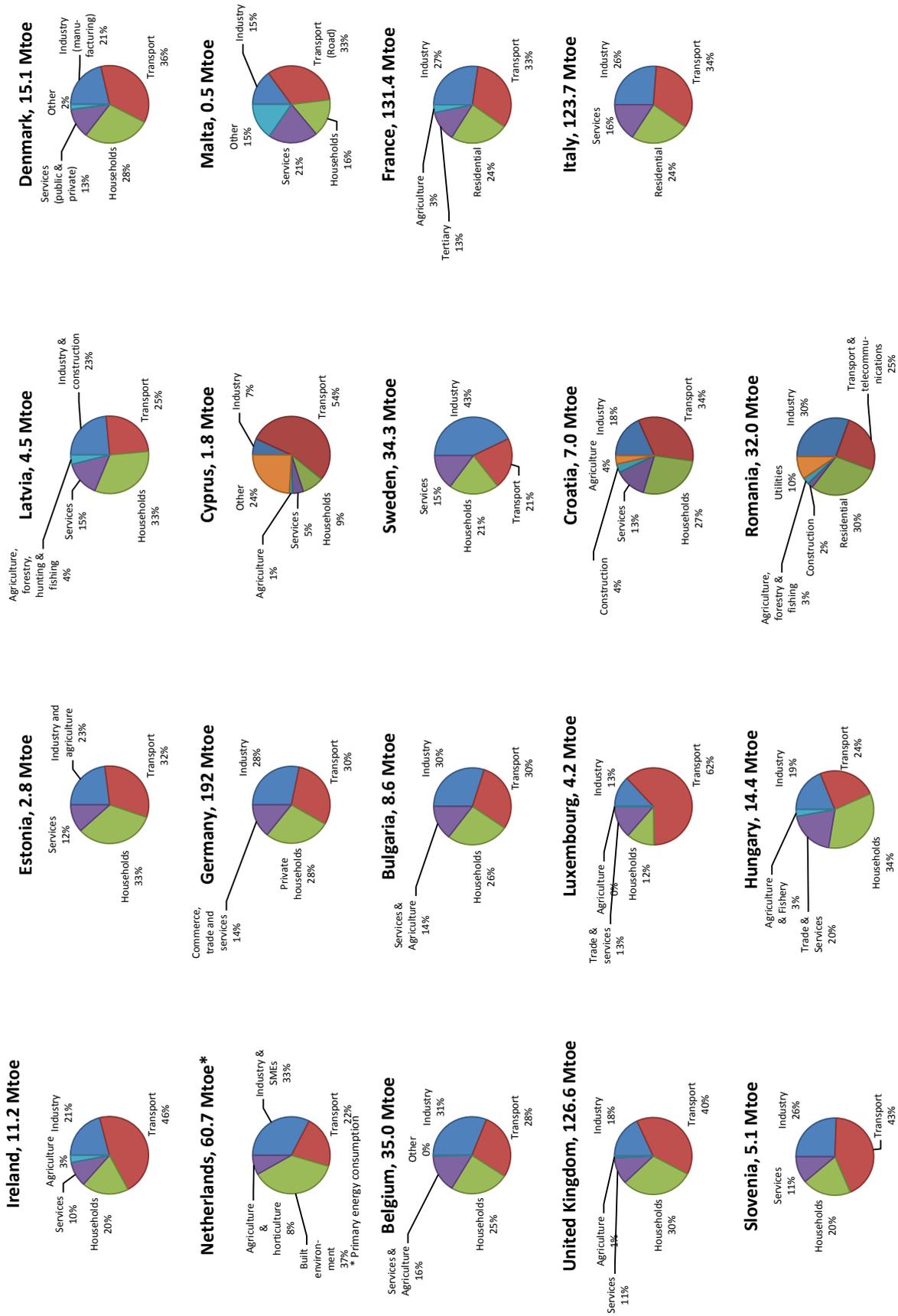
**Figure 7.** Comparison of 2020 National Primary Energy Consumption Targets and PRIMES 2007 model projections



**Figure 8.** Comparison between PRIMES projections and historical primary energy consumption

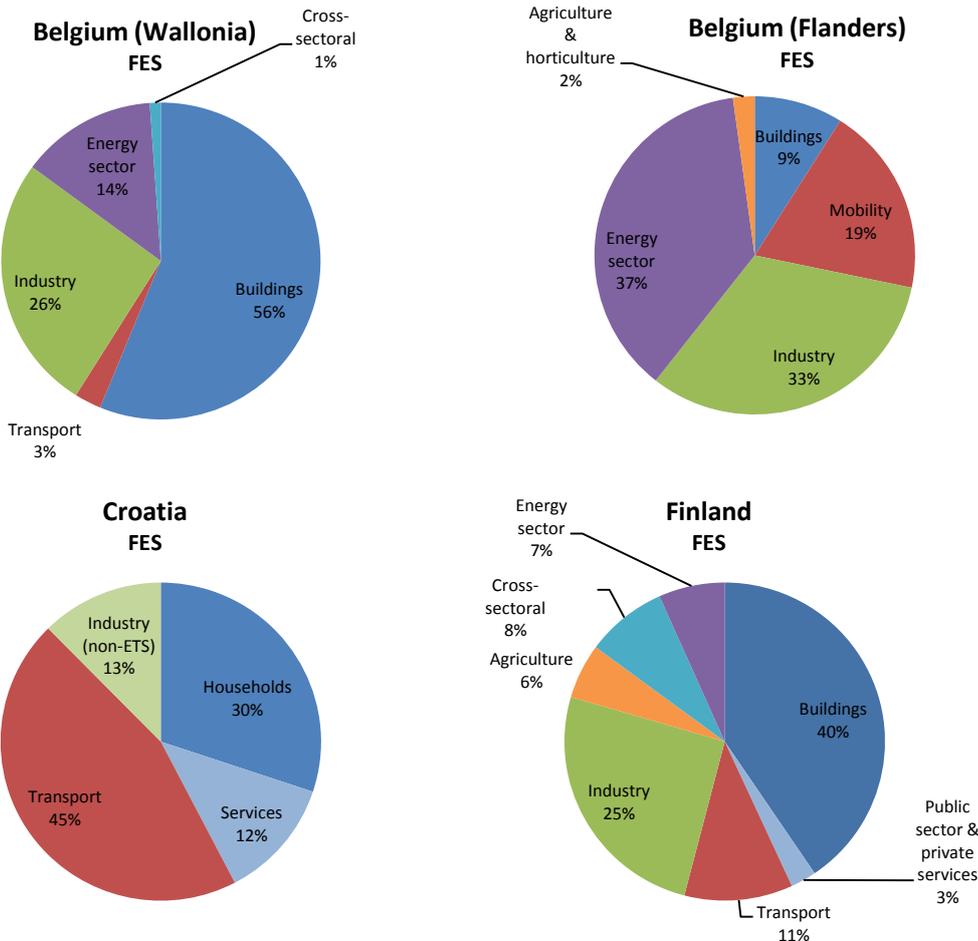


**Figure 9.** Final energy breakdown by sector in 2020

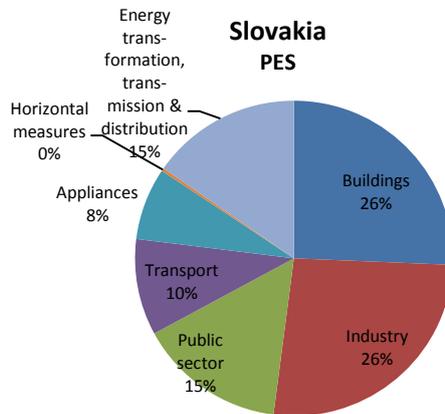
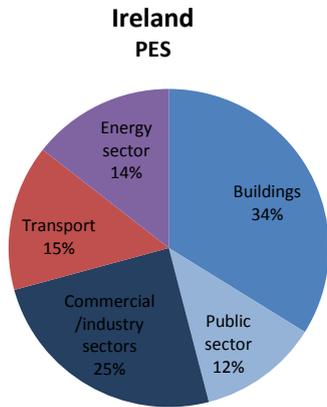
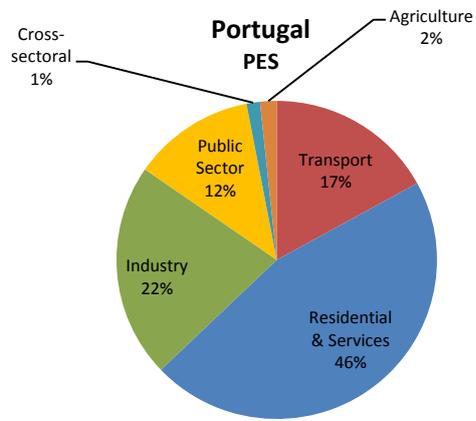
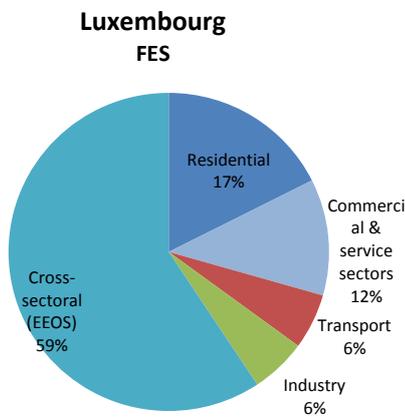
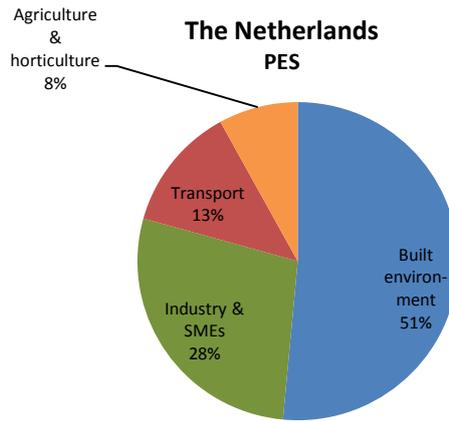
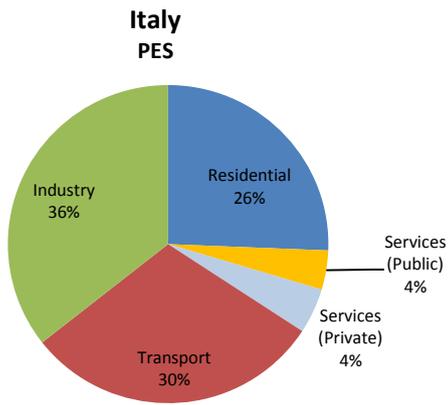


The final energy breakdown by sector in 2020 available for 19 Member States is indicated in Figure 9. While the breakdown of the 2020 savings by sector was not among the minimum requirements set by the Directive, a few Member States reported 2020 energy savings by sector. The available sectoral savings as a share of the overall savings to be achieved in 2020 in nine Member States are shown in Figure 10. Significant differences in the sectorial distribution of savings from country to country can be observed; e.g. savings generated by transport can be responsible for 6-45% of overall savings, buildings for 9-71% and industry from 6-36%. This can be partly attributed to the relative importance of the sectors against the overall economic activity of a given country. For example, small countries are likely to have a small industry sector and thereby savings in industry form a small share of the overall savings. At the same time, the economic sectors contributing to the target differ from country to country. For example only 4 out of nine considered energy savings in the energy supply sector. Further analysis is restricted by divergences in definitions and breakdowns used by each Member State. Consequently, cross-country comparisons or comparisons with Eurostat data are not possible.

**Figure 10.** Savings by sector reported in NEEAPs for the year 2020 (PES: Primary Energy Savings, FES: Final Energy Savings)



Continuation of Figure 10



## 1.5 Article 5

Table 4 provides a summary of the energy savings estimated in countries which selected the alternative approach. The column "Energy savings (alternative approach)" represents the energy saving target, while column "Energy savings (default approach)" shows the energy savings if the default approach was to be implemented.

**Table 4.** Reported savings under Article 5 notifications

	Energy savings (alternative approach)	Energy savings (default approach)	Final or primary?	End uses	Annual or cumulative
<b>AT</b>	48.5 GWh	48.145 GWh	Not specified	Thermal	Cumulative (2014-2020)
<b>BE<sup>13</sup></b>	12.98 MWh; 40.438 MWh	4.39 MWh; 13.7 MWh	Primary	Not specified	Cumulative (2014-2020)
<b>BE-BRU</b>	950 MWh	321 MWh	Primary	Not specified	Cumulative (2014-2020)
<b>BE-VLG</b>	28 GWh	2,414 MWh	Primary	Not specified	Cumulative (2014-2020)
<b>BE-WAL</b>	No information	-	-	-	-
<b>CZ</b>	No information	-	-	-	-
<b>DE</b>	No information	-	-	-	-
<b>DK</b>	148 GWh	148 GWh	Primary	Not specified	Cumulative (2014-2020)
<b>ES</b>	No information	-	-	-	-
<b>FI</b>	At least 1,285 MWh	1,285 MWh	Final	Not specified	Annual (2014)
<b>FR</b>	10,131 GWh	2,477 GWh	Primary	Lighting, DHW, auxiliary use heating, cooling,	Cumulative (2014-2020)
<b>HR</b>	0.005523 PJ or 0.005975 PJ	0.005523 PJ	Final	All	Annual
<b>IE</b>	At least 1.3 GWh	1.3 GWh	Final	Not specified	Annual
<b>MT</b>	At least 555 MWh	555 MWh	Not specified	Not specified	Cumulative (2014-2020)
<b>NL</b>	1000TJ	219TJ (0.2PJ)	Not specified	Not specified	Cumulative (2014-2020)
<b>PO</b>	2,122.15 GWh	2,122.15 GWh	Primary	Not specified	Annual
<b>PT</b>	Not clear	634 MWh	Not specified	Heating, ventilation, AC, lighting, DHW, etc.	Not clear
<b>SE</b>	21 GWh	21 GWh	Not specified	Not specified	Cumulative (2014-2020)
<b>SK</b>	53 GWh or 54 GWh	52.17 GWh	Not specified	Heating only	Annual
<b>UK</b>	441.5GWh	163.6 GWh	Not specified	Not specified	Cumulative (2014-2020)

<sup>13</sup> These represent savings for the common institutions on the territory of Brussels. The first row is related to Common Community Commission - COCOM, and second row to French Community Commission – COCOF.

Most countries reporting their estimated energy savings have stated that they plan to achieve energy savings which are equal or larger than energy savings equivalent to the default approach. Evidence about the equivalence of the two approaches (quantifying the target of the alternative approach and showing the savings that would have been achieved by the default approach) was also missing in some cases (e.g. Germany, the Czech Republic, Spain).

Table 5 shows an overview of the alternative measures reported in Article 5's national notifications. Most Member States stated that they plan to implement a mixture of renovation, behavioural change and other measures. The majority of Member States do not report the energy savings expected to be achieved by each measure. Only Austria, Croatia, Finland, France, Ireland and the UK provide some evidence that the planned measures will yield energy savings in line with the target.

## **1.6 Article 7**

An overview of Article 7 targets reported in NEEAPs is shown in Table 6. These represent cumulative final energy savings in the period 2014-2020 with the exception of Ireland which chose to express its cumulative target in terms of primary energy. Most countries have chosen to apply the 25% reduction to their target calculations – an option offered by Article 7(3) – with the exceptions of Denmark and Portugal. Transport was excluded in the 2010-2012 energy sales for all countries except Sweden. Four MSs are planning to rely on EEOSs alone, 14 will use a mixture of EEOSs plus alternative measures and 10 MS will use only alternative measures. Of the 18 countries with an EEOS in their territory, Ireland, Slovenia, Austria, Bulgaria, Spain, Lithuania, Malta, Latvia, Estonia, Hungary, Luxembourg and Croatia plan to put obligations for their energy suppliers for the first time. In certain cases, the sum of the expected savings is found to be larger than the savings required by the targets (Cyprus, Denmark, Finland, Ireland, Malta, and the UK), while for others (Greece and Germany), the reported savings of the measures are not enough to reach the target.

**Table 5.** Alternative measures chosen by Member States

	Renovation measures	Behavioural change measures	Other measures	Savings of each measure reported?
<b>AT</b>	Deep, shallow	Energy management, user feedback, user motivation	Floor area reduction (incl. selling off); Contracting	Yes
<b>BE</b>	Yes (unclear renovation depth)	Energy management systems, etc.		No
<b>CZ</b>	Shallow	Measures targeting consumer behaviour/building management	Energy performance contracting	No
<b>DE</b>	Not specified	Not specified	Not specified	No
<b>DK</b>	Yes (unclear renovation depth)	Awareness raising; operational optimisation	Optimisation of land use; Move to energy efficiency construction, etc.	No
<b>ES</b>	Not clear	Online training platform; Training & awareness raising courses; Guidelines; Legislation on operating conditions, etc.	Not clear as the list provided is indicative and non-exhaustive	No
<b>FI</b>	Shallow	Technical operational guidance and remote monitoring, etc.	Green leases; Space efficiency improvements; energy efficiency action plans, etc.	Yes
<b>FR</b>	Shallow	Awareness-raising campaigns	Re-organisation of state services; Office space taken out of use/sold out;	Yes
<b>HR</b>	Yes (unclear renovation depth)	Energy management systems	No	Yes
<b>IE</b>	No	Large-scale behaviour change campaign	No	Yes
<b>MT</b>	Yes (unclear renovation depth)	Energy management systems, smart meters, etc.	PVs; Sustainable procurement; Employee relocation	No
<b>NL</b>	Yes (unclear renovation depth)	Optimisation of energy installation settings; energy performance advice; smart	Public procurement; Property disposal or demolition, ESCO use	No
<b>PO</b>	Yes (unclear renovation depth)	Handbook with EE measures including tips for behavioural changes	Regulation for minimum energy requirements in buildings;	No
<b>PT</b>	Yes (unclear renovation depth)	Local energy manager promoting energy efficiency	Energy efficiency action plan; Energy efficiency contracts	No
<b>SE</b>	Not specified	Not specified	Not specified	No
<b>SK</b>	Yes (unclear renovation depth)	Awareness campaigns, advice, courses, specialist workshops, etc.	Energy audits	No
<b>UK</b>	Not specified	Not specified	Greening Government Commitments in England, Carbon Management Plan in Scotland; Climate Change Strategy in	Yes

**Table 6.** Overview of Article 7 targets reported in NEEAPs

	Target		Calculation of target			Measures	
	Cumulative savings under Art. 7 (ktoe)	Transport excluded from av. 2010-2012 energy sales	Art. 7(2) options considered	25% reduction considered?	Obligation schemes	Alternative measures	
<b>AT</b>	5200	Yes	7(2)(d)	Yes	✓	✓	
<b>BE - BRU</b>	460	Yes	7(2)(d)	Yes		✓	
<b>BE - VLG</b>	4243	Yes	7(2)(a),(b)	Yes	✓*	✓	
<b>BE - WAL</b>	2208	Yes	7(2)(d)	Yes		✓	
<b>BG</b>	1943	Yes	Not clear	Yes	✓		
<b>CY</b>	242	Yes	7(2)(a),(b)	Yes		✓	
<b>CZ</b>	4564	Yes	7(2)(a),(d)	Yes		✓	
<b>DE</b>	48880	Yes	7(2)(b),(d)	Yes		✓	
<b>DK</b>	4130	Yes	7(2)(c) <sup>2</sup>	Less than 25%	✓		
<b>EE</b>	611	Yes	Not clear	Yes	✓	✓	
<b>EL</b>	3333	Yes	7(2)(a),(b)	Yes		✓	
<b>ES</b>	15979	Yes	7(2)(a),(b)	Yes	✓	✓	
<b>FI</b>	4192	Yes	7(2)(d)	Yes		✓	
<b>FR</b>	30570	Yes	7(2)(b),(d)	Yes	✓	✓	
<b>HR</b>	1296	Yes	7(2)(a),(b)	Yes	✓	✓	
<b>HU</b>	3399	Yes	7(2)(a), (b), (c)	Yes		✓	
<b>IE<sup>1</sup></b>	2652	Yes	7(2)(a),(b)	Yes	✓	✓	
<b>IT</b>	26919	Yes	7(2)(a),(c) <sup>3</sup> ,(d)	Yes	✓	✓	
<b>LT</b>	1004	Yes	7(2)(a),(c),(d)	Yes	✓	✓	
<b>LU</b>	515	Yes	7(2)(a),(b)	Yes	✓		
<b>LV</b>	851	Yes	7(2)(a),(b)	Yes	✓	✓	
<b>MT</b>	56	Yes	7(2)(a),(d)	Yes	✓	✓	
<b>NL</b>	2388	Yes	7(2)(a), (b)	Yes		✓	
<b>PL</b>	16200	Yes	7(2)(b)	Yes	✓		
<b>PT</b>	4288	Yes	No	No		✓	
<b>RO</b>	5817	Yes	7(2)(a)	Less than 25%		✓	
<b>SE</b>	9114	No	7(2)(a)	Less than 25%		✓	
<b>SI</b>	997	Yes	7(2)(a), (c)	Yes	✓	✓	
<b>SK</b>	2284	Yes	7(2)(a), (c)	Yes		✓	
<b>UK</b>	27859	Yes	7(2)(a),(b)	Yes	✓	✓	

Notes

\* The Flemish scheme is an obligatory action scheme

1 Target is in terms of primary energy savings

2 Article 7(2)(c) possibility is considered for the Danish Energy Efficiency Obligation Scheme.

3 Article 7(2)(c) possibility has been instead used through the Italian white certificate scheme in place.

### 3.4 Additional Energy Efficiency Targets

Additional energy efficiency targets have also been reported either addressing the whole economy or specific sectors. Notable examples include Germany, which has set a 50% reduction for 2050 primary energy consumption compared to 2008 levels and Denmark, which has a strategy to cover half of its traditional electricity consumption with wind power by 2020 and achieve 40% reduction in greenhouse gases by 2020. The Danish government also plans to phase out coal power stations, replace oil-fired boilers in Danish households with renewable energy by 2030 and achieve 100% renewable energy by 2050. Finland has set a target of final energy consumption of domestic transport of no more than 48 TWh by 2020, while Sweden plans to have fossil fuel free transport by 2030. France has stated that positive energy buildings will be the "norm" from 2020 and an objective to reduce consumption in existing buildings by 38% by 2020 will be reached. The Brussels-Capital Region has set a national intermediate target of 80% of new nZEB<sup>14</sup> buildings in 2015, while for Flanders the intermediate target corresponds to 10% only. Malta has set an intermediate nZEB target 5% of total renovated buildings and 5% of total newly constructed buildings in 2015. Ireland has established a 33% target for the public sector, which equates to 3,240 GWh (primary energy) savings by 2020.

Other examples include Lithuania which, inter-alia, plans to reduce heat losses by 10% and electricity losses in networks by 20% and Latvia, which plans to reduce the average household heat consumption by 50% against the current values by 2030 (from 200 to 100 kWh/m<sup>2</sup>). Italy has reported their national annual energy saving targets under the white certificate schemes for the period 2013-2016 as additional target.

### 3.5 Fulfilment of the ESD target

Under the ESD, Member States were required to provide information about the fulfilment of the ESD target. Specifically, information on the achieved savings by the time of reporting, target and forecast savings for 2016 as well as information on the calculation methodology used.

Table 7 provides an overview of the 2016 ESD target declared in NEEAPs 2014, the forecast savings for 2016, a check if the 2016 ESD target is expected to be met (i.e. if forecast savings are greater than target savings) and the percentage 2016 ESD target expected to be reached. The latter was derived by comparing the forecast savings and reference consumption. For a number of countries (BG, FR, PT, RO, HU), it is not clear whether the 2016 target will be reached as the total forecast savings for 2016 have not been reported. While the forecast savings are not provided in the Czech Republic, savings calculated by means of the top-down method for the period from 2008 to 2010 are estimated to be 27097 PJ, representing 137% of the 2016 target. In Denmark, the target is to be reached only if the forecast savings under the bottom up method are considered. The forecast savings for 2016 seem to be exactly the same with the target for Greece, Croatia and Latvia, while for all other remaining countries, the forecast savings are greater than the target.

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<sup>14</sup> Nearly zero energy buildings

**Table 7.** Forecast energy savings under the ESD communicated in the NEEAPs 2014

	Target final energy savings for 2016 under ESD declared in NEEAP 2014		Forecast final energy savings for 2016 reported in NEEAP 2014		Is 2016 ESD target expected to be met (i.e. forecast savings > target savings)?	2016 ESD target expected to be reached (i.e. forecast savings/reference consumption)
<b>AT</b>	80.4	PJ	84.234	PJ	Yes	9.4%
<b>BE</b>	27516	GWh	38957	GWh	Yes	
<b>BG</b>	7291	GWh/y			Unclear	
<b>CY</b>	185	ktoe	238.908	ktoe	Yes	13.0%
<b>CZ</b>	19.7244	PJ			Unclear	
<b>DE</b>			2246	PJ	Unclear	24.3%
<b>DK</b>	59.4	PJ	57.6 (TD),	PJ	Yes	
<b>EE</b>	9.9	PJ	12	PJ	Yes	10.9%
<b>EL</b>	16.46	TWh	16.46	TWh	Yes	9.0%
<b>ES</b>	6390	ktoe	10993	ktoe	Yes	
<b>FI</b>	17.8	TWh	25.4	TWh	Yes	12.8%
<b>FR</b>	12	Mtep			Unclear	
<b>HR</b>	19.77	PJ	19.77	PJ	Yes	
<b>HU</b>					Unclear	
<b>IE</b>	13117	GWh	14285	GWh	Yes	9.8%
<b>IT</b>	10.88	Mtoe/y	10.88	Mtoe/y	Yes	9.6%
<b>LT</b>	327	ktoe	340.67	ktoe	Yes	9.4%
<b>LU</b>	1769	GWh/a	2814	GWh/a	Yes	16.0%
<b>LV</b>	3483	GWh	3483	GWh	Yes	9.0%
<b>MT</b>			32.84	ktoe	Unclear	
<b>NL</b>	51190	GWh	57282	GWh	Yes	10.1%
<b>PL</b>	4.59	Mtoe	7.09	Mtoe	Yes	13.9%
<b>PT</b>	1501.305	ktoe			Unclear	
<b>RO</b>					Unclear	
<b>SE</b>	33.2	TWh	48.7	TWh	Yes	13.6%
<b>SI</b>	4261	GWh	6872	GWh	Yes	14.5%
<b>SK</b>					Unclear	
<b>UK</b>	136.5		161.6	TWh	Yes	10.6%

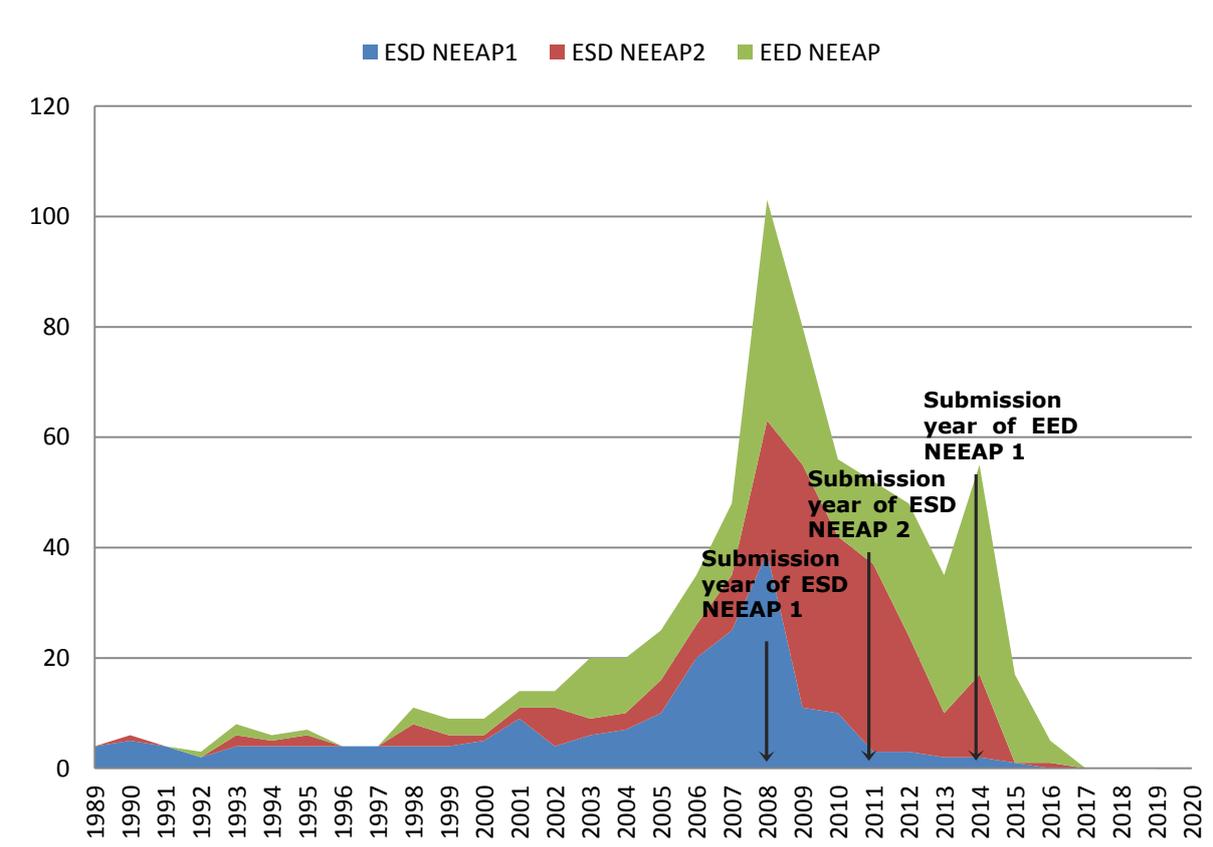
Notes

- BG, CZ, FR, PT, RO, HU, SK: The total forecast savings for 2016 have not been provided
- EE: The target of 9.9 PJ was extracted from AR2013. Despite the forecast savings of 12 PJ being higher than the target, the introduction of the NEEAP 2014 states that "since the forecast energy saving by 2016 is insufficient, Estonia will have to implement additional energy efficiency measures to ensure that the final energy consumption efficiency objectives and the objectives specified in Directive 2006/32/EC on energy end-use efficiency and energy services will be achieved."
- MT: While the target is not communicated, the Maltese NEEAP states that it expects to reach 24% EE by 2016

## Policy measures under the National Energy Efficiency Action Plans

Various policy measures are reported in the NEEAPs targeting each sector of the economy, individually or in a horizontal manner. The distribution of policy measures by starting year is depicted in Figure 11. It can be noted that a number of countries have had a long tradition in promoting energy efficiency before action at the EU level was taken, with some measures starting well before the ESD adoption in 2006. Specifically, Austria, France, Finland, Germany, the Netherlands, Sweden and the UK have implemented energy efficiency policy measures since 1990s. Following the ESD adoption, a sharp increase of measures starting in the period 2007-2009 can be observed, while the subsequent second peak in 2014 can be largely attributed to the introduction of the NEEAPs under the EED.

**Figure 11.** Distribution of EED NEEAP policy measures by starting year, where the blue area indicates the share of measures which were first reported in the 1st NEEAPs under the ESD, the red area shows measures first reported in the 2nd NEEAPs under ESD and green area shows new measures presented in the EED NEEAPs for the first time (based on information extracted from the MURE database)



The EED NEEAPs include a mixture of measures reported in the previous NEEAPs under the ESD as well as new measures. Around 60% of the measures mentioned in the EED NEEAPs are measures previously notified in the last two NEEAPs under the ESD, indicating a general continuation of energy efficiency policy at national level (Figure 11). Half of these measures were mentioned in both ESD NEEAPs, while the other half in the second ESD NEEAP only. Member States with long tradition in energy efficiency policy (such as Finland, Germany, France etc.) typically have no space for many new measures

and instead largely rely on existing measures, which are periodically reinforced and aligned with the new requirements of the EU directives. It is also noted that the area under the graphs typically continues beyond the NEEAP submission year, indicating that the implementation of several measures reported in NEEAPs may start several years after the NEEAP submission. This is especially true for measures under the first ESD NEEAP. This can be partly explained by the challenge related to the set-up of new policy platforms faced under the ESD by Member States with no previous experience in energy efficiency policy. Measures which are associated with a longer time span were mainly of regulatory nature (e.g. measures related to Energy Performance of Buildings or Energy labelling Directives) or constituted long-established financial or fiscal measures in certain countries. For these countries, the need to introduce new measures beyond the obligatory measures of the EED is somewhat of lesser importance, given that the pre-existing measures are periodically updated and remain effective in terms of delivering the estimated savings of the target.

## **1.7 New measures reported in NEEAPs**

While the majority of the measures presented in the NEEAPs are existing measures, the EED has been instrumental for the implementation of new measures in Member States. In addition to the establishment of Energy Efficiency Obligation Schemes, new or updated policy measures in the area of financing, information dissemination and other regulations have been identified. These are briefly discussed below.

### **Energy Efficiency Obligation Schemes**

With the exceptions of Italy, France, Denmark, Belgium, Poland and the UK where EEOSs existed before the EED, Energy Efficiency Obligation Schemes represent an important new measure for 12 Member States. In particular, Austria, Bulgaria, Croatia, Estonia, Ireland, Latvia, Lithuania, Luxembourg, Malta, Slovenia and Spain plan to put in place obligations for their energy suppliers. Each obligation scheme has different design parameters, scope and targets. Starting from January 2014, Ireland will transform its voluntary agreement placing energy efficiency obligation for its energy sector to a mandatory EEOS that delivers 50% of the target (i.e. 550 GWh per year, 15400 GWh cumulative). The Austrian EEOS will cover all energy sectors, with the provision that 40% of savings must be achieved in the residential sector and will apply to all energy retailers selling more than 25GWh in the previous year. The annual saving target per company will equate to 0.6% of energy sold in the previous year. Bulgaria is planning to introduce an EEOS, which will apply to electricity retailers and heat transmission companies selling more than 75GWh in the previous year, to natural gas traders selling more than 8 million cubic metres, liquid fuel traders selling more than 6,500t, and solid fuel traders selling more than 13,000t. The overall savings target is 1.5% of annually of the average energy sales of obligated parties, 2010-2012. In Spain, the obligation scheme will initially operate without the certificates and the obligated parties will be able to fulfil their obligation only by providing the equivalent amount of compensation to the Energy Efficiency National Fund, at least during the first stage of the scheme's implementation. Malta plans to establish an obligation on the Enemalta Corporation – the only electricity distribution system operator (DSO) and licensed electricity supply company in Malta – to instruct consumers in wise energy use via smart meters, use the monitors of the roll-out innovatively, establish a progressive rising block tariff system aiming to discourage overuse and offer incentives through the same tariff structure by rewarding economy in energy consumption. Luxembourg will introduce a national energy efficiency obligation scheme into its legislative system, using the Danish scheme as a model. Obligated

parties will be assigned the public service task of achieving the energy savings objective. To that end, the obligation scheme will be defined in Luxembourg law as a service of general economic interest, which the obligated parties will be mandated to provide.

A few countries provided very limited information on their planned EEOSs. The Lithuanian Law establishing the EEOS is still under preparation with very limited information available about its expected setup. The establishment of a Latvian EEOS was approved by the government in December 2013, but it was not yet implemented due to legal issues that need to be further clarified and agreed. The obligated parties will be 28 suppliers of electricity and 9 of natural gas suppliers. In Estonia the introduction of an EEOS is currently under discussion, in the frame of the "organisation of Energy Management Act", the legislative act for the transposition of the EED. A target of 7101 GWh<sup>15</sup> *cumulative* energy savings has been set in order to meet the requirements of Art. 7. Hungary is examining the potential implementation of an EEOS on the energy distributors and retail energy sales companies. The potential administrative bodies of such a scheme will be the Hungarian Energy and Public Utility Regulatory Authority and the Ministry of Energy. Croatia plans to define a cost-effective and institutionally implementable energy efficiency obligation scheme by the end of 2014, and provide information about it in its next annual report.

In the Brussels-Capital Region of Belgium, there is an obligation for fuel oil suppliers to contribute to the existing energy fund used to provide subsidies to implement energy efficiency improvement measures. Although gas and electricity suppliers are already obliged to contribute to this fund, an obligation is not yet in place for fuel oil suppliers. The government has hence decided to implement this obligation also for suppliers of fuel oil used for heating. This measure will be implemented in the framework of a plan for the climate, energy and the air.

### **Mandatory energy audits**

Mandatory energy audits in large enterprises are an obligation for all Member States. Denmark has specified that the obligation covers enterprises in all sectors (at least 250 employees and an annual turnover of more than EUR 50 million). In the Brussels Capital Region (BCR), the energy audit obligation has been linked to the renewal of environmental permits for buildings or building complexes whose surface not destined to accommodation is above 3,500 m<sup>2</sup>. These buildings are mostly tertiary and public buildings. Environmental permits owners are obliged to implement measures identified by the audits whenever these measures can become profitable in less than 5 years and obliged actors are identified based on energy consumption thresholds that are periodically updated in order to take into account the existing energy efficiency improvement trends in the sectors addressed.

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<sup>15</sup> In the calculation of the target, transport sector and ETS industrial installations have been excluded, and an overall reduction of 25%, as allowed by Art. 7(3), has been applied.

## Financial measures

Various new financial schemes are identified in the NEEAPs. In the Brussels Capital Region of Belgium, new financial incentives are available to building landlords ("Répercussion du coût d'occupation"), providing economic incentives covering part of the implementation costs to stimulate energy savings. Under this measure, the rental charge and energy bills are merged and a calculation tool is offered to estimate the repercussion on occupation costs of these actions. In Wallonia, a 0% interest loan scheme named Ecopack started in May 2012.

In the Netherlands, the government has created a new revolving fund for energy-saving measures in existing buildings, where € 555 million of central government funds are in total made available. Co-financing from banks amounting to € 225 million is also secured for projects specifically targeting owner-occupiers. At the same time, the Dutch central government is providing landlords in the social rental sector with a new subsidy of € 400 million for investments in energy-efficiency in 2014-2017 with the aim of contributing to the objectives of the Energy Saving Agreement for the Rental Sector. Under this agreement, the aim of an average label B (corporations) and a minimum label C (private landlords) for 80% of homes for 2020 is set. In Italy, an incentive scheme for the promotion of renewable thermal energy and energy efficient heating (also known as "Conto Termico") started in 2012. This measure partly overlaps with the existing tax credits scheme, meaning that a large series of measures implemented by private actors can be eligible both for tax credits and incentives available under the "Conto Termico".

In some countries updates of existing financial measures are noted. In Latvia, an existing public building renovation scheme will be refinanced for a new period (2014-2020). Specifically, a grant scheme, financed through EU structural funds will target renovations of central government buildings and improvements in the energy performance of municipal buildings. In addition, a revolving fund is established for the implementation of profitable investment projects by providing their financing with low interest rates. Equity capital of such funds consists of co-financing from the respective State and its local governments, funds of donor institutions, as well as, in certain cases, financing from the European Union support financing. In Cyprus, a new phase of the Grant schemes supporting investments in energy efficiency and renewable energy for enterprises, households, public sector and local authorities is foreseen, while the Energy Efficiency at Household Buildings Programme in Greece will enter its second phase in 2015. In Germany, additional funding for energy-related building renovation is secured from 2013 onwards with extra KfW grants of €300 million. The social housing eco-loan in France has also been extended to the end of 2020.

A significant measure for Spain's residential sector, approved in September 2013, is the Aid Programme for the Energy Renovation of Existing Buildings (PAREER), aimed at buildings used for housing and in the hotel industry. With a budget of €125 million, it promotes integrated energy efficiency improvement and renewable energy measure in the stock of existing buildings by awarding grants and repayable loans to projects. The Energy Diversification and Saving Investment Fund (F.I.D.A.E.), covers numerous measures in all sectors: industry, buildings, transport and services. Under this fund, € 122 million have been secured for financing urban energy efficiency and renewable energy use projects set up by agreement between the European Investment Bank (EIB) and IDAE.

### 1.7.1.1 National Energy Efficiency Funds

The set-up of National Energy Efficiency Funds (NEEF) forms part of the plans of some Member States (Table 8). Ireland and the Netherlands have current plans to establish a national energy efficiency fund, while Latvia and Lithuania have stated that discussions on the introduction of such a fund are currently underway. The Irish Fund has been established in March 2014 (€35 million committed by government) with the objective of directly assisting energy efficiency upgrades in the commercial and public sectors. The Fund will also finance Energy Performance Contracts where funding is provided to ESCOs, directly lending to client companies. In Latvia, attracting EU Funds shall be promoted. An energy consultant with a bank's guarantee or insurance policy would be liable for the level of energy efficiency to be reached in the framework of the project. The energy consultant would compensate losses caused to residents of a multi-dwelling building if the defined level of energy savings is not reached after completion of the project. In Italy, the NEEF will be set up as a revolving fund and will receive resources amounting to EUR 490 million in the period 2014-2020 for energy renovations in buildings, construction of new buildings at nZEB level and earthquake-performance measures, etc. It will offer guarantees on individual operations and/or on a portfolio basis on loans granted to businesses to implement energy efficiency projects as well as loans directly or through banks and financial intermediaries. Spain also plans for an Energy Efficiency National Fund (Art. 20), however little details are provided. In addition to existing funds (e.g. Climate & Energy Fund), Luxembourg is considering the creation of a public financial institution, which will mainly concentrate on loans at preferential rates in area field of building renovation for private individuals and enterprises.

**Table 8.** Summary of reported information on the development of a National Energy Efficiency Plan (Existing: existing energy efficiency funds or funds of wider environmental scope that cover, inter-alia, EE investments; Planned: Planned or newly-established energy efficiency funds, No plans: No funds are to be created/no information has been reported)

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU
<b>Existing</b>	✓	✓	✓	✓					✓				✓	
<b>Planned</b>										✓				
<b>No plans</b>					✓	✓	✓	✓			✓	✓		✓
	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK
<b>Existing</b>				✓				✓	✓	✓		✓		
<b>Planned</b>	✓	✓	✓*	✓	✓		✓							
<b>No plans</b>						✓					✓		✓	✓

\*Lithuania stated that it might create an energy efficiency fund

### Information and advice

A number of new information and advice schemes are identified. Specifically Denmark introduced *BedreBolig* (Better Homes) scheme on 1 January 2014 to make it easier and clearer for home owners to renovate their homes by offering comprehensive, expert advice as well as by strengthening cooperation between home owners and financial institutions advisers, banks and mortgages institutions to facilitate the interaction between home owners throughout the energy renovation process. Another relatively new measure is the so-called "Energy House" initiative in the Brussels-Capital Region of Belgium, known as *Maison de l'Énergie – Energie Huis* (MEH). This initiative started two

years ago and has consisted in the creation of an organization with local structures that are disseminating information and advice to energy end-users regarding available energy savings. Experts of the "Energy House" go to energy end-users houses, provide advice and perform small regulation and adjustments of energy consuming equipment<sup>16</sup>.

A renovation Information Services based on the concept of one-stop approach is set up in France with the aim of helping owners to make decisions through the implementation for the energy renovation of private dwellings. This is a new local public service with 450 Renovation Information Service Points (PRIS), present on the whole territory and has a mission of guiding property owners based on their profile and their location and suggest local information centres, local counselling centres and provide basic information. A new awareness campaign for the existence of these PRIS was launched in September 2013. Hungary introduced a number of planned awareness raising measures such as the set-up of an information website on energy and climate awareness, an awareness campaign on the real price of energy, an information exchange platform on best practices in energy conservation etc.

### **Transport-related measures**

Various new transport measures are presented in the NEEAPs. In the Flanders Region of Belgium, a feasibility study of a road taxation system based on kilometres travelled for passengers and freight transport is currently being examined. Preparatory studies and initiatives stimulating the employment of alternative energy carriers (biofuels, electricity for passenger cars and ships while in harbours, natural gas for freight transport) are under way. In the future, the Flemish NEEAP also states the introduction of electric vehicles in the Flemish government fleet. In Italy, a new package with a long list of energy efficiency measures in the transport sector is presented. While it is not possible to establish whether all these measures can be considered as new measures, the measures range from incentives for cars' substitution, to measures for the local public transportation including substitution of buses, to improvement of railroad infrastructures, to the creation of a national logistics platform.

In the UK, the Department for Transport has committed to a number of rail electrification schemes. A new policy for Heavy Goods Vehicles (HGV) by the government will support industry commitments to reduce CO<sub>2</sub> from road freight between 2011 and 2015. Spain has launched the fifth round of the Efficient Vehicle Incentive Programme (PIVE-5) in January 2014. Another transport measure recently implemented in Spain is the 2014 MOVELE Programme, which offers subsidies for purchasing electric vehicles. Malta also plans to launch new incentives for withdrawals of old vehicles and rejuvenation of fleet this year, with expected energy savings of 221 GWh in the period 2014-2020. In France, new actions will be taken to increase connections with other transport means to server ports and rolling motorway services in order to favour a modal shift of road freight transport towards cheaper and low emission means of transport (e.g. development of motorways of the sea, reform of ports, creation of the North Europe Seine canal, etc.). In addition, a third call for projects as part of the Reserved Public Transport Corridors Development Plan was made in May 2013.

### **Voluntary agreements**

A second generation agreement has been recently concluded for the period 2014-2020 in Wallonia, which originally started in the 1990s involving industry federations, single

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<sup>16</sup> There are six of these "Energy Houses" in the BCR with more or less 5 employees each.

enterprises and the government. This agreement consisted in a contract established between the Wallonia government and the most energy intensive industries via their federation. It has been reinforced and now includes the possibility of industries exploiting renewable energies and implementing an accounting system related to the CO2 emissions associated with their products and services. Industries participating in this agreement are also invited to present a roadmap to 2050 whereby they outline their strategy to achieve specific energy efficiency and emissions reduction targets. In the Flanders Region of Belgium, a new agreement with companies operating under and outside the ETS system and consuming more than 0.1 PJ/year of primary energy has been established for the period 2014-2020. Participating companies undertake an energy audit every four years and implement periodic energy plans based on the audit outcomes. In exchange for this commitment the Flemish Region does not impose further energy efficiency or CO2 reduction obligations (unless they are imposed by the EU).

### **Infrastructure improvements (Smart meter roll-out)**

A smart meter installation programme in Cyprus is expected to start in late 2014. In its first phase, a pilot programme will be implemented by the Electricity Authority of Cyprus involving 3,000 meters. Through this pilot, the technical and economic feasibility of a full smart meter implementation in the Cypriot building stock will be explored. Depending on the results, a total of 500,000 smart meters will be installed in the second phase, replacing all conventional meters. The UK Government is leading a programme of collaboration with industry to put in place the regulatory, commercial and technical requirements for smart metering in Great Britain. Most householders will have smart meters installed by their energy company between 2015 and 2020, although some energy companies are starting to install smart meters now. To protect consumers, the Government has developed a smart meter installation Code of Practice which will ensure that installers provide information about how smart meters can be used to improve energy efficiency.

## **1.8 NEEAP measures related to other EU directives and regulations**

Several NEEAP measures reported by the Member States stem from the implementation and enforcement of other EU directives or regulations. These are discussed below.

### **Energy Performance of Buildings Directive (Directives 2010/31/EU, 2002/91/EC)**

Regulatory measures were mostly composed of requirements related to Energy Performance of Buildings Directive and more specifically on minimum energy performance requirements for new and existing buildings. Nearly all Member states included information on building regulations for new/existing buildings in their NEEAPs. A few Member States referred to further improvements in their building codes, strengthening the energy standards to be met during building construction and renovation. Examples include Denmark reporting various upgrades in the energy requirements for new buildings and specific requirements for building envelope, windows and installations and Austria which stated that on-going adjustments are made in building regulations. In the UK, building regulations, first introduced in the 1980s, will be progressively tightened as it moves towards the introduction of the Zero Carbon Homes Standard in 2016. France has last updated its thermal building codes in 2012, tightening primary energy consumption requirements for new buildings to an annual threshold of 50

kWh<sub>ep</sub>/m<sup>2</sup> for heating, domestic hot water, lighting, cooling and auxiliary systems. In Flanders, both energy performance and indoor climate requirements for buildings, together with insulation standards are mentioned in the NEEAP. Other examples of countries which notified measures of revised energy performance standards include Ireland and the Netherlands.

Other building regulations mentioned in NEEAPs include inspections of water boilers and air conditioning systems (e.g. Bulgaria, Cyprus, Italy, Croatia and France) and schemes for the certification of the energy performance of buildings (e.g. Bulgaria, Portugal, France, Lithuania, Spain and Sweden).

### **Ecodesign and Energy Labelling Directives (Directives 2009/125/EC, 2005/32/EC, 2010/30/EU)**

Ecodesign regulations requiring manufacturers to decrease the energy consumption of their products by establishing minimum energy efficiency standards are mentioned by various Member States. These include Cyprus, Denmark, France, Finland, Ireland, Portugal, Spain, Sweden and the UK. In Portugal, the regulatory measure on Home appliances replacement based on the Ecodesign directive represent one of the main measures contributing towards the 2020 energy saving target set in accordance with the Energy Efficiency Directive. In addition, phasing out of incandescent lamps was mentioned by Ireland, France, Portugal and Spain, while the labelling requirements, created for individual product groups under the EU's Energy Labelling Directive were reported by Croatia.

### **Regulation (EU) No 333/2014 on CO<sub>2</sub> emissions from new passenger cars**

The EU, through Regulation 443/2009 has mandated an improvement in average new car efficiency to 130 g CO<sub>2</sub>/km by 2015 with a target of 95 g CO<sub>2</sub>/km for 2020. Emission performance standards for new light commercial vehicles and passenger cars were mentioned by Finland, France, Italy, Ireland, Portugal and the UK. Finland's car tax legislation was revised in 2007 and 2011. The 2007 reform involved basing the amount of car tax on the specific emissions of each vehicle (CO<sub>2</sub>/km) and 2011 reform introduced changes to tax bands, whereby the lowest car tax band was lowered from 12.2% to five per cent and the highest tax band was raised from 48.8% to 50%. In Italy, measures to encourage the environmentally sustainable renewal of the fleet of cars and commercial vehicles up to 3.5 tonnes (implemented in the period 2007-2009) and implementation of Regulation (EC) No 443/2009 are expected to generate energy savings exceeding 0.6 Mtoe per year.

### **Internal Market for Electricity (2009/72/EC) and Gas (2009/73/EC) Directives**

The Internal Market in Electricity (2009/72/EC) and Gas Directive in the EU's Third Energy Package call for the introduction of 'intelligent metering systems', i.e. smart meters, for all consumers, to assist their active participation in the electricity and gas supply market. Should an economic assessment conclude that the introduction of such metering systems is economically reasonable and cost-effective, the Electricity Directive requires a smart meter roll-out for at least 80 % for all electricity customers by 2020, subject to a positive economic assessment carried out by Member States. In the case of the Gas Directive, subject to an economic assessment, Member States shall prepare a timetable for the implementation of intelligent metering systems. Austria, Cyprus,

Denmark, Estonia, France, Greece, Ireland, Latvia, Malta, Spain and the UK were among the countries which included electricity smart meter roll-outs in their NEEAP measures. In the case of Ireland, gas smart meters are also included.

## 1.9 NEEAP measures with highest energy saving impact

Major measures in terms of generated energy savings have also been identified. Table 13 presents the measures with the highest impact towards the achievement of the EED targets. In certain NEEAPs, the contribution of measures as a package is presented and is therefore not possible to deduce the contribution of each individual measure. As some Member States have not quantified the contribution of various policy measures towards the Article 3 target (Table 9), the contribution towards Article 7 was instead considered whenever the impact of measures in terms of Article 3 was not possible to be extracted. For Hungary, the measures were not associated with energy savings, so it was not possible to determine the measures with the highest energy saving impact.

The combination of policy types and sectors responsible for the largest energy savings vary from country to country. Savings realised by the residential sector are particularly important for all Member States, followed by transport, industry and services. In addition, it can be noted that Energy Efficiency Obligation scheme is an important measure for several Member States (Belgium, Bulgaria, Denmark, Estonia, France and Italy). Financial and fiscal measures are the most common measures, followed by regulations, market-based instruments, voluntary agreements and information/advice programmes. The energy taxation measures in Austria, France, Estonia and Germany have also an important role.

**Table 9.** Identified measures with biggest contribution towards Articles 3 and 7 targets (RES: Residential, SER: Services, IND: Industry, TRA: Transport, PUB: Public, SUP: Energy supply)

	Policy measure title	Policy Type	Sector
<b>A T</b>	Federal energy efficiency subsidies for EE for existing and new residential buildings	Financial	RES
	Energy taxes	Financial/fiscal	RES; SER; IND; TRA
	Statutory provisions (subsidies) to promote district heating	Financial	SUP
<b>B E</b>	(RUE) public service obligations on the electricity distribution system operators (Flanders)	Market-based	RES; SER
	Energy efficient mobility and improved environmental performances of transport (Flanders)	Various	TRA
	Energy subsidies for buildings refurbishment in Wallonia (UREBA; PIVERT)	Financial	PUB
<b>B G</b>	Energy Efficiency Obligation scheme	Market based	All (TRA excluded)
	Energy audits of industrial systems consuming 3000MWh/year	Regulatory	IND
	Audit & certification of buildings	Regulatory	PUB
<b>C Y</b>	Use of natural gas in power generation from 2016 onwards and energy-saving measures in the distribution system	Infrastructure investment	SUP
	Implementation of measures adopted in compliance with the EED (especially Articles 5,6,7,8,9)	Various	Various
	Implementation of the new provisions of the Energy Performance of Buildings Directive	Various	RES; SER; PUB
<b>C Z</b>	Operational Programme Enterprise and Innovation for Competitiveness (MIT)	Financial	IND
	New Green Savings 2014–2020 (MoE)	Financial	RES

	Integrated Regional Operational Programme (MRD)	Financial	RES
<b>D K</b>	Energy Efficiency Obligation Scheme	Market Based	SUP; SER; IND
	Building renovation strategy (21 initiatives)	Regulatory	RES; SER
	Upgrade energy requirements for building regulations	Regulation	RES; SER
<b>E E</b>	Energy Efficiency Obligation Schemes	Market based	RES; SER; IND
	Subsidies (federal) for EE for existing and new residential buildings	Financial	RES
	Energy taxes	Financial/fiscal	RES; SER; IND; TRA
<b>F I</b>	Energy efficiency agreement for businesses – energy-intensive industry	Voluntary Agreements	IND
	Heat pumps for detached and terraced houses	Financial and Fiscal	RES
	MEPS for new buildings (Energy efficiency regulations for new development)	Regulatory	RES
<b>F R</b>	Energy Saving Certificates	Market based	RES; SER; IND; TRA
	Domestic tax on the consumption of energy products (TICPE)	Fiscal	RES; SER; IND; TRA
	Improved fuel economy of new vehicles	Regulation, Incentives, Tax	TRA
<b>D E</b>	Energy and electricity tax	Taxation	Various
	EEG reallocation	Renewable Energy Act	Various
	Network usage charges	Taxation	SUP
<b>E L</b>	Energy Upgrade programme for houses	Financial	RES
	Offsetting arbitrary fines for households for energy upgrading work	Financial	RES
	Electricity smart meter roll-out	Infrastructure investment	RES; SER
<b>E S</b>	Efficient driving permits	Regulation, training and information	TRA
	PIVE Programmes (Efficient Vehicle Incentive Plan)	Subsidies	TRA
	PIMA Sol (Environmental Stimulus Plan)	Subsidies	SER
<b>H R</b>	Fostering integral renovation of existing multi apartment buildings	Financial and fiscal	RES
	Programme for energy renovation of existing commercial buildings	Financial and fiscal	SER
	Programme for EE renovation of family houses	Financial and fiscal	RES
<b>I T</b>	Energy Efficiency Obligation Scheme	Marked based	All
	Tax credit scheme for building renovations	Financial and fiscal	RES
	Investments on energy efficient mobility (Incentives for cars and buses substitution; Improvement of railroad infrastructures, creation of a national logistics platform)	Financial and fiscal & Infrastructure investments	TRA
<b>I E</b>	Increased efficiency in power generation	Infrastructure investment	SUP
	Residential retrofit programme	Advice, subsidies, EEOS	RES
	Improved fuel economy of private car fleet	Regulation	TRA
<b>L V</b>	Energy Efficiency Obligation Scheme	Market-based	To be defined
	Multi-apartment and social housing scheme activity 3.4.4.1	Financial/fiscal	RES
	Phase III public and production buildings scheme	Financial/fiscal	PUB
<b>L T</b>	Energy Efficiency Obligation Scheme	Market-based	RES; SER; IND
	Programmes for renovating and promoting multi-apartment buildings, and for development of municipal problem areas[14]	Financial/fiscal	RES
	National Heating Sector Development programme	Financial/fiscal	SUP

<b>L U</b>	Construction of residential buildings according EE Ordinance	Regulation	RES
	Construction of non-residential buildings according EE Ordinance	Regulation	SER
	Voluntary agreements with industry	Voluntary agreements	IND
	Energy Efficiency Obligation scheme	Market based	To be defined
<b>M T</b>	Grant Scheme to Improve Vehicle Fleet Efficiency	Financial/Fiscal	TRA
	Obligation on Enemalta Corporation	Market-based	Various
	Upgrading the Quality of Treated Sewage Effluent to Replace Desalinated RO Water for Non-potable Uses	Infrastructure investment	PUB
<b>P L</b>	Thermo modernization and Repairs Fund	Financial and fiscal	RES; PUB
	Operational Program Infrastructure and Environment Measure-Urban Transport in metropolitan areas	Infrastructure	PUB ; TRA
	White certificates	Market based	SUP
<b>P T</b>	Home appliances replacement	Regulatory	RES
	Intensive Energy Consumption Management System (SGCIE)	Regulatory	IND
	Certification for existing state buildings	Regulatory	PUB
<b>R O</b>	EE in the EU-ETS industry		IND
	Thermal rehabilitation of apartment and SFH buildings	Financial	RES
	Improvement of energy services/ESCO market	Various	RES; SER; IND
<b>S K</b>	Construction, reconstruction and modernization of heat distribution systems	Infrastructure investments	SUP
	Energy Audits for industrial enterprises	Regulatory	IND
	Building and upgrading the transport infrastructure	Infrastructure investments	TRA
<b>S I</b>	Energy Efficiency Obligation/Energy Efficiency National Fund	Market Based Instrument	Cross-cutting
	Establishment of a support environment for the introduction of energy performance contracting measures.	Training/Legislative Measure	PUB ; RES
<b>U K</b>	Building Regulations	Regulatory	RES; SER; PUB; IND
	EU New car CO2 target (130gCO2/km in 2015 and 95g CO2/km in 2020)	Regulatory	TRA
	Product policies (MEPS and energy labelling under regulations 2[1]009/125/EC and 2010/30/EU)	Regulatory	RES; SER; PUB; IND

## 1.10 Sectors targeted by the NEEAPs

In order to consolidate the information provided in the NEEAPs, policy matrices classifying measures according to sectors targeted and policy types have been developed for each Member State. The sectors considered are residential, services, industry, transport, public and energy supply. The policy measures were divided in the following categories: regulatory, financial and fiscal, information & awareness, qualification, training and quality assurance, market-based, voluntary agreements, infrastructure investments and other measures. Table 10 provides a detailed breakdown of the types of policy measures considered. The policy matrices are presented in Annex A in which sectoral information on energy efficiency is given for each Member State. A discussion of the policy measures by sector is provided below.

**Table 10.** Categorisation of policy measures

<b>Regulatory</b>	Building codes; Minimum energy performance standards (MEPS) for new and existing buildings; Energy efficiency standards for appliances & equipment; refurbishment obligations; Procurement regulations; Phase-out of inefficient equipment
<b>Financial and fiscal</b>	Grants/subsidies; Preferential loans; Tax incentives; Energy taxation
<b>Information and awareness</b>	General Information; Information campaigns; Information Centres; Energy Audits; Energy labelling schemes; Governing by Example; Information exchange; Awareness campaigns; Skill development programme; Demonstration programmes;
<b>Qualification, training and quality assurance</b>	Professional training; Training courses; Vocational education, quality standards
<b>Market-based</b>	Incentives facilitating Third Party Financing / ESCOs; Energy Efficiency Obligation Schemes (EEOSs); White certificates <sup>17</sup> ; Green certificates; Green tariffs; Quota system for the promotion of renewables; Tender system for the promotion of renewables; Incentives for the producers of innovative technologies; Technology deployment schemes
<b>Voluntary action</b>	Voluntary certification and labelling programs; Voluntary and negotiated agreements;
<b>Infrastructure investments</b>	Investments in transportation infrastructure (e.g. railways, road networks), energy infrastructure (e.g. generation plants, electrical grid, substations, and local distribution); Smart meter roll-out;
<b>Other</b>	Other measures that do not fall under one of the above categories

### Residential & service sectors

The residential and service sectors benefit from a wide coverage of policy action. Most Member States presented a number of measures mainly in the form of regulatory, financial/fiscal measures as well as information & awareness raising measures, voluntary agreements, infrastructure investments (smart-meter roll outs), market-based instruments and other measures for these sectors.

<sup>17</sup> Energy efficiency obligations coupled with a trading system for energy efficiency measures resulting in certified energy savings (tradable white certificates). Obligations can be coupled with various trading options: trading of certified energy savings, trading of eligible measures without formal certification, or trading of obligations.

Regulatory measures were mostly composed of requirements related to Energy Performance of Buildings Directive and Eco-design Directives (see section 3.2). Examples include minimum energy performance requirements for new/existing buildings in their NEEAPs, inspections of water boilers and air conditioning systems (e.g. Bulgaria, Cyprus, Italy, Croatia and France) and energy efficiency standards for appliances & equipment (e.g. Cyprus, Denmark, France and Finland). Other regulatory measures include Germany's Renewable Thermal Energy Act (EEWärmeG) and Renewable Energy Act (EEG) which promote the use of renewable energies in various sectors including residential buildings. These measures are reported to have generated energy savings in the period 2009-2013 and continue to generate savings for 2014-2020<sup>18</sup>. The Renewable Energies Heat Act, entered into force in 2009, stipulates that owners of new buildings must cover part of their heat supply with renewable energies. The Renewable Energy Act, last updated in 2014, promotes the generation of electricity using renewable energy sources through long-term regularly adjusted feed-in tariffs. France indicated that a target of renovating 500,000 old dwellings per year by 2017 has been set. In Brussels-Capital Region of Belgium, the programme PLAGE – related to a local plan for energy management. Plan Local d'Action pour la Gestion Énergétique – targets real estate owners or occupants covering overall more than 100,000 m<sup>2</sup> (or 50,000 m<sup>2</sup> for public sector) and obliges them to reduce their energy consumption by implementing energy management measures. These measures include the establishment of an energy cadastre concerning all buildings owned or occupied, the identification of priority buildings in this cadastre, the definition of an energy accounting system for these buildings, the definition of an action plan to improve their energy performances. This policy started in 2005 and energy management plans are now being made mandatory in the private and tertiary sector. Energy efficiency targets corresponding to a 10% reduction of the annual energy consumption are being set for these actors by a decree currently under implementation and targets will have to be achieved in four years.

Most of the regulatory measures discussed in the residential sector also apply for services sector. For example, minimum energy performance requirements for buildings, inspections and minimum requirements for water boilers and air conditioning systems, as outlined in the EPBD, are also applicable for non-residential buildings. Furthermore, energy labels and energy efficiency standards for products and equipment also target enterprises in the services sector. Specific regulatory measures for the services sector include the Luxembourgish scheme on improvement of lighting in non-residential buildings, which introduces specific energy efficiency requirements for lighting in new non-residential buildings. The Netherlands has an Environmental Management Act for non-residential buildings which places a legal obligation to take energy-saving measures with a payback time of less than 5 years. The obligation applies for large or medium-sized companies with an energy consumption of more than 50 000 kWh and 25 000 m<sup>3</sup> gas and also for non-residential buildings including offices, healthcare institutions and schools.

All Member States have reported financial and fiscal measures supporting energy efficiency improvements in the residential and service sectors. These are typically offered in the form of grants and subsidies. For example, Austria has had long experience with federal subsidies for energy efficiency measures for existing and new residential buildings (since 1982) and has gone through continuous tightening of requirements. This measure has a relatively large contribution to the overall target of the country (32% of Article 7 target). In addition, the Austrian Federal Government's renovation drive has become an important and successful tool for private individuals to reduce their energy consumption through subsidies which are provided in the form of one-off, non-

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<sup>18</sup> The relevant savings of these measures are presented in Annex II of the German NEEAP

reimbursable grants. Bulgaria offers financing through EE fund for renovation of residential buildings as well as grants for multi-family residential buildings under the Operational Programme Regional Development (OPRD) and EE credit line for households. The Netherlands has a new € 400 million subsidy programme for the period 2014-2017 offering investment support to landlords in the social rental sector. The subsidy is a measure supporting the parties involved in the Energy Saving Agreement for the Rental Sector which committed to the objectives of an average label B (corporations) and a minimum label C (private landlords) for 80% of homes in 2020. In Italy, an incentive scheme for the promotion of renewable thermal energy and energy efficient heating (also known as "Conto Termico") is expected to generate 1.47 Mtoe of final energy savings in the residential and tertiary sector in 2020. In Lithuania, grants targeting households are offered within the "Programme on renovating multi-apartment buildings for the period 2005-2020. These grants are financed by EU Structural Funds, private, state and municipal budgets.

Tax relief on energy efficiency upgrades for households are available in Greece, France, Germany, Denmark, Finland, Italy, the Netherlands and Portugal. In Italy, the tax credit scheme for building renovations constitutes one of the 3 biggest measures in terms of expected energy savings in 2020. In the Netherlands, reduced VAT rate on labour costs for fitting insulation and glass and for maintenance and renovation of residential buildings are available to housing corporations and home owners since 2009.

Loan programmes are offered by a few Member States (France, Greece, Germany, the Netherlands and Portugal). Germany has had a long successful tradition with grants and loans through its KfW scheme, which provide support for renovations achieving various "KfW Efficiency House" levels; the most ambitious one being the KfW Efficiency House 55 representing 55% of the maximum primary energy requirement set for a new building. The Federal CO<sub>2</sub> building renovation programme, along with the KfW programmes for energy-efficient building and renovation, which provides loans and grants in the residential area, is the highest-volume funding instrument in Germany. Within this framework, the KfW initiated investments running to just under EUR 162 billion on behalf of the Government between 2006 and the end of March 2014. These funds were used to renovate more than 3.5 million homes or to build particularly energy-efficient new homes and to renovate over 1 940 buildings for municipal or social bodies. France offers interest-free loans through its Eco-PTZ programme which allows to finance up to EUR 30 000 in works for the improvement of the energy efficiency of privately owned or rented dwellings. Social housing eco-loans (Eco-PLS) are also available in France since 2009. In the Netherlands, a revolving fund supporting energy saving measures in existing houses has been operational since beginning of 2014 for owner-occupiers and is also expected to support landlords and the fund for owners' associations<sup>19</sup>.

Six Member States (Austria, Denmark, Estonia, Germany, the Netherlands and Sweden) have put in place energy taxes, which aim to improve the cost-effectiveness of measures aimed at energy efficiency and promote more efficient use of energy (including households) through behavioural change and investments in energy efficiency. Austria has taxes for electricity, natural gas and mineral oils which are higher than the tax rates by the EU Energy Tax Directive (2003/96/EC) and are responsible for generating around a third of the Article 7 savings (1995). Germany has also had a long experience with energy taxes, which have been in place for many years (around 15 years) and were last updated in 2006. The expected primary energy savings of this measure are 569 PJ for 2014-2020. The Dutch taxes on electricity and natural gas since 2004, is depended on a customer's energy consumption. Taxes on energy have also been introduced in

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<sup>19</sup> This was stated to be operational sometime in 2014

Denmark, to give end-users a greater incentive to make energy savings. Ireland has had a carbon tax on fuels (currently at €20 per tonne) for heating and transport since 2008 which inter-alia cover the residential and services sectors. In Sweden, both energy and carbon taxes exist.

For financial measures, specific measures for services include the Greek financial incentive scheme for energy upgrading of commercial buildings. Ireland ran a grant scheme for exemplar projects in the public and business sectors, offering support for sustainable energy upgrades to buildings, services, facilities and processes. Ireland also provides on-going advice, mentoring and training in energy management to participating SMEs in the commercial sector since 2008. The Energy Investment Allowance enables companies to deduct energy efficiency investments from their taxable profit. In Sweden, aid is provided to small and medium-sized enterprises in the form of energy audit checks. This aid may be granted to enterprises with energy consumption in excess of 500 MWh per annum. Other examples include the Czech Republic which has a set of subsidies for the regeneration of multi-family buildings, new constructions and others.

Various measures on information and awareness-raising have been mentioned for residential and service sectors. In Austria, the main information and awareness raising measure is the Klimaaktive programme which is an umbrella measure by the Austrian Climate Initiative, consisting of a large number of programmes with the aim to promote the topics of climate protection, energy efficiency and renewable energy sources, in the personal, commercial and public spheres, by means of information, advice, education, training, quality standards and networking. In France, 450 Renovation Information Service Points (PRIS) have been set in the country with the aim to help owners make decisions through the implementation of a national one-stop approach and a local network for the energy renovation of private dwellings. This is a genuine local public service, which provides independent technical, financial, fiscal and regulatory information and gives advice, free of charge and objectively, to the enquiring home-owner on the design of the energy renovation project. In Denmark, a new information campaign (BedreBolig, Better Homes) was introduced in 2014, offering comprehensive, expert advice throughout the energy renovation process. In connection with the launch of BedreBolig, DKK 15 million has been allocated to the launch of a special information campaign. The campaign inter-alia focuses on developing cooperation and dialogue between home owners, banks, mortgage institutions and energy advisers. In Malta a study shall be conducted with the help of the Institute for Sustainable Energy, the Malta Intelligent Energy Management Agency and the National Statistics Office, whereby a pilot project will be carried out on a stratified sample of about 10,000 households to model consumer behaviour and their response to initiative. Other information and awareness-raising measures included the large-scale Latvian information campaign "Dzīvo siltāk!" ("Living warmer!"), encouraging apartment owners to participate in the management of common property and upgrading of the energy performance of buildings and the demonstration project for large-scale energy saving measures in existing residential buildings in the Netherlands.

Market-based instruments in the residential and services sectors are mainly in the form of Energy Efficiency Obligation Schemes. Austria, Flanders region of Belgium, Bulgaria, Denmark, France, Italy, Ireland, Latvia, Luxembourg, Malta and the UK have energy efficiency obligation schemes which target these sectors. In the UK, the Green Deal is the only on-bill financing scheme, which makes a link between loan repayment and energy savings. On-bill financing is an innovative mechanism that addresses first-cost barriers by linking repayment of energy efficiency investments to the utility bill and thereby allowing customers to pay back part or all costs of energy efficiency investments over time.

Smart meter roll outs covering residential customers have been included in the NEEAPs of Austria, Cyprus, Denmark, Greece, France, Finland, Ireland, Latvia, Malta and UK. For Malta, the smart meter roll-out constitutes a major measure as it is expected to cover all customers, thereby exceeding the Internal Market in Electricity Directive (2009/72/EC) requirement of at least 80 % of all customers by 2020. Austria also plans to exceed the Directive's requirement as it plans that of the metering points connected to the grid should be equipped at least 95 % by the end of 2019 if technically feasible. The Netherlands, has a cooperation agreement (Acceleration) between building companies and housing corporations for the realisation of the first 11 000 'zero-on-the-meter' homes. If roll-out is successful we plan to have completed 100 000 'zero-on-the meter' renovations by 2020.

**Table 11.** Measures listed in the NEEAP targeting the residential sector

	Regulatory	Financial & fiscal	Information, awareness raising	Qualification, training, quality assurance	Market-based	Voluntary agreements	Infrastructure investments	Other
AT								
BE								
BG								
CY								
CZ								
DE								
DK								
EE								
EL								
ES								
FI								
FR								
HR								
HU								
IE								
IT								
LT								
LU								
LV								
MT								
NL								
PL								
PT								
RO								
SE								
SI								
SK								
UK								

**Table 12.** NEEAP measures targeting the services sector

	Regulatory	Financial & fiscal	Information, awareness raising	Qualification, training, quality assurance	Market-based	Voluntary agreements	Infra-structure investments	Other
AT								
BE								
BG								
CY								
CZ								
DE								
DK								
EE								
EL								
ES								
FI								
FR								
HR								
HU								
IE								
IT								
LT								
LU								
LV								
MT								
NL								
PT								
PL								
SE								
SI								
SK								
UK								

## Industry

Various financial incentives are offered to industry actors. In Belgium (Flanders), grants through the Ecology Grant Plus and Strategic Ecology Aid programmes are offered to enterprises as of 2012 to encourage a more energy efficient organization of their production processes. In addition, since 2012, green guarantees have been available for entrepreneurs to finance energy saving investments with a maximum payback time of 10 years. Grant support through the Accelerated Capital Allowance is also provided for energy efficient equipment in Ireland. Cyprus had a grant scheme for encouraging the

use of RES and EE for natural and legal persons as well as for public sector bodies engaged in an economic activity, which however ended in 2013. For the Latvian industry, a grant scheme for renovation of Industrial buildings and Industrial processes, using Structural funds and CCFI funds is indicated; for the 2014-2020 period a total of € 32.56 million of structural funds have been allocated to facilitate the efficient use of energy and reduce energy consumption in the manufacturing industry. France also offers subsidised loans for energy efficiency investments, in particular for SMEs. In Denmark, a fund of DKK 3.75 billion has been allocated from 2013 to 2020 inclusive to support enterprises, in the form of grants, that replace fossil fuels with renewable energy in their production processes or switch to district heating.

Fiscal measures are also available. Through the Energy Investment Allowance programme, Dutch companies are allowed to deduct 41.5% of energy efficiency investment costs from their taxable profits. In Flanders, opportunities to reduce the taxable profit of companies are also offered to companies as of 2013 with an increased investment allowance for energy saving investments.

Taxation on energy is a measure used by some Member States. In Austria taxation also covers industry. Higher taxes on electricity and natural gas for non-ETS industry apply in the Netherlands. In Denmark, the Vækstplan abolished the payment of energy-saving tax (formerly CO<sub>2</sub> tax) by the businesses on electricity for production processes as of 1 January 2014. In Germany, while energy taxes apply to all sectors, the manufacturing industry can benefit from "peak equalisation" if they can show that they have a certified energy management system or environmental management. This scheme allows undertakings in manufacturing industry to claim relief on up to 90 % of their energy and electricity tax, to safeguard their international competitiveness.

Voluntary agreements are a common policy instrument for the industry sector. The assessment of the NEEAPs shows that 9 Member States have established such agreements with industry actors, with the aim to engage various enterprises in energy efficiency measures. Specifically, Belgium (Flanders), Denmark, Finland, Ireland, Luxembourg, the Netherlands, Portugal, Sweden and the UK have mentioned voluntary agreements as a measure targeting the industrial sector. In Denmark, the main policy instrument for industry has been a 3-year voluntary agreement scheme which obliges companies to implement energy management and improve energy efficiency in their production in exchange of energy saving tax and as a rebate. This successful scheme ended at the end of December 2013 and a new voluntary agreement is under way. In Finland, medium-sized industrial companies and energy intensive industries can enter into an agreement, which allows them to receive subsidies of up to 25% of the investment costs of energy-efficient measures. In projects involving ESCOs, subsidies can go up to 30% of the costs. Over 3000 Irish SMEs are engaged in voluntary agreements, receiving strategic support, training funding and advice for energy projects. In the Netherlands, long-term agreements are established with large and medium-sized companies and institutions in industry as well as ETS companies and food industry, which require participating companies to draw up an energy saving plan every 4 years and carry out cost-effective measures as indicated in the plans. In Sweden, the Programme for improving energy efficiency (PFE) is one of the main measures towards the improvement of energy efficiency in the industry sector. The PFE has been in place since 2004 and is one of the model cases of voluntary instruments in industry. It is aimed towards energy intensive industry and through an agreement with the Swedish Energy Agency, a company can receive a five year electricity tax exemption, by fulfilling certain requirements, including carrying out an energy audit and implementing an energy management system.

In addition to the obligation of energy audits for large enterprises stipulated in Article 8 of the Directive, support for energy audits in industry is provided in various countries. In Finland, the Energy Audits programme, launched in 1992, is one of the most consolidated energy policies for the industry sector of the country. Subsidies are available for the realization of energy audits and cover 40% of the eligible costs for all organizations and 50% of the costs of SMEs that have signed an energy efficiency agreement. Energy audits are carried out by consultants trained and certified by Motiva and there are three different energy audit templates available in the industrial sector: industrial energy audit, industrial energy analysis and a two-stage energy analysis for the process industry. With the transposition of the EED, large companies will not be able to access the subsidies on energy audits due to its mandatory. Subsidies for energy audits have also been mentioned for France (on-going), Wallonia (on-going), Greece (to start in 2015), Lithuania (completed). In Portugal, the on-going SGCIE - Management System of Intensive Energy Consumption - programme has the objective to promote energy efficiency and monitor energy consumption for intensive consuming installations (>500toe). These installations have to perform, on a periodic basis, energy audits that reflect the uses of energy and promote the increase of energy efficiency, including the use of renewable energy sources. SGCIE also concerns the elaboration of a Plan for the Rationalization of the energy consumption. These plans are agreements established by the companies with the Directorate General for Energy and establish consumption rationalization agreements, contemplating minimum energy efficiency targets.

Energy savings in the industry sector are also achieved through market-based instruments. In Italy, the white certificate scheme plays an important role for improving the energy efficiency of industry. In particular, all the energy savings claimed in the NEEAP for energy efficiency improvement measures in the industry sector are generated by actions implemented under Italy's existing white certificate scheme. The UK has the CRC Energy Efficiency Scheme (CRC), which is a mandatory scheme aimed at improving energy efficiency and cutting emissions in large, but non-energy intensive, public and private sector energy users. The Danish EEOS includes energy savings in enterprises covered by the emissions trading system (ETS). However, there are a number of areas that are excluded because it is thought that the activities in question will largely be implemented without the involvement of the obligated parties. The newly-established EEOSs of Austria, Bulgaria, Denmark, Ireland, Luxemburg and Malta also plan to cover the industry sector.

The European Union Emission Trading Scheme, EU ETS (Directive 2003/87/EC) is another market instrument mentioned in some NEEAPs. For example, the most important measure for the industry sector in France is the national implementation of the EU ETS. France plans to use the revenues of the allowances auctioning for the building renovation. In Germany, the EU ETS is expected to generate 104 PJ of primary energy savings in the period.

**Table 13.** NEEAP measures targeting the industry sector

	Regulatory	Financial & fiscal	Information, awareness raising	Qualification, training, quality assurance	Market-based	Voluntary agreements	Infra-structure investments	Other
AT								
BE								
BG								
CY								
CZ								
DE								
DK								
EE								
EL								
ES								
FI								
FR								
HR								
HU								
IE								
IT								
LT								
LU								
LV								
MT								
NL								
PT								
PL								
SE								
SI								
SK								
UK								

## Transport

Various transport-related measures are included in the NEEAPs, either reported as individual measures or as part of an overall transport package or a strategy plan. Most of the NEEAPs analysed include the following elements as part of the strategy to reduce energy consumption in the transport sector: improvement of vehicles efficiency, shift towards more environmental friendly means of transport (e.g. rail or public transport), consumer information and behaviour. Austria described an Overall Transport Plan<sup>20</sup>, which aims to achieve the goal of 19% reduction of CO<sub>2</sub> emission by 2025 compared to 2010 as well as a reduction of energy consumption from 240 petajoule to 210 petajoule by 2025. Germany has adopted the so-called Mobility and Fuel Strategy (MKS), which constitutes the strategy of the transport sector towards implementing the targets laid down in the German Government's Energy Concept. Other countries with a comprehensive strategy for the transport sector include Estonia with its Transport Development Plan 2014-2020.

The reported measures in the NEEAPs concern both private and public transport. For the public transport, Bulgaria, Czech Republic, Denmark, France, Italy, Latvia, Portugal, Sweden and the UK reported measures which target the rail transport through improvements in the rail infrastructure, electrification of railways and increasing the patronage of passenger railway systems. Energy efficiency requirements for taxis have been established in Denmark. Extension of metro transport have been reported by Bulgaria, Czech Republic, Denmark, Greece and Italy. The promotion of modal shift and the encouragement to use public transport have also been mentioned by some Member States (e.g. Portugal). Ireland is an example with its "Smarter Travel Initiative", which supports three strategic programmes, namely the National Cycle Network (NCN), Smarter Travel Areas and Active Travel Towns (ATT) Programmes. These programmes provide funding for a range of projects and measures to support modal shift through behavioural change plans and the promotion of cycling, walking and public transport. The shift of freight transport towards more environmentally friendly modes such as rail, maritime transport and inland water ways through several investments is also foreseen in France. In Wallonia (Belgium) single persons and families renouncing their use of cars by returning the related number plates are eligible to free bus passes for three years. About 70% of the total primary energy savings expected from the transport sector in 2020 in this region are supposed to be generated by incentives to transport through waterways. Malta includes among the measures in the transport sector to improve the efficiency of public transport services include new bus fleet with efficient engines, rationalisation of transport routes and inter-harbour ferry services.

The private transport measures include improvements in car fleet efficiency, measures supporting the use of electric, hydrogen or more fuel efficient cars, development of bicycle lanes etc. Financial incentives for purchase of energy efficient vehicles are provided by Croatia, Spain, Luxemburg (for purchasing of electric cars) and the Netherlands, while Denmark offers tax incentives for electric and hydrogen car owners and car owners who change to lower fuel consumption vehicles. Behaviour measures are also mentioned in the UK, Finnish and Dutch (driver training) NEEAPs. With the Mobe programme, Portugal promotes the acquisition of electric vehicles by adjusting the already existing electric charging infrastructure and by giving a total exemption of the environmental component of the road tax. The purchase of new lower emission vehicles is also incentivised in Ireland and Italy. Efforts to deploy more electric vehicles are expected to result in the use of approximately 50,000 electric vehicles in the transport fleet by 2020 in Ireland. In Italy a budget of 5,000,000 Euros has been awarded to local authorities for the setting up of networks of electric vehicles charging points. A car

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<sup>20</sup> <http://www.bmvit.gv.at/verkehr/gesamtverkehr/gvp/index.html>

sharing pilot project to promote electric cars is also co-financed by the Italian Ministry of the Environment. Moreover, about 820 vehicles with CO<sub>2</sub> emissions below 95 gCO<sub>2</sub>/km could so far benefit from purchase incentives in place since early 2013. In the Netherlands, the Sustainable Mobility Pilot Project aims to increase electric vehicles to 20,000 by 2015. Circulation tax on the basis of the engine's CO<sub>2</sub> emissions are mentioned in the plans of Croatia, Luxemburg and Cyprus. Cyprus and Malta also include the old vehicle scrapping and replacement scheme. In 2010 in Luxemburg was established the web platform "electro mobilitet.lu" for promotion of electro mobility.

In order to improve the energy efficiency of vehicles, France relies on the EU Regulation on CO<sub>2</sub> emissions of light vehicles. The Regulation is further promoted through the annual road tax for company vehicles and the bonus/malus scheme for new vehicles. There are also measures to inform consumers, including driving behaviour. There are training courses for the transport sector drivers. Finally France has introduced a CO<sub>2</sub> tax on the carbon content of transport fuels. The Brussels-Capital Region of Belgium intends, among others, to apply taxes whose amount is proportional to the amount of kilometres travelled by cars, reinforce an e-government approach reducing the need for displacement, stimulate modal shifts towards bikes, public transport and pedestrians. The Brussels Code for Air, Climate and Energy Management (COBRACE) includes also a series of action plans aiming to stimulate sustainable transport in enterprises and to increase awareness and information about sustainable transport within schools. This code also highlights the need for energy efficiency improvements in public transport, taxis, car sharing services, etc. Moreover, it aims at implementing a parking places policy for public buildings that can discourage citizens to use cars to reach these buildings.

The strong financial support for energy efficiency improvements in the transport sector in Denmark highlighted by the numerous funds currently available: the Train Fund (Togfonden) EUR 7 Billion for the electrification and improvement of railways; the Accessibility Fund to improve the access to the stations and parking; the Transport Fund for the modernization of stations and for building new energy efficient stations; the Cycle Fund to establish new cycle path ways; the Fund for energy efficiency transport solutions and the Infrastructure Fund for electric, hydrogen vehicles and gas (although gas does not improve energy efficiency).

Other measures in Austria in transport sector include: the klimaaktiv mobile – promotion of energy efficiency measures in the transport sector. This programme focuses on supporting efficient, environmentally friendly mobility through mobility management, the conversion of vehicle fleets to alternative propulsion systems, electro mobility and encouraging cycling, innovative public transport services and a fuel-saving. Latvia included in its NEEAP the promotion of the use of Renewable Energy Sources (RES) and biofuels in transport, a measure not having impact on energy consumption. Lithuania NEEAP includes the integrated development of green public transport with a support of EU structural Funds. Other ongoing measures include regular checks of vehicles technical and environmental requirements, and measures dedicated to development and upgrading of road networks, including maintenance, information systems and traffic safety programmes. The Spanish NEEAP includes actions to promote efficient use of means of transport (e.g. fleet management improvements and efficient driving training techniques introduced into the Spanish driver licensing system). The procurement and leasing of green vehicles by public authorities, is mentioned in the Swedish NEEAP. Finland is giving attention to heavy load transport by promoting fuel economy among lorry drivers and also with a measure to increase the mass and dimensions of heavy goods vehicles with the goal to increase the cost-effectiveness of transport and to improve energy efficiency.

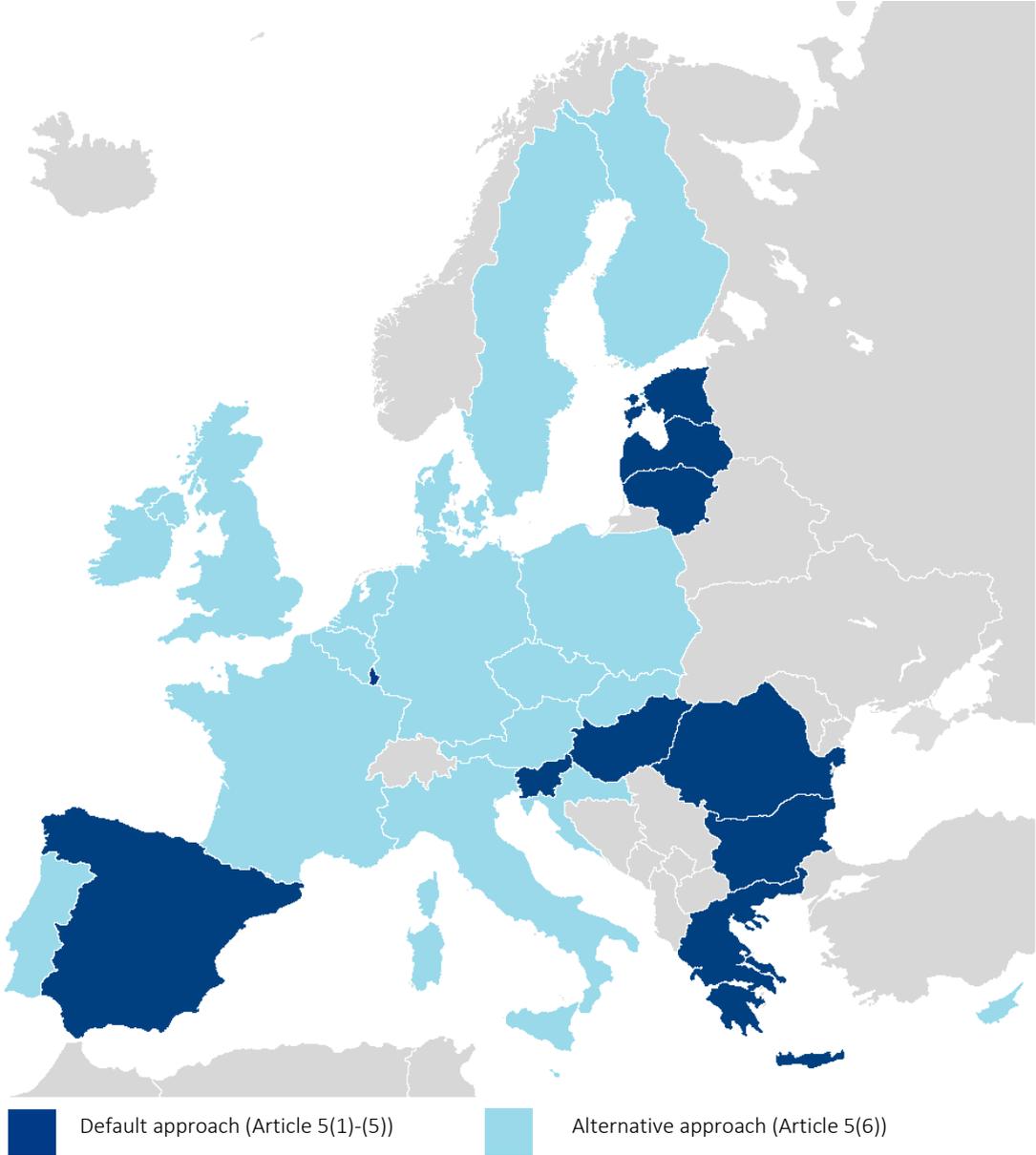
**Table 14.** NEEAP measures targeting the transport sector

	Regulatory	Financial & fiscal	Information, awareness raising	Qualification, training, quality assurance	Market-based	Voluntary agreements	Infra-structure investments	Other
AT								
BE								
BG								
CY								
CZ								
DE								
DK								
EE								
EL								
ES								
FI								
FR								
HR								
HU								
IE								
IT								
LT								
LU								
LV								
MT								
NL								
PL								
PT								
SE								
SI								
SK								
UK								

**Public**

Various measures have been reported for the public sector, supporting energy efficiency improvements in public buildings, infrastructure, transport etc. Improvements in the energy performance of the central government building stock are a key provision of the EED. A total of 10 countries plan to renovate 3% of their central government stock every year in line with Article 5's default approach (Figure 12). The remaining countries plan to meet Article 5's requirements using the alternative approach (Article 5(6)), through a mixture of renovation, behavioural change and other measures, as presented in the separate analysis carried out for the Article 5 notifications.

**Figure 12.** Overview of Article 5 approaches adopted across the EU on central government renovation



Several NEEAPs present financial instruments for the public sector (Table 15). For example, Croatia has an energy renovation programme for public buildings which runs until 2020 with investments with an estimated value of HKR 400 million (about EUR 52 millions) for the period 2014-2015. This programme will be financed through the Croatian Fund for Environmental protection and energy efficiency. The Eco fund of Styria in Austria subsidises energy efficiency programmes targeting inter-alia local authorities and community-owned enterprises. In Belgium, subsidies for public building renovation are available in Wallonia and Brussels-Capital Region in Belgium (UREBA, PIVERT, Primes Energie). Bulgaria has various measures on public buildings. Its EE fund finances renovations of municipal and central government buildings, while the Operational Programme 'Regions in Growth 2014-2020' support the transition to a low-carbon economy by implementing EE projects in municipal buildings in the period 2014-2020 31 with overall investments amounting to BGN 218 million. In Cyprus, a government grant scheme for energy savings/RES in public sector & central government is in place. Financial support for energy-optimisation of state owned buildings are also provided in Denmark. Denmark also provides access to loans (DKK 1 billion) for construction of hospitals carried out in conformity with Building Class 2020. Latvia's programme on energy efficiency improvements in central government and municipal buildings is financed through EU structural funds; for the 2014-2020 period, € 97.86 million of structural funds have been allocated to renovate central government buildings, and € 42.56 million to improve the energy performance of municipal buildings. In Italy, public bodies are also eligible to receive incentives available under the "Conto Termico" incentive scheme. However, the participation so far is relatively low, probably because existing budget constraints are severely discouraging energy efficiency investments in the public sector. In Greece, the Energy Saving by Local Authorities Programme consisted of two phases: in the first phase (2011-2015) a total of 235 municipalities have been selected and a call for public buildings (schools, hospitals, etc.) has been made. Interventions include energy upgrading of existing stock including heating/cooling equipment, upgrades of public urban areas, public transport etc. In the future 2015-2020 phase, building renovations through public funds and ESCOs are expected. Lithuania has supported energy efficiency investments in the public building sector through various programmes: EU structural funds (Operational Programme for Promotion of Cohesion, 2007-2013) and Grants for educational buildings (2009-2016), libraries (2007-2013), cultural centres (2007-2020), and museums (2007-2015). Overall, Lithuania plans to invest about 14% of the EU Structural Funds allocated for the period of 2014-2020 in the areas of energy efficiency and renewable energy.

The City Energy Efficiency Programme for Vienna includes various measures such as subsidies, advice, information, exemplary role of public sector. In Greece, Portugal and Cyprus, energy saving officers/energy managers are appointed in public buildings. In Croatia, the Information System for Energy Management (ISGE) is in place which has been used for monitoring and analysing of the energy and water consumption of the public buildings owned by the local government (municipalities, counties and cities). Ireland plans to run a behavioural change campaign in naturally ventilated central government buildings, comprising 96% of the total floor area of the central government inventory. In Luxembourg, energy audits are mandatory for all municipalities which participate in the Klimapakt initiative. Klimapakt, introduced by legislation in January 2013, is a central instrument for steering municipality Energy and Environmental protection policies, in which 88 out of 106 Luxembourgish municipalities currently participate. Under this initiative, the participating municipalities are obliged to implement eea and introduce energy management system in order to receive financial and technical support from the state. The European Energy Award ®(eea) has been introduced by municipalities in Luxemburg as an instrument which lead these municipalities through different steps to implement sustainable policies for energy, climate, transportation and environmental protection. In addition, municipalities, together with households and

enterprises, can receive information regarding energy savings and renewables from Myenergy, the national advisory structure.

**Table 15.** Summary of policy measures in the public sector as reported in the NEEAPs

	Regulatory	Financial & fiscal	Information, awareness raising	Qualification, training, quality assurance	Market-based	Voluntary agreements	Infra-structure investments	Other
AT								
BE								
BG								
CY								
CZ								
DE								
DK								
EE								
EL								
ES								
FI								
FR								
HR								
HU								
IE								
IT								
LT								
LU								
LV								
MT								
NL								
PL								
PT								
SE								
SI								
SK								
UK								

Several actions are taken to promote the use of ESCOs in the public sector. A significant measure in Portugal is the ECO.AP programme, aiming for the improvement of energy efficiency in the public administration. The overall objective of this programme is to achieve 30% energy savings in buildings owned or managed by the public administration. These savings will be achieved by the realization of energy audits in public buildings. ECO.AP has also the objective to stimulate the ESCO market, by giving qualified ESCO companies a chance to participate in the programme. The financing part of the EPC is

intended to fall entirely on the ESCO side. In Cyprus, a call for tenders is expected to be launched by the end of 2014 for the energy-upgrading of two public buildings through energy performance contracting. A study carried out in Denmark in December 2013 has found that around 30 out of 98 Danish municipalities use ESCOs. In Belgium, ESCOs are promoted in federal buildings and in particular, for the implementation of alternative measures under Article 5.

In Finland local government (municipalities) can enter into energy efficiency agreements under which they need to examine their energy use, propose measures to improve their efficiency, set clear targets and monitor their progress.

## **Energy Supply, Distribution and Transformation**

As explained in Chapter 1, limited details on the procedure and methodology for carrying out a cost benefit analysis to satisfy EED Annex IX criteria of the comprehensive assessment were provided due to the on-going status of the study.

However, several countries have provided information on policy measures supporting cogeneration and district heating/cooling and other systems. While district heating does not represent a priority for Brussels, Wallonia has a series of measures already in place to provide financial support for micro-cogeneration, install small distribution grids for heating from biomasses, co-generation and collective heating systems. In Flanders, a CHP certificate scheme is in place since 2004 and has been updated in 2012. Certificates have a financial value based on the amount of electricity generated by highly efficient CHP. Electricity suppliers have to buy these certificates from CHP owners. There is a minimum certificate price set (31 euros/KWh saved) and the regulator has to buy at a minimum price unsold certificates. In Cyprus, two different grant schemes for the promotion of combined heat and power and/or high-efficiency cooling were in place up until 31 December 2013. The first scheme concerned 'Natural persons and Organisations which are not engaged in economic activities' – with available subsidy of 30% subsidy or EUR 160 000 per unit – and the second scheme concerned 'Natural and Legal persons, as well as Public Entities, which are engaged in economic activities'. In Denmark, the promotion of cogeneration of heat and electricity is supported by current Danish rules. If a planned installation will have a project capacity of 1MW the installation must be designed as a cogeneration plant unless it is economically more advantageous to project a traditional heat producing installation. In Estonia district heating is a very important sector and is already regulated by national laws (i.e. District Heating Act). The main policy measures that promote the development of efficient heat and cooling networks are: financial support for drafting local district heating development plans (planned), state financial support scheme for the modernisation of CHP plants and district heating infrastructure, EU structural funds scheme for the modernisation of district heating networks (planned). In France, there are incentives only for high efficiency co-generation in the form of purchase contracts. The focus is now on biomass cogeneration, with two types of financial support: purchase agreement and tendering, depending on the size. For the heat supply the focus is on renewable heat, with a combination of incentives and obligations.

In Germany, the Combined Heat and Power Act was mentioned as the main incentive programme for extending the use of CHP in the country. Its purpose is to contribute towards an increase in the amount of electricity generated from CHP in Germany to 25 % by 2020 by promoting the modernisation of CHP installations and the construction of new CHP installations, supporting the market launch of the fuel cell and promoting the setting up and expansion of heat and refrigeration networks, and the setting up and expansion

of heat and cold accumulators into which heat or cooling energy from CHP installations is fed in the interest of saving energy, protecting the environment and achieving the climate protection targets of the Federal Government. High-efficiency cogeneration has developed rapidly in the energy sector of Latvia since 2000. In 2012 Latvia had as much as 132 combined heat and power plants with total electrical capacity of 1016 MW, which reported electricity output of 2340 GWh. In 2012 combined heat and power plants generated 4693 GWh of heat for sale (62.9 % of total district heating). Latvia has set up a strong legal framework on the promotion of cogeneration (e.g. public support for the replacement of existing heat generation installations with high-efficiency CHP units financed by EU structural funds, and a feed-in tariff system).

Demand response measures have been reported only by a few Member States. In Austria, it is stated that all producers and consumers are entitled to take advantage of all supply-side and demand-side possibilities in electricity sector, ranging from time-dependent tariffs for customers (who already have smart metering systems) to the ability of producers to participate in the energy balancing and regulation markets. Denmark has reported various demand response measures. Network tariffs oblige grid operators to fairly price their services according to non-discriminatory criteria relative to the cost that different customer categories give rise to. In order to promote the use of efficient network and security of supply, price differentiation will be permitted from October 2015. A wholesale model has been developed where electricity trading companies will buy network services from the grid operators and sell a packaged product 'supplied electricity' to consumers who will not be billed by the grid operators but by the electricity trading companies once a month for a total amount. Electricity trading companies are not obliged to pass on the grid operators' tariffs to the consumers and can set their own tariffs without approval from the authorities. Hence consumers can freely choose their supplier based on the products they offer.

Finland has already implemented time-of-use tariffs and real-time pricing and its current legislation on the terms and conditions and pricing of system services does not prevent demand response or the development of tariffs that support dynamic pricing. In Ireland, Demand Side Management (DSM) has been a feature of the Irish and Northern Irish transmission systems for a number of decades. The types of DSM in operation at the moment are: Demand Side Units-DSU (consisting of one or more individual demand sites that can be dispatched by the TSO as if it was a generator), Powersave (scheme encouraging large and medium sized customers to reduce their electricity demand on days when total system demand is close to available supply), Short Term Active Response (STAR) (electricity consumers are contracted to make their load available for short term interruptions). Moreover, dynamic electricity and network tariffs for demand responses are already implemented and the electricity transmission tariffs depend on the voltage of the network to which the customer is connected as well as the capacity of the electricity connection. In Spain, specific provisions are included in the recently-enacted Law 24/2013 of 26 December 2013 of the Electricity Sector and in the Royal Decree 216/2014 of 28 March 2014 which improves the participation of small consumers in system efficiency and demand response. With respect to large electricity consumers, the NEEAP generically indicates that measures have been taken with the approval of two orders (in 2013 and 2014) regulating competition mechanisms for the allocation of interruptibility demand management service.

**Table 16.** NEEAP measures targeting the energy supply sector

	Regulatory	Financial & fiscal	Information, awareness raising	Qualification, training, quality assurance	Market-based	Voluntary agreements	Infra-structure investments	Other
AT								
BE								
BG								
CY								
CZ								
DE								
DK								
EE								
EL								
ES								
FI								
FR								
HR								
HU								
IE								
IT								
LT								
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LV								
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SE								
SI								
SK								
UK								

## Discussion and conclusions

The NEEAPs have provided a strategic platform for Member States to set energy efficiency targets, outline planned or implemented end-use and supply level measures and evaluate the energy savings resulting from the implementation of these measures. With the introduction of the EED, the scope of the NEEAPs has been enhanced as Member States are now obliged to also cover measures taken to improve the efficiency of the supply sector and take into account the ETS sector. These measures may also count towards the EED energy efficiency targets, thereby moving from end-use ESD targets to more holistic targets considering all sectors of the economy. The previous experience with the ESD NEEAPs and the guidance provided by the European Commission's template has also allowed Member States to create more comprehensive and coherent strategies.

All Member States have now set indicative energy efficiency targets for the year 2020. A comparison between the reduction of primary and final energy consumption and reported baseline for the year 2020 has revealed that in general several Member States (Figure 6) have considered energy consumption reductions lower than the 20% set at the EU level. Some Member States have not notified the impact of their target in terms of energy savings for the year 2020 and the calculation of the percentage savings has therefore not been possible. A comparison between the PRIMES 2007 baseline scenario projections and target consumption levels set by Member States shows that Bulgaria, Greece, Spain, Ireland, Italia, Lithuania, Latvia, Portugal and Sweden will achieve savings equal or above the equivalent 20% savings according to the Primes 2007 projections. The combined primary consumption at the EU level based on the reported values sums to 1542 Mtoe<sup>21</sup>, instead of the EU target of 1483 Mtoe. The collective 2020 energy consumption target compared to the PRIMES 2007 projections in 2020 amount to 17.6% in terms of primary and 20.2%<sup>22</sup> in terms of final energy excluding amounts to 20.2%. However, the latest available primary energy consumption data show that we are likely to reach overall the 2020 target at the EU, in part due to the impact of the crisis (**Error! eference source not found.**). Some Member States (Cyprus and Croatia) have revised their targets in order to reflect the lower economic activity and therefore lower projected consumption levels for the year 2020, while Belgium assumes that the economic crisis is expected to "generate" 20% of the energy savings in 2020.

Due to the general approach adopted by Article 3, an issue arises with the actual additionality of the targets. Although Member States were not obliged to report on additionality, the approach used to set the targets by Member States does not allow extracting the share of the national targets attributed to the economic crisis. Whilst it seems that some Member States have tried to exclude these savings when setting their targets, others have explicitly estimated the share of energy savings generated by the economic crisis, which was then taken into consideration for setting up the targets. This lack of clarity can impact the effectiveness of the EED, as energy "savings" attributed to the economic crisis can count towards the achievement of the EED targets. A large heterogeneity has also been observed in the assumptions made by Member States concerning the baseline (notably the baseline reference year) considered for the calculation of the Article 3 target. Whilst some Member States have considered 2007 as reference year for the forecasting model, others have considered 2009 or subsequent years. Given these differences, an estimation of the contribution of the national targets

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<sup>21</sup> Following several target updates communicated by Member States in 2015, the collective target has now been revised to 1527 Mtoe of EU28 primary consumption

<sup>22</sup> Lithuania and Portugal were excluded from the calculation of the percentage target as no final energy consumption values with regards to Article 3 implementation were identified in their NEEAPs.

to the overall 2020 EU target in terms of energy savings becomes very difficult for this reason. On the other hand, it has to be acknowledged that the EED does not provide detailed indications on how Member States are supposed to set their reference baseline for 2020.

With regards to Article 7, all Member States have provided the targets to be reached including information on aspects of the calculation of the target (e.g. options considered for Article 7(2)). Most countries have chosen to apply the 25% reduction to their target calculations – an option offered by Article 7(3) – with the exceptions of Denmark, Portugal, Romania and Sweden which have applied less than 25% reduction (Table 6). Transport was excluded in the 2010-2012 energy sales for all countries except Sweden. Four MSs are planning to rely on EEOs alone, 14 will use a mixture of EEOs plus alternative measures and 10 MS will use only alternative measures. Of the 18 countries with an EEO in their territory, Ireland, Slovenia, Austria, Bulgaria, Spain, Lithuania, Malta, Latvia, Estonia, Hungary, Luxembourg and Croatia plan to put obligations for their energy suppliers for the first time.

Most Member States notified the savings to be achieved by the EEOs and alternative measures. In certain cases, the sum of the expected savings is found to be larger than the savings required by the targets (Austria<sup>23</sup>, Cyprus, Denmark, Finland, Ireland, Malta, and the UK), while for others (Greece and Germany), the reported savings of the measures are not enough to reach the target. With regards to the contribution of pre-existing EEOs towards the Article 7 target, an issue identified is connected to the fact that the contribution of installed energy efficient solutions to the achievement of pre-existing national energy saving targets is often calculated by cumulating and discounting associated energy savings over the technical lifetime of these solutions. This may imply that the total amount of energy savings associated with these solutions under pre-existing EEOs has to be "unpacked" and corrected in order to assess the annual energy saving amounts generated by these solutions that can contribute to EED Article 7 target achievement in the period 2014-2020. Unfortunately Member States with pre-existing EEOs have not indicated in their NEEAPs whether and how they implemented the necessary energy savings calculation corrections.

Another point of discussion is related to the estimated contribution of certain measures toward the EED Article 3 and Article 7 targets. The amount of energy savings whereby a specific measure contributes to the achievement of these targets might indeed be significantly different in several circumstances. Whilst Member States have the freedom in principle to consider standards, norms and energy labelling schemes which are mandatory under the EU law towards EED Article 3 target achievement, the EED Art. 7(9) states that energy savings generated by these measures cannot be claimed against the Article 7 target. This generally implies that the energy savings claimed under Article 7 because of energy efficient installations incentivized by a given measure have to be calculated by using minimum energy performances standards set by EU regulations as reference baseline. This restriction does not instead apply when energy savings generated by the same installations have to be claimed against the EED Article 3 target (or ESD Article 4 target). It is for this reason that the amount of energy savings generated by the installation of energy efficient equipment covered by existing EU regulations (e.g. energy efficient space heaters, energy efficient lighting systems, energy efficient new passenger cars, etc.) are expected to be significantly different when claimed against EED Article 3 target or EED Article 7 target. Unfortunately this difference does not seem to have been caught in the submitted NEEAPs.

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<sup>23</sup> This was notified after the submission of the NEEAP

The legal requirements outlined in EED Annex XIV to be addressed in the NEEAPS were met with a varying level of detail. Our evaluation has shown that the reporting requirements for some articles were not satisfactorily addressed. In particular, Articles 14 and 15 were in general not covered adequately in the NEEAPs, with limited information on procedure and methodology for carrying out a cost benefit analysis to satisfy EED Annex IX criteria of the comprehensive assessment, demand response measures and progress made as part of the on-going assessment of EE potential of national gas and electricity infrastructure. Figures of energy audits carried out in compliance with Article 8 requirements were generally scarce.

Several NEEAP measures reported by the Member States stem from the implementation and enforcement of other EU directives or regulations. These include measures implemented in compliance with the Energy Performance of Buildings Directive (Directives 2010/31/EU, 2002/91/EC), Ecodesign and Energy Labelling Directives (Directives 2009/125/EC, 2005/32/EC, 2010/30/EU), Regulation (EU) No 333/2014 on CO2 emissions from new passenger cars, Internal Market for Electricity (2009/72/EC) and Gas (2009/73/EC) Directives and the Emission Trading Scheme.

While the majority of the measures presented in the NEEAPs are existing measures (expected for Member States with successful long lasting measures), the EED has also been a driver for new measures in Member States. In addition to the establishment of Energy Efficiency Obligation Schemes, new or updated policy measures in the area of financing, information exchange, regulations as well as transport-related measures have been identified. Major measures in terms of energy savings generated have also been identified (Table 9). While all sectors and policy types were identified in the list of biggest measures, savings realised by the residential sector were found to be particularly important for all Member States, as well as measures of financial or fiscal nature.

The description of policy measures was provided with varying degree of detail. Typical policy information included the policy type, implementation timeframe, sectors targeted and short descriptions. Good examples categorised information according to general information (e.g. Category; Duration; Target groups; Measure description; relevant webpage), implementation details (e.g. Geographical scope; Budget and financial resources, Implementing authority), achieved/expected impact, calculation methodology, assumptions as well as monitoring & verification. Austria, Croatia, Ireland and Finland followed this general structure, addressing all main elements of the measures, while other good examples include Croatia and Malta which also outlined information on monitoring and verification protocols, as well as France, Cyprus, Greece and the Netherlands. It should be noted that in most cases the impact of the policies has been expressed in terms of energy savings, and rarely in other indicators such as job creation, greenhouse gas emissions reduction, improved air quality. Moreover, the energy savings generated by each measure has not always been quantified in the NEEAPs. The evaluation of the ambition of the overall national policy framework against the national targets is therefore not possible in a quantitative way for all Member States. For certain countries, the share of the savings to be achieved in 2020 by each sector is presented, demonstrating how each sector contributes towards the achievement of the target. A more systematic approach towards reporting of measures is generally recommended for future NEEAP submissions in order to ensure that a set of minimum information is reported across all Member States.

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#### Annex A1. JRC template used based on the EC template

#### 1 INTRODUCTION

#### 2 OVERVIEW OF TARGETS AND SAVINGS

##### 2.1 National energy efficiency targets (Article 3)

2.1.1 Indicative national energy efficiency target for 2020

2.1.1(a) Primary or final energy consumption

2.1.1(b) Primary or final energy savings

2.1.1(c) Energy intensity

##### 2.1.2 Expected impact of the target on overall primary and final energy consumption

2.1.2(a) Impact on primary or final energy consumption

2.1.2(b) Information on data sources and calculation method

2.1.2(c) Conversion factors used to convert final energy savings into primary energy savings or vice versa

2.1.2(d) Expected GDP in 2020

##### 2.1.3 Primary energy consumption in 2020

2.1.3(a) Overall primary energy consumption in 2020

2.1.3(b) Sectorial primary energy consumption in 2020

##### 2.2 Additional energy efficiency targets

2.2(a) Additional targets related to energy efficiency addressing the whole economy or specific sectors

2.2(b) National intermediate target for nearly zero energy buildings for 2015

2.2(c) National target for nearly zero energy buildings for 2020

##### 2.3 Primary energy savings

2.3(a) Achieved primary energy savings by the time of reporting

2.3(b) Expected primary energy savings for 2020

##### 2.4 Final energy savings

2.4.1(a) Achieved final energy savings in the context of ESD

2.4.1(b) Forecast savings in energy end-use by 2016

2.4.2 Final energy savings measurement/calculation methodology

#### 3 POLICY MEASURES IMPLEMENTING EED

##### 3.1 Horizontal measures

###### 3.1.1 Energy Efficiency Obligation Schemes and alternative policy measures (Article 7)

3.1.1.1(a) Overall amount of energy savings over the obligation period

3.1.1.1(b) Information on how possibilities listed in Article 7(2) are used

3.1.1.1(c) Information on how the requirements of Article 7(3) are met

3.1.1.2(a) Short description of national Energy Efficiency Obligation Scheme

3.1.1.2(b) Information on how monitoring and verification is ensured

3.1.1.3(a) Information on alternative policy measures

3.1.1.3(b) Information on how monitoring and verification is ensured

3.1.1.4 Published energy savings achieved as a result of the EEOS implementation

3.1.1.5 Published energy savings achieved as a result of the alternative policy measure implementation

3.1.1.6 Details of national coefficients chosen in accordance with EED Annex IV

3.1.1.7(a) Information on any method, other than EED Annex V(2)(e), used for lifetime of energy savings

3.1.1.7(b) Explanation on how the other method leads to at least the same total quantity of savings (EED Annex V(2)(e))

###### 3.1.2 Energy audits and management systems (Article 8)

3.1.2(a) Overview of measures planned or already undertaken

3.1.2(b) Information on number of energy audits carried out

3.1.2(c) Information on number of energy audits carried out in large enterprises

3.1.2(d) Total number of large companies in MS territory

3.1.2(e) Total number of companies to which Article 8(5) is applicable

###### 3.1.3 Metering and billing (Articles 9 , 10 & 11)

3.1.3(a) Information of measures adopted or planned

### **3.1.4 Consumer information and programmes and training (Articles 12 & 17)**

3.1.4(a) Information of measures adopted or planned

### **3.1.5 Availability of qualification, accreditation and certification schemes (Article 16)**

3.1.5(a) Information on existing or planned schemes

### **3.1.6 Energy Services (Article 18)**

3.1.6.1(a) Information on adopted or planned measures

3.1.6.1(b) Link to the list of available energy service providers and their qualifications or link to interface where energy service providers can provide information

3.1.6.2(c) Qualitative review of national market for energy services - current status

3.1.6.2(d) Qualitative review of national market for energy services - future market developments

### **3.1.7 Other energy efficiency measures of horizontal nature (Articles 19 & 20)**

3.1.7.1 List of measures undertaken to remove regulatory and non-regulatory barriers

3.1.7.2 Information about the Energy Efficiency National Fund

## **3.2 Energy efficiency in buildings**

### **3.2.1 Building renovation strategy (Article 4)**

3.2.1 National long-term building renovation strategy

### **3.2.2 Other energy efficiency in buildings sector**

3.2.2 Energy efficiency improvement measures in buildings in view of achieving EE target

## **3.3 Energy efficiency in public bodies**

### **3.3.1. Central government buildings (Article 5)**

3.3.1 Information on the published inventory of heated and cooled central government buildings

### **3.3.2 Buildings of other public bodies (Article 5)**

3.3.2.1 Measures undertaken/planned to encourage public/social housing bodies to adopt EE plans

3.3.2.2 List of public bodies with energy efficiency action plan

### **3.3.3 Purchasing by public bodies (Article 6)**

3.3.3(a) Steps taken/planned to ensure central government purchases of products, services and buildings of high EE performance

3.3.3(b) Measures taken/planned to encourage other public bodies to do likewise - see 3.3.3(a)

## **3.4 Other end use energy efficiency measures including in industry and transport**

3.4.1(a) Energy efficiency improvement measures in industry in view of achieving EE targets

3.4.1(b) Savings arising from above measures in industry

3.4.2(a) Energy efficiency improvement measures in passenger and freight transport in view of achieving EE targets

3.4.2(b) Savings arising from above measures in passenger and freight transport

## **3.4.3 Other end use energy efficiency measures contributing towards EE targets**

## **3.5 Promotion of efficient heating and cooling (Article 14)**

### **3.5.1 Comprehensive assessment**

3.5.1.2 Procedure and methodology description for carrying out a cost benefit analysis to satisfy EED Annex IX criteria

### **3.5.2 Other measures addressing efficient heating and cooling**

3.5.2.1 Measures, strategies and policies including programmes and plans at national, regional and local levels to develop the economic potential of cogeneration and district heating/cooling and other systems

## **3.6 Energy transformation, transmission, distribution and demand response (Article 15)**

### **3.6.1 Energy efficiency criteria in network tariffs and regulation**

3.6.1.1 Planned or adopted measures to ensure tariff incentives, which are detrimental to the overall efficiency of generation, transmission, distribution and supply or might hamper demand response participation, are removed

3.6.1.2 Planned or adopted measures to incentivise network operators to improve efficiency through infrastructure design and operation

3.6.1.3 Planned or adopted measures to ensure tariffs allow suppliers to improve consumer participation in system efficiency including demand response

### **3.6.2. Facilitate and promote demand response**

3.6.2 Other measures adopted or planned to enable and develop demand response including those addressing tariffs to support dynamic pricing

### **3.6.3 Energy efficiency in network design and regulation**

3.6.3(a) Report on progress in the assessment of EE potential of national gas and electricity infrastructure

3.6.3(b) Adopted and planned measures and investments for the introduction of cost effective EE improvements in network infrastructure

3.6.3(c) Timetable for the introduction of adopted measures

## **Annex A2. NEEAP reporting requirements of EED Annex XIV Part 2**

### **1. Targets and strategies**

- the indicative national energy efficiency target for 2020 as required by Article 3(1),
- the national indicative energy savings target set in Article 4(1) of Directive 2006/32/EC,
- other existing energy efficiency targets addressing the whole economy or specific sectors.

### **2. Measures and energy savings**

The National Energy Efficiency Action Plans shall provide information on measures adopted or planned to be adopted in view of implementing the main elements of this Directive and on their related savings.

#### **(a) Primary energy savings**

The National Energy Efficiency Action Plans shall list significant measures and actions taken towards primary energy saving in all sectors of the economy. For every measure or package of measures/actions estimations of expected savings for 2020 and savings achieved by the time of the reporting shall be provided.

Where available, information on other impacts/benefits of the measures (greenhouse gas emissions reduction, improved air quality, job creation, etc.) and the budget for the implementation should be provided.

#### **(b) Final energy savings**

The first and second National Energy Efficiency Action Plans shall include the results with regard to the fulfilment of the final energy savings target set out in Article 4(1) and (2) of the Directive 2006/32/EC. If calculation/estimation of savings per measure is not available, sector level energy reduction shall be shown due to (the combination) of measures.

The first and second National Energy Efficiency Action Plans shall also include the measurement and/or calculation methodology used for calculating the energy savings. If the 'recommended methodology' ( 1 ) is applied, the National Energy Efficiency Action Plan should provide references to this.

### **3. Specific information related to this Directive**

#### **3.1. Public bodies (Article 5)**

National Energy Efficiency Action Plans shall include the list of public bodies having developed an energy efficiency plan in accordance with Article 5(7).

#### **3.2. Energy efficiency obligations (Article 7)**

National Energy Efficiency Action Plans shall include the national coefficients chosen in accordance with Annex IV.

The first National Energy Efficiency Action Plan shall include a short description of the national scheme referred to in Article 7(1) or the alternative measures adopted in application of Article 7(9).

#### **3.3. Energy audits and management systems (Article 8)**

National Energy Efficiency Action Plans shall include:

- (a) the number of energy audits carried out in the previous period;
- (b) the number of energy audits carried out in large enterprises in the previous period;
- (c) the number of large companies in their territory, with an indication of the number of those to which Article 8(5) is applicable.

#### **3.4. Promotion of efficient heating and cooling (Article 14)**

National Energy Efficiency Action Plans shall include an assessment of the progress achieved in implementing the comprehensive assessment referred to in Article 14(1).

#### **3.5. Energy transmission and distribution (Article 15)**

The first National Energy Efficiency Action Plan and the subsequent reports due every 10 years thereafter shall include the assessment made, the measures and investments identified to utilise the energy efficiency potentials of gas and electricity infrastructure referred to in Article 15(2).

#### **3.6. Member States shall report, as part of their National Energy Efficiency Action Plans, on the measures undertaken to enable and develop demand response as referred to in Article 15.**

#### **3.7. Availability of qualification, accreditation and certification schemes (Article 16)**

National Energy Efficiency Action Plans shall include information on the available qualification, accreditation and certification schemes or equivalent qualification schemes for the providers of energy services, energy audits and energy efficiency improvement measures.

### **3.8. Energy Services (Article 18)**

National Energy Efficiency Action Plans shall include an internet link to the website where the list or the interface of energy services providers referred to in point (c) of Article 18(1) can be accessible.

### **3.9. Other measures to promote energy efficiency (Article 19)**

The first National Energy Efficiency Action Plan shall include a list of the measures referred to in Article 19(1).

## Annex B. Policy matrix by Member State

The country policy matrices presented in this Annex summarise the main national policy measures notified in the NEEAPs according to the policy type and sector(s) concerned. The categories used to classify policy measures by policy type are: regulatory, financial and fiscal, information and awareness, qualification, training and quality assurance, market-based, voluntary actions, infrastructure investments and other (see Table 10 for more details). Each measure is also linked to one or more of the following sectors: residential, services, industry, public, transport and supply sectors.

A colour-coding system was used to identify policy measures implemented as part of EU regulation or directives other than the Energy Efficiency Directive (see Box 1), whenever possible. This was used to highlight the fact that NEEAPs represent comprehensive inventories of various energy efficiency policy measures beyond the EED. While some measures stemming from other EU regulations and directives are obligatory for all Member States, only some Member States chose to mention them in their NEEAPs. Measures in bold were identified as measures with the highest energy saving impact for 2020. These were highlighted only in cases where sufficient information on energy savings generated by the measures was provided. The top three measures with the highest energy saving impact, together with information on their expected generated energy savings and timeline, were also listed for each country (see table below the policy matrix of each country).

The list of measures presented for each country is non-exhaustive: for readability reasons, the policy matrices do not cover small measures. For a full list of policy measures, the original NEEAP documents should be consulted. To simplify the policy matrices, information on the implementation status or the implementation period of the selected policy measures was omitted.

### Box 1. How to read the policy matrices

The main policy measures included in the NEEAPs are presented according to targeted sector(s) and policy type. The following colour coding system was used to highlight measures implemented as part of EU regulation or directives other than the Energy Efficiency Directive:

- **Energy Performance of Buildings Directive (2010/31/EU, 2002/91/EC)**
- **Eco-design Directive (2009/125/EC, 2005/32/EC), Energy Labelling Directive (2010/30/EU)**
- **Regulation (EU) No 333/2014 on CO2 emissions from new passenger cars**
- **Common Rules for the Internal Market in Electricity Directive (2009/72/EC) and natural gas (2009/73/EC)**
- **Labelling of tyres: Council Regulation No 1222/2009 And sometimes you may want to make a list inside a box.**
- **Emission Trading Scheme**

## Austria

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Improvement of MEPS for buildings	Improvement of MEPS for buildings	Improvement of MEPS for buildings; Mandatory energy audits for larger enterprises			
Financial & fiscal	Subsidies (federal) for EE for existing and new residential buildings; Energy taxes; Austrian federal renovation drive; Green electricity subsidies from federal government; Eco fund of federal state of Styria	Energy taxes; Green electricity subsidies from federal government; Austrian federal renovation drive; Eco fund of federal state of Styria	Subsidies for enterprises/ industry (Domestic Environmental Support Scheme); Energy taxes; Green electricity subsidies from federal government; Grants for Energy audits(energy advice) for SMEs	Energy taxes; Grants for energy audits (energy advice) for local authorities; Eco fund of federal state of Styria	Energy taxes; HGV Toll; Subsidies for electro-mobility in Lower Austria;	Statutory provisions (subsidies; grants) to promote district heating and cogeneration; Green electricity subsidies from federal government (incentives for cogeneration plants ); Promotion of biomass district heating in Lower Austria
Info., motiv. & advice	Klimaaktiv programme; Energy audits (energy advice; awareness rising; training and certification)	Klimaaktiv programme; Energy audits(energy advice; awareness rising; training and certification)	Klimaaktiv EE enterprises; Green Energy Cluster (EE network of companies in Upper Austria)	City Energy Efficiency Programme for Vienna (subsidies; advice; information; exemplary role of public sector)	Klimaaktiv mobile programme (advice; awareness rising; training and certification)	
Qual., Training, QA			Certification of energy managers (EUREM) <sup>24</sup>			
Market-based	Obligation scheme	Obligation scheme	Obligation scheme	Obligation scheme; Federal Property Contracting programme	Obligation scheme	
Volunt. agreements						

<sup>24</sup> EUREM(European Energy Manager) scheme.

<b>Infrastr. investments</b>	Smart meters (electricity) roll out	Smart meters (electricity) roll out	Smart meters (electricity) roll out			
<b>Other</b>					Overall transport plan for Austria; Lower Austrian Electromobility Strategy 2014–2020	

*Note: Smaller measures not presented in the table include information and awareness rising measures as well as measures on qualification, skills development and quality assurance. In the public sector, there are also smaller measures at regional and local levels which have not been mentioned in the table.*

### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings Cumulative 2014-2020 <sup>25</sup>
<b>Subsidies (federal) for EE for existing and new residential buildings</b>	Financial	on-going	Residential	73 000 TJ cumulative 2014- 2020 (32% of Art. 7 target)
<b>Energy taxes</b>	Financial/fiscal	on-going	Residential, Service, Industry, transport	74 900 TJ cumulative 2014- 2020 (33 % of Art. 7 target)
<b>Statutory (subsidies) to promote district heating;</b>	Financial	on-going	Energy suppliers	18 000 TJ cumulative 2014- 2020 (8 % of Art. 7 target)

*Note: The obligation scheme is at planning stage and information on the expected energy savings is not yet available.*

<sup>25</sup> Target according to Art.7 of EED

## Belgium

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Insulation standards and energy performance and indoor climate requirements for buildings (Flanders); MEPs for buildings (Wallonia); MEPs for buildings in BCR (PEB-Chaudière)	MEPs for buildings (Wallonia); MEPs for buildings in BCR (PEB-Chaudière); Local action plan for energy management in BCR (PLAGE); Energy Audit obligation in BCR	Local action plan for energy management in BCR (PLAGE)	MEPs for buildings (Wallonia); Local action plan for energy management in BCR (PLAGE); Energy Audit obligation in BCR		Obligation for fuel oil suppliers to contribute to the existing energy fund in BCR (Droit mazout)
Financial & fiscal	Financial incentives for buildings refurbishment (Wallonia); Subsidies for building renovation in BCR (Primes Energie)	Subsidies for building renovation in BCR (Primes Energie)	Subsidies for energy efficient industrial processes in Wallonia	Subsidies for buildings refurbishment in Wallonia (UREBA; PIVERT) Subsidies for energy efficient public lighting in Wallonia; Subsidies for building renovation in BCR (Primes Energie)	Financial incentives for energy efficient collective transport, road transport, waterway transport (Wallonia)	Promotion of photovoltaic solar panels (Flanders) Subsidies for CHP (Wallonia)
Info., motiv. & advice	Project calls for exemplary energy efficiency projects in BCR (BATEX); Energy advice provided under the "Energy Houses" initiative in BCR	Project calls for exemplary energy efficiency projects in BCR (BATEX)		Project calls for exemplary energy efficiency projects in BCR (BATEX)		
Qual., Training, QA	Periodic controls of Boilers in BCR	Periodic controls of Boilers in BCR				
Market-based	Public service obligations on electricity distribution system operators (Flanders)	Public service obligations on electricity distribution system operators (Flanders)				Certificates for highly-efficiency CHP (Flanders) Green certificates for renewable energies and highly efficient CHP (Wallonia)
Volunt. agreements			Energy policy agreements (Flanders) Voluntary agreements for CO2 emissions reduction in Wallonia (Accords de Branche)			

<b>Infrastr. investments</b>						
<b>Other</b>					Energy efficient mobility and improved environmental performances of transport (Flanders); Measures for the promotion of public transport, teleworking, modernisation of public transport companies' rolling stock, care sharing stations etc. in Wallonia; Package of measures implemented in BCR for the transport sector.	

Note: Other measures described in the Belgian NEEAP include a series of measures dedicated to information, awareness raising, qualification, training and quality assurance in each of the three Belgian regions.

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Annual final energy savings in 2020 <sup>26</sup>
<b>(RUE) public service obligations on the electricity distribution system operators (Flanders)</b>	Market-based	2003 (on-going)	Residential, services	14,630 GWh (18% of 2020 target) <sup>27</sup>
<b>Energy efficient mobility and improved environmental performances of transport (Flanders)</b>	Package of different types of measures		Transport	9,239 GWh (11% of 2020 target)
<b>Energy subsidies for buildings refurbishment in Wallonia (UREBA; PIVERT)</b>	Financial	Reinforced in 2013 (on-going)	Public	8,511 GWh (10% of 2020 target)

<sup>26</sup> Energy savings reported in this table have been claimed against Article 4 of the 2006 Energy Services Directive.

<sup>27</sup> The target in Belgium is 7.1 Mtoe (or 82,573 GWh) of final energy to be saved during 2020.

## Bulgaria

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	EE inspection of water boilers and air conditioning systems; Certification of buildings	Certification of buildings	Energy audits of industrial systems consuming 3000MWh/year	Mandatory renovation of 3% of the central gov. buildings; EE requirements for public procurement; Energy audits and certification of buildings	Purchasing of EE vehicles for public transport	
Financial & fiscal	Financing through EE fund for renovation of residential buildings; Grant scheme for multi-family residential buildings under OPRD <sup>28</sup> ; EE credit line for households		Financing through EE fund for EE projects in industry and ESCOs	Financing through EE fund for renovation of municipal and central government buildings; Operational Programme OPRG <sup>29</sup> for municipalities; Grant scheme for municipalities under OPRD; KIDSF <sup>30</sup> funding for EE projects in public buildings		
Info., motiv. & advice						
Qual., Training, QA	Training of energy auditors for buildings			Training for energy auditors for buildings		
Market-based	Obligation scheme	Obligation scheme	Obligation scheme	Obligation scheme		Obligation scheme

<sup>28</sup> OPRD is abbreviation of the Operational programme "Regional Development"

<sup>29</sup> Title of the measure is Support the transition to a low-carbon economy by implementing of EE projects in municipal buildings under Operational programme "Regions in Growth 2014-202"(OPRG)

<sup>30</sup> KIDSF is abbreviation of the Kozloduy International Decommissioning Support Fund

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>					Development of rail infrastructure, improvement of inland waterways and extension of metro transport	
<b>Other</b>						

*Note: The table excludes information and awareness rising measures as well as measures related to qualification, skills development and quality assurance.*

**Policy measures with highest energy saving impact**

Name	Type	Timeline	Sector	Final savings energy In 2020
<b>Obligation scheme</b>	Market based	2014-2020	All (transport excluded)	486ktoe/year
<b>Energy audits of industrial systems consuming 3000MWh/year</b>	Regulatory	2015-2020	Industry	151ktoe/year
<b>Audit, certification and passportisation of buildings</b>	Regulatory	on-going	Public	214 ktoe/year

## Croatia

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	MEPS for new and existing buildings, Energy audits of heating and air-conditioning systems; Energy labelling of home appliances	MEPS for new and existing buildings	Introduction of efficient electric motor drives; Energy audits and energy management in larger enterprises		Intermodal freight transport, Establishing a new payment system for the special environmental charge for motor, Speed limits for vehicles,	Energy Efficiency in Network Design and Regulation
Financial & fiscal	Fostering integral renovation of existing multi apartment buildings; Programme for EE renovation of family houses, cooling energy accumulation	Programme for energy renovation of existing commercial buildings	cooling energy accumulation	Programme for EE renovation of public buildings (2015-2015); Programme for EE renovation of public buildings (2016-2020)	Financial incentives for energy efficient vehicles, CO <sub>2</sub> taxes for motor vehicles	
Info., motiv. & advice	Promotion of energy services, Incentives for installation of individual metering devices for district heating	Promotion of energy services	Industrial Energy Efficiency Network (IEEN), Promotion of energy services	Connecting ISGE <sup>31</sup> with the metering and charging systems of electricity and water suppliers, Programme "Energy Efficient Public Lighting", Promotion of energy services	Promotion of integrated transport	Incentives for High-efficiency cogeneration
Qual., Training, QA			Energy audits of small and medium-sized enterprises		Eco-driving training	
Market-based						

<sup>31</sup> ISGE is information system for energy management for public buildings.

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>					Developing an alternative fuel infrastructure, Intelligent transport management,	Improving efficiency in HPP <sup>32</sup> , CHP <sup>33</sup> and TPP <sup>34</sup> , Improving energy efficiency in oil refining, Reducing losses in the electric power distribution grid
<b>Other</b>				"Green public procurement", COM <sup>35</sup>		

Note: The table excludes measures related to Information and awareness rising as well as qualification, skills development and quality assurance. Croatia is planning to introduce an obligation scheme in 2015 (the sectors will be defined at a later stage).

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Final energy savings In 2020
<b>Fostering integral renovation of existing multi apartment buildings</b>	Financial and fiscal	2014-2020	Residential	2.19 PJ (13% of Art. 3 target)
<b>Programme for energy renovation of existing commercial buildings</b>	Financial and fiscal	2014-2020	Service	2.298 PJ (14% of Art. 3 target)
<b>Programme for EE renovation of family houses</b>	Financial and fiscal	2014-2020	Residential	1.412 PJ (8% of Art. 3 target)

<sup>32</sup> HHP –Hydro power plants

<sup>33</sup> CHP –cogeneration plants

<sup>34</sup> Thermal power plants

<sup>35</sup> COM – Covenant of Mayors (59 signatories from Croatia)

## Cyprus

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	MEPS for new buildings; Air-conditioning/heating system inspections Replacement of household appliances;	MEPS for new buildings; Air-conditioning/heating system inspections		National action plan for green public procurement; Article5 renovation of central government		
Financial & fiscal	Grant scheme for encouraging RES use; Grant scheme for energy savings in existing homes; Grant scheme for installation of PV systems using the net metering method;	Grant scheme for encouraging RES use and energy savings	Grant scheme for encouraging RES use; Grant scheme for energy savings in existing industrial enterprises	Government grant scheme for energy savings/RES in public sector & central government; Replacement of public transport vehicles with more efficient ones	Grants for scrapping of old vehicles; Grants for purchase of hybrid, electric and low-emission vehicles; Annual CO2 circulation tax	
Info., motiv. & advice	CFL campaign; Various information dissemination activities	CFL campaign; Various information dissemination activities		Appointment of Energy Savings Officers in all public buildings		
Qual., Training, QA	Training for EPC experts and energy auditors	Training for EPC experts and energy auditors				
Market-based				Energy performance contracting in two public buildings		

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Smart meter (electricity) installation programme <sup>36</sup>	Smart meter (electricity) installation programme	Smart meter (electricity) installation programme	Action plan to strengthen public transport	Infrastructure for supporting and promoting electric vehicles in Cyprus	Energy-saving measures in the distribution system; Use of natural gas in power generation from 2016 onwards
<b>Other</b>				Action plans for municipalities and communities		

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings in 2020
<b>Use of natural gas in power generation from 2016 onwards and energy-saving measures in the distribution system</b>	Infrastructure investment	Varying	Supply	192 ktoe (51.2% of 2020 target)
<b>Implementation of measures adopted in compliance with the EED (especially Articles 5,6,7,8,9)</b>	Various	Varying	Various	60 ktoe (16% of 2020 target)
<b>Implementation of the new provisions of the Energy Performance of Buildings Directive</b>	Various	Varying	Residential; Services; Public	30 ktoe (8% of 2020 target)

*Note: The Cypriot NEEAP provides the following breakdown of the contribution of measures toward the 2020 target. Almost half of the total savings (182 ktoe) come from energy saving measures in end-use sectors and the other half (192 ktoe) from additional savings in primary energy consumption due to the use of natural gas in power generation and energy saving measures in the distribution system. The savings of individual measures have been specified in an annex of the NEEAP - the 3 measures with the highest energy saving impact in 2020 are identified below.*

<sup>36</sup> It is not clear which are the sectors targeted by the smart meter installation programme

Name	Type	Timeline	Sector	Primary energy savings in 2020
<b>Action plan to strengthen public transport</b>	Other	2010-	Public	41 ktOE
<b>Minimum requirements for the energy performance of new buildings</b>	Regulation	2008-	Residential; Services	25 ktOE
<b>Replacement of Household appliances</b>	Regulation	2010-	Residential	20 ktOE

## Czech Republic

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p><b>Energy Labelling implementation support on household appliances , Phase-out of incandescent and halogen lamps; Energy savings regulation for new build and renovations</b></p>	<p>Regulatory methodology for the application of EPC, Phase-out of incandescent and halogen lamps; Mandatory Energy Audits; <b>Energy savings regulation for new build and renovations</b></p>	<p>Mandatory Energy Audits; <b>Energy savings regulation for new build and renovations</b></p>	<p><b>Green Procurement, Replacement of inefficient lamps in public lighting; Energy savings regulation for new build and renovations</b></p>	<p>Regulation for private car fleet on improved fuel economy;</p>	
Financial & fiscal	<p>New Green Savings 2014-2020; Integrated Regional Operational Programme: Subsidies for regeneration of multi-family buildings, Subsidies for envelope insulation, Subsidies for new constructions under nearly energy zero standards, Subsidies for replacement and new heat pumps, Subsidies for replacement of heat sources, Subsidies for installation of Solar Thermal Systems; Subsidies for the replacement of boilers; Subsidies for construction and reconstruction of facilities using renewables sources of energy and cogeneration; Building society saving schemes for the modernization of housing stock; Introduction of Environmental tax reform on energy savings</p>	<p>Investment Aid under the Operational Programme Enterprise and Innovation; Introduction of Environmental tax reform on energy savings</p>	<p>Operational Programme Enterprise and Innovation for Competitiveness (MIT) (Replacement and modernization; efficiency of technological processes, energy performance of buildings) ; Introduction of Environmental tax reform on energy savings</p>	<p>Soft loans for municipalities for the regeneration of multi-family buildings; Introduction of Environmental tax reform on energy savings, subsidy-based support for the blanket gasification of municipalities</p>	<p>Operational Programme Prague; Introduction of Environmental tax reform on energy savings</p>	
Info., motiv. & advice	<p>EFEKT programme on the promotion of energy savings and utilization of renewable energy sources, through Energy Services; Awareness campaigns for energy savings in heat consumption; Information campaigns for the promotion of energy savings</p>	<p>EFEKT programme on the promotion of energy savings and utilization of renewable energy sources, through Energy Services; Information campaigns for the promotion of energy savings</p>	<p>EFEKT programme on the promotion of energy savings and utilization of renewable energy sources, through Energy Services; Information campaigns for the promotion of energy savings</p>	<p>EFEKT programme on the promotion of energy savings and utilization of renewable energy sources, through Energy Services; Information campaigns for the promotion of energy savings</p>	<p>EFEKT programme on the promotion of energy savings and utilization of renewable energy sources, through Energy Services ; Information campaigns for the promotion of energy savings</p>	<p>EFEKT programme on the promotion of energy savings and utilization of renewable energy sources, through Energy Services ; Information campaigns for the promotion of energy savings</p>
Qual., Training, QA						

<b>Market-based</b>						
<b>Volunt. agreements</b>			Support for voluntary agreements from the state			
<b>Infrastr. investments</b>					National strategy for the development of cycling; Modernization of Rail and Road networks; Support of Multimodal freight transport	
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Final* energy savings in 2020
<b>Operational Programme Enterprise and Innovation for Competitiveness (MIT)</b>	Financial	2014-2020	Industry	16000 TJ (aprox. 8.3% of Art. 3 target)
<b>New Green Savings 2014-2020 (MoE)</b>	Financial	2014-2020	Households	14308 TJ (aprox. 7.4% of Art. 3 target)
<b>Integrated Operational (MRD) Regional Programme</b>	Financial	2014-2020	Households	9000 TJ (aprox. 4.7% of Art. 3 target)

\*Czech Republic presents its savings in terms of Final Energy Savings

## Denmark

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	MEPSs for new dwellings (Building Regulations); Low energy class 2015 and building class 2020 <sup>37</sup> ; EE standards for appliances & equipment; Energy label for household appliances and components <sup>38</sup>	2010 Building Regulations ; Upgrade energy requirements for Building Regulations; Energy Audit Lighting for SMEs; Energy label for products aimed at enterprises	Obligatory audits (excluding SMEs – EED Art 8.);	Implementation of EED Art.5 ;Implementation of EED Art.6; Loan Order on borrowing and provision of guarantees for municipalities;	EU regulation for private car fleet	Obligatory audits (excluding SMEs – EED Art 8.)
Financial & fiscal	Financial Scheme to promote renovation in Single family houses <sup>39</sup> ; Energy Agreement to support the conversion from oil/natural gas fired boilers to RE types; Financial support to demolish and refurbish rural buildings; Rural Development Fund's for renovation ; Taxes on energy to give end-users incentive to make energy savings; Grants; Tax relief for EE upgrades, maintenance and repairs; Promoting energy renovation of social housing <sup>40</sup>		Voluntary agreement scheme <sup>41</sup> ; RE for production processes Fund <sup>42</sup> ;	Financial support for energy-optimisation of State owned Buildings ;Loans to replace lighting and electrical fittings with energy efficient types; Access to loans DKK 1 billion for hospital construction carried out in conformity with Building Class2020	Grants for bus mobility and service improvement;;Grants for improving train stations infrastructure; Train Fund to improve the electrification of railways <sup>43</sup> ; Tax incentives <sup>44</sup> ; Cycle fund for building cycle paths; Fund for energy-efficient transport solutions; Infrastructure Fund for electric, gas and hydrogen vehicles; Energy efficiency requirements for taxis	Financial support for cogeneration (purchasing agreement and tendering);
Info-, motiv. & advice	Information on national market for energy services; Danish Energy Agency's information campaign on EE end-user ; BedreBolig <sup>45</sup> funds for information campaign	Danish Energy Agency's information campaign on EE; Raising awareness of energy saving by energy companies scheme	Energy Audits for large enterprises;;Information and advice aimed at SMEs;	Information and support for local authorities by Danish Energy Agency	CO2 label on passenger cars; CO2 information on transport performances	

<sup>37</sup> "Low energy class 2015 and building class 2020" are voluntary agreements that will become legal requirement in 2015 and 2020 respectively.

<sup>38</sup> An analysis calculated the impact of the ecodesign requirements to be 5 640 GWh per year in 2020.

<sup>39</sup> Initiative arises from agreements on the Vækstplan DK.

<sup>40</sup> The housing organisations' special reserve funds can be used to provide a guarantee for energy savings in addition to a guarantee from a technical adviser or another party to the building project.

<sup>41</sup> From 1996 to 31 December 2013, the businesses agree to implement energy management and improve energy efficiency in their production in exchange for a substantial rebate on their energy-saving tax.

<sup>42</sup> Grants are provided for energy efficiency measures in connection with converting production processes from fossil fuels to renewable energy. The scheme is aimed at all types of enterprise, including SMEs.

<sup>43</sup> The Danish Parliament has allocated DKK 8.7 billion to electrification of the Danish railway network.

<sup>44</sup> In 2007 vehicle Registration tax was reduced for cars with low fuel consumption. A green owner's tax related to the vehicle's fuel consumption has existed since 1997. Electric and hydrogen vehicles are exempt from tax until 2015 inclusive.

<sup>45</sup> The aim is to make information more easily available to banks and mortgage institutions so that they can advise their customers on the financing of energy improvement projects on a sound basis.

Qual., Training, QA	Training, Accreditation and Certification of building professional	Training, Accreditation and Certification for RE ;Registration scheme for energy audit consultants	Training, Accreditation and Certification for RE; Registration scheme for energy audit consultants; Accreditation of verifiers			
Market-based		Obligation scheme <sup>46</sup> ; Promote E renovation of large buildings by public tenders with guarantees	Obligation scheme	Launch of new ESCO model for municipalities where municipality acts as guarantor <sup>47</sup>	Energy Saving Certificates	Obligation scheme <sup>48</sup> ; Network tariffs "whole sale model" <sup>49</sup>
Volunt. agreements			Voluntary agreement scheme <sup>50</sup> ;	Voluntary agreement for Energy savings in municipalities;		
Infrastr. investments	Remote electricity meters roll-out <sup>51</sup>				Metro & light railways expansion	
Other	Development of solar heating and heat pumps (own consumption)	Development of solar heating and heat pumps		Public procurements (under Exemplary State); Territorial climate plans	Public procurement implementing 22/2009/EC; R&D	

<sup>46</sup> Denmark will meet its Article 7 obligations exclusively through the use of their on-going Energy Efficiency Obligation Scheme.

<sup>47</sup> Danish government allocated DKK 5 million in 2013 to develop a concept for carrying out energy renovations and new building, where the contractor provides a guarantee that the energy saving will be achieved.

<sup>48</sup> The companies involved in the scheme are around 70 electricity grid operators, 3 natural gas distributors, around 400 district heating companies, the oil sector on behalf of 6 oil companies.

<sup>49</sup> Grid operators will no longer bill the consumers directly but they will bill the individual electricity trading companies for a total amount once a month who are not obliged to pass on the tariff to the consumers unchanged. So doing, consumers are free to choose their supplier and free to choose the products on offer.

<sup>50</sup> From 1996 to 31 December 2013, the businesses agreed to implement energy management and improve energy efficiency in their production in exchange for a substantial rebate on their energy-saving tax.

<sup>51</sup> Grid operators will be obliged to install remote electricity meters with hourly reading for all electricity end-users by the end of 2020.

## Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings in 2020
<b>Energy Efficiency Obligation Scheme<sup>52</sup></b>	Market Based	2012 - 2020	Energy supply, Service, Industry	83.9 PJ (194% of Art. 7 target <sup>53</sup> )
<b>Building renovation<sup>54</sup></b>	Regulatory	2012 (on-going)	Residential, Service	n/a <sup>55</sup>
<b>Upgrade energy requirements for building regulations</b>	Regulation	2015 (on-going)	Residential, Service	n/a

<sup>52</sup> Please Note the cumulative savings reported for Article7 are likely to be overestimated. Although the overestimated amount is difficult to assess, the implicit assumption made in the calculations that the annual energy saving targets established under the Danish Energy Efficiency Obligation Scheme will be achieved by implementing each year entirely new energy efficiency improvement actions seem quite optimistic

<sup>53</sup> According to Article7(1) EED the target in Denmark is 43.23 PJ of primary energy savings in 2020

<sup>54</sup> 21 Initiatives are reported in an Annex of the NEEAP named 'Strategy for Energy renovation of buildings' but do not show estimated energy savings in 2020.

<sup>55</sup> Please Note estimated savings in 2020 are not indicated for these measures therefore no % of savings can be indicated compared to Article3 overall indicative target.

## Estonia

	Residential	Services	Industry	Public	Transport	Supply
Regulatory			Obligatory audits (excluding SMEs - EED Art 8.) TBA	Implementation of EED Art.5 (only list of building provided)	EU Regulation for private car fleet ? (not mentioned explicitly)	
Financial & fiscal	<p>Financing (preferential loans, guarantees for the renovation of apartment buildings)</p> <p>Energy and CO2 taxes (excise duty and VAT)</p>	<p>Energy and CO2 taxes (excise duty and VAT) -not indicated if tax is or will be increased</p>	<p>tax exemption for reinvested corporate profit</p> <p>Financing for EE investment in industry (no details)</p> <p>Energy and CO2 taxes (excise duty and VAT) -not indicated if tax is or will be increased</p>	<p>Financing of renovation of public buildings</p> <p>Financing for the renovation of street lighting</p>	<p>Energy and CO2 taxes (excise duty and VAT) -not indicated if tax is or will be increased</p>	<p>Financial support for cogeneration (Feed-in Tariff)</p>
Info., motiv. & advice	<p>Information about financing options</p>		<p>environmental awareness raising campaigns,</p>			
Qual., Training, QA	<p>Training and Certification of building professional and auditors</p>	<p>Training and Certification of building professional and auditors</p>				
Market-based	<p>EEOS (still planned - contribution possible to EE funds, no sector specified)</p> <p>EE funds also needs to be established</p>	<p>EEOS (still planned - contribution possible to EE funds, no sector specified)</p> <p>Plans to develop ESCO industry (Art. 18)</p>	<p>EEOS (still planned - contribution possible to EE funds, no sector specified)</p>		<p>EEOS (still planned - contribution possible to EE funds, no sector specified) ?</p>	

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Smart meters (electricity) roll-out				Infrastructure investments	
<b>Other</b>				Role of mentioned, 6 CoM cities have joined it  District heating plans in local authorities		Time of use electricity tariffs  Energy data feed platform (pilot project)

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Cumulative primary energy savings 2014-2020 <sup>[2]</sup>
<b>Energy Efficiency Obligation Scheme</b>	Market based	New	Residential, Tertiary, Industry	159 000 TJ
<b>Subsidies (federal) for EE for existing and new residential buildings</b>	Financial	on-going	Residential	73 000 TJ cumulative 2014-2020 (32% of Art. 7 target)
<b>Energy taxes</b>	Financial/fiscal	on-going	Residential, Service, Industry, transport	74 900 TJ cumulative 2014-2020 (33 % of Art. 7 target)

<sup>[2]</sup> Target according the Art7 of EED.

## Finland

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p>MEPS for new and existing buildings;</p> <p>EE standards for materials (glazing);</p> <p><b>EE standards for equipment</b></p>	<p>MEPS for new and existing buildings</p>		<p><b>MEPS for new and existing buildings</b></p>	<p>Improving Energy Efficiency of cars; Speed limits;</p> <p>Changes of mass and dimensions of heavy goods vehicles;</p> <p>Tyre pressure checks.</p>	
Financial & fiscal	<p>Energy subsidies for residential buildings;</p> <p>Tax credits for heat pumps installation;</p>	<p>Subsidies for energy audits;</p> <p>Subsidies for industry</p>	<p>Subsidies for energy audits;</p> <p>Subsidies for industry</p>	<p>Subsidies for energy audits</p>	<p><b>Vehicle emission taxation;</b></p> <p>Subsidies for the promotion of public transport</p>	<p>Subsidies for heating plants</p>
Info., motiv. & advice	<p>Information campaigns</p>	<p>Training for auditors</p>	<p>Training for auditors</p>	<p>Maintenance and user information for the state's building stock</p>	<p>Promotion of fuel economy (private, bus, lorry)</p>	
Qual., Training, QA						
Market-based						
Volunt. agreements	<p>Energy Efficiency Agreements for oil based heating systems;</p> <p>Energy Efficiency Agreements for residential lettings associations</p>	<p>Energy efficiency agreements (services sector and ESCO)</p>	<p>Energy efficiency agreements (SME and Energy intensive)</p>	<p>Energy Efficiency Agreements for local government</p>		<p>Energy Efficiency Agreements for energy producers</p>

<b>Infrastr. investments</b>	Deployment of unit-specific meters;				Promotion of walking and cycling by the improvement of infrastructures	
<b>Other</b>				Improvement of efficiency of use of space		

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings in 2020
<b>Energy efficiency agreement for businesses – energy-intensive industry</b>	Voluntary Agreements	2008-2016 (on-going)	Industry	13.2 TWh (35% of 2020 target <sup>56</sup> )
<b>Heat pumps for detached and terraced houses</b>	Financial and Fiscal	Started in 2000- (on-going)	Residential	7.7 TWh (20.47% of 2020 target)
<b>MEPS for new buildings (Energy efficiency regulations for new development)</b>	Regulatory	Started in 2003 - (on-going)	Residential	7.1 TWh (18.88% of 2020 target*)

<sup>56</sup> Target in Finland is 37.6 TWh of primary energy savings in 2020

## France

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p>2012 Thermal Regulation for Buildings; Energy Performance certificates; Phase out of incandescent lamps; Energy label for low energy buildings (new and refurbished); Target to renovate 500K dwellings per year; Thermal Regulation of existing buildings; Legislative Action to solve "split incentives"</p>	<p>2012 Thermal Regulation for Buildings; Energy Performance certificates; Phase out of incandescent lamps; Energy label for low energy buildings (new and refurbished); Thermal Regulation of existing buildings; Legislative Action to solve "split incentives"</p>	<p>Obligatory audits (excluding SMEs - Art 8.); Directive 201/75/EU on BAT</p>	<p>Implementation of EED Art.5; Implementation of EED Art.6</p>	<p>EU Regulation for private car fleet</p>	
Financial & fiscal	<p>Interest-free eco-loan (Eco-PTZ); Sustainable development tax credit (CIDD); Social housing eco-loan (Eco-PLS); Use of the European Regional Development Fund for social housing renovation; Measure to reduce fuel poverty</p>		<p>Green Loans; Investment support for efficient equipment; Eco-energy loans; Support for energy audits</p>		<p>Bonus/malus schemes; Eco-tax on trucks; Annual tax for company vehicles based on CO2 emissions; Domestic tax on the consumption of energy products (TICPE);</p>	<p>Financial support for cogeneration (purchasing agreement and tendering); Support for DH with biomass; Premium for Demand Response</p>
Info., motiv. & advice	<p>Renovation Information Service Point (PRIS)</p>		<p>Energy Audits</p>	<p>Exemplary state system (buildings); Advice in shared energy (information and support for local authorities)</p>	<p>CO2 label on passenger cars; CO2 information on transport performances</p>	
Qual., Training, QA	<p>Training and Certification of building professional</p>	<p>Training and Certification of building professional</p>	<p>Support to standardization for energy management</p>			
Market-based	<p>Energy Saving Certificates</p>	<p>Energy Saving Certificates</p>	<p>Energy Saving Certificates</p>		<p>Energy Saving Certificates</p>	

<b>Volunt. agreements</b>					Carriers commitment to CO2 objective	
<b>Infrastr. investments</b>	Smart meter (electricity) roll-out				Motorways of the Sea; National Port Recovery Strategy; French Waterways; The North Europe Seine canal; Public transport development investments	
<b>Other</b>	Development of solar heating and heat pumps consumption); Improvement of billing	Development of solar heating and heat pumps	Support Innovation for	Public procurements (under Exemplary State); Territorial climate plans; Amendment of the public procurement to allow EPC; Covenant of Mayors (113 cities)	Aviation efficiency through international co-operation; Public procurement implementing 22/2009/EC; R&D	

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Final energy savings 2020
<b>Energy Saving Certificates</b>	Energy Efficiency Obligation Scheme - Market Based Instrument	on-going	Residential, Tertiary, Industry, Transport	9.29 Mtoe
<b>Domestic tax on the consumption of energy products (TICPE)</b>	Fiscal	on-going	Residential, Tertiary, Industry, Transport	4.4 Mtoe
<b>Improved fuel economy of new vehicles</b>	Regulation + incentives + tax	on-going	Transport	2.2 Mtoe

## Germany

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Energy savings regulation for new build and renovations; Renewable Thermal Energy Act; Renewable Energy Act	Energy savings regulation for new build and renovations; Renewable Thermal Energy Act; Renewable Energy Act	Renewable Energy Act			CHP reallocation
Financial & fiscal	Tax relief on energy renovations; Energy and electricity tax; KfW energy renovation construction programmes;	Tax relief on energy renovations; KfW energy renovation construction programmes; Energy and electricity tax; BMWi grants for EMS	BMWi grants promoting energy-efficient and climate-friendly production processes; KfW energy consultations for SMEs; KfW EE/environmental programmes	KfW municipality program	HGV toll; Air traffic tax; Energy and electricity tax;	VAT on energy providers; Network usage Charges; Concession charges
Info., motiv. & advice	BAFA on-site consultation; Energy efficiency checks (Caritas); Energy & electricity savings checks under EEF <sup>57</sup>		KfW Energy consultations for SMEs; Promotion of EMS <sup>58</sup> under the EEF; SME initiative for energy transition; Peak equalisation for energy & electricity tax			
Qual., Training, QA						

<sup>57</sup> EEF: Energy Efficiency Fund

<sup>58</sup> EMS: Energy Management System

<b>Market-based</b>			Emission Trading Scheme			
<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>						
<b>Other</b>					Mobility and fuel strategy (MKS)	

Note: Over 40 measures have been enlisted in the German NEEAP. Measures that generate little or no savings in the period 2014-2020 were not included in the table.

### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary savings in energy 2014-2020 (PJ)
<b>Energy and electricity tax</b>	Taxation	Not specified	Cross-sectoral	564
<b>EEG reallocation</b>	Renewable Energy Act	Not specified	Cross-sectoral	480
<b>Network usage charges</b>	Taxation	Not specified	Supply	466

Note: The 2020 target is expressed in terms of annual savings for the year 2020 with respect to 2008, and a comparison is not possible

Greece

	Residential	Services	Industry	Public	Transport	Supply
Regulatory		Regulation establishing the institutional framework for the provision of energy services; Legal framework for conducting energy audits		Renovation of central government buildings		
Financial & fiscal	Energy efficiency programme for households (loans, grants, tax incentives); Energy Upgrade programme for houses (capital subsidy and low interest loans with an interest rate subsidy); Offsetting arbitrary fines for households for energy upgrading work	Financial incentives for energy upgrading of commercial buildings	Business loans based on favourable terms for SMEs; Financial incentives through 'Green Business' programme; Financial incentives for relocation of firms and business parks; Financial incentives for green business	Energy efficiency programme for local authorities (grants/subsidies); Energy upgrading programme for public buildings	Replacement of old light trucks in public and private sector; Replacement of old passenger vehicles in private sector; Subsidies for LPG passenger vehicles	Grants for installation CHP systems with natural gas in hospitals;
Info., motiv. & advice	Various information campaigns for Energy efficiency programme for households; Information and training actions for domestic users;			Implementation of energy management system based on ISO 50001 standard in the public sector; Appointment of energy managers in public buildings		
Qual., Training, QA		Education and training activities in the tertiary sector executives;				
Market-based				Energy upgrading in commercial buildings through Energy Service Companies		

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Electricity smart meter roll-out	Electricity smart meter roll-out			Athens Metro improvements; Construction of Thessaloniki Metro	Construction & expansions of existing district heating networks
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Final energy savings <sup>59</sup>
<b>Energy Upgrade programme for houses</b>	Financial	2015-2020	Residential	239.5 (ktoe)
<b>Offsetting arbitrary fines for households for energy upgrading work</b>	Financial	2014-2020	Residential	107.8 (ktoe)
<b>Electricity smart meter roll-out</b>	Infrastructure investment	2014-2020	Residential; Services	96.8 (ktoe)

<sup>59</sup> It is not clear whether these savings are annual or cumulative and it is therefore not possible to make any comparison with the target

## Hungary

	Residential	Services	Industry	Public	Transport	Supply	Overall
Regulatory	Minor legislative modifications related to individual metering <sup>60</sup>	Minor legislative modifications related to individual metering <sup>61</sup>	Mandatory Energy Audits	Mandatory Energy Audits CIII/2011 about public procurement with sustainability perspective; Mandatory Renovation of Central Government Buildings	National Transport Infrastructure Development Strategy Transport Energy Efficiency Improvement Action Plan		
Financial & fiscal	Green loans (maybe refurbishment savings) as part of financial package <sup>62</sup> ; Financial support to ESCOs to carry out residential renovation as part of financial package <sup>63</sup> ; OPs for refurbishment (2014-2020)	Preferential loans as part of financial package <sup>64</sup> ; OPs for refurbishment (2014-2020)		OPs for refurbishment (2014-2020)	Road Toll Fiscal relief for electric cars		
Info., motiv. & advice	Registry of Energy Auditors Informative billing; Awareness Raising Action Plan <sup>65</sup> ; Information and awareness raising website <sup>66,67</sup> ; Energy and Climate Campaign <sup>68</sup> ; Special campaign and guidebook for energy poor households; Energy Consumption awareness content of the National Educational Framework Programme; EEOP 6.1. 2007-2013: awareness, informational,	Energy Audit Mentor Service as part of financial package instead of EEO* Registry of Energy Auditors Informative billing Information and awareness raising website <sup>69</sup>	Registry of Energy Auditors Informative billing Information and awareness raising website and exchange platform <sup>70</sup>	Registry of Energy Auditors Informative billing Information and awareness raising website <sup>71</sup>	Awareness raising programmes, e.g. European Mobility week, car Free Day, competitions, etc. Carpool promotion Eco-driving promotion		Electronic database about audits and results <sup>72</sup>

<sup>60</sup> Gov. Decree 123/2015. (V. 26.)

<sup>61</sup> Gov. Decree 123/2015. (V. 26.)

<sup>62</sup> These measures are being investigated by an impact assessment, and decision about introduction will be based on that.

<sup>63</sup> These measures are being investigated by an impact assessment, and decision about introduction will be based on that.

<sup>64</sup> These measures are being investigated by an impact assessment, and decision about introduction will be based on that.

<sup>65</sup> Provision by Parl.Decree 77/2011. (X.14.). 4.a., however not available yet and no further details about the expected date.

<sup>66</sup> Prescribed by Law LVII/2015 Paragraph 20., however not functioning yet and no further details about the start-up.

<sup>67</sup> Content: All information requirement required by EED. E.g. for companies: information about energy suppliers, information about audits and energy saving opportunities (quotes from the NEEAP), Energy service contract examples, available financial options, best and international examples for accreditation systems will be made available in order to motivate the development of similar systems, voluntary list of energy (services) suppliers, it will function as contact points for energy services. It will be used to support public authorities in finding the right financing options for refurbishments, the right measures for long-term energy savings, the benefits of using EPC, obligatory parts of an EPC.

<sup>68</sup> To be defined by the Awareness Raising Action Plan (NB: even the Action Plan is only under planning)

<sup>69</sup> Prescribed by Law LVII/2015 Paragraph 20., however not functioning yet and no further details about the start-up.

<sup>70</sup> Prescribed by Law LVII/2015 Paragraph 20., however not functioning yet and no further details about the start-up.

<sup>71</sup> Prescribed by Law LVII/2015 Paragraph 20., however not functioning yet and no further details about the start-up.

<sup>72</sup> To be launched by beginning of 2016, however, no further details

	educational programmes support EEOP 6.2. 2007-2013: Pilot projects for sustainable lifestyle EEOP 2015-: awareness, informational, educational programmes support						
<b>Qual., Training, QA</b>	Registry of Building Energy Performance Accreditors <sup>73</sup>	Registry of Building Energy Performance Accreditors <sup>74</sup>	Registry of Building Energy Performance Accreditors <sup>75</sup>	Registry of Building Energy Performance Accreditors <sup>76</sup>			National Energy Professionals Network as an alternative measure of EEOS <sup>77</sup>
<b>Market-based</b>							EE motivating tariff system as an alternative measure of EEOS <sup>78</sup> ESCO financing as an alternative measure of EEOS <sup>79</sup>
<b>Volunt. agreements</b>							
<b>Infrastr. investments</b>	Pilot projects for smart meters	Using the Operational Programme financing for investments; Pilot projects for smart meters	Using the Operational Programme financing for investments; Pilot projects for smart meters	Using the Operational Programme financing for investments	Bicycle Road Development Railway electrification and system improvement New energy efficient engines P+R Autobus exchange programme	Smart network development	primary side development of DH systems
<b>Other</b>		Virtual Power Plant Programme	Virtual Power Plant Programme	Virtual Power Plant Programme			Data collection system to assess EE impacts of all policies <sup>80</sup>

### Policy measures with highest energy saving impact

Hungary opted for an overall top-down approach, with only a few measures being associated with energy saving estimates. Many of these estimates are unclear (achieved or predicted, timeframe, final or primary etc.).

<sup>73</sup> Gov. Decree 266/2013 (VII.11)

<sup>74</sup> Gov. Decree 266/2013 (VII.11)

<sup>75</sup> Gov. Decree 266/2013 (VII.11)

<sup>76</sup> Gov. Decree 266/2013 (VII.11)

<sup>77</sup> Being investigated, according to the NEEAP, but it is unspecified how, when, by whom.

<sup>78</sup> Being investigated, according to the NEEAP, but it is unspecified how, when, by whom.

<sup>79</sup> Being investigated, according to the NEEAP, but it is unspecified how, when, by whom.

<sup>80</sup> Gov. Decree 1215/2015. (IV. 17.)

## Ireland

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	MEPS for new dwellings; EE standards for equipment; Incandescent lamp phase-out	MEPS for new non-residential buildings			Regulation for private car fleet on improved fuel economy	
Financial & fiscal	Grants for EE & RES heating, Grants for building EE upgrades; Carbon tax	Grants for small scale CHP; Carbon tax; Subsidies; Grants for RES heating; Grants for exemplar projects;	Tax incentives for EE equipment; Carbon tax;	Tax incentives for EE equipment; Grants for small scale CHP; Grants for RES heating; Grants for exemplar projects;	Grants for new electric vehicles; Vehicle Emission Taxation; Carbon tax	Incentives for peak use reduction
Info., motiv. & advice	SEAI's consumer awareness activities	Advice	Information exchange; Advice, mentoring & training to SMEs; Smart meter roll-out	Demonstration programmes for new and retrofit public sector buildings; Advice, mentoring & training to public sector	Awareness campaign; Driver skill development programme	
Qual., Training, QA			Advice, mentoring & training to SMEs	Advice, mentoring & training to public sector		
Market-based	Obligation scheme	Obligation scheme	Obligation scheme			

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Electricity and gas smart meter roll-out				Public transport efficiency improvements	Efficiency in power generation investments
<b>Other</b>					Aviation efficiency through international co-operation	Prioritisation of EE in investment decisions for new plants;

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings in 2020
<b>Increased efficiency in power generation</b>	Infrastructure investment	2008 (on-going)	Energy supply	4,056GWh (12.7% of 2020 target <sup>81</sup> )
<b>Residential retrofit</b>	Combination of advice, subsidies, obligation scheme	2011 (on-going)	Households	3,000 GWh (9.4% of 2020 target)
<b>Improved fuel economy of private car fleet</b>	Regulation	2008 (on-going)	Transport	2,979 GWh (9.3% of 2020 target)

<sup>81</sup> The Irish target is 31 925 GWh of primary energy savings in 2020

## Italy

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p>Decree n. 192/05 transposing the Directive 2002/91/EC (EPBD);</p> <p>MEPS for air conditioning and comfort fans; MEPS for space heaters;</p>	<p>Decree n. 192/05 transposing the Directive 2002/91/EC (EPBD);</p> <p>MEPS for air conditioning and comfort fans; MEPS for space heaters;</p>	<p>Decree n. 192/05 transposing the Directive 2002/91/EC (EPBD).</p>	<p>Decree n. 192/05 transposing the Directive 2002/91/EC (EPBD); MEPS for air conditioning and comfort fans; MEPS for space heaters;</p>	<p>Emission performance standards for new light commercial vehicles and passenger cars</p>	
Financial & fiscal	<p>Tax credits, incentives for renewables and energy efficiency (conto termico)</p>	<p>Incentives for renewables and energy efficiency (conto termico)</p>		<p>Incentives for renewables and energy efficiency (conto termico)</p>	<p>Incentives for cars and buses substitution</p>	
Info., motiv. & advice						
Qual., Training, QA						
Market-based	<p>Obligation scheme</p>	<p>Obligation scheme</p>	<p>Obligation scheme</p>	<p>Obligation scheme</p>	<p>Obligation scheme</p>	
Volunt. agreements						

<b>Infrastr. investments</b>					Improvement of railroad infrastructures, creation of a national logistics platform	
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Annual final energy savings in 2020
<b>Energy Efficiency Obligation Scheme</b>	Marked based	2005 (on-going)	All	5.45 Mtoe (35% of 2020 target <sup>82</sup> )
<b>Tax credits</b>	Financial and fiscal	Starting date not clear (on-going)	Households	1.38 Mtoe (9% of 2020 target)
<b>Investments on energy efficient mobility</b> (Incentives for cars and buses substitution; Improvement of railroad infrastructures, creation of a national logistics platform).	Financial and fiscal & Infrastructure investments	Starting date unknown (on-going)	Transport	1.97Mtoe (13 % of 2020 target)

<sup>82</sup> The target in Italy is 15.50 Mtoe of final energy savings in 2020

## Latvia

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Revision of MEPS; Regulation on independent experts in energy performance of buildings	Revision of MEPS; Regulation on independent experts in energy performance of buildings	Regulation on Industrial energy Audits			
Financial & fiscal	Grants for EE improvements in multi-apartment and social housing; Energy efficiency improvements in residential buildings		RES and EE improvements in industrial buildings <sup>83</sup>	EE upgrades in public & production buildings; Energy efficiency improvements in municipal buildings		
Info., motiv. & advice	Awareness raising campaign for residential buildings (Let's Live Warmer)					
Qual., Training, QA	Building Specialist Certification Centre of the Association of Heat, Gas and Water Technology Engineers	Building Specialist Certification Centre of the Association of Heat, Gas and Water Technology Engineers				
Market-based	Energy Efficiency Obligation Scheme <sup>84</sup>	Energy Efficiency Obligation Scheme <sup>2</sup>				

<sup>83</sup> It is stated that the measure is in planning phase

<sup>84</sup> It is stated that energy efficiency measures such as support for companies or private individuals for the acquisition of EE devices may be given but as this is a new scheme in Latvia, the target sectors have not been finalised

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Pilot smart meter programme (500 households)			EE lighting infrastructure in municipality territories	Lease of new electric trains and renovation of existing diesel trains	EE & use of local RES in district heating; District heating infrastructure improvements;
<b>Other</b>				Central government renovation <sup>1</sup>	Electromobility Development Plan for 2014 – 2016	

Note: For Article 7, it is stated that some additional measures may be considered – these are not listed here as it is not clear if these will be implemented in the near future. The creation of an Energy Efficiency National Fund is under discussion and is not clear what actions will be supported by the Fund. The fund will most likely be financed by structural funds and contributions of EEOs obliged parties.

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings in 2014-2020 (PJ)
<b>Energy Efficiency Obligation Scheme</b>	Market-based	2014-2020	Not defined	9896 (100% of Article7 target) <sup>85</sup>
<b>Multi-apartment and social housing scheme (activity 3.4.4.1)</b>	Financial/fiscal	2009 (on-going)	Residential	1050 (10.6% of Article7 target)
<b>Phase III public and production buildings scheme</b>	Financial/fiscal	2009-	Public	384 (3.9% of Article7 target)

Note: Only the savings of some measures under Article 7 have been quantified in the Latvian NEEAP. Given that these are expressed in cumulative terms, the savings of these measures can only be expressed in terms of the overall Article7 target. Please note that it is not known what the impact of measures other than those under Article7 is in terms of energy savings.

<sup>85</sup> It is likely that this is wrongly reported in the NEEAP.

## Lithuania

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Energy Efficiency law; <b>Technical Construction Regulations for buildings, HVAC and EP certification of buildings</b>	Energy Efficiency law;  <b>Technical Construction Regulations for buildings, HVAC and EP certification of buildings;</b>  Procurement regulations	Energy Efficiency law;  Labelling products on energy consumption	Energy Efficiency law;  <b>Technical Construction Regulations for buildings, HVAC and EP certification of buildings</b>	Regular checks of vehicles technical and environmental requirements	Energy Efficiency law
Financial & fiscal	Grants for renovating multi-apartment builds (2005-2020); Grants for projects on EE and RES <sup>86</sup> ; EU Structural Funds for 2014-2020 <sup>87</sup>		Grants for cogeneration plants;  Grants for exemplar projects on RES and green products	Renovation of public builds (2014-2020); Grants on EE in public builds. <sup>88</sup> Grants for Installation of biofuel boilers (up to 5MW)	Grants for development of green public transport.  Grants for improvements of road and railway networks	Grants for upgrading and development of the electricity distribution systems and DH
Info., motiv. & advice	Consultation and advises;  Public awareness raising programmes on EE			Public awareness raising programmes on EE measures <sup>89</sup>	A campaign "A day without cars"	
Qual., Training, QA	Trainings "Building up Skills";  Specialists for energy audits  and EP certification of buildings	Trainings "Building up Skills";  Specialists for energy audits  and EP certification of buildings		Trainings "Building up Skills" ;  Specialists for energy audits  and EP certification of buildings		
Market-based	Energy efficiency obligation scheme		Energy efficiency obligation scheme			

<sup>86</sup> Special Climate Change Programme and Ignalina Nuclear Power Plant Decommissioning Fund.

<sup>87</sup> It is stated that this measures is in a planning phase.

<sup>88</sup> EU structural funds (Operational Programme for Promotion of Cohesion, 2007-2013); Grants for educational buildings (2009-2016), libraries (2007-2013), cultural centres (2007-2020) and museums (2007-2015).

<sup>89</sup> Public awareness raising programmes provided by electricity supplier (AB Lesto): efficient use of electricity ("Only as much as need") and reducing electricity losses ("Operation 2020").

<b>Volunt. agreements</b>			Voluntary agreements with energy companies			
<b>Infrastr. investments</b>					Improvements of road and railway networks	National Heating Sector Development programme
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Energy savings
<b>Energy Efficiency Obligation Scheme</b>	Market-based	2015-2020	Residential and service/public buildings, industry	11677TWh <sup>90</sup>
<b>Programmes for renovating and promoting multi-apartment buildings, and for development of municipal problem areas<sup>91</sup></b>	Financial/fiscal	2005-2020	Residential	1000 GWh <sup>92</sup>
<b>National Heating Sector Development programme</b>	Financial/fiscal	2014-2020	Supply	2500 GWh <sup>93</sup>

Note: Energy savings have been quantified only for some measures in the Lithuanian NEEAP, which very often do not specify explicitly whether the savings are quantified as primary or final energy savings. Therefore, it is difficult to compare these savings with the Article 3 target, expressed in terms of final energy savings.

<sup>90</sup> It is calculated using the cumulative method, and therefore a comparison with Art.3 target is not possible.

<sup>91</sup> This measure includes three programmeMEs, savings for which are specified together: i) EU Structural Funds for 2007-2013 (Measure "Promoting the upgrading of multi-apartment buildings"); ii) Programme for renovating multi-apartment buildings; iii) programme for development of municipal problem areas for 2011-2013. The programmes are based on funds from EU Structural Funds, private, state and municipal budgets.

<sup>92</sup> It is not specified explicitly whether it is final energy savings, and therefore a comparison with Art.3 target is not possible

<sup>93</sup> The savings are specified as primary fuel savings, and therefore a comparison with Art.3 target is not possible

## Luxembourg

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	MEPS for new residential buildings	MEPS for new and existing non-residential buildings; Upgrade of MEPS for non-residential buildings; Improvement of lighting in non-residential buildings;				
Financial & fiscal	Grants for EE construction of new residential buildings; Grants for EE renovation of existing buildings; Grants for purchasing of solar collectors and HPs <sup>94</sup> for residential buildings;				Increasing Tax for motor fuels; CO <sub>2</sub> Tax for vehicles; Sustainable mobility strategy; Electro-mobility;	
Info-, motiv. & advice	Myenergy <sup>95</sup> ; Energy audits	Myenergy; Energy audits	Myenergy; Energy audits	Myenergy		
Qual., Training, QA		Certification programme-Energie fir d'Zukunft; Certification for passive house planners;	Training for energy management			
Market-based	Obligation scheme <sup>96</sup>	Obligation scheme <sup>5</sup>	Obligation scheme <sup>5</sup>	Obligation scheme <sup>5</sup>	Obligation scheme <sup>5</sup>	Obligation scheme <sup>5</sup>

<sup>94</sup> HPs –Heat Pumps

<sup>95</sup> Myenergy is a national advisory structure related to Energy efficiency and renewables for households, enterprises, municipalities and energy experts.

<sup>96</sup> Luxemburg has planned to introduce Obligation schemes in all sectors in order to achieved energy savings target for 2020.

<b>Volunt. agreements</b>			Voluntary agreements with industry	Klimapakt programme <sup>97</sup>		
<b>Infrastr. investments</b>						
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Final savings energy 2020
<b>Construction of residential buildings according EE Ordinance</b>	Regulation	on-going	Residential	331 GWh in 2020 (12% of 2020 target)
<b>Construction of non-residential buildings according EE Ordinance</b>	Regulation	on-going	Service, commercial, small business	168 GWh in 2020 (6% of 2020 target)
<b>Voluntary agreements with industry</b>	Voluntary agreements	on-going (01.01.2011 - 31.12.2016)	Industry	152 GWh (5.6% of 2020 target)
<b>Obligation schemas (planned)</b>	Market based	In planning phase	Will be defined	1.599 GWh in 2020 (59% of 2020 target)

<sup>97</sup> Klimapakt is governmental initiative for implementation of different measures (energy audit, energy management systems, energy and climate protection policy, preparation of EE action plans) in municipalities.

**Malta**

	Residential	Services	Industry	Public	Transport	Supply
Regulatory						
Financial & fiscal	Incentive scheme for building envelope improvements and solar water heaters; Subsidies for heat pump installation; Grants for Energy Efficiency in Low Income Houses	Cogeneration Plants in the Hospitality and other service subsectors; Solar Thermal Water Heaters installation	Scheme for the installation of heat pumps for industrial use; Tax Incentive Scheme for Industry for the Improvement of its Energy Consumption for Air Conditioning; Tax Credit Scheme to Shift to More Energy Efficient Lighting;		Grant Scheme to Improve Vehicle Fleet Efficiency	
Info., motiv. & advice	Pilot project on sample of about 10,000 households to model consumer behaviour and their response to initiatives					
Qual., Training, QA	Information campaigns on promoting sustainable energy in households; Information campaign for smart meter use	Information campaign for smart meter use				
Market-based	Energy Efficiency Obligation scheme (sectors not specified)	Energy Efficiency Obligation scheme(sectors not specified)	Energy Efficiency Obligation scheme (sectors not specified)	Energy Efficiency Obligation scheme (sectors not specified)		
Volunt. agreements						

<b>Infrastr. investments</b>	Smart meter installation for 100% of consumers;	Smart meter installation for 100% of consumers;	Smart meter installation for 100% of consumers; Various investments in government-owned industries	Street Lighting Retrofitting; Smart meter installation for 100% of consumers;		Infrastructural projects being implemented by Enemalta such as  Malta – Sicily interconnector, commission of new more efficient generators etc.
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### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Cumulative final energy savings in 2014-2020*
<b>Grant Scheme to Improve Vehicle Fleet Efficiency</b>	Financial/Fiscal	2014-2020	Transport	220 kWh (34% of Art. 7 target)
<b>Obligation on Enemalta Corporation</b>	Market-based	2014-	Various	112 kWh (17% of Art. 7 target)
<b>Upgrading the Quality of Treated Sewage Effluent to Replace Desalinated RO Water for Non-potable Uses</b>	Infrastructure investment	Until 2015	Public	70 kWh (11% of Art. 7 target)

## Netherlands

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Energy performance requirements for residential buildings; Home evaluation system for rented properties;	Energy performance requirements for non-residential buildings; Environmental Management Act;				
Financial & fiscal	Energy tax on electricity & gas; Tax incentives for green investment and finance; Reduced VAT on labour costs for EE renovation; Revolving fund (loans) for energy saving measures in existing houses; Subsidy for social landlords	Energy tax on electricity & gas; Tax deductions for EE&RES equipment (EIA <sup>98</sup> ); Tax incentives for green investment and finance	Energy tax on electricity & gas; Tax deductions for EE&RES equipment (EIA); Tax incentives for green investment and finance	Energy tax on electricity & gas; Tax incentives for green investment and finance	Tax deductions for EE&RES equipment (EIA); Various taxation and tax incentives for passenger car owners & users; Subsidies for more efficient vehicles; Subsidies under "New Driving" programme	
Info., motiv. & advice	Demonstration projects for large-scale energy saving measures in existing residential buildings					
Qual., Training, QA					Training and education under "New Driving" programme	
Market-based						
Volunt. agreements	Green Deal voluntary agreement; Voluntary agreement for EE new buildings (Lente); Voluntary agreement for existing residential buildings (More with Less); Cooperation agreement for zero-on-meter homes; Energy saving agreement for rental sector	Long-term voluntary agreement for services (LTA3); Green Deal voluntary agreement; Voluntary agreement for EE new buildings (Lente);	Long-term voluntary agreement for industry SMEs, ETS industry & agriculture (LTA3, MEE( LTA-ETS));	Green Deal voluntary agreement	Long-term voluntary agreement for transport; Voluntary agreements for companies with logistics chain; Voluntary agreement & awards for companies to reduce personal mobility	

<sup>98</sup> EIA stands for Energy Investment Allowance

<b>Infrastr. investments</b>						
<b>Other</b>						

**Policy measures with highest energy saving impact**

None of the measures described in the Dutch NEEAP have been accompanied with expected energy savings. Instead, primary energy savings by sector are provided for the year 2020.

## Poland

	Residential	Services	Industry	Public	Transport	Supply
Regulatory			Energy Audits for larger enterprises (Law in preparation);			
Financial & fiscal	Thermo-modernisation and Repairs Fund (subsidies);  Improvement of EE, Part 3 - Subsidized loans for the construction of energy-efficient houses;		Intelligent energy networks (IEN);  Energy management systems in larger industrial Enterprise (PolSEFF) <sup>99</sup> (Co-financing);  Energy-efficient investments in SMEs(co-financing-grants);  Promotion of energy efficiency and of the use of renewable energy sources in larger enterprises <sup>100</sup> ;	Intelligent energy networks (IEN); Thermo-modernisation and Repairs Fund(subsidies); Green Investment Scheme(Part 1-Energy management in public utilities, Part 6 - SOWA - Energy-efficient street Lighting, Part 5- Energy management in the facilities of selected public finance sector utilities) (co-finance/grants);  Thermo-modernisation of public utilities facilities <sup>101</sup> ; Operational Programme PL04 - "Energy savings and promotion of RE sources"; EE improvement Part 2 - LEMUR ( Grants);	Green Investment Scheme, Part 7, GAZELA, (co-financing -grants)	Highly efficient energy generation(subsidies) <sup>102</sup>  Efficient energy distribution <sup>103</sup> (subsidies); Promoting the use of high-efficiency heat and electric energy cogeneration <sup>104</sup>
Info., motiv. & advice	Time to save energy-info campaign; Country wide Information and educational campaigns		Information & educational campaigns	Nation-wide advisory programme <sup>105</sup> ; Information and educational campaigns		
Qual., Training, QA						

<sup>99</sup> PolSEFF is abbreviation of the Polish Sustainable Energy Financing Facility with portfolio of EUR 150 million offering loans or lease for SMEs for implementation of EE projects.

<sup>100</sup> The Operational Programme Infrastructure and Environment 2014-2020 (Investment Priority 4.ii.) -

<sup>101</sup> Operational Programme Infrastructure and Environment 2007-2013 Measure 9.3

<sup>102</sup> This measure is part of the Operational Programme Infrastructure and Environment 2007-2013

<sup>103</sup> This measure is part of the Operational Programme Infrastructure and Environment 2007-2013

<sup>104</sup> This measure is part of the Operational Programme Infrastructure and Environment 2014-2020

<sup>105</sup> This measure under the Operational Programme Infrastructure and Environment 2014-2020

<b>Market-based</b>						Energy efficiency certificates scheme - white certificates
<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>					Urban transport in metropolitan areas and development of smart transport systems <sup>106</sup> ; Promoting low-emissions strategies for urban areas <sup>107</sup>	implementation of intelligent distribution systems for average and low voltage; Efficient energy distribution <sup>108</sup> Generation of energy from RE sources high-efficiency cogeneration <sup>109</sup>
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Annual final energy savings in 2020
<b>Thermo modernization and Repairs Fund</b>	Financial and fiscal	2007-	Residential/public	736 ktoe
<b>Operational Program Infrastructure and Environment Measure-Urban Transport in metropolitan areas</b>	Infrastructure	2007-2014	Public /Transport	2016 ktoe
<b>White certificates</b>	Market based	2013-2016	Supply	3 675 ktoe

<sup>106</sup> This measure is part of the Operational Programme Infrastructure and Environment 2007-2013

<sup>107</sup> This measure is part of the Operational Programme Infrastructure and Environment 2014-2020. This program component shall improve the polish transport infrastructure including purchasing of new transport means.

<sup>108</sup> This measure is part of the Operational Programme Infrastructure and Environment 2014-2020

<sup>109</sup> This measure is part of the Operational Programme Infrastructure and Environment 2007-2013

## Portugal

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Home appliances replacement; Incandescent lamp phase-out; EE standards for materials (glazing and insulation); Certification system for heat recovery mechanisms; <b>MEPS for new and existing dwellings</b>	<b>MEPS for new and existing non-residential buildings;</b> EE standards for materials (glazing and insulation)	Intensive Energy Consumption Management System (SGCIE), Mandatory Energy Audits;	Certification for existing state buildings; Efficient Public Lighting regulation project	<b>Tyre Efficiency Labelling;</b> Management of transport fleets; <b>Regulation for private car fleet on improved fuel economy;</b> Renovation of public fleet by procurement legislation	
Financial & fiscal	Tax incentives/preferential loans for solar heating	Tax incentives/preferential loans for solar heating	Tax incentives	Funding mechanisms for the deployment of EE Action Plans for Public Administration	Carbon tax; Vehicle tax; Tax exemption for electric vehicles;	
Info., motiv. & advice	Information campaigns	Information campaigns			Correct tyre pressure awareness campaign; Awareness campaign for the use of Electric Vehicles; Eco-driving campaigns	
Qual., Training, QA				Training of local energy managers		
Market-based	Certification systems;			ESCO involvement in the EE Management Contracts for the state sector	Fleet management systems deployment	
Volunt. agreements			Intensive Energy Consumption Management System (SGCIE) (For SMEs)			

<b>Infrastr. investments</b>					Electric charging network adjustment; Improvement of Passenger Railway services	
<b>Other</b>					Minibus and flexible transport services; Use of soft modes of transport	

### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Primary energy savings in 2020
<b>Home replacement<sup>110</sup> appliances</b>	Regulatory	Not clear (on-going)	Residential	361.9 ktoe (15.12% of 2020 target <sup>111</sup> )
<b>Intensive Consumption Energy Management System (SGCIE)</b>	Regulatory	Not clear (on-going)	Industry	200 ktoe (8.35% of 2020 target)
<b>Certification for existing state buildings</b>	Regulatory	Not clear (on-going)	Public	199.5 ktoe (8.33% of 2020 target)

<sup>110</sup> To be noted that the measure with the highest savings in 2020 stems from EU regulation on energy labelling, and therefore does not represent a major effort

<sup>111</sup> Portugal's target is 2.394 Mtoe of primary energy savings in 2020

## Romania

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p>Purchase of high performance electric equipment; Obligatory energy efficiency certificates for existing buildings; Law No 238/2013 on the improvement of the energy efficiency of residential buildings; Electricity and gas law (Law No 123/2012) on meter requirements; Law No 372/2005,</p> <p>energy inspections of heating and air-conditioning systems in buildings /building units</p>	<p>Electricity and gas law (Law No 123/2012) on meter requirements; Law No 372/2005,</p> <p>energy inspections of heating and air-conditioning systems in buildings /building units</p>	<p>Energy audit &amp; Management systems for energy intensive companies; Electricity and gas law (Law No 123/2012) on meter requirements</p>	<p>Public lighting renovation; Inventory of central public administration buildings and making it publicly available; Energy audit and Energy Management systems; Mandatory Energy Audits for Local Public Administration (over 20000 inhabitants)</p>	<p>Replacement of vehicle fleet</p>	
Financial & fiscal	<p>Thermal rehabilitation programme of the multi-level and single family residential buildings; Thermal rehabilitation of residential buildings financed by bank loans with government guarantee;</p>	<p>Thermal renovation of buildings (office space, commercial properties etc.); Procurement of highly efficient electrical equipment for the service sector;</p>		<p>Thermal renovation of government buildings; Procurement of electrical equipment for governmental buildings; Thermal renovation of public buildings, town halls, schools etc.); Procurement of electrical equipment for public buildings; Public lighting renovation</p>	<p>Program to stimulate the national car park renewal with funding from the National Environment Fund budget; Urban public transport modernisation</p>	<p>Increase efficiency and reduce consumption of water supply facilities; Promotion of CHP`s; Smart metering; Continuing the 'Heating 2006-2015 heat and comfort' programme</p>
Info., motiv. & advice	<p>Promotion of ESCO market development;</p> <p>Energy audit and energy management audit in the residential sector (planned)<sup>112</sup></p>	<p>Promotion of ESCO market development;</p>	<p>Promotion of ESCO market development;</p>	<p>Promoting the development of energy service companies – ESCOs; Promote the use of energy efficient appliances and lamps in the public, services and governmental sectors</p>	<p>Promoting the development of energy service companies – ESCOs; Alternative Mobility</p>	
Qual., Training, QA	<p>Certification of energy auditors for buildings</p>		<p>Certification of energy auditors and energy managers for industry by ANRE<sup>113</sup>; Training and seminars for certified managers (energy-intensive industrial enterprises)</p>			
Market-based	<p>Energy efficiency obligation scheme</p>	<p>Energy efficiency obligation scheme</p>	<p>Implementation of greenhouse gas emission trading in Romania</p>			

<sup>112</sup> It will contribute to energy savings of 0.07 million toe between 2014 and 2020.

<sup>113</sup> ANRE: National Regulatory Authority for Energy.

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Smart meter rollout: Electricity and Gas Law No 123/2012 (Article 66);	Smart meter rollout: Electricity and Gas Law No 123/2012 (Article 66)	Smart meter rollout: Electricity and Gas Law No 123/2012 (Article 66)		Modernization of urban public transport; Modernization of rail transport; Modernization/extension of metro system; Shipping infrastructure modernization; Waterway transport modernisation; Air transport modernisation	Modernization of networks (mainly through component replacement)
<b>Other</b>					Alternative Mobility	Reduction of internal technological consumption in the distribution network; Reduction of internal technological consumption in the transmission network

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Cumulative 2014-2020 <sup>114</sup>	FES
<b>EE in the EU-ETS industry</b>		Not clear	Industry	0.980 ktoe (16.8% of Art. 7 target)	
<b>Thermal rehabilitation of apartment and SFH buildings</b>	Financial	Not clear	Residential	0.900 ktoe (15.5% of Art. 7 target)	
<b>Improvement of energy services/ESCO market</b>	Not clear	Not clear	Residential; Services; Industry	0.641 ktoe (11.0% of Art. 7 target)	

<sup>114</sup> Target according the Art7 of EED.

## Slovakia

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p><b>MEPS for new and existing buildings;</b></p> <p>Energy labelling of buildings;</p> <p>Insulation of hot water distribution systems;</p> <p>EE standards for equipment;</p>	<p><b>MEPS for new and existing buildings</b></p> <p>Energy labelling of buildings;</p> <p>Inspections of space heating systems;</p> <p><b>EE standards for equipment;</b></p>	<p>Mandatory Energy Audits</p>	<p><b>MEPS for new and existing buildings;</b></p> <p><b>Energy efficiency in public procurement</b></p>	<p>Improving Energy Efficiency of cars;</p> <p>Fleet renewal</p>	
Financial & fiscal	<p>Funding for improvement in the thermal performance of buildings</p>	<p>Funding for improvement in the thermal performance of buildings</p>	<p>Subsidies for SMEs to improve EE in Industry</p>	<p>Funding for improvement in the thermal performance of buildings;</p> <p>Upgrading public lighting;</p> <p>Support for production, approval and implementation of Covenant of Mayors initiatives</p>		
Info., motiv. & advice	<p>Building Renovation information campaign;</p> <p>Information campaigns aimed at energy-saving appliances;</p> <p>Energy Consulting</p>	<p>Building Renovation information campaign;</p> <p>Information campaigns aimed at energy-saving appliances; Energy Consulting</p>	<p>Energy Consulting</p>	<p>Energy Consulting</p>	<p>Traffic Management Information System;</p> <p>Support for the development and use of public passenger transport</p>	<p>Heat map of Slovakia</p>
Qual., Training, QA	<p>Training for RES installers;</p> <p>Children awareness campaigns on EE;</p> <p>EE information campaigns</p>	<p>Training for RES installers;</p> <p>EE information campaigns</p>	<p>Energy Auditor training courses;</p> <p>EE information campaigns</p>	<p>EE information campaigns; EE Monitoring System</p>	<p>EE information campaigns</p>	
Market-based	<p>Support for the development of energy services</p>	<p>Support for the development of energy services</p>	<p>Support for the development of energy services</p>	<p>Support for the development of energy services</p>	<p>Support for the development of energy services</p>	<p>Support for the development of energy services</p>

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>					Funding for the renewal of railway and road transport systems;  Building of intermodal transport terminals;  Implementation of cycling facilities	Construction, reconstruction and modernization of heat distribution systems, electricity and heat production plants ;
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Final energy savings in 2020
<b>Construction, reconstruction and modernization of heat distribution systems</b>	Infrastructure investments	2017-2020	Energy	2859.84 TJ* (3.6 % of 2020 target)**
<b>Energy Audits for industrial enterprises</b>	Regulatory	2017-2020	Industry	1750.00 TJ* (2.2% of 2020 target)**
<b>Building and upgrading the transport infrastructure</b>	Infrastructure investments	2017-2020	Transport	1656.76 TJ* (2.1% of 2020 target)**

\* The values reported for savings are reported as Final Energy Consumption Savings and not Primary Energy Savings

\*\* The reported overall target for Final Energy Consumption Savings in 2020 is of 79695 TJ

## Slovenia

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p>Establishment of a guarantee scheme for EE loans in multi-apartment buildings;</p> <p>Regulations on the energy performance of buildings;</p> <p>Energy efficiency within the framework of spatial planning;</p> <p>Compulsory division and billing of heating costs in multi-apartment and other buildings according to actual consumption.</p>	<p>Implementation of energy audits at large companies;</p> <p>Regulations on the energy performance of buildings;</p> <p>Energy efficiency within the framework of spatial planning.</p>	<p>Implementation of energy audits at large companies;</p> <p>Energy efficiency within the framework of spatial planning.</p>	<p>Introducing an energy management system in the public sector;</p> <p>Green public procurement;</p> <p>Regulations on the energy performance of buildings.</p>	<p>Labelling of vehicles</p>	
Financial & fiscal	<p>Instruments for financing renovation in buildings with multiple owners;</p> <p>Distribution of incentives among owners and tenants in multi-apartment buildings;</p> <p>Financial incentives for the energy-efficient renovation of residential buildings;</p> <p>Aid scheme for energy-efficiency improvements for vulnerable groups of people.</p>	<p>Incentives for introducing energy management systems in the commercial sector;</p> <p>Financial incentives for efficient energy consumption.</p>	<p>Financial incentives for efficient energy consumption;</p> <p>Incentives to introduce energy management systems in industry;</p> <p>Incentives for EE and RES in SMEs;</p> <p>Financial incentives for demonstration projects;</p> <p>Grant-based sources of financing (in relation to a gap analysis);</p> <p>Use of returnable sources of financing (financial engineering);</p> <p>Returnable (debt and ownership) sources of financing;</p> <p>Combination of returnable and grant-based sources of financing;</p> <p>Other modern forms of financing, including public-private partnerships.</p>	<p>Support scheme for the renovation of built cultural heritage and other special building groups;</p> <p>Financial incentives for the energy-efficient renovation and construction of buildings in the public sector.</p>	<p>Promoting sustainable freight transport;</p> <p>Increasing the energy efficiency of road vehicles.</p>	<p>financial incentives to increase the scope of environment-friendly electricity generation from RES and CHP;</p> <p>Support scheme for electricity generated from RES and CHP;</p> <p>Co-financing programme for the construction of district heating systems using wood biomass and geothermal energy;</p> <p>Support scheme for the generation of heat from renewable energy sources.</p>
Info., motiv. & advice	<p>Information, awareness-raising and training schemes for target publics;</p> <p>Energy efficiency scheme for low-income households;</p> <p>Energy advice network for citizens – ENSVET.</p>	<p>Information, awareness-raising and training schemes for target publics;</p> <p>Incorporation of EE subjects into education programmes at all levels of education.</p>		<p>Information, awareness-raising and training schemes for target publics;</p> <p>Incorporation of EE subjects into education programmes at all levels of education.</p>		
Qual., Training, QA	<p>Establishment of a support environment for the introduction of energy performance contracting.</p>	<p>Support for targeted training for the design and implementation of projects in the area of energy efficiency, renewable energy sources and green energy technologies. Training and licensing of independent specialists.</p>	<p>Support for targeted training for the design and implementation of projects in the area of energy efficiency, renewable energy sources and green energy technologies.</p>	<p>Support for targeted training for the design and implementation of projects in the area of energy efficiency, renewable energy sources and green energy technologies;</p> <p>Establishment of a support environment for the introduction of energy performance contracting.</p>		

<b>Market-based</b>	Energy Efficiency Obligations/Energy Efficiency National Fund	Energy Efficiency Obligations/Energy Efficiency National Fund	Energy Efficiency Obligations/Energy Efficiency National Fund			
<b>Volunt. agreements</b>			Voluntary agreements with industry			
<b>Infrastr. investments</b>					Building cycle paths and support structures, and promoting cycling; Providing funds for the 2014-2020 period for the development of railway transport	Grants provided from OP EKP funds for promoting the development of intelligent distribution networks by upgrading the existing electricity infrastructure with information and communications technology
<b>Other</b>		Surveillance of energy labelling and ecodesign of products		Implementation of pilot projects and training on energy performance contracting; Production of sustainable criteria for buildings	Promoting sustainable mobility measures;	

### Policy measures with highest energy saving impact

The NEEAP does not include quantitative information concerning energy savings expected from each measure by 2020. Concerning measures with the highest energy saving impact, the energy efficiency obligation scheme in place in Slovenia can be mentioned. Another noteworthy measure mentioned in the NEEAP as one of the key measures implemented in Slovenia is related to energy performance contracting.

Name	Type	Timeline	Sector	Primary energy savings Cumulative 2014-2020
<b>Energy Efficiency Obligation/Energy Efficiency National Fund</b>	Market Based Instrument	2015 ongoing -	Cross-cutting	11,596 GWh
<b>Establishment of a support environment for the introduction of energy performance contracting measures.</b>	Training/Legislative Measure	2014-2020	Public Sector/Residential	Quantitative Information not available

## Spain

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	New Technical Building Code MEPS for new dwellings; Energy certification for buildings; EE standards for equipment; Incandescent lamp phase-out;		Obligatory audits (large enterprises); Best available technologies (BAT) standards requirements	Minimum EE requirements in the purchase of goods, services or buildings by public bodies; replacing old bulbs and redesign outdoor lighting systems	Efficient driving permits	
Financial & fiscal	Aid Programme for the Energy Renovation of Existing Buildings (PAREER), Grants for building EE upgrades including RES heating; the Energy Diversification and Saving Investment Fund (F.I.D.A.E.), financing urban energy efficiency projects; 2013–2016 state incentive plan for rental housing, building renovation and urban regeneration	Energy Diversification and Saving Investment Fund (F.I.D.A.E.) PIMA Sol (subsidies for EE renovation in hotel facilities)	Tax incentives for EE equipment; Energy Diversification and Saving Investment Fund (F.I.D.A.E.)		MOVELE Programme (subsidies for new electric vehicles); Efficient Vehicle Incentive Programme (PIVE) (grant for new low-emission vehicles ) Energy Diversification and Saving Investment Fund (F.I.D.A.E.), PIMA Aire (subsidies for purchase of efficient commercial vehicles)	Incentives for peak use reduction
Info., motiv. & advice	IDAE website; public databases and registries; publications, online classes and and audiovisual content.	Information and awareness campaigns,	Information and awareness campaigns,		Awareness campaigns; Efficient driving information campaign Sustainable urban mobility measures	
Qual., Training, QA	Training ; free e-learning courses on EE behaviours, technologies and certification		Training to SMEs; training for auditors	Advice, & training to public sector	Efficient driving permit	
Market-based	Obligation scheme	Obligation scheme	Obligation scheme	Obligation scheme	Obligation scheme	

<b>Volunt. agreements</b>						
<b>Infrastr. investments</b>	Smart meter roll-out				Pilot projects for electric vehicles recharging infrastructure; Sustainable urban mobility measures; road transport fleet management	Efficiency in power generation investments
<b>Other</b>						

#### Policy measures with highest energy saving impact<sup>115</sup>

Name	Type	Timeline	Sector	Final energy savings in 2020
<b>Efficient driving permits</b>	Combination of regulation, training and information	2014 (on-going)	Transport	
<b>PIVE Programmes</b>	Subsidies	2011 (on-going)	Transport	
<b>PIMA Sol</b>	Subsidies	2008 (on-going)	Services	

\*Target in Spain is 23 306 Ktoe, as final energy savings in 2020.

<sup>115</sup> In the Spanish NEEAP a bottom-up quantification of the energy savings by single action program is provided (but only for some selected programs (PIVE; PAREER; JESSICA Fund; efficient driving permit). However, given the diversified set of measures put in place, each of these measures taken alone contributes only to a marginal share of the total energy saving target. The NEEAP also provides a quantification of the primary energy savings for areas of policy intervention (e.g. "building retrofit"), which includes the joint contribution of different measures, however the contribution of each measure cannot be quantified.

## Sweden

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	<p>EE standards for equipment; <b>MEPS for new and existing buildings</b>;</p> <p>Energy labelling of buildings</p>	<p>EE standards for equipment; <b>MEPS for new and existing buildings</b></p>	<p>Mandatory Energy Audits</p>	<p><b>MEPS for new and existing buildings</b></p>	<p>Improving Energy Efficiency of cars; Procurement and leasing of green vehicles;</p> <p>Tyre pressure checks regulation</p>	
Financial & fiscal	<p>Energy and Carbon Tax; State Aid for technology procurement;</p> <p>Subsidies for construction works;</p> <p>Solar Panel Aid</p>	<p>Energy and Carbon Tax;</p> <p>Support for Energy Audits (SME); State Aid for technology procurement;</p> <p>Solar Panel Aid</p>	<p>Energy and Carbon Tax;</p> <p>Tax exemption for the Programme for improving energy Efficiency (PFE)</p> <p>Support for Energy Audits (SME); State Aid for technology procurement;</p>	<p>Energy and Carbon Tax;</p> <p>Solar Panel Aid</p>	<p>Energy and Carbon Tax; State Aid for technology procurement, Road tax; Tax exemptions for green vehicles</p>	<p>Energy and Carbon Tax</p>
Info., motiv. & advice	<p>Energy and Climate Advice</p>	<p>Energy and Climate Advice</p>	<p>Energy and Climate Advice</p>			<p>Information campaigns</p>
Qual., Training, QA	<p>Training for Energy Experts;</p> <p>Online Portal for EE information</p>	<p>Training for Energy Experts; Online Portal for EE information</p>	<p>Training for Energy Experts;</p> <p>Information for Energy Audits;</p> <p>Online Portal for EE information</p>	<p>Training for Energy Experts</p>	<p>Online Portal for EE information</p>	
Market-based						
Volunt. agreements			<p>Programme for improving energy Efficiency (PFE)</p>			

<b>Infrastr. investments</b>					EE improvements in road and rail infrastructures	
<b>Other</b>						

**Policy measures with highest energy saving impact**

Sweden opted for a top-down approach, using tax as a main measure to influence Energy Efficiency improvements and has not provided estimates on energy savings expected for the measures presented in the NEEAP.

## United Kingdom

	Residential	Services	Industry	Public	Transport	Supply
Regulatory	Building Regulations; Private and Social Sector regulation (Scotland); Product policies MEPS and energy labelling under regulations 2009/125/EC and 2010/30/EU	Building Regulations; Energy audit (Energy Savings Opportunity Scheme); Product policies (MEPS and energy labelling under regulations 2009/125/EC and 2010/30/EU)	Building Regulations; Energy audit (Energy Savings Opportunity Scheme); Product policies (MEPS and energy labelling under regulations 2009/125/EC and 2010/30/EU)	Building Regulations; Product policies (MEPS and energy labelling under regulations 2009/125/EC and 2010/30/EU)	EU New car CO2 target (130gCO2/km in 2015 and 95g CO2/km in 2020); <b>EU complementary measures for cars;</b> EU new van CO2 target: 147 g/km by 2020; Low rolling resistance tyres for Heavy Goods Vehicles (HGV)	
Financial & fiscal	Sustainable energy Programme (Northern Ireland)	Climate Change Levy (CCL) on energy products	Climate Change Levy (CCL) on energy products	Climate Change Levy (CCL) on energy products; Salix Public Sector Energy Efficiency Loan Scheme; Procurement framework for ESCO projects implementation in public buildings (RE:Fit)	Grants for Low emission Vehicle (OLEV); Low Carbon Buses; Local sustainable transport fund (modal shift)	
Info., motiv. & advice	Home Energy Efficient Programmes (Scotland)	Carbon Trust Energy Assessments	Carbon Trust Energy Assessments			
Qual., Training, QA					Safe and Fuel Efficient Driving (SAFED)	
Market-based	Energy Efficiency Obligation (Carbon Emissions Reduction Target - CERT); Energy Efficiency Obligation (Community Energy Savings Programme - CESP); Energy Company Obligation (ECO); Energy Efficiency Regulation (Green Deal)	Energy Efficiency Regulation (Green Deal); Energy Efficiency Obligation (CRC Energy Efficiency Scheme)	Energy Efficiency Regulation (Green Deal); Energy Efficiency Obligation (CRC Energy Efficiency Scheme)			
Volunt. agreements			Discounts on Climate Change Levy (Climate Change Agreements)		EU voluntary agreement to 2009 concerning energy efficient technology in cars; Heavy Goods Vehicles (HGV) industry improvements	

<b>Infrastr. investments</b>	Smart metering roll-out	Smart metering roll-out	Smart metering roll-out		Rail electrification	
<b>Other</b>						

#### Policy measures with highest energy saving impact

Name	Type	Timeline	Sector	Annual final energy savings in 2020 <sup>116</sup>
<b>Building Regulations</b>	Regulatory	Ongoing measures mostly implemented in 2014 (England& Wales), 2012-2015 (Northern Ireland), 2015 (Scotland).	Residential, services, public, industry	74.3 TWh (23 % of 2020 target <sup>117</sup> )
<b>EU New car CO2 target (130gCO2/km in 2015 and 95g CO2/km in 2020)</b>	Regulatory	2009 (on-going)	Transport	28.3 TWh (9% of 2020 target)
<b>Product policies (MEPS and energy labelling under regulations 2009/125/EC and 2010/30/EU)</b>	Regulatory	Package of measures (on-going)	Residential, services, public, industry	26.4 TWh (8% of 2020 target)

<sup>116</sup> Energy savings reported in this table have been claimed against Article 4 of the 2006 Energy Services Directive.

<sup>117</sup> The target in UK is 329.84 TWh of final energy savings in 2020.



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