Paving the way for an energy-efficient future – energy efficiency policy developments in EU member states and recommendations for policy adjustment based on findings of the Energy Efficiency Watch 3 Project

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Keywords

survey, policy recommendations, case studies, good practice, Energy Efficiency Directive (EED), Energy Performance of Buildings Directive (EPBD), EU member states, policy developments, NEEAPs

Abstract

The core objective of Energy Efficiency Watch 3 (EEW3) is to establish a constant feedback loop on the implementation of European and national energy efficiency policies and thus enable both compliance monitoring and mutual learning on effective policy making across the EU. The project team applied a mixed-method approach to assess energy efficiency policy developments in EU Member States. It analysed progress of national policies by screening official documents, sought experts' knowledge via an EU-wide survey and has been creating new consultation platforms with a wide spectrum of stakeholders including parliamentarians, regions, cities and business stakeholders. Analysis of the National Energy Efficiency Action Plans (NEEAPs), the expert survey with input from over 1,100 experts on policy ambition and progress in each Member State, as well as 28 Country Reports have been central elements in EEW3. This paper will present the main conclusions and policy recommendations of EEW3. In doing so, it will first summarise the findings of the document analysis based on the 28 Country Reports, showing developments of energy efficiency policies since the second NEEAP in 2011 in a cross-country overview for six sectors. These findings are then contrasted with the experts' perspective on progress in energy efficiency policies in their countries as collected in the EEW survey. Moreover, ten case studies of good practice energy efficiency policies are shown, three of them will be presented in more detail. The paper ends with key policy conclusions for improving the effectiveness of European energy efficiency policies. A key finding is that policy implementation has improved a lot since 2011 but more is needed to achieve the EED Art. 7 and other targets.

Introduction

THE POLICY FRAMEWORK

Today, energy efficiency is a key area of the EU's political agenda. The European Union is committed to saving 20 % of its primary energy consumption by 2020 compared to a business-as-usual scenario. The EU's "Europe 2020 Strategy" for jobs and smart, sustainable and inclusive growth (COM(2010) 2020) includes energy efficiency among its headline targets. The European Council set an indicative target at the EU level of at least 27 % for improving energy efficiency in 2030. A binding target of 30 % energy savings by 2030 was proposed in late 2016 through the EU's so-called Winter Package (COM (2016) 860 final).

This increased recognition of energy efficiency (EE) resulted in a range of policies, most notably in the adoption of the following Directives: the Energy Efficiency Directive (2012/27/EU, EED), the Energy Performance of Buildings Directive (2010/31/EU, EPBD), the Ecodesign Directive (2009/125/EC, ED) and the Energy Labelling Directive (2010/30/EU, ELD).

As a part of the implementation of the EED and its predecessor, the Energy Services Directive of 2006 (ESD), the Member States had to submit three National Energy Efficiency Action

Plans (NEEAPs), scheduled for 2007, 2011 and 2014. NEEAPs set out a Member State's energy consumption and energy savings targets, planned energy efficiency measures, and the improvements individual EU countries expect to achieve with their measures. Member States must report annually the progress achieved towards their national EE targets.

THE ENERGY EFFICIENCY WATCH PROJECT

The EEW project facilitates the policy implementation process of EU EE policies and supports market transformation by collecting information on the implementation of EE policies and providing this information to a variety of stakeholders, including European, national, regional, local policy makers and experts, businesses, and NGOs. EEW creates a feedback loop on the implementation of European and national EE policies and thus enables mutual learning on effective policy making across the EU. Further, it screens progress of national policies, looks into legislative documents, seeks experts' knowledge and creates new consultation platforms with a wide spectrum of stakeholders as mentioned above. The EEW project is co-funded by the Intelligent Energy Europe programme. The current project EEW3 runs from August 2014 to August 2017. Detailed information about this project is available at www.energy-efficiency-watch.org.

MIXED-METHODS APPROACH

In order to meet the objectives of EEW3 and to realise 28 Country Reports on the development of EE policies in 28 Member States, a mixed-methods approach was applied. In order to analyse policy implementation, relevant documents were screened. The document screening and analysis took into account the second and third NEEAPs (published in 2011 and 2014) as well as the Member States' Article 4, 5 and 7 communications under the EED. The ODYSSEE-MURE database was also a valuable source of information. Policy developments were screened and assessed in the following six categories:

- energy efficiency governance framework
- public sector
- residential sector – buildings
- residential sector – appliances
- industry, tertiary sector, agriculture
- transport sector

Depending on the quality of information given in the official documents, it has been analysed whether policies have been newly established, significantly improved, ongoing without significant changes, significantly weakened, or abandoned.

Another key activity of the EEW3 project was an extensive survey on the implementation results of the second NEEAPs in the 28 Member States. The aim of the survey was to learn from stakeholders and experts how they see the progress of EE policies and their implementation in different sectors since the second NEEAP in their respective country. It was carried out in the first half of 2015. The survey consisted of a quantitative survey, using a questionnaire (1,096 questionnaires were completed) and a qualitative survey, using an interview guideline (3 experts in each Member State were interviewed). In total, more than 1,100 experts from all 28 EU Member States were consulted about the progress of EE policies in their own country in the last 3 years. Participants in the survey came from the business sector (30 %), universities and research organisations (28 %), the public sector (19 %), energy agencies (17 %) and others (6 %).

Specific business stakeholder workshops were additionally carried out in five countries. The workshop results are included in respective Country Reports.[1]

OVERVIEW AND STRUCTURE OF THIS PAPER

This paper will present the main conclusions and policy recommendations of EEW3. In doing so, it will first summarise the key findings of the document analysis based on the 28 Country Reports, showing developments of EE policies since the second NEEAP in 2011 in a cross-country overview for six sectors. These findings are then contrasted with the experts' perspective on progress in EE policies in their countries as collected in the EEW survey. Moreover, this paper provides an overview of ten good practice EE policies, three of them are described in more detail.[2] The paper ends with key policy conclusions for improving the effectiveness of European EE policies.

Policy developments according to the document screening and analysis

The document screening and analysis of EEW3 highlighted policy developments between 2011 and 2014 based on an assessment and comparison of NEEAPs published in these points in time and further relevant documents (see Figure 1). For the analysis, policies were classified into six typical sectoral categories. (see sub-headings below). The status of a policy was classified as ongoing, improved, weakened, abandoned or new. While this procedure was carried out countrywise, the aforementioned Feedback Loop Report (FBLR) presented the results on an aggregated EU-27 level.[3] The latter results are presented in brief in this chapter.

OVERARCHING ENERGY EFFICIENCY GOVERNANCE FRAMEWORK

An overall governance framework is essential to facilitating EE across sectors. It is also fundamental for organisation and funding of sectoral EE policies. An effective governance framework typically includes long-term energy efficiency targets and strategy, involving non-governmental and market actors as well as sub-national authorities, energy agencies, energy efficiency funds, energy efficiency obligation schemes, favorable framework conditions for energy services, energy taxation higher than EU minimum requirements and R&D support.

In total, more than 300 policies or related initiatives were found to be implemented (including new, improved, ongoing and weakened policy measures) in EU Member States based on the screening of NEEAPs. 135 of these are new or improved,

1. More details on the EEW3 methodology are depicted in the final project report (the Feedback Loop Report) available at: http://www.energy-efficiency-watch.org/index.php?id=253.

2. A complete overview of all components of EEW3 including business stakeholder consultations held in five Member States as well as feedback from the local and regional level can be found in the Feedback Loop Report.

3. As Croatia joined the EU only recently and, thus, did not publish a NEEAP in 2011, Croatia was not taken into account in this aggregated perspective.

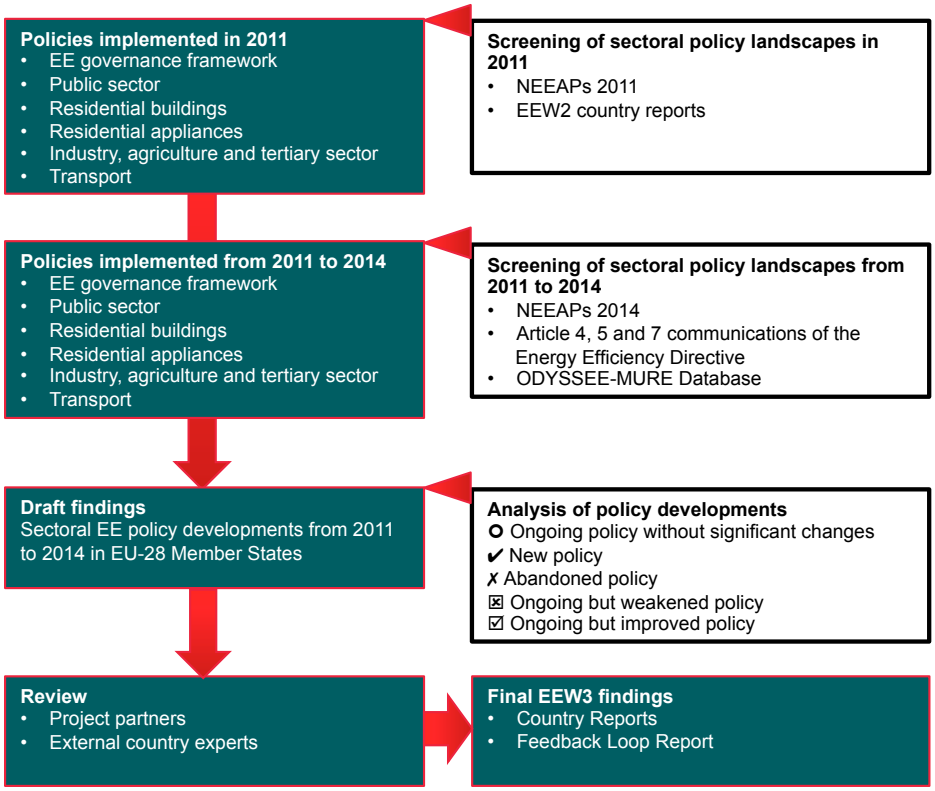

Figure 1. EEW3 document screening and analysis.

which is a share of 40 %. 85 new measures had the total number of measures increased by almost one third (28 %). Only a minority of 13 policies was abandoned completely.

This is a good indication that the EED, particularly Articles 3 and 7, but also Article 18 on energy services, gave new impetus to EE policy implementation across the EU in this area of targets, EE obligation schemes, EE funds, and promotion of energy services. Findings can be briefly summarised as follows: Member States have established EED Art. 3 targets (and several long-term 2050, e.g. Germany, Finland, France) and many new EEOs have been established or existing EEOs strengthened (Denmark, France, Italy). There are also negative examples such as the UK, whose EEO was weakened. It is notable that apparently most energy or climate protection agencies were already in place in 2011. Several countries introduced new EE funds or improved their existing EE funds (including Germany, Spain, France, Ireland, Italy, Slovakia, Slovenia). For instance, Spain introduced the National Fund to promote energy efficiency targets as well as the Investment Fund for Energy Diversification and Saving facilitating urban energy projects. Few Member States (Bulgaria, Denmark) weakened this type of instrument. In Denmark, the Energy Saving Trust was dissolved. The ESCO market has newly or increasingly been supported in several countries (such as Czech Republic, Denmark, Estonia, Greece, Italy, Portugal), but there has been little change on energy taxation (Portugal increased VAT: 6 to 23 %). Very little information on R&D is available in the NEEAPs.

PUBLIC SECTOR

In order to facilitate EE in the public sector, four policy categories are essential: a public sector strategy, public procurement, public buildings (e.g. lead-by-example initiatives) and R&D support. Based on the findings gathered in the EEW3 country reports, more than 250 instruments were counted across the four policy categories. 92 of these are new or improved, which is a share of 35 %. 56 new measures led to an increase in the total number of measures by 17 %. Generally, the public sector belongs to the sectors best addressed through EE policies. With the many new measures, it is likely that implementation of Articles 5 and 6 of the EED has had an effect on further improvement of the national EE policies in this sector. It can be concluded that the public sector was already best addressed by EE policies (lead by example, procurement, buildings) in 2011 (EEW2), and most of these programmes are ongoing or were slightly improved. Several countries, however, lack clear strategies and targets for the sector. Some new soft loan or grant schemes for municipalities have been implemented (Czech Republic, Denmark, Hungary, Italy, Poland) or stopped (Latvia).

RESIDENTIAL SECTOR – BUILDINGS

Ten policy categories have been defined forming a comprehensive policy package targeting all barriers and incentives of market actors in order to facilitate EE in the buildings sector. They include Minimum Energy Performance Standards (MEPS) or other regulations, grants or tax incentives, financing instruments, energy performance certificates, energy advice and audits, other information tools for investors and users, demonstration projects, education and training for building professionals, R&D support. In this sector too, there are many more new or improved than weakened or abandoned policies presented in the 2014 documents compared to 2011. While the total number increased by 68 measures (16 %), the 163 new or improved policies make up 37 % of the 2014 total. Most likely, this is also an effect of the 2010 recast of the EPBD and the EED.

Findings can be briefly summarised as follows: MEPS/Building Codes and EPCs are in force in all Member States, but the energy performance levels required and their updating varies between EU countries. Loans and grants for EE in buildings have already been in place in many Member States in 2011. Some schemes were recently upgraded (e.g., Bulgaria, Germany, France, Hungary, Luxembourg, Slovakia) while others were reduced e.g. due to the financial crisis (Spain, Ireland, Portugal). Audits and advice were improved in some Member States (Denmark, Lithuania, Malta) but reduced in others (Greece). Training programs were improved in some Member States (Estonia, Spain, France, Greece), also with support of the EU's BuildUp Skills initiative.

RESIDENTIAL SECTOR – APPLIANCES

In order to facilitate EE in the residential appliances sector, six policy categories have proven to be effective when complementing each other: MEPS, economic incentives, energy labels, other information tools, education courses, trainings for retail staff, R&D policies. More than 100 policy-related activities were spotted in EEW3.

Although most of these are classified as 'ongoing', and relatively few new or improved measures were found, this does not indicate there was little change. It is true that most Member States rely on the two major direct EU policies, the Ecodesign and Labelling Directives, but under the Ecodesign Directive, MEPS for many new types of appliances were created from 2011 to 2014, and others updated.

In brief, the status and development of Member State policies for EE in appliances are as follows: Most Member States appear to rely on EcoDesign and EU Energy labelling and do not mention in their NEEAPs any of the complementary policies that would make the EU Directives more effective, with the exception of consumer information. Also little information is available in the NEEAPs on market surveillance. There are only few financial incentive programmes for energy-efficient appliances (e.g. in France, Italy, Croatia, Slovenia). Many but not all Member States have information campaigns and databases (TopTen and others). Last but not least, there is very little mention of training for retail staff and other actors.

INDUSTRY, TERTIARY SECTOR, AND AGRICULTURE

EE in industry, tertiary sector and agriculture can be facilitated through a variety of instruments. The EEW prototypical policy package for this sector includes the following categories of policies: MEPS and other standards for equipment, production process or products and targets on energy savings or EE for individual companies as well as energy management systems (and other obligations), economic incentives for investment, financial support for energy advice and audits, energy labelling and R&D support. Based on findings gathered in the EEW3 country reports, more than 300 activities were counted across the seven policy categories. As in most of the five sectors, there are many more new or improved than weakened or abandoned policies presented in the 2014 documents compared to 2011. Their total number increased by 42 measures (16 %), and the 80 new or improved policies are equivalent to 31 % of the 2014 total. Most likely, this is also an effect of the EED, particularly articles 7 and 8. It can be concluded that mandatory audits for non-SMEs according to Art. 8 EED were transposed by most Member States; the Ecodesign and Labeling Directives show some effect in these sectors too. Several Member States have financial incentives or loans for energy audits, energy management, or EE investments (e.g., new schemes in Germany, Estonia, France, Greece, Poland), also under EEOs, which is a likely impact of Art. 7 EED. Other countries, however, have reduced their schemes (France, Ireland, Italy, Malta, Romania), possibly due to the financial and deficit crisis. It is noteworthy that some voluntary agreements exist (Belgium, Estonia, Finland, Latvia, Lithuania, Netherlands, United Kingdom), but some were also abandoned (EEOs instead, as in Denmark; Sweden due to state aid rules). Few Member States implemented EE networks (Germany, Ireland) or energy manager obligations (Italy, Romania).

TRANSPORT

In the transport sector, EE can be facilitated through an effective combination of policies, which the EEW3 Project classified into five policy categories: planning instruments, regulatory instruments, economic incentives, information and advice and R&D support. Based on findings gathered in the EEW3 country reports, more than 300 activities were counted across the five policy categories. Despite this number of measures and related initiatives, the transport sector was considered to be one of the weakest sectoral policy frameworks, mostly because relatively few changes or improvements took place – the number of measures has grown by only 63 (22 %) since 2011 in this sector, and the 93 new or improved measures are only 25 % of the total. In addition, the effectiveness of policies is less clear than in other sectors. The transport sector was considered the weakest sectoral policy already in 2011 (based on the EEW2 analysis). Relatively few changes have happened since then. Promising policies are vehicle taxes based on emissions (Belgium, Cyprus), road pricing (Belgium), support for modal shift; including transport in EEOs in France; Sustainable Urban Mobility Plans (many countries).

The EEW survey: experts' perspective on the national progress in energy efficiency policies

UPS AND DOWNS – A CHANGE OF PACE NEEDED

The adoption of the EED with its changed and more ambitious framework required a change of pace by the Member States in terms of extent and speed of the development and implementation of their EE policies. Despite good developments in some countries and in some policy fields, in overall terms, policy progress is still much too slow or even nearly absent in several Member States. The graph below shows how the experts see the progress in EE policies in their country in the last 3 years.

The survey showed enormous disparity among Member States in levels of ambition and progress of EE policies – just as the 2012 survey. Comparing the level of progress across Member States to the 2012 survey, quite a lot of "up-and-down" movements can be observed. This was often triggered by changes in national governments, which resulted in either more or less interest and priority for EE. Austerity policies also had an impact on the availability of funding programmes for EE in some Member States. These ups-and-downs in EE policy will continue as long as the multiple benefits of EE are not sufficiently understood by national policy makers and stakeholders

and have not become an integral part of security and economic policy - instead of "just" a climate policy. In some European countries, the understanding of the positive economic, environmental and social impacts of EE has already allowed it to become independent of political fluctuation and an inherent part of energy and economic policies. However, as long as this is not the case for the majority of Member States, rigorous implementation of ambitious EU policy remains key. It ensures that even in those countries affected by a decline in their EE policies, at least a minimum level of policy activities is maintained.

TARGETS AND OBLIGATIONS – A VERY MIXED PICTURE

Art. 7 of the EED foresees an annual target of new savings of 1.5 % of the annual sales to final consumers. This target is not well known among the experts. Only in 10 countries do more than a third of the experts deem the target to be achievable. A somewhat more positive picture presents itself in relation to the obligation under Article 9 of the EPBD, which requires all new buildings to be nearly zero-energy buildings (NZEB) by the end of 2020 and public buildings already by end of 2018. Nevertheless, in 14 countries, 50 % or more of the experts believe that their country is lagging very much behind in their building policies. In contrast to these delays, the survey clearly showed that in those countries that implemented timely and well-designed policies supporting these targets, significant progress in EE was made.

POLICY INSTRUMENTS – WHAT WORKS AND WHAT DOES NOT

A set of questions relates to a range of specific EE policy instruments mentioned in the EED or the EPBD. They look at the perception of the effectiveness of these instruments in the Member States. In overall terms, EE requirements for new and renovated buildings and labelling of products are seen as the instruments with the highest positive impact - between 87 and 78 % of the experts agree that they are at least partly effective. On the other end of the spectrum, more than a third of the experts considers the inspection of heating and air-conditioning systems as not effective.

When analysing the overall perception of effectiveness of the different policy instruments, the following picture emerges: EE requirements for new buildings and energy labelling of products are seen as effective policy instruments by more than 70 % of the experts in more than 25 Members States. Also energy efficiency requirements for renovated buildings are perceived to be effective by nearly 80 % of the Member States. On the other

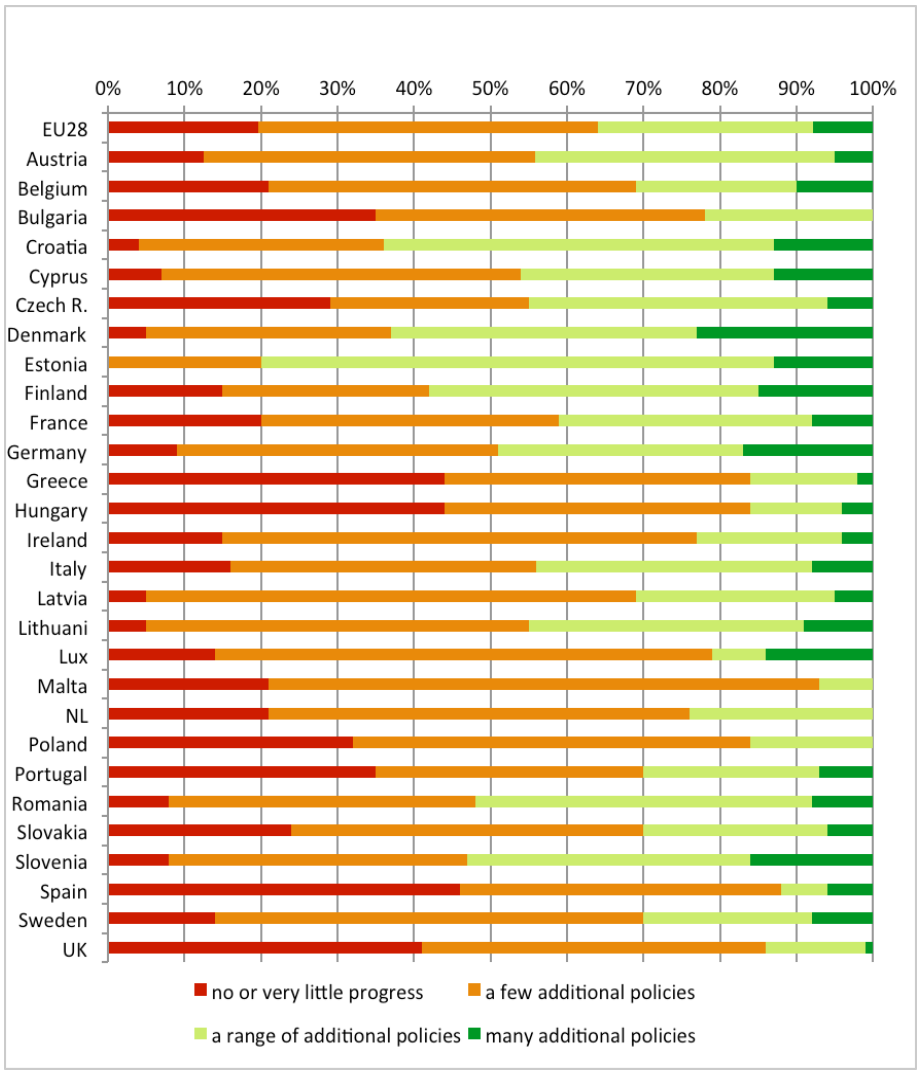

Figure 2. Perceptions of the interviewees: opinions on the progress of energy efficiency policies in their own countries in the last three years.

end of the spectrum, energy taxation, smart metering and the inspection of heating and air-conditioning systems are to be found – in 21 respectively 17 Member States more than 30 % of the experts so them as not effective at all. However, this does not give any indication on why experts see a type of instrument as effective or not in their country, and on whether it could become effective with better design and or implementation.

When asked which policy measures the EE experts would like to see at EU level, the two most popular measures were "a large European EE fund (giving both grants and loans)" and "stricter minimum standards for existing and new buildings and appliances".

It is important to note that there are relatively large discrepancies between the different Member States on the respective policy categories.

For instance, EE requirements for new buildings are seen very positively in many countries. The highest ratings for "very effective" are given by the experts from Luxembourg (77 %) and Denmark (67 %). In Malta, 59 % of the experts think that they are not effective at all.

Rather good ratings are also given to EE requirements for renovated buildings. More than 90 % of the experts from Latvia, Denmark, Estonia and Luxembourg consider them as at least partly effective. 43 % of the Estonian and 35 % of the Croatian experts see them as very effective. Again, more than 50 % of the Maltese experts rate them as "not effective at all".

Energy certification of buildings has also become a well-established instrument in most EU countries – although with a larger variance between countries. 100 % of the Irish and 96 % of the Croatian experts see them as at least partly effective. More than 50 % of the Bulgarian and Dutch experts see this instrument as not effective at all.

Less positive are the results for the inspection of heating and air-conditioning systems. Only in Malta, Finland and Luxembourg, do 70 % of the experts or more consider them as at least partly effective. In Latvia, Romania, Estonia and Poland, over 50 % of the experts see this instrument as not effective at all.

Financial incentives for private households for EE investments are seen most positively by experts from Malta, Cyprus, Luxembourg and France: more than 90 % consider them as at least partly effective. 44 % of British and Dutch experts see them as not effective at all.

Experts from Cyprus, Germany, Austria and Croatia see financial incentives for SMEs for EE investments most positively – 92 %, 78 % and 74 % see them as at least partly effective. More than 40 % of the UK and Luxembourg experts consider them as not effective at all.

Finnish, Polish and German experts have the most positive view of the effectiveness of energy audits for companies. 88 %, 78 % and 76 % respectively see them as at least partly effective. They are least positively seen in Bulgaria, Slovakia, Hungary, Italy and Luxembourg: between 47 and 40 % see them as not effective at all.

Energy advice for households is most successful in Slovenia, France, Sweden and Finland: more than 80 % of the experts in these countries see it as at least partly effective. More than half of the Latvian, Bulgarian, Spanish and Irish expert see it as not effective at all.

Smart metering is seen as most effective by the experts from Finland and Malta: more than 90 % see it as at least partly effective. 50 % of the Estonian experts consider it as not effective at all, followed by those from France (47 %) and Spain (45 %).

94 % of the Swedish, 84 % of the Danish and 83 % of the Finnish experts see energy taxation as at least partly effective – nearly 50 % of the Swedish and Danish experts even as very effective. More than 50 % of the French and the Polish experts see it as not effective at all.

Energy labelling of products is a very popular instrument among EE experts: 100 % of the experts from Luxembourg and Malta see it as at least partly effective. In France and Latvia, about a quarter of the experts see it as not effective at all.

More than 80 % of the experts from Luxembourg, Cyprus, Austria and Denmark consider policies and programmes for local energy planning (e.g. the Covenant of Mayors) as at least partly effective.

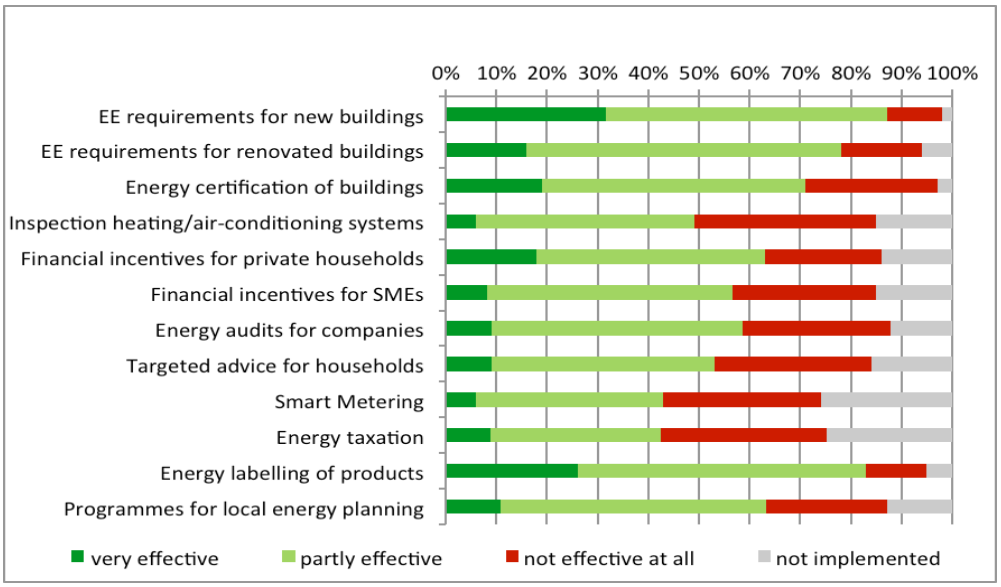

Figure 3. Degree of effectiveness of different policy instruments in EU-28.

Table 1. EEW3 case studies of good practice policies.

Case study	'Sector'	Type of policy
The Energy Efficiency Obligation Scheme in Denmark	Governance framework	Energy efficiency obligation scheme
The Energy Manager Obligation and White Certificate Scheme in Italy	Governance framework AND industry	Energy efficiency obligation scheme AND Regulation
The Sustainable Public Procurement Programme in the Netherlands	Public sector	Public procurement
The Danish Building Code	Residential – Buildings	Minimum energy performance standards
The KfW Programme for energy efficiency in buildings in Germany	Residential – Buildings	Grants AND financing instruments
Energiesprong (Energy Leap) in the Netherlands	Residential – Buildings	Demonstration projects AND information
The Nordic Market Surveillance on Eco-Design and Energy Labelling Directive (Nordsyn)	Residential – Appliances	Minimum energy performance standards
The Slovak Energy Efficiency and Renewable Energy Finance Facility (SlovSEFF)	Industry, Tertiary, Agriculture AND Residential – Buildings	Economic incentives for investment
The Irish Large Industry Energy Network	Industry	Support for advice and audits
The Car Registration Tax in Latvia	Transport	Economic incentives

Good practice policies: what works?

To learn from the very effective policy instruments and to close the remaining gaps, EEW3 has identified ten case studies of good practice examples of EE polices in Europe (see Table 1). They may provide inspiration for new innovative and ambitious policies and may trigger the transfer of similar policies to other countries. The case studies had been selected taking into account the following criteria:

- Innovativeness/uniqueness/level of ambition of the policies.
- Level of achieved energy savings in relation to the saving potential and cost-effectiveness.
- Promising ways for addressing existing barriers to energy efficiency.
- Transferability to other EU Member States.
- Coverage of different types of policy instruments, sectors, and EU Member States.

Several experts supported the selection of the case studies in a special session at the eceee summer study 2015, in which many potential candidates for EEW3 case studies were presented and discussed. Three EEW3 case studies are described in more detail below.

THE ENERGY MANAGER OBLIGATION AND WHITE CERTIFICATE SCHEME IN ITALY

Italy is one of the largest emitters of greenhouse gases in the EU. In the 1990s, the industry sector was responsible for approximately one third of the energy consumption in Italy. To address this issue, an obligation scheme for the industrial sector has been implemented. After a slow start, the obligation scheme has helped to bring about new EE actors, namely project developers that are now active in the Italian market.

Since 1991, it is mandatory for companies with an energy consumption of more than 10,000 tonnes of oil equivalent (toe) per year to appoint an energy manager. For other organisations, such as public administrations, the threshold is 1,000 toe per year. The energy manager's task is to monitor and control the energy consumption, to establish an energy balance and to reduce the energy demand. The managers receive regular trainings. In 2010, the number of energy managers reached 2650. According to FIRE, an Italian organisation representing the interest of the energy managers, companies typically can save 10–15 % of energy simply with an intelligent organisation of operations.

In 2004, Italy introduced the White Certificate Scheme[4], a special form of an EE Obligation scheme. Today, all distribution network operators of electricity and natural gas with more than 50,000 connected consumers are obliged to reach quantitative goals of primary energy savings, expressed in toe. Distributors can meet the targets either by implementing EE projects at their customers, or through the purchase of White Certificates. The certificates are not only given to the obligated parties, but also to voluntary participants.[5] The total expected energy savings by 2020 for 2011–2020 are 5.45 Mtoe per year.[6] To achieve the savings, a large number of projects is eligible including the replacement of lighting systems, insulation of walls and the promotion of combined heat and power (CHP) generation systems.

Through the promotion of BAT, manufacturers have an incentive to develop and produce energy efficient products.

4. Ministerial Decrees of 20 July 2004.

5. Distributors with less than 50,000 customers, ESCOs, entities required to appoint an energy manager or which have voluntarily appointed an energy manager or entities with an ISO 500001 energy management system.

6. Italian Energy Efficiency Action Plan 2014.

According to the Ministry of Economic Development, from 1 January to 31 October 2013, more than 14,000 projects were completed and 5 million White Certificates were issued. From 2005 until 2014, 6 Mtoe of additional savings were delivered at a cost of EUR 600 million per year (Di Santo et al. 2014). Particularly in the years 2013 and 2014, the total impact more than doubled due to design changes made. The majority of savings and certificates now originate from the industrial sector. This is the unique feature of the Italian White Certificate Scheme: it achieves synergies by closely linking the two obligation schemes, the White Certificate Scheme for energy companies and the energy manager obligation for medium and large energy consumers.

THE SLOVAK ENERGY EFFICIENCY AND RENEWABLE ENERGY FINANCE FACILITY (SLOVSEFF)

The Slovak Sustainable Energy Financing Facility (SlovSEFF) channels financing to sustainable energy projects, hereby reducing greenhouse gas emissions. The innovative aspect of the policy is that it combines loans (€20k–2,500k), grants (7,5 % to 15 % of loan), incentive payments and free technical assistance to borrowers (SlovSEFF 2015).

SlovSEFF is one of the first Sustainable Energy Finance Facilities launched by the European Bank for Reconstruction and Development (EBRD) in 2007 with a credit line of EUR 60 million. In 2009, an extension to the facility was approved (SlovSEFF II) with a credit line of EUR 90 million. Since 2014, the EBRD commissioned the third phase of the fund (SlovSEFF III). The EBRD extends credit lines to local financial institutions to develop energy financing as a permanent field of business. Local financial institutions (four in the first phase and six in the second phase) act as intermediaries and lend funds to clients (SMEs, corporate and residential borrowers) to undertake EE projects or invest in small-scale renewable energy generation.

SlovSEFF also provides technical assistance to financial institutions and their clients such as training to promote new financial products, assess technically eligible products, and to create standards for environmental due diligence. Borrowers are assisted to identify energy saving opportunities through energy audits and are advised on high performing technologies. Technical assistance is provided by external, local consultants. The main barrier to the implementation of EE projects are long payback times and large upfront investments. Incentive payments, which vary according to the project, have helped to correct these market barriers. An evaluation report of the EBRD (2014) finds a "significant improvement in the living standard of residents of the refurbished apartment blocks". Even though no benchmarks were set, it is estimated that 31,184 households and therewith 86,376 residents benefitted from the refurbishments (SlovSEFF 2015). Compliance is ensured by the reporting of annual GHG emissions and energy savings by the borrowers to SIEA (Slovak Innovation and Energy Agency) for a period of 5 years after project completion, via online templates.

THE CAR REGISTRATION TAX IN LATVIA

If a new car is registered in Latvia, the passenger car registration tax applies. Latvia is one of several EU Member States that has made their car registration taxes progressively increase with car emissions, to stimulate the purchase of more energy-efficient cars with lower CO_2 emissions. The higher the emissions, the higher the taxation. For instance, the car registration tax for a car emitting 120 grams of CO_2 is EUR 51.60 (EUR 0.43 per gram of CO_2). In comparison to that, the registration tax for a car emitting triple emissions (360 grams of CO_2) does not only triple, but amounts to EUR 2,556.60 (EUR 7.11 per gram of CO_2), which is nearly fiftyfold (Mure II & Institute of Physical Energetics 2015).

Due to the registration tax, less efficient passenger cars are put in a disadvantaged position due to higher (registration) costs. Hence, less polluting cars become cheaper in comparison to inefficient models. Through the price signal of the tax scheme, the government seeks to motivate end-users to buy environment-friendly cars and to make car manufacturers penetrate the market with more efficient vehicles. Apart from energy performance enhancement, the government is able to reduce energy imports and reduce pollution (OECD 2015).

Key policy conclusions on EU energy efficiency policies

STAKEHOLDERS WANT EFFECTIVE ENERGY EFFICIENCY POLICIES

1,100 stakeholders from all EU Member States were involved in EEW3. Coming from different backgrounds including businesses, agencies, academics, governments and public institutions, they all had a positive attitude towards EE policies, agreeing that opportunities clearly outweigh the risks. Europe becoming 'number one on energy efficiency' is connected to many concrete chances such as job creation, increased competitiveness and stimulating innovation. However, policies are only regarded as supportive in this respect if effective and stable. If policies frequently change, if their structure and implementation is not transparent, commercial stakeholders will perceive them more as a burden rather than a support to their business. Therefore, public acceptance depends on the quality and effectiveness of EE policies. A central objective thus needs to be to increase the quality and effectiveness of EE policies.

DEVELOPING POSITIVE EUROPEAN AND NATIONAL NARRATIVES ON ENERGY EFFICIENCY

So far, EU directives have not been able to create a common understanding of the multiple benefits of EE for all EU Member States and the variety of their citizens, companies, and public authorities. Experience from various Member States shows that the added value of EE needs to be explained and communicated by national governments in order to implement successful policies and create broad acceptance and subsequent political majorities in favour of EE. The same holds for EU level policies.

Guiding the development of positive national narratives on EE, an EU debate or a joint vision on EE is essential to encourage countries to act. Especially now that energy security stands high on the political agenda of many countries, this narrative can be used to create a common incentive in developing strong EE policies. A narrative on increased competitiveness, economic growth, employment, health, and, finally, climate and environment, can also help to bring all countries together, jointly realising the aim of the 2020 Strategy of smart, sustainable and inclusive growth.

The Concerted Actions were launched to support the implementation of European directives. The Concerted Action on EED should assist countries to develop their national narratives, framing EE policy as an investment, not a burden. In countries, where the national narrative on EE is not yet very strong (e.g. many Central and Eastern European countries), and economic development is higher on the agenda than e.g. climate policy, political discussions should emphasise the multiple benefits of EE. To find the right way of highlighting the multiple benefits of EE in the national context, results from IEA and the Horizon 2020 project 'COMBI'[7] can be used. It is also important to listen more to the business community about how their market perspectives can be supported by effective policies. Where arguments for EE can be matched better with respective national priorities, more policy stakeholders could be persuaded to develop a positive narrative for EE. Such a process should be sufficiently reflected by e.g. the Concerted Actions and in EU research programs like Horizon 2020.

BETTER COMMUNICATION AND HIGHER EFFECTIVENESS OF ENERGY EFFICIENCY POLICIES

Energy savings are difficult to measure, resulting in complex methodologies, terminologies, and policy processes (e.g. quantification of savings, monitoring and verification). As a result, national legislation and implementation often deals with this complexity by developing bureaucratic policy approaches. As a consequence, programmes can be difficult to understand, communication may be weak, and frequent changes can make it difficult for stakeholders to develop business around them. Market actors may perceive such over complex regulation more as a burden (e.g. high transaction cost) than a support (attractive business opportunities). In conjunction with often small budgets, many programs show poor results. This effect is often mistaken as general unattractiveness of EE, or as an unfavourable cost-benefit relation. Thus, there is a need to focus more on the translation of complex methodologies and terminologies into easily applicable and reliable implementation programs.

Here, the NEEAPs and other reporting documents play an important part, providing information about policies and allowing comparisons between the Member States. There is also a need for a joint and coherent analysis of potentials, technology roadmaps, transformation pathways and end-points, and scenarios between Member States and the different EU directives. Based on this, policy makers must pay attention to reducing transaction cost for market actors and create attractive policy packages (i.e. combinations of policy instruments reinforcing each other). The EU Commission could take the lead. It is recommended to include in the compatibility evaluation of national policies with EU directives criteria measuring the effectiveness of policies such as attractiveness to the target groups, streamlined participation, sufficient funding to achieve potential, awareness of the policy and benefits for the target groups. Exemptions in EU directives should be abolished or reduced. National target debates often focus on making the best bargain with exemptions (most notably the exemptions in the EED) rather than ambitious EE policies as a chance for economic prosperity. Further action in terms of translating the complexity of directives and clearly defining actions is needed (e.g. the implementation of public procurement, which is still subject to interpretation). A Concerted Action committee could deal with policy coordination and coherence between the EED, EPBD, Ecodesign/Labelling and the Renewable Energy Directive.

7. http://combi-project.eu/.

FOSTERING INNOVATIVE BUSINESS MODELS

One of the general barriers for EE, continuously observed since EEW1, is a structural conflict of interest with existing business models in the energy sector. Commercial actors making profits on selling energy will not be in favour of cutting their markets by reducing the overall energy consumption - and mobilise their lobby power accordingly - unless they are provided with a clear route towards alternative business models, i.e. from an energy sales-based model to one based on generating revenues from energy savings, e.g. through the provisions of energy services.

One aim of the EED is to establish an energy service market. Yet, each country follows different routes in implementing such a market. The definition of Energy Service Companies (ESCOs) is kept very wide, and focuses in some cases just on selling EE products, while the supply side remains unchanged. Current business models of energy suppliers require a fundamental transformation, where companies can capitalise energy savings as core part of their business, e.g. through the provision of energy performance contracting.[8]

Well-designed Energy Efficiency Obligations (EEOs) provide opportunities for project developers to identify and commercialise savings potentials that are more difficult to address e.g. under subsidy schemes. EEOs are not necessarily the best option for all countries. But it is recommended that countries revise their policies, foster innovative EE services, enable the transition towards business models generating revenues from energy savings, and not from selling energy.

Going along with the above, it is important to create favourable conditions for international EE service business. So far, each country is developing its own energy services sector. It is not possible, for instance, for a project developer operating under an EEO in his country to be able to expand to another EU country, as some systems by design give preference to domestic players. In order to realise economies of scale on European level, national schemes should also be made accessible for service providers from other EU countries, e.g. by applying European tendering rules. This does not mean, however, to allow international trade of White Certificates, which would create complex problems of their comparability.

INTRODUCING BINDING AND SPECIFIC TARGETS AND EFFECTIVE FINANCING INSTRUMENTS

To define and measure the aimed effect of any policy, it is essential to have binding and specific targets in place. Therefore, policy measures mentioned in the NEEAPs should always be connected to a specific target, as a breakdown of a specific and binding national and EU targets for final and primary energy consumption. Acceptance for targets can be increased

8. Countries that have been able to develop innovative energy services are, for example, Denmark, Italy and France, while results in the UK are mixed. In Germany, it is more the suppliers of energy-efficient products and materials that are benefitting from subsidy schemes.

if Member States are asked to suggest measures with respective targets, which in a bottom-up process accumulate to a national target.

EE has the potential to become the number one solution for economic recovery in the EU, under the condition that the available money is used in the right way. Structural Funds are a very strong instrument. However, the current handling is too bureaucratic and often problematic. This has led to a paradox situation where there is not a lack of financing options for EE measures per se, but rather a low absorption capacity of EU funds, especially from the EU-13 countries. To increase this absorption capacity, the following conditions will need to be improved:

- streamline administrative requirements across all levels (EU, national, regional) and avoid accumulation of rules coming from different level.
- developing information/visibility of financial instruments together with local agents.
- increasing technical assistance to potential project developers and applicants in combination with financial instruments.

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Acknowledgements

The paper presents results of the Energy Efficiency Watch 3 (EEW3) project (http://www.energy-efficiency-watch.org/). EEW3 is co-funded by the Intelligent Energy Europe Programme of the European Union. The sole responsibility for the content of this paper lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission is responsible for any use that may be made of the information contained therein.