

Snapshot of Energy Efficiency Obligations schemes in Europe: 2017 update

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Editorial

by Christian Deconninck

ATEE Chairman

Every two years, since 2011, ATEE is organising a WCC (White Certificates Club) conference, where European EEOs (Energy Efficiency Obligation Schemes) stakeholders can share their experience on EEOs. It is the 2nd time that we produce this kind of snapshot survey, done by Jean-Sébastien Broc. We would like to thank very much all the interviewees who helped us to prepare this report.

Energy Efficiency Obligations schemes are becoming a masterpiece of Energy Efficiency Policies. More than 50 countries/states worldwide are using them, on the 5 continents, including half of the European Union Member States.

EEOs have a lot of advantages, 1/ they are a hybrid system which combines the benefits of energy tax and subsidies, 2/ they give the actors of the scheme freedom to choose how they will reach the targets, thereby optimising the costs/benefits of energy efficiency operations implied, 3/ they are a quite flexible tool for authorities, which may pursue specific goals through the specification of EEOs parameters, 4/ they mobilise the whole Energy Efficiency Supply Chain, from Energy suppliers/distributors to energy consumers, going through installers, energy service providers, material and equipment manufacturers and distributors, 5/ they provide standards and targets for energy efficiency operations .

For true they might also have drawbacks, such as complexity, required means of control and verification, not to mention the equilibrium between fixed obligation and potential of energy savings. Moreover, the establishment of a market, through White Certificates, is optimising further the cost/benefit of the scheme, but might require a kind of control of the supply/demand balance, since market forces might create instability likely to undermine the smooth implementation of the scheme.

Nevertheless, even if EEOs are sharing common characteristics, due to the variety of their parameters they are all more or less specific, and adjusting their design is a real challenge and issue. This is the reason of the need of experience sharing, and also of the success of such a project as ENSPOL, and, to a lesser extent, of the WCC conferences. We hope both of them might go on, in a way or another, hopefully together.

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INTRODUCTION AND OVERVIEW

The objectives of this report are to:

- update the **description of the schemes** (when changes occurred in their settings and rules);
- **provide an update about the targets** (beyond 2016) **and achievements** (over 2014-2016) of the EEOs;
- offer a forum of **experience sharing through the interviews** where each national contact highlights the key changes and lessons learnt from the period 2014-2016, and the main challenges for the years to come.

This snapshot of Energy Efficiency Obligation schemes (EEOs) in Europe is an update of the previous snapshot prepared for the third seminar of the White Certificates Club¹. Like for the previous edition, the main part of this snapshot is a **presentation of each EEO on two pages**: one page to describe the scheme, and one page of interview with a national contact, most often of the organisation in charge of supervising or managing the scheme.

After presenting the coverage of the study, this part of introduction gives an **overview of the trends** observed among the different countries: changes in the settings of the EEOs, evolutions in the targets and achievements, and upcoming challenges.

In addition, a **focus** on two special topics, **M&V** (Measurement and Verification) and **fuel poverty**, provides background elements for further discussions during the seminar. These topics were selected because they represent important challenges for the EEOs and are among the key issues currently addressed in the process to revise the Energy Efficiency Directive (EED).

The information in this report are based on the **interviews** made with the national contacts, as well as on a review of the **NEEAPs** (National Energy Efficiency Action Plans, 2014 and 2017 when available) and **annual reports** (2015, 2016 and 2017 when available) of the Member States in the frame of the Energy Efficiency Directive², the **legal texts**, **monitoring reports** and/or **websites of the EEOs** (see sources and references at the end of the report).

The 2-page syntheses per country were reviewed by the national contact. Efforts were thus made to provide information as accurate as possible. But the author acknowledges that the information related to EEOs and their achievements can be subject to changes and updates. Moreover, the information presented in this report are under the **sole responsibility of the authors**. They are **not engaging the interviewees, nor ATEE**.

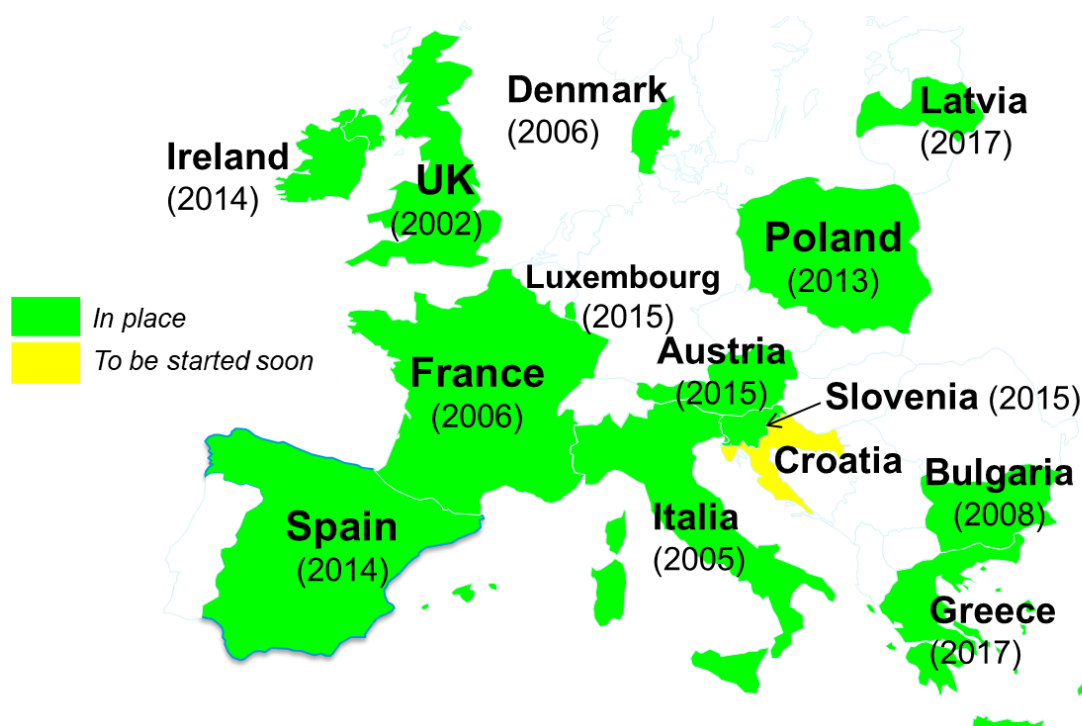
¹ http://atee.fr/sites/default/files/1-snapshot_of_energy_efficiency_obligations_schemes_in_europe_27-5-2015.pdf

² <http://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive/national-energy-efficiency-action-plans>

Coverage of the study

The study presented in this report covered **14 countries** (see map below). The changes in scope compared to the 2015 snapshot are that:

- ✓ **Greece** launched a **new EEO in 2017**;
- ✓ **Malta** is currently preparing a **major revision of its scheme** (no information could be communicated at the time this report was prepared);
- ✓ **Estonia** decided to use **only alternative measures** to meet its target for the article 7 of the Energy Efficiency Directive (EED);
- ✓ **Lithuania** voted a new energy efficiency law in November 2016³ reinforcing the **voluntary agreement** with the energy companies started in 2010 (this agreement could not be analysed for this report).



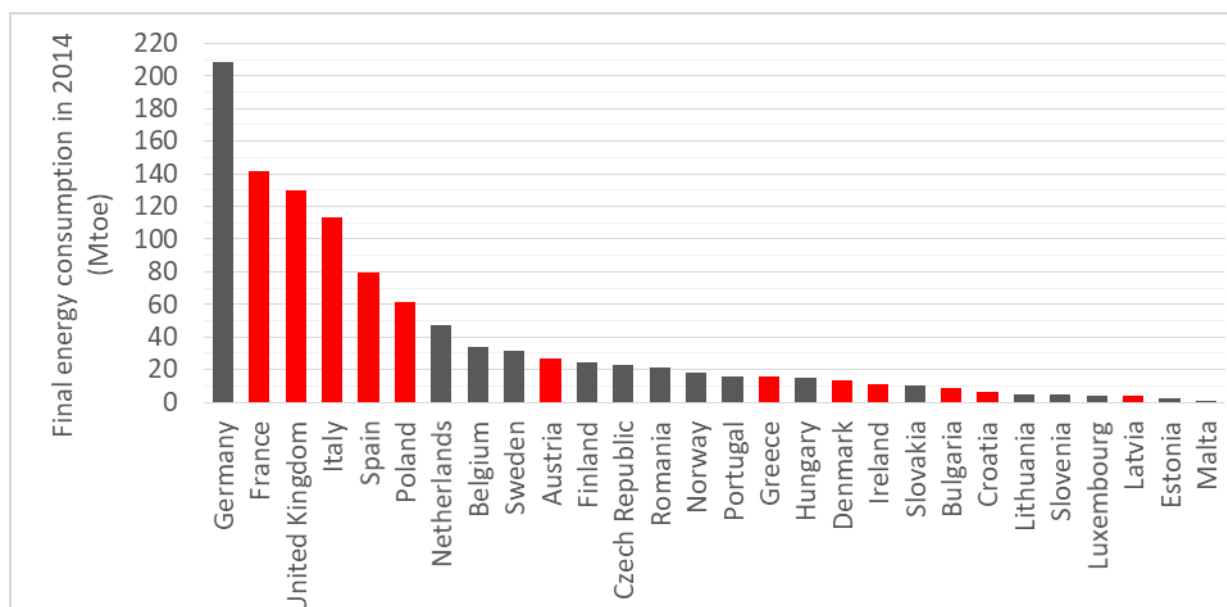
Note: the year below country's name corresponds to the starting year of each EEO. In some cases, the scheme was an evolution of a previous scheme:

- Austria: voluntary agreements from 2009 to 2014;
- Denmark: obligation to deliver energy advice services from the 1990's for electricity distributors and from early 2000's for gas distributors, up to 2005;
- Ireland: voluntary agreements from 2011 to 2013;
- Slovenia: voluntary agreements from 2010 to 2014;
- UK: obligation of means (EESoP: Energy Efficiency Standard of Performance), from 1994 to 2002.

Figure 1. Map of the 14 countries covered by the 2017 snapshot.

The 14 countries implementing an EEO scheme represents half of the 28 EU Member States in terms of number of countries, and more than **58% of the final energy consumption of the EU28 in 2014** (see also Figure 2 next page).

³ <https://www.e-tar.lt/portal/en/legalAct/946da260a67b11e69ad4c8713b612d0f>



Source : Eurostat data

Figure 2. Final energy consumption in 2014 (in Mtoe) for the 28 EU Member-States (in red countries with an EEO; in grey countries without EEO).

According to Ricardo AEA et al. (2016)⁴, the expected final energy savings from EEO schemes over 2014-2020 would represent **about 34% of the total expected final energy savings notified by the Member States to the European Commission for the achievement of their targets related to the article 7 of the Energy Efficiency Directive (EED)**. This estimate was based on 16 countries implementing an EEO scheme, and not taking into account the delay in the start of some EEO schemes (delay that occurred after Ricardo AEA et al. did their study). However, the order of magnitude for the share of energy savings to be delivered from EEOs remains valid, as the changes occurred in countries representing a small share of the EU28 final energy consumption.

EEOs are therefore a major policy instrument for the implementation of the EED.

This study is focused on the description of the EEOs, the changes in their implementation and the achievements in terms of reported energy savings. Data about costs are sometimes included in the 2-page synthesis per country when found. However the data availability about costs is less systematic, and the collection of these data was beyond the means and scope of this study. More details about costs and benefits of EEOs can be found in Rosenow and Bayer (2016)⁵.

Main updates about the settings and implementation of the EEOs

Overall, most of the EEOs have reached a certain **stability** and should keep the same general principles up to 2020. **Changes** are made **in the practical rules** of the schemes to take into account **experience feedback** (in particular about M&V, see focus later on). But there are few major changes expected in terms of scope (type of obligated parties, sectors covered by the obligations) and focus (sub-targets, rules for action or energy savings eligibility). This may be partly explained because

⁴ Ricardo AEA, CE Deflt, RKK, 2016. Study evaluating progress in the implementation of Article 7 of the Energy Efficiency Directive. Report for the European Commission (DG ENER), May 2016.

⁵ Rosenow, J., Bayer, E., 2016. Costs and Benefits of Energy Efficiency Obligation Schemes. Report of the RAP (Regulatory Assistance Project) for the European Commission, April 2016.

public authorities want to **give visibility to stakeholders** and are waiting for the decisions about the **revision of the EED**.

Croatia and Latvia finally decided to set the obligation on energy suppliers or retailers. Therefore, **energy distributors** are the **obligated parties for only 2 EEOs** (Denmark and Italy).

Compared to the review done in 2015, the **scope used to set the obligations** remains the same in all countries (in terms of energy types and end-use sectors taken into account to define the obligation).

COUNTRY	Austria	Ireland	Slovenia	France	Bulgaria	Denmark	Poland	Croatia	Greece	Spain	Italy	Luxembourg	UK	Latvia
ENERGY TYPES COVERED														
electricity														
natural gas														
heat (district heating)														
oil products (for heating)														
oil products (for transport)														
other types of energy sold														

COUNTRY	Austria	Croatia	Greece	Ireland	Slovenia	Spain	Bulgaria	Denmark	Italy	Luxembourg	Poland	France	Latvia	UK
SECTORS														
residential														
services														
industry														
transports														

Note: for Latvia, electricity sales to large consumers may be deducted of the scope to calculate the individual targets of the obligated parties (hence the hatching for services and industry)

Figure 3. Scope (left: energy types ; right: sectors) used to set the obligations.

Neither was there major change in the **sectors where actions are eligible**, except for the Polish EEO where actions in the sub-sectors covered by the EU ETS are now eligible since October 2016:

- actions are eligible in all end-use sectors except in UK (focus on residential sector) and in France (actions in the sub-sectors covered by the EU ETS are not eligible);
- in addition, actions on energy distribution and transformation may be eligible to some extent in Bulgaria, Denmark, France, Italy, Poland and Slovenia.

While some countries (Bulgaria, Ireland) decreased the **energy sales' threshold** to involve more obligated parties, other (Austria) considers excluding the smallest suppliers as it is generating too high administrative burden.

There are still only 3 countries with a **trading market** of energy savings certificates (France, Italy and Poland). The two brokerage systems tested by Ireland and UK have been in operation, but have been used only to a limited extent so far.

Except Luxembourg, all the EEOs started from 2013 offer a **"pay-to-save"** or **"buy-out"** option that the obligated parties can use as an alternative to implementing programmes or buying energy savings certificates. Most often, rules are then used to limit this option. For example, by increasing the "buy-out" fees or by setting a cap on the share of the obligation that can be met this way. The "buy-out" option is thus used to smooth the involvement of the obligated parties in delivering energy savings.

country	Austria	Bulgaria	Croatia	Denmark	France	Greece	Ireland	Italy	Latvia	Luxembourg	Poland	Slovenia	Spain	UK
pay-to-save or buy-out option	yes	no	yes	no	(1)	yes	yes	no	yes	no	yes	yes	yes	no
trading market	no	no	no	no	yes	no	(2)	yes	no	no	yes	no	no	(2)

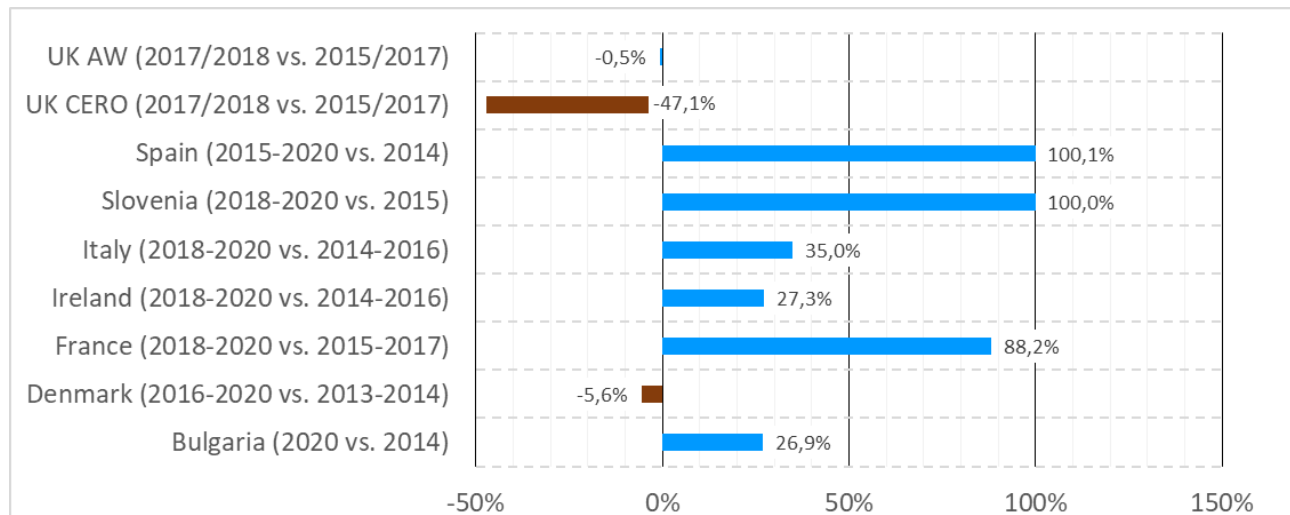
(1): possibility to contribute to special programmes with a fix rate (in terms of euros/energy savings certificates)

(2): brokerage systems

Trends in targets

The targets defined for the 14 EEOs cannot be compared directly. In particular because they are not expressed in the same unit (for ex., lifetime cumulated energy savings vs. first-year energy savings, primary energy vs. final energy) and they are not set for the same time horizon (yearly targets vs. multi-year targets). Converting the targets into a harmonised unit and timeframe was beyond the scope of this study. Nevertheless, the 2-page syntheses per country provide the meaning of the targets for each country, and a summary table is included in Annex of this report.

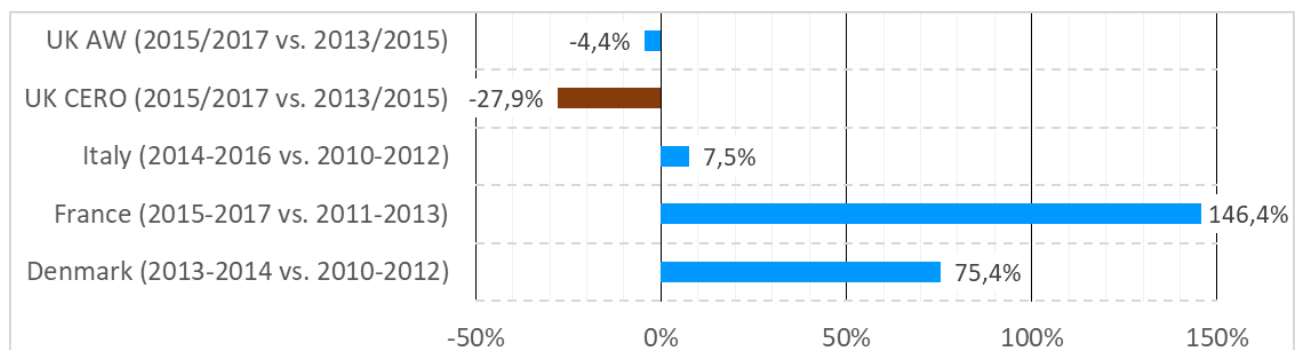
In addition, based on the data collected, it is possible to monitor **relative trends** (in %) in the targets, looking at their evolution over time. The first figure below represents relative changes in targets between periods around 2014-2016 and periods around 2017-2020. The periods used to monitor these changes vary from country to country, according to the timeframes of each EEO. Calculations of the changes were made in averaged annualised terms to make both periods comparable for each country.



Note for UK: Affordable Warmth (AW) is a target in lifetime savings on heating bills (in £billion) and CERO (Carbon Emissions Reduction Obligation) is a target in lifetime CO₂ savings (in tCO₂).

Figure 4. Relative changes in the targets between periods around close to 2014 and periods close to 2020.

Using data collected in 2015, it was also possible to monitor relative trends (in %) in the targets for the “oldest” schemes, comparing periods close to 2010 and periods close to 2014.



Note: the target taken into account for [UK CERO 2013/2015] is here the initial target. This target was then decreased in December 2013.

Figure 5. Relative changes in the targets between periods around close to 2010 and periods close to 2014.

A decrease in the targets has been observed only for UK, and to a lesser extent Denmark. In both cases, this was due to a concern in the increasing costs incurred by the obligated parties to meet their targets. However these cost increases had different reasons. In UK, it was mostly due to the increased emphasis of the scheme on delivering energy savings to vulnerable households and/or actions requiring higher investments. In Denmark, this was mostly due to the combination of large increases in the targets (between 2012 and 2015) and the fact that the cheapest energy savings⁶ may have been achieved already (or are no longer eligible, due to the additionality criteria).

The increases in the more recent EEOs (Ireland, Slovenia and Spain) were planned from their start to enable a progressive growth of the schemes. For Ireland, an increase was planned, but its extent was decided based on the experience feedback from the first period (2014-2016). Most of the observed progressive increases in the targets were driven by the EED, as the EEOs are used to bring major contributions to achieve the targets for EED article 7.

Trends in achievements

The achievements of the 12 EEOs already in force before 2017 cannot be compared directly. In addition to the same reasons mentioned above about targets, other differences in the achievements can come from the rules to calculate energy savings (baselines, additionality, etc.), and the use of sub-targets, bonus or other types of special factors.

The summary table in Annex provides the data that could be collected for each country. However, this would be beyond the scope of this study to enter in detailed explanations about the specificities of the energy savings calculations in each country.

Nevertheless, the data collected makes possible to compare the targets and corresponding achievements, and therefore to calculate achievement rates for the countries and periods for which data could be found. These achievement rates are presented in Figure 6 next page.

Large overachievements (>200%) are observed for two of the recent schemes (Austria and Slovenia). In the case of **Austria** (2015), this can be partly explained because actions implemented in 2014 could also count for the achievements of the 2015 target. In the case of **Slovenia**, this can be partly explained because the target was relatively low in the first year of the scheme to ensure a smooth start. It can be noted that the Austrian and Slovenian schemes are also the only two schemes with a significant share of energy savings delivered in transport (27% for Austria and 39% in 2015 and 33% in 2016 for Slovenia).

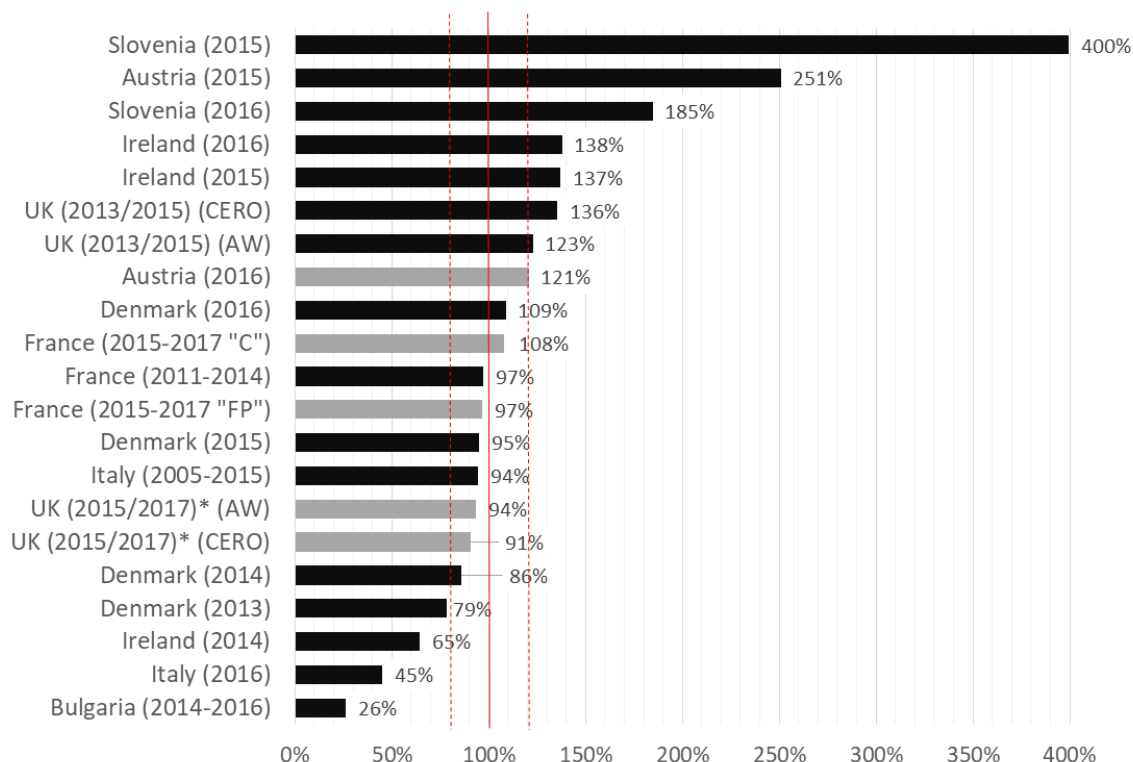
A rapid take off can also be seen for **Ireland**. The underachievement in the first year (2014) is largely compensated by the overachievements in the subsequent years (2015 and 2016).

These three successful start of EEOs occurred in countries where the EEO was the reinforcement of previous voluntary agreements. Public authorities and obligated parties had therefore experience previous to the EEO. More difficulties have been encountered in Bulgaria and Poland to involve the obligated parties.

In parallel, some difficulties to achieve the targets have also been observed in the recent years for the older schemes (Denmark, Italy, UK), except in France. These difficulties are due in particular to significant increases in the targets over time (all), strengthening of the additionality criteria or update of the baselines (all), emphasis on more expensive actions (in UK) and the fact that actions

⁶ in terms of costs incurred by the obligated parties, not necessarily in terms of full costs of the actions.

receiving national public aids were not eligible anymore (Italy). In Denmark, Italy and UK, the targets have therefore been adjusted to take into account increase in the costs incurred by the obligated parties. However **overall the targets can be considered to be met so far** in the four older EEOs, **thanks to the transfer of overachievements in previous periods**. This is represented below by the dotted lines around 100% of achievements (+/- 20%).

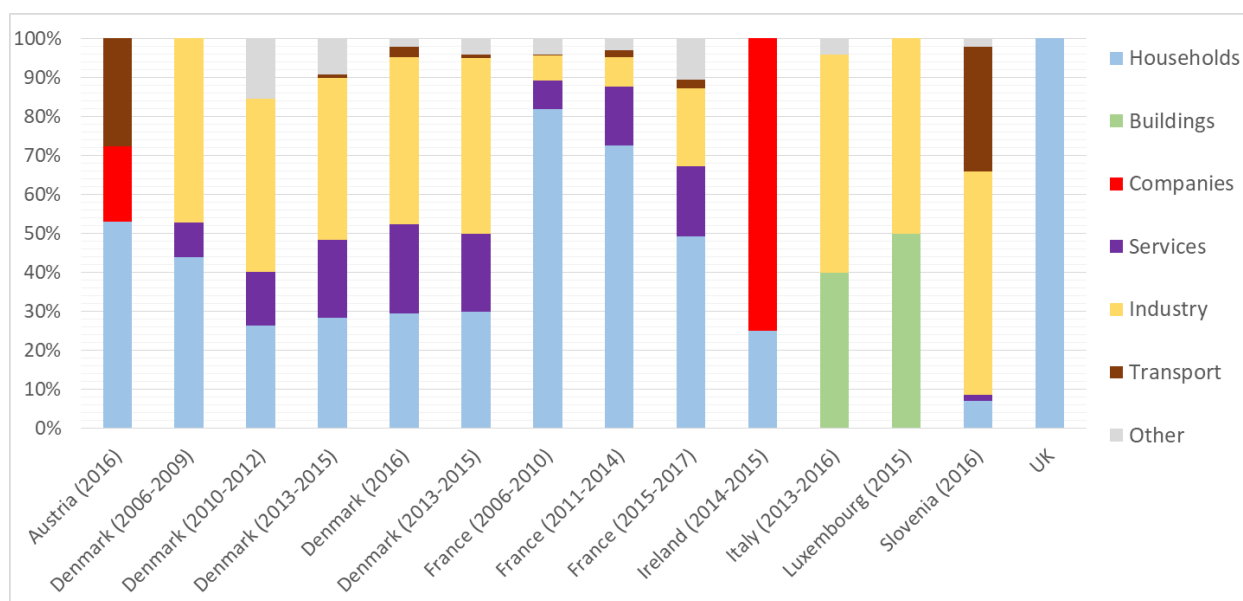


Note :

- Bars in black are validated results, while bars in grey are temporary results, either because the period is not over (France 2015-2017) or because the results are under validation (Austria 2016 and UK 2015-2017)
- For France: "C" = "classical" target, "FP" = "fuel poverty" target
- Except for (UK 2013/2015), the calculations of the achievement rates were made taking into account the new actions implemented within each period. **Transfers of overachievements from one period to the other are not taken into account**. This is important to keep in mind in particular for Denmark, France and (UK 2015/2017), as these transfers have been enough to complement the new achievements to meet the targets up to now.

Figure 6. Achievement rates of the EEOs, per country and period (in %).

Statistics about the distribution of reported energy savings per sector could be found for 8 countries.



Notes:

- For some countries, some sectors are merged (“households” + “services” into “buildings”, or “services” + “industry” into “companies”) according to data availability.
- “Other”: may include actions on district heating, energy transmission and distribution, street lighting, in agriculture or transport (depending on the country)
- Austria: by law, minimum 40% of the energy savings must be achieved for households (housing or transport)
- France: distribution for the “classical” standardised actions only (that represented respectively, 97.1%;92.8% and 89.8% of the “classical” certificates issued over 2006-2010;2011-2014 and 2015-March 2017). Data about the distribution of non-standardised actions are not published. From January 2016, there are also “fuel poverty” certificates, all achieved in the residential sector.
- Ireland: by law, 25% of the energy savings must be achieved for households
- UK: the EEO allows actions in the residential sector only

Figure 7. Distribution of reported energy savings per sector, according to countries and periods (in %).

In Bulgaria, most of the energy savings were achieved in industry. In Luxembourg, about half of the energy savings were achieved in buildings (residential and commercial sector) and half in the industry.

It can be noted that the EEOs with the highest share of energy savings in households are either EEOs with sub-targets (Austria) or even limited to the residential sector (UK), or EEOs where actions receiving national public aids are eligible (France). High shares of energy savings in households were also observed in Denmark and Italy in the first years of these schemes, with savings coming mostly from lighting and appliances. When the energy savings ratios credited to these action types were revised to take into account changes in additionality, they became much less attractive or were even de facto excluded from the schemes. This resulted in lower shares of energy savings in households for the recent years.

In the other EEOs, industry is the main sector where energy savings are achieved. This may be explained because it is easier for obligated parties to foster energy efficiency actions in industry, as it is easier to develop larger projects (with smaller transaction costs) in this sector, and energy companies have closer contacts with large consumers.

Nevertheless, the EEOs are acknowledged by many stakeholders as an efficient way to raise awareness of a larger public about energy efficiency (see for example the interviews for Greece and Luxembourg).

Upcoming challenges

The main general challenge perceived for most EEOs will be to **achieve the targets in view of 2020 and then 2030**, as EEOs are expected to bring a significant share of the results to meet the national targets for the article 7 of the EED. This was indeed the main *raison d'être* for most of the schemes started from 2013. In some cases, it has already been decided to implement new alternative measures to complement the EEO (Bulgaria).

Another issue is the **capacity of EEOs to continue to deliver energy savings in an efficient way**, once the easiest potentials are depleted. And/or the capacity to tackle new types of actions or sectors. One challenge is for example to promote actions that require more investments but produce more energy savings in the long term, such as “deep” retrofit of buildings. Another challenge is the development of actions in transports that represent in most countries a large share of the final energy consumption.

The older EEOs are already facing these challenges. They may also be soon on the agenda of the other EEOs. And for most of the EEOs, these challenges are connected with the issue of **possible impacts of EEOs on energy prices**. This is a major point of vigilance in many countries. This may create a paradox: an increase in energy prices can make energy efficiency actions more attractive, and therefore energy savings targets easier to achieve. But increases in energy prices are often very sensitive from a political point of view. Preventing of such increases may lead to decrease the energy savings targets (case of UK for ECO for example).

This problem is often linked to the **risks of distributional or regressive effects of EEOs** that can be analysed at two levels:

- between sectors: obligated parties tend to implement programmes where it is the easiest (or cheapest) for them, which may make that more energy savings are achieved in one sector than in another (for example in Denmark, more in industry than in households);
- between income classes: it is often cheaper for obligated parties to implement programmes for households having higher income than for households having lower income.

In both cases, the cost recovery will impact all sectors (and/or all households), while the benefits of the EEOs may be concentrated on a particular segment (sub-sectors and/or income classes). And this may be even worse if the cost recovery is also unevenly distributed (see for ex. Rosenow and Bayer, 2016). This is one of the reasons why specific provisions have been introduced in some EEOs to ensure that a share of actions are delivered to low income households (see focus on fuel poverty below).

In parallel, **changes in the rules to account for energy savings** may also make more difficult the achievement of targets. On the one hand, the issue of additionality is important to ensure that the results of the EEOs are net benefits from an overall society's point of view. On the other hand, reinforcing additionality criteria or updating baselines mean that the amount of energy savings credited for the same action will be reduced and/or that some actions will not be eligible anymore, making together that it is more difficult to get energy savings credited. And this may also affect the strategies of the stakeholders, while long term strategies are often needed to obtain market transformation effects (for example, increases in the skills of installers, quality insurance processes, development of new services).

Looking more at the **practical issues** of running EEOs, the main challenges reported by the stakeholders are related to **M&V**, which confirms the interest of dedicating a special session of the seminar to this topic, as well as a short focus below.

Another specific issue raised by some stakeholders is the discussions about the eligibility of actions for on-site electricity generation from renewable energy sources.

Focus on M&V

The 6th paragraph of article 7 of the Energy Efficiency Directive (2012/27/EU) states that Member States *“shall put in place **measurement, control and verification systems** under which at least a statistically significant proportion and representative sample of the energy efficiency improvement measures put in place by the obligated parties is verified. That measurement, control and verification shall be conducted independently of the obligated parties.”*

It was not possible within this study to enter into the details of the M&V practices. The objective here is to provide a general overview, setting the scene for the discussions during the seminar.

The scope of M&V considered here includes the following issues:

- How are the actions and energy savings reported by the obligated parties?
- How are the energy savings validated by the public authorities in charge of the scheme?
- How are the related information verified?

About the **reporting**, it is possible to distinguish two main approaches (that can be combined):

- 1) obligated parties must submit a report once a year, where they usually have to provide only a summary of the information about the actions and energy savings delivered;
- 2) obligated parties can submit information on an on-going basis, mostly through an on-line platform.

In addition, obligated parties are usually required to keep the detailed documentation of the actions and energy savings in case of further controls by the public authorities (or a sub-contractor of the public authorities).

In case of annual reporting only, the **validation** of the actions and energy savings is necessarily done after the implementation of the actions (or ex-post). When information is submitted on an on-going basis, the validation may be required before the actions are implemented (case of Poland), or before crediting the energy savings (case of Bulgaria, Greece, Italy and UK).

Once the energy savings are validated, they may still be subject to **verifications and controls**. The verifications review if the documentation and the calculation of the energy savings meet the requirements set by the public authorities. Further controls may then be done after the implementation of the actions (ex-post) to check that the actions were implemented according to the documentation of the energy savings. These controls may thus include on-site inspections.

The verifications and controls may be done by the public authorities, subcontractors of the public authorities or independent auditors that the obligated parties may be required to contract.

The table below provides an overview of these main M&V elements.

	Austria	Bulgaria	Croatia	Denmark	France	Greece	Ireland	Italy	Latvia	Luxembourg	Poland	Slovenia	UK
annual reports													
on-going submissions													
ex-ante validation of savings													
verification by auditors (1)													
random ex-post controls			TBD										
on-site inspections when needed			TBD										
on-site inspections on samples													

(1) when auditors are to be contracted by the obligated parties

Most of the EEOs have developed an online platform to collect the data, in order to reduce the administration costs and make the reporting and validation processes easier and faster. This also offers the possibility for obligated parties to track the status of the information they submitted (for ex., UK). Some of these platforms also include algorithms to automatically check the consistency of the information submitted (for ex., Austria and Croatia), providing a first level of validation of the information.

A few countries still implement some form of ex-ante validation, but there is a clear trend to accept first the actions on the basis of simple declarations, and then to perform verifications and controls ex-post on sample of actions or programmes. This approach used initially by Denmark was adopted by several of the new schemes from their start (for ex., Luxembourg). And some schemes that initially performed some kind of ex-ante validation moved to a more declarative approach (for ex., France, Ireland).

Performing some form of ex-post verifications and controls is becoming a common practice, partly due to the requirements of the EED. However, the types, coverages and depths of these verifications and controls may vary significantly from one country to the other. This level of details could not be analysed within this study, apart from distinguishing when on-site inspections are made on a systematic basis (on a given share of actions or energy savings) and when on-site inspections are made when needed (i.e. when first verifications and controls conclude that there is a risk worth an inspection).

The M&V rules and practices are a topic of continuous improvements in all the EEOs. There are often technical working groups or regular meetings between representatives of the obligated parties and the public authorities to discuss problems encountered, identifying critical sources of administration costs and opportunities of optimisation, etc.

In some cases, the resulting changes have been progressive (for ex., Austria, Ireland). In other cases, the changes of rules required a strong evolution from one period to another. For example, in France when moving to a declarative approach from January 2015 (see also the interviews about Italy and Poland in this report).

The following empirical pathway was observed for several schemes:

- 1) In a first period, the obligated parties are required to submit a detailed documentation of the actions, often for a validation before crediting the energy savings. This usually corresponds to a **learning phase**, where the stakeholders **identify the information the most important to document** and where there is a need to **build a mutual trust** between the obligated parties and the public authorities.
- 2) In a second period, the priority is on **simplifying the procedures**. In this period, the targets are usually increased significantly. And the simplification is therefore essential to make possible to deal with a more important flow of actions. This often went with the development of quality insurance guidelines to involve more the obligated parties in the M&V procedures.
- 3) In a third period, the priority is on **optimising the verifications and controls**. Experience feedback made possible to promote quality insurance processes on the side of the obligated parties. And public authorities develop risk-based approaches to focus the efforts of verifications and controls where risks tend to be higher.

Whatever the pathway adopted in the improvement of the M&V procedures, an important driver is the fact that public authorities have limited resources. Optimizing these resources is therefore more and more essential when the targets are increasing, inducing more important flows of energy savings to validate.

Then when discussions about the possible impacts of the EEO on the energy prices come at the forefront, this induces a social pressure to make sure that the costs of the EEO lead to actual benefits. And this increases the need to ensure the quality of the actions installed.

The quality insurance requirements can thus go beyond requirements on the documentation and calculation of energy savings. They can include requirements in terms of qualifications of the operators or installers of the actions (for ex., qualification of installers in France and Ireland, certification of ESCOs in Italy).

In the session about M&V at the seminar, experience feedback will be presented from the EEOs of Denmark, Ireland, Italy and UK. Experience feedback about M&V practices of the Austrian and Irish schemes can also be found in the replay of the following webinar of the IEPPEC Academy: <https://www.youtube.com/watch?v=aijpmBXDGaA>

To go further about M&V issues, see the outputs of the multEE project: <http://multee.eu/>

In addition to M&V, evaluation can bring further insights about the impacts of the EEOs and ways to improve them:

- by comparing ex-ante estimates with ex-post evaluation of energy savings;
- by evaluating ex-post the additionality of the actions or energy savings (for example, with surveys and/or statistical methods);
- by reviewing the costs of the scheme and assessing its cost-effectiveness from a society's point of view;
- by surveying the satisfaction of the different stakeholders and questioning the rules of the EEO in order to identify opportunities of improvements;
- by analysing the targeting of the scheme and the drivers for participation;
- by analysing other possible impacts of the EEO (market transformation effects, impacts on energy prices, etc.).

Such evaluations have for example be performed on a regular basis in Denmark⁷ and UK⁸. And an upcoming evaluation of the French EEO has been recently announced.

About evaluation practices, follow the new EPATEE project: <http://epatee.eu/>

Focus on fuel poverty/social aim

The 7th paragraph of article 7 of the Energy Efficiency Directive (2012/27/EU) states that “*within the energy efficiency obligation scheme, Member States may: (a) include requirements with a social aim in the saving obligations they impose, including by requiring a share of energy efficiency measures to be implemented as a priority in households affected by energy poverty or in social housing*”.

⁷ (in Danish) <http://www.ens.dk/forbrug-besparelser/energiselskabernes-sparsindsats/lovgrundlag-kontrol-resultater/evalueringer>

⁸ <https://www.gov.uk/government/collections/green-deal-and-eco-evaluation>

This social aim may be decided by public authorities for example in order to tackle possible distributional or regressive effects, and/or to tackle fuel poverty.

5 EEOs include specific provisions with a social aim that can be either attributing a bonus factor for actions implemented in households meeting eligibility criteria (incentive approach) or requiring obligated parties to achieve a minimum share of energy savings and/or to deliver actions to households meeting eligibility criteria (mandatory approach).

COUNTRY	TYPE OF PROVISION	CURRENT ELIGIBILITY CRITERIA
AUSTRIA	bonus (+50%)	Eligibility to special electricity tariffs
FRANCE	mandatory (specific target) + bonus	Income levels
GREECE	bonus (+40%)	Eligibility to special electricity tariffs
IRELAND	mandatory (sub-target)	Eligibility to means-tested benefits, social housing and/or pre-selected areas
UK	mandatory (specific target/obligation)	Eligibility to means-tested benefits, social housing (if G to E energy class), or identification by local authorities (pilot option)

The first scheme to include social aim provisions was the **UK** scheme. From its inception in 2002 (EEC: Energy Efficiency Commitment)⁹, obligated parties had to achieve a minimum share of their results in households meeting certain criteria (so-called “Priority Group”). These criteria were mainly based on the eligibility to means-tested benefits, which is a pragmatic way to target low income households.

For the period 2008-2011 (CERT: Carbon Emission Reduction Target), in addition to this sub-target, the obligated parties had to meet another target within a supplementary obligation (CESP: Community Energy Savings Programme). CESP was an area-based programme: actions could only be eligible in a list of given neighbourhoods. This list was defined based on public statistics enabling to identify areas with a high share of low income households. This approach was a way to decrease the costs to identify the eligible households (only the address was required). Another assumption was that this programme would foster projects aiming at renovating several buildings of the same area, thereby achieving economies of scale.

CERT was then extended (from April 2011 to December 2012), with a new sub-target to be met in a “Super Priority Group”, being a subset (about 50%) of the Priority Group and defined according to a more restrictive list of means-tested benefits.

The evaluation done in 2014 of CERT and CESP provides the following conclusions as regards the social aim provisions.

About CERT:

- ✓ *“Engaging SPG [Super Priority Group] customers proved particularly challenging for the energy suppliers. They were difficult to identify and engage with; personalised approaches involving locally-based, trusted organisations and community groups were more effective in reaching this group than generic marketing approaches. When they were reached, it was often difficult to obtain the evidence required to prove they fell into the SPG category; energy suppliers used cash and other incentives to help overcome this barrier.”*

⁹ EEC was the first UK scheme with obligation of results. From 1994 to 2002, EESoP (Energy Efficiency Standard of Performance) was an obligation of means. And EESoP did not include incentive or mandatory provisions for the delivery of actions in the Priority Group.

- ✓ *"The true extent of CERT's impact on fuel poverty is very difficult to ascertain. Assessing the impact of CERT on low-income households and the fuel poor is hindered by the fact that there was no requirement to monitor the delivery of measures to these specific groups¹⁰. The introduction of the SPG in the CERT Extension – while not specifically targeting the fuel poor – went some way to addressing this, but this only applied to the latter part of the programme."*
- ✓ *"However, the available evidence explored in this evaluation indicates that CERT beneficiaries were often not the neediest; they were more likely to be on higher incomes and less likely to be concerned about their household's financial situation".*

About CESP:

- ✓ *"The case study surveys and anecdotal evidence from the qualitative interviews does suggest that relatively high proportions of customers were on low incomes and in difficult financial positions."*
- ✓ *"CESP was successful in incorporating a significant degree of social housing properties into the programme"*
- ✓ But the analyses made for the evaluation also showed that despite the selection of areas with high shares of low income households, the CESP areas include an only slightly higher share of households at risk of fuel poverty compared to the national average. The evaluation therefore questioned whether selecting areas based on income criteria is the most relevant approach.
- ✓ *"As with CERT, the lack of any customer monitoring data prevents an accurate assessment of CESP's impact on fuel poverty."*
- ✓ *"All of the case studies and many national interviews generated evidence of the significant regeneration impact of CESP schemes"¹¹*

The new scheme (ECO: Energy Company Obligation) started in January 2013 was initially made of three different targets, with two of these targets including social aim provisions: CSCO (Carbon Savings Community Obligation) and Affordable Warmth (also named HHCR: Home Heating Cost Reduction Obligation). CSCO can be seen as an adaptation of CESP, as it also used an area-based approach. It included two sub-targets with shares of the results to be achieved respectively in low income communities and in low income households living in rural areas. Affordable Warmth is dedicated to actions in low income and vulnerable households living in private housing, with eligibility criteria based on means-tested benefits. Affordable Warmth has also a larger scope of eligible actions compared to the other targets, with the aim to improve heating of homes without increasing energy bills¹².

It should be noted that in parallel of the move from CERT to ECO, the main public energy efficiency programme tackling fuel poverty, Warm Front (in place since 2000), was ended by March 2013¹³.

¹⁰ This remark shall be read as pointing the fact that the eligibility criteria for the Priority Group and Super Priority Group did not include criteria about the energy performance of the dwellings, whereas this is a key criteria to assess the risk of households to be in conditions of fuel poverty.

¹¹ This refers in particular to multiple impacts of these projects: *"The visual improvement of areas was particularly considered to be a success of the programme, and additional benefits have been cited including increased employment and protection of entire estates from demolition"*

¹² Hough, D., 2017. ECO, the Energy Company Obligation. Briefing paper of the House of Commons, March 2017. <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06814>

¹³ For a summary about Warm Front, see: House of Commons, 2013. Warm Front Scheme. House of Commons Briefing papers SN06231 by Christopher Watson, Paul Bolton and Patsy Richards, 21 August 2013. <http://researchbriefings.files.parliament.uk/documents/SN06231/SN06231.pdf>

ECO is now extended from April 2017 to the end of September 2018. For this period, only two different targets remain, as CSCO has been merged into the general target (CERO: Carbon Emissions Reduction Obligation). Moreover the weighting of these targets have been changed to focus more on tackling fuel poverty. The new rules should lead the obligated parties to dedicate 70% of ECO funds during this period towards the Affordable Warmth target (as opposed to 36% previously)¹². The eligibility criteria have also been changed to simplify the categories of benefits for the eligibility. And the eligibility scope for Affordable Warmth now includes actions in social housing of the least energy efficient classes (G to E). This ECO extension includes as well a pilot in order to tackle the difficulties to reach vulnerable households: local authorities can determine eligible homes under a new “flexible eligibility” mechanism. Obligated parties can use this voluntarily for up to 10% of their Affordable Warmth target.

The second EEO in Europe to include social aim provisions was the **French white certificates scheme**. The regulation setting the second period (2011-2014) stated that a share of the energy savings should be achieved in households at risk of fuel poverty. No quantitative target nor specific requirement enforced this statement. But it was possible for obligated parties to contribute financially and on a voluntary basis to special programmes tackling fuel poverty¹⁴. For each euro contributed to one of these programmes, the obligated parties could receive a fix amount of white certificates.

This option was maintained for the current third period (2015-2017). A supplementary specific “fuel poverty” target was then added, to be met between January 2016 and December 2017 (equivalent to a 20% increase of the initial “classical” target). Energy savings for the “fuel poverty” target must be achieved in low income households.

The thresholds used to define the “low income group” make that it represents about 45% of the French households. In addition, a bonus (factor *2)¹⁵ is granted to actions implemented in “very low income households” (representing about 25% of the French households). A special provision also makes it easier to prove the eligibility of actions done in social housing.

The targets for the fourth period (2018-2020) have been set, and the new specific “fuel poverty” target is equivalent to an increase by 80% of the previous target (2016-2017) in annualised terms.

The third EEO in Europe to include social aim provisions was in **Ireland**. When moving from a voluntary agreement to an EEO in 2014, the Irish scheme included sectoral sub-targets to ensure a minimum share of the energy savings are achieved in households (20%), plus another 5% to be achieved in low income households. The eligibility criteria for this sub-target are mainly based on means-tested benefits. But actions in social housing or in areas pre-selected by the Irish energy agency (SEAI) are also eligible.

One of the objectives is that energy suppliers find innovative ways to deliver actions to vulnerable households. In parallel, public energy efficiency programmes to tackle fuel poverty are implemented by SEAI often in partnerships with local authorities, such as the Warmer Homes¹⁶ and the Better

¹⁴ See for example the programme “Habiter Mieux” (Living Better):

http://www.anah.fr/fileadmin/anah/Mediatheque/Publications/Les_aides/habiter-mieux-anglais.pdf

¹⁵ The factor is *3 in case of actions in very low income households in the French overseas territories.

¹⁶ http://seai.ie/Grants/Warmer_Homes_Scheme/

Energy Communities¹⁷ schemes. Obligated parties can also join these partnerships to meet their “fuel poverty” target.

A new Energy Poverty Strategy was launched in February 2016¹⁸. The new strategy introduced a new pilot scheme started in March 2016 to target deep energy efficiency interventions at people in energy poverty who are suffering from acute health conditions and living in poorly insulated homes. This strategy also planned a continuation of the “fuel poverty” sub-target in the EEO. After a consultation with the stakeholders, it was decided that this sub-target remains the same in relative terms (5%) for the new period of the EEO (2017-2019). The overall target for the EEO is increasing: by 14% in 2017 and by 27% in 2018 compared to 2016. Consequently, the “fuel poverty” target increases in the same proportions.

Experiences in Austria and Greece are still recent as these EEOs respectively start in 2015 and 2017. They are therefore not presented in this report.

Common issues raised and lessons drawn from the experience feedback of these 5 EEOs:


- ✓ Difficulties to find an approach that makes possible to **target households really at risk of fuel poverty while limiting the transaction costs** (to identify and then prove that the actions were done in households at risk of fuel poverty). In practice, **partnerships with intermediaries** (e.g., local authorities, social workers, charity organisations) can often be an effective way to reach the households the most in needs.
- ✓ **Eligibility criteria** based on income level or alike (e.g., means-tested benefits, special electricity tariffs) can be a way to tackle regressive effects. However this often means that a significant share of the households eligible under these criteria are not at risk of fuel poverty. Including criteria about the energy performance of the dwelling can improve the “fuel poverty” targeting. However this may induce higher transaction costs.
- ✓ There may be several paradox or dilemma when including social aim provisions in an EEO:
 - This will deliver actions to vulnerable households. However the costs of delivering these actions are higher than actions in higher income households or in other end-use sectors (need for higher financial support + higher transaction costs to identify the eligible households). So this may increase the costs of achieving the EEO targets, which may ultimately result in higher impacts on energy prices. In case the “fuel poverty” obligation would not benefit to households at risk of fuel poverty (due to targeting issues), this may induce regressive outcomes and higher fuel poverty. The design of the social aim provisions is therefore essential.
 - Actions in households at risk of fuel poverty will improve their living conditions. However this may not necessarily reduce their energy consumption due to prebound and rebound¹⁹ effects. This may be challenging for the energy savings objectives of the EEO.

More generally, the relevance of using the EEO to tackle fuel poverty often depends on the context of each country. For example, in some countries a large share of the households may distrust energy suppliers due to disconnection or billing issues. Likewise the distinction of “fuel poverty” and

¹⁷ http://seai.ie/Grants/Better_Energy_Communities/

¹⁸ <http://www.dccae.gov.ie/documents/A%20Strategy%20to%20Combat%20Energy%20Poverty.pdf>

¹⁹ Prebound corresponds to restriction effects when it is too costly to heat the dwelling. Rebound corresponds to comfort taking when it becomes cheaper to heat the dwelling. Both effects will reduce the theoretical energy savings.



poverty in general is not made in all countries. Fuel poverty can thus be tackled within the frame of social policies.

For a more detailed analysis on the pros and cons to include social aim provisions in EEOs and about the UK experience, see Rosenow et al. (2013)²⁰.

²⁰ Rosenow, J., Platt, R., & Flanagan, B. (2013). Fuel poverty and energy efficiency obligations—A critical assessment of the supplier obligation in the UK. *Energy Policy*, 62, 1194-1203.
http://eng.janrosenow.com/uploads/4/7/1/2/4712328/fuel_poverty_and_energy_efficiency_oblig.pdf



SYNTHESIS PER COUNTRY

AUSTRIA

Responsible authority : Federal Ministry of Science, Research and Economy
Managing authority : Austrian Energy Agency

Status, timeline and current target

The EEO scheme started in **January 2015**, replacing voluntary agreements with energy suppliers set from 2009.

The targets of the obligated parties are set **annually** as **0.6% of the energy sales** of the previous year. **40%** of the target have to be achieved **for households** (housing or transport).

13.8 PJ of first-year energy savings were achieved in **2014-2015** (target: 5.5 PJ), whose 54% in households, and about **7.21 PJ in 2016** (preliminary result; target 5.97 PJ).

Energy savings actions

All actions whose final energy savings can be demonstrated (except oil boilers from 2018) in all end-use sectors are eligible if they **exceed minimum energy performance** requirements, and if they **don't benefit from main national public subsidies**. Actions for households in **fuel poverty** get a **bonus** (*1.5).

42 categories and more than 250 standard methods (formula + deemed savings) are now available. An official methodology set guidelines for other types of actions.

52% of energy savings achieved in 2016 came from actions with **households**, **19%** with **companies** and **27%** from actions on **transport**.

Key actors and scope

The **Ministry of Economy** sets the rules in agreement with the Ministry of Environment and the Ministry of Social Affairs. The Ministry delegated to the **Austrian Energy Agency (AEA)** the management of scheme (developing standard methods, reporting and controlling tasks).

The obligated parties (OPs) are almost **all energy suppliers** (selling more than 25 GWh/a) (about 600 companies, covering about 85% of Austrian final energy consumption).

All public and private companies can get an **energy savings account**, and can transfer their energy savings to OPs through civil contracts (no trading/market). OPs can also use the "pay to save" option by contributing to an energy efficiency fund (fee of 0.2€/kWh of first-year energy savings).

Accounting/crediting/validation of the energy savings

Energy savings are credited for the **1st year** of the action. The ownership of the energy savings goes always first to the final customer. OPs must **document their role** and provide in most cases an **attestation form signed by the final customer** that transfers the energy savings to the OP.

OPs can register energy savings on an **online database** at any time before February of the year after the implementation of the action. OPs must **report every year by February 14th their total achievements** for the previous year to AEA. The detailed documentation of the savings must be kept for **random controls** by AEA.

There is no ex-ante validation of the actions. **Verifications** are **done ex-post** (automatized plausibility checks of all files + detailed review of samples).

Public administration costs are about **€600 000/year**.

Specificities of the scheme or context

The scheme is a reinforcement and extension of the previous voluntary agreements. This experience provided a basis to start with.

The new scheme has the largest scope possible (all energy types for the targets, all end-use sectors for the actions), encompassing a large number of OPs. This choice is meant to distribute the burden and to offer flexibility. A condition has been set to ensure a minimum share (40%) of energy savings in households, to avoid strategies focused only on large projects in industry or commercial buildings. In addition, a bonus factor provides an incentive to implement measures with energy poor households.

Interview with Heidi Adensam

Head of the Division Energy Balances and Energy Efficiency
Federal Ministry of Science, Research and Economy



Have there been some changes since 2015?

Main rules remained unchanged. New standard methods were developed (10 to 15 new methods per year). Existing methods are also regularly updated to take into account new data available, technology and market developments, etc.

Clarifications were brought for some rules, in particular for M&V of large projects for large end-users, for example when energy savings had to be shared between several suppliers (for shares of more than 1 MWh of first-year savings).

What is your experience feedback after the two first years of the scheme?

Lack of competition in energy markets for large consumers made that some energy suppliers changed supply contracts to big customers: they apply higher rates in case the customer does not implement actions and does not transfer them energy savings. This was an unexpected form of incentive. This also means an impact of the scheme on energy prices in industry, while there was no significant impact on prices for households.

First annual targets could be met, and were even overachieved globally. But about 22% of OPs didn't met their individual target in 2015. Most frequent actions were on heating and domestic hot water, individual assessments in industry, fuel additives (for transport) and lighting.

The sub-target for households has also been met and even overachieved overall. But about 25% of the OPs didn't met their individual sub-

target. Moreover, the bonus for actions on fuel poverty has been used in a limited extent, as the corresponding programmes take longer time to develop and may be more difficult to implement.

What are the main challenges for the coming years?

First years have shown that M&V procedures may represent a high burden for both, OPs and AEA. So work is on-going to make the M&V rules more efficient, looking for the right compromise between providing enough flexibility to OPs, and ensuring quality of the actions and actual energy savings, while making the procedures not too complex and cumbersome to handle by AEA.

Are there future changes under discussion or preparation?

The scheme is managed with an approach favouring continuous improvement, in particular through regular contacts between AEA and OPs (2 to 3 workshops per year). EEO regulation is updated approx. once a year.

No major change is foreseen until the next general elections to be held in 2018. It is not expected that a change of government would lead to a profound revision of the scheme. Likewise, a new Energy & Climate Strategy for 2030 is under development, but should not imply major change for the EEO scheme.

Main reasons for possible revisions of the scheme could be new provisions in the future revised EED or if annual targets would no longer be met and to simplify the M&V procedures.



BULGARIA

Responsible authority : Ministry of Energy

Managing authority : SEDA (Sustainable Energy Development Agency)

Status, timeline and current target

The scheme first started in **2008**, with a target in cumulative terms up to 2016: 400 ktoe/a (4652 GWh/a) in 2016 for OPs and 116 ktoe/a for large consumers. The period **2014-2016** was a **transition** to a system with annual targets (both, cumulative and annual targets were in force for 2014-2016).

For 2014-2020, the target under EED article 7 was set from **61.7 ktoe/a** (717 GWh/a) **for 2014** up to **78.3 ktoe/a** (910 GWh/a) **for 2020**, in final annual energy savings from **new actions every year**.

Cumulative final annual energy savings of 558 GWh/a were achieved over 2014-2016. Cumulative results over the whole period (2008-2016) amount to **2 300 GWh/a of final energy saved in 2016** (about **49% of the overall target**).

Energy savings actions

All types of actions (including behavioural actions) in **all sectors**, (including energy transformation, distribution and transmission) that can achieve demonstrable energy savings.

The actual substantiation of achieved savings can be done through **energy audits** (before/after comparison) or by using **standard calculation methods** (including formulas, but no deemed savings). 20 methods are already available (more under development).

Most of energy savings reported so far have been achieved in the industry.

Key actors and scope

The general rules set by the **Ministry of Energy**, and the scheme is administered by **SEDA**.

Obligated parties (OP) are all **companies selling energy to final customers beyond a threshold depending on the energy type**, and including **of all types of energy sold** (excluding fuels for transport): 20 GWh/a for electricity and district heating; 1 million m³ natural gas; 6,500 tons of liquid fuels (excl. transport fuels); 13,000 tons of solid fuels.

In the previous scheme (up to 2016), obligations were also assigned to large consumers (**industrial companies** and **public authorities**). These actors are then also eligible to get energy savings credits.

Once issued by SEDA, energy savings certificates can be transferred from a non-OP to an OP or between OP, in case an OP has overachieved its individual target. There are no restriction or rule for trading of energy savings but there have not been any documented cases of trading so far.

Accounting/crediting/validation of the energy savings

OP must **submit the documentation of their projects** (most often including the audit report) **for validation by SEDA** that then credits the **1st-year energy savings** (in proportion to the funding brought for the implementation of the action). The documentation shall include a verification of the calculations by an independent energy auditors.

OP must also report their energy savings annually not later than 1st March based on their own estimations and by using a reporting template.

SEDA is in charge of performing **controls** of the documentation and quality of the implemented actions. All OP reports based on audits are subject to validation by SEDA, and further controls are done in case of suspicion.

Specificities of the scheme or context

The mechanism for the obligated parties to recover their costs has not been defined. It was estimated in 2014 that the **investments needed** to achieve the targets would amount to **1.7 billion euros for 2014-2020**. This shows that **cost recovery** is a **key topic for the success** of the scheme.

The new EE Law gives OP the possibility to make contributions to the Energy Efficiency and Renewable Sources Fund or to other financial intermediaries for financing energy efficiency activities and measures in the amount of the investments necessary to implement measures to reach the individual targets.

Interview with Tsvetomira Kulevska
Director DG “Coordination and management of EE and RES”
SEDA (Sustainable Energy Development Agency)



Have there been some changes since 2015?

A new Energy Efficiency Act has been adopted at the end of 2016. It introduced a new alternative measure - National Multifamily Residential Buildings Renovation Programme, to complement the obligation scheme in order to meet the Bulgarian target for EED article 7 (~65% for the obligation scheme, ~35% for the renovation programme). This new alternative measure was also an incentive to help a more active involvement of OP in the obligation scheme.

The annual targets for OP have been revised consequently. For 2017 the individual annual targets are less than 1% of their annual sales in 2016. It should be noted that actions receiving grants from the renovation programme are not eligible for the obligation scheme.

The new law does not change the main rules for the monitoring of the obligation scheme. The main other evolution since 2015 is the development of new standard methods (formulas, but no deemed savings). 20 standard methods are already validated and further 30 are under adoption (mostly inspired from the Italian scheme).

The thresholds on energy sales for OP have been decreased from 75 GWh/a previously to about 20 GWh/a now (different thresholds depending on the energy type). This led to an increase of the number of OP from 52 to about 112, whose 76 OPs having declared energy sales beyond the thresholds and 36 OPs that received a “penalty target” as they didn’t report their energy sales as required.

A trading system for energy savings certificates was prepared and would be ready to use. But there was no political decision yet to allow this option.

What were the main lessons learnt from the period 2014-2016?

Making the obligation scheme work is difficult, and in particular involving OP. The new stages of liberalizing energy markets made that new companies entered the markets and then the obligation scheme. They are often more used to competition and have a more positive perception of the obligation scheme, seeing it as a business opportunity. They may act as good examples for the others.

There may be a need to further simplify the administrative procedures to validate the actions and energy savings.

There is an increasing share of energy savings reported with standard methods. This is indeed easier for OP to promote single actions compared to more comprehensive projects. It is also easier for OP to reach industrial customers. Programmes for households were mostly information campaigns and energy advice. Standard methods are under preparation to make it easier to account for soft measures.

What are the main challenges for the coming years?

In addition to meeting the targets, one of the main challenges will be to prove the actual energy savings (ex-post) for the introduced alternative measure, as energy savings delivered by the National Renovation Programme by now are mostly reported based on ex-ante estimates.

Is it planned to develop specific provisions about fuel poverty?

Not for the moment. There is no official definition for energy poverty in Bulgaria and usually energy poverty and social poverty are considered the same.



CROATIA

Responsible authority : Ministry of Environmental protection and Energy
Managing authority : CEI (NKT)
(National Energy Efficiency Authority)

Status, timeline and current target

The start of the Croatian Energy Efficiency Obligation scheme has been **postponed**. It will start as soon as the Energy Efficiency Act will be revised (see interview next page).

The first period will last up to 2020. The initial target was set at **22 PJ** (final energy), representing approximately **40% of the energy savings for the Croatian target for the article 7 of the Energy Efficiency Directive**. Other 60% percent is implementing and reaching targets quite well through alternative policy measures.

The target for the obligation scheme was initially set for the period 2015-2020. As the scheme will start later, this target may be revised. The possibility to define annual targets increasing over time is under discussion, to make possible a progressive start of the scheme.

Energy savings actions

The rules aim at ensuring that the scheme is **neutral** (as regards the type of actions).

Actions will be **eligible in all end-use sectors**, including transport and industry. And only actions receiving public grants non covered in alternative policy measures will be eligible, thus avoiding double counting.

Key actors and scope

National Energy Efficiency Authority - NKT (**given to CEI by EE Act**) is in charge of preparing the scheme, with technical support from consultancies. NKT submits scenarios of scheme design for decision by the **Ministry of Environment and Energy**.

The Obligated Parties will be the **suppliers of electricity, natural gas and oil** (including for transportation). The smallest suppliers will not be included in the scheme. Overall, there should be around **40 Obligated Parties**. There are in particular one main electricity supplier (HEP) and one main oil supplier (INA). Their obligations would represent about 70 to 75% of the target for the scheme.

The obligation for each supplier will be calculated **taking into account energy sales in all end-use sectors** (including transport and industry). The energy suppliers may recover the cost of the obligation through the energy prices (market prices).

ESCOs will be eligible parties: they can submit their projects to get energy savings credits.

Accounting/crediting/validation of the energy savings

In case an Obligated Party does not meet its target, an **alternative** will be to pay a fix amount per kWh to **EPEEF** (Environmental Protection and Energy Efficiency Fund).

A **rulebook** has been defined, setting the M&V process. Obligated Parties and ESCOs will register their data and reports on an **online M&V platform to NKT**. Energy savings are then automatically calculated based on pre-defined algorithms.

Specificities of the Croatian scheme or context

In the Energy Efficiency Act adopted in 2014, the Obligated Parties were the energy distributors. The change in the decision about the Obligated Parties therefore require to **revise the Energy Efficiency Act**.

The scheme will use the same **online M&V platform** as used for monitoring public energy efficiency programmes, already in operation for art 1,3,5. And alternative measures for art.7. This makes possible to handle double counting issues. The platform was also designed to process automatically the data, minimising the administrative burden for NKT. The experience with the platform has been positive. Contacts have been made with other countries to disseminate the experience.

Interview with Dean Smolar

Head of National Energy Efficiency Authority
CEI – NKT



Were there changes compared to what was planned in 2015?

The start of the scheme was postponed, mainly because it was decided that the Obligated Parties should be the energy suppliers, and not the energy distributors as initially set in the Energy Efficiency Act adopted in October 2014.

From a legal point of view, the term “energy distributor” made impossible to include oil products (for heating, industry and transportation) in the scheme, as there is no distributor but suppliers or retailers of oil products (from a legal point of view). The new government decided in 2016 that the Obligated Parties should be the energy suppliers, so that oil products could be included in the scope of the scheme.

This change requires the revision of the Energy Efficiency Act and the related by-laws. This legal process needs time, hence the delay in starting the scheme.

In parallel, the practical aspects, in particular the monitoring tools, are ready for the scheme to start as soon as the Act and bylaws will be revised.

What are the main challenges up to 2020?

The first challenge is to start the scheme and to make it work. It is therefore under discussion to prepare a progressive start. This could mean to have annual targets with smaller targets at the beginning, and then increasing each year.

This is also a reason to allow Obligated Parties to comply with their obligation by paying a contribution to the Environmental Protection and Energy Efficiency Fund. But the contribution fees

will be set high enough to encourage the Obligated Parties to do actions instead of paying this contribution.

NKT recently made an analysis to review the progress achieved with the alternative measures in the frame of the article 7 of the Energy Efficiency Directive. The results show good progress, but that additional efforts and perhaps measures may be needed. The target for the Energy Efficiency Obligation scheme could be revised as well, but would need to remain in the same order of magnitude. A new analysis is under preparation to update the scenarios.

Possible increases in the energy prices are also a key issue. Electricity prices have increased in the recent years, partly due to the development of the production from renewable energy sources (wind in particular) through feed-in tariffs. Regulated tariffs for natural gas will also end soon. So there are fears regarding the risks of new increases in energy prices.

Another key issue is fuel poverty. Provisions specific to fuel poverty will not be included in the Energy Efficiency Obligation scheme from the start. However, plan is to consider options to do so once there will be sufficient experience with the management of the scheme. For the moment, the alleviation of fuel poverty is addressed by other policy measures such as compensation for vulnerable consumers, as defined by the Regulation regarding the monthly amount of compensation for vulnerable consumers of energy (OG 102/15). Additionally, one of the measures in the 4th NEEAP is the Program for combating energy poverty with a systematic approach to this issue.



DENMARK

Responsible authority : Ministry of Climate, Energy and Building

Managing authority : DEA (Danish Energy Agency)

Status, timeline and current target

The obligation scheme has taken its current form (including an energy savings obligation) **from 2006**.

The policy agreement of December 2016 revised the **annual targets to 10.1 PJ/a** (new final first-year energy savings) for **2016-2020** (2.6% of Danish final energy consumption in 2014, excluding transports).

Reported first-year energy savings:

8.4 PJ in 2013 (vs. target of 10.7 PJ);

9.2 PJ in 2014 (vs. target of 10.7 PJ);

11.6 PJ in 2015 (vs. target of 12.2 PJ);

11.0 PJ in 2016 (vs. target of 10.1 PJ).

Energy savings actions

All actions saving final energy beyond minimum energy performance criteria (excluding behavioural actions, CFL and appliances after 2009), reduction of losses in transmission and distribution networks, and savings from solar farms (over 2010-2018) and heat pumps (from 2017) for district heating are eligible.

Around **30%** of the energy savings are achieved in **households** – most of these are calculated by one of the **150 standardised actions** (deemed savings). **Specific calculations** (scaled savings) are used for other actions (mainly in **industry**, around **45%** of the savings). About **20%** of the savings are achieved in the **service sector** (public and private) and **1% in transports**.

Key actors and scope

The overall target is set by the **Ministry** after a policy agreement (consensus-seeking process among all political parties). The implementing and supervision body is **DEA**. Rules and implementation issues are discussed within a **technical working group** chaired by DEA and including representatives of the obligated parties (OPs).

OPs are **all the energy distributors** (3 for natural gas, 65 for electricity, 405 for district heating and 6 for oil), covering **all end-use sectors** (except transports).

OPs may establish agreements with **affiliated companies** or other **contractors** (consultants, energy traders, installers, craftsmen, retailers, banks, etc.) that will implement programmes towards end-users. Energy savings may also be **traded between OPs** before they are reported to DEA.

Accounting/crediting/validation of the energy savings

Energy savings are credited for the **1st year** of the action, including a **weighting factor** to take into account the differences in action lifetimes, in impacts on primary energy consumption, and in terms of avoided CO2 emissions (also distinguishing savings inside or outside the ETS scope).

There must be an **agreement** before the actions are implemented, and the final customers must give the right to a given OP to **notify** the savings. Every OP must submit a **report annually**, including an **audit report** (done by an external auditor every other year). OPs shall implement a **quality control system**. Documentation of savings does not need to be submitted to DEA, but must be kept by OPs for 5 years, in case of **random checks** supervised by DEA (including on-site inspections as well as surveys of intermediaries and final consumers). The rules for documentation, quality control, etc. are strengthened in the new agreement. **Overall administration costs** of the scheme have been about **540 k€/a**, but will be increased to around 3 M€ in the future

Specificities of the scheme or context

The **consensus-seeking** approach is key in the processes for setting the targets and defining the rules of the scheme. The overall and multi-year policy agreement offers a **stability**, which is very important for the obligated parties to develop their strategies.

A bonus factor (1.5) is applied to priority actions, to promote actions with a lifetime longer than 15 years, and also in line with the national objective of **phasing out from fossil fuels for space heating**.

Interview with Peter Bach

Chief adviser on energy efficiency
Danish Energy Agency



Have there been changes since early 2015? And why?

A new scheme agreement was signed in December 2016 that includes several important changes. First, the annual targets for 2016-2020 have been reduced, after observing in recent years that costs to achieve energy savings were increasing. Second, the requirements about quality insurance, documentation and verification of the savings have been strengthened.

Structure of the system remains the same. But more details and more robust procedures are required. Likewise, random controls supervised by DEA are going more into the details. This was decided based on the evaluation done in 2015, but also on the feedback from on-going monitoring of the scheme and concern that higher targets may induce higher risks.

What is the experience feedback from the recent years?

Criticism increased from stakeholders, press or even at the Parliament, with focus on:

- Increased cost, and low incentives for the grid companies to achieve their targets in the most cost-effective way.
- Bad quality of work and wrong calculation of savings made by some of the independent contractors. The error rate detected by the random controls has increased and there has been some “bad” cases.
- Low additionality for actions in households
- Households contribute more to the scheme than they get back (cross-subsidising).

The role of companies affiliated to obligated parties was also criticised, arguing that they may realise high profits for doing the jobs.

Trends in reported costs may be more due to the strategies of the obligated parties than to the costs of the actions. Recent higher involvement of consultancies offering energy advice to final customers may help decrease the costs. Experience shows that grants and energy advice are complementary: grants help to get the interest of customers, then energy advice help to find actions with higher additionality. So the way the grant is delivered matters more than its level.

What are the upcoming main challenges?

The scheme is now set up to the end of 2020. Thoughts about post-2020 have already started. A key question is to know what would be the metrics giving the right incentive for deep retrofit of buildings and for process equipment. Energy efficiency in buildings is supported by high energy taxes, strong regulations and information activities. While the EEO scheme is the main instrument for industry (low energy tax, less regulations). Both environments are very different, and energy savings have been achieved at a significantly lower cost in industry.

All these elements question the relevance to use a single scheme to address both sectors with the same rules. Experience sharing with other countries about this issue would be very interesting.

Is it planned to develop specific provisions about fuel poverty?

No, because in Denmark fuel poverty is addressed by other policies than the energy policy (for example, social policy).



FRANCE

Responsible authority : Ministry of Ecology, Sustainable Development and Energy

Managing authority : National Pole for White Certificates (also part of the Ministry)

Status, timeline and current target

The scheme started in **July 2006**, with targets usually set for 3-year periods and expressed in kWh cumac (lifetime cumulated-discounted final energy savings). The current target is **700 TWh cumac** for **2015-2017**, plus a “fuel poverty” target of 150 TWh cumac for 2016-2017. The target for **2018-2020** is set to **1600 TWh cumac**, whose 400 TWh cumac to be achieved for households at risk of fuel poverty.

Issued certificates from 01 January **2015** to 31 March **2017** amount to **567.4 TWh cumac** (and 672.1 TWh cumac when including overachievements in previous periods). **90.7 TWh cumac** were issued from January 2016 to March 2017 for the “fuel poverty” target.

Energy savings actions

Actions are eligible in **all end-use sectors** (except consumption covered by the EU ETS), under **performance and/or quality requirements**. **183 standardised operations** are currently eligible (90% of CEE issued from Jan. 2015 to March 2017). Other actions can be assessed according to an **official methodology** (mostly for large actions in industry or services, 6% of the CEE).

From Jan. 2015 to March 2017, **49.3%** of the CEE were issued for actions in **residential buildings**, **18%** in **tertiary buildings**, **20.2%** in **industry**, 5.3% in networks, 5.1% in agriculture and 2.1% in transport.

Key actors and scope

The Ministry (**DGEC**, General Directorate for Energy and Climate) sets the rules, targets and penalties. A dedicated service of the Ministry (**PNCEE**, National Pole for White Certificates) administers the scheme. The French Energy Agency (**ADEME**) provides a technical support.

The obligated parties (OP) are the **energy suppliers** of **electricity, natural gas, oil products, heat** (district heating) in the **residential** and **service** sectors and in **transports**. They can achieve their targets by directly gaining energy savings certificates (CEE) or by buying CEE on the market (OTC trading scheme – recently 0.28 c€/kWh cumac or 0.47 c€/kWh cumac for “fuel poverty”). **Local authorities, national agency for housing and social housing authorities** are also **eligible** to get CEE.

OP’s costs of the “regular” and “fuel poverty” target were estimated to be respectively about €2 billion for 2015-2017 and €1 billion for 2016-2017.

Accounting/crediting/validation of the energy savings

The validation process was simplified from 2015. The justifying documents are kept (for 6 years) by the party applying for certificates, at disposal for control purposes. Obligated or eligible parties submit **standard files** to the PNCEE that issues the certificates, **once for the whole lifetime energy savings** (hence the 4% discount rate).

An **official registry** monitors the certificates issued and traded. It is directly used to verify the target achievements at the end of the 3-year period. In case of non-achievements, OP must pay **penalties** in full discharge (**2 c€/kWh cumac** or 1.5 c€/kWh cumac for “fuel poverty”).

The PNCEE performs **controls** on samples of files. In case of non-compliance, the certificates are cancelled and **sanctions** may be applied (**4 c€/kWh cumac**).

Specificities of the scheme or context

The priority policy objective is the **refurbishment of the building stock**, together with a “fuel poverty” **target from 2016**. A bonus is granted for actions for “very low income” households. **Specific programs** selected by the Ministry (based on given policy objectives) are also eligible with a fix rate of kWh cumac per € invested in these programs (they are not accounted for the reporting for EED article 7).

A key output of the scheme is the **catalogue of standardised operations** defined since 2004 within **working groups** supervised by **ATEE** (association of stakeholders) in partnership with ADEME.



Interview with Loïc Buffard

Deputy Head of the Energy Efficiency and Air Quality Division
DGEC, Ministry of Ecology, Sustainable Development and Energy

What were the main changes since 2015?

The scope has been progressively increased (more actions eligible) in order to cover and realise most of the energy savings potentials. Deemed savings defined for the standardized actions have been updated according to rules stemming from the Energy Efficiency Directive (EED) and new market conditions.

A “fuel poverty” target has also been created. It represents 150 TWh cumac for 2016-2017 (+30% of the existing annual target). Some dedicated operations have been developed by obligated parties to tackle fuel poverty.

What are the main lessons learnt for the period 2015-2017?

The scheme has been adapted to take into account the experience feedback and increased ambitions, but always keeping the same general principles. This is important to give stability and readability.

Using multiannual periods gives time for actors to operate. However, it requires to set ambitious objectives, to avoid a temporary decrease in the energy transition momentum (“start and stop” behaviour of obligated parties).

What are the next milestones or changes to come?

The target for 2018-2020 is set to 1600 TWh cumac, whose 400 TWh cumac to be achieved for households at risk of fuel poverty.

Some changes are under discussion with stakeholders but they will not upset the general principles of the scheme and mainly focus on technical rules, for example, to apply for white certificates.

What are the main stakes or challenges for the years to come?

The main stake is to further accelerate the energy savings pace in order to meet the ambitious targets for 2020 and 2030.

The scheme has proved to be well designed to deliver actions in the residential and service sectors. The energy savings potential in buildings remains large.

A key challenge will be to trigger energy savings in a macroeconomic context where private actors are still relatively reluctant to invest, and with relatively low energy prices.

The rules to be defined in the revised EED shall be ambitious enough to keep a European leadership in energy efficiency. Low energy efficiency objectives, especially with article 7, would lead to weak European energy policy.



GREECE

Responsible authority : Ministry of Environment and Energy

Managing authority : CRES (Centre for Renewable Energy Sources and Energy Savings)

Status, timeline and current target

The scheme **started in 2017**, with the publication of the bylaws on 11th of April. The **first period** will last **until 2020**, with a target representing about 10% of the Greek target for EED article 7, **333 ktoe of final energy savings cumulatively until 2020**.

Annual cumulative targets are set **with a minimum threshold to be achieved** in the target year: 100 ktoe and 30% in 2017, 133 ktoe and 50% in 2018, 67 ktoe and 50% in 2019, 33 ktoe and 100% in 2020.

Individual targets of OP are proportional to their energy sales (in energy units).

Energy savings actions

Actions are **eligible in all end-use sectors**, taking into account the **guidelines of EED article 7**.

Energy savings are evaluated with **standard bottom-up methods** (26 methods ready by May 2017, including **values for deemed savings**) or with methods for **scaled or metered savings** developed from the multEE project (multee.eu). OP can ask for new methods that are then developed in concertation between CRES and OP.

Actions tackling fuel poverty get a **bonus factor of 40%**.

Specificities of the scheme or context

The first period (2017-2020) is designed as a **learning phase**, with a **flexibility** in the targets through the threshold of achievements for each year and with a review of the OP action plans done beforehand. CRES can therefore **provide support** for ensuring that OP action plans will meet the scheme requirements and achieve the targets.

Key actors and scope

The **Ministry of Environment and Energy** enforces the rules of the scheme. **CRES** is the implementing body, in charge of measurement, monitoring, control and verification. CRES can also suggest improvements to the Ministry.

The obligated parties (OP) for the reference year 2017 consist of **electricity** (4), **gas** (4) and **oil products** (LPG, gasoline, diesel and heavy fuel oil ; 24) **suppliers or retailers** whose market share is higher than 1% and representing in total at least the 95% of the sold energy for each fuel separately.

OP may implement programmes themselves, as well as through subcontracting or partnerships. They may also use a **“buy out” option**. **Exchange of energy savings between OP** is also **allowed**.

Accounting/crediting/validation of the energy savings

OP must submit an **annual action plan** by June each year, presenting how they plan to achieve their target. CRES reviews these action plans **beforehand**, in particular to agree on the documentation and prevent further issues. OP then **report by the end of each year** their achievements.

MRV is based on an **integrated approach** through an online information system, with the aim of minimizing M&V costs (for both, OP and CRES). CRES verify all files and perform detailed checks on sample of projects, including on-site verification when needed.

Interview with Christos Tourkolias

Energy Policy Analysis Department
CRES



What are the main expectations for this new scheme?

The main objective is to contribute the achievement of the Greek target for EED article 7. The scheme aims at supporting the implementation of the most cost-effective actions.

No cost recovery mechanism was defined for the moment, to avoid increases in energy prices. Therefore the scheme is focused on behavioural or soft measures for its pilot phase (2017-2020). This takes into account that OP have little experience in the field of energy efficiency programmes.

This design was also meant to tackle the absence of national public campaign for energy efficiency. The scheme will therefore play this role. The objective is also to develop the relations between suppliers and customers and to boost the ESCo market, not well developed in Greece so far.

It is expected that the scheme will have a more important role in the Greek energy efficiency strategy after 2021.

What is your experience feedback with the preparation of the scheme?

The general awareness about energy efficiency is not very high in Greece. There was therefore a need for communication towards the stakeholders that could be met with the support of projects such as ENSPOL and multEE²¹. Several rounds of consultation were organised. Overall, important efforts were

needed to create a dynamic and put the scheme of good tracks.

One of the difficult points was the integration of the transport sector in the scheme, as there was a limited experience available from other countries. Transports represent about 40% of the Greek final energy consumption, this was therefore a major issue.

What are the main challenges to come?

The main challenges will be to achieve energy savings in the transport sector and to find some financial mechanisms to fund the activities while limiting impacts on energy prices. This is a key issue as Greece is still in recession.

Practical challenges will be to involve all OP and to ensure that common conditions apply for all OP. In terms of M&V, risks of double counting may arise due to the focus on behavioural actions and information campaigns, for which it is more difficult to monitor the participants. This is why the review of action plans beforehand is essential.

Another challenge on a longer term is to promote the development of ESCos.

How is defined the fuel poverty scope?

For the moment, the fuel poverty criteria for the 40% bonus factor is based on the special electricity tariff. This will be updated to use a more appropriate indicator in line with the current preparation of a national action plan to tackle fuel poverty.

²¹ See <http://enspol.eu/> and <http://multee.eu/>



IRELAND

Responsible authority : DCCAE (Department of Communications, Climate Action & Environment)

Managing authority : SEAI (Sustainable Energy Authority of Ireland)

Status, timeline and current target

The Irish obligation scheme started in January 2014, in continuation of a voluntary agreement (2011-2013). The current period is set for 2017-2020.

For **2014-2016**, the **target** was **new annual primary energy savings of 550 GWh/a**, with relative **sub-targets (20%** for the **residential** sector and **5%** for the **“fuel poverty”** scope). The target is now **625 GWh/a for 2017** and **700 GWh/a from 2018 to 2020**, with the same relative sub-targets.

355 GWh/a was achieved in **2014**, **754 GWh/a** in **2015** and **759 GWh/a** in **2016**.

Energy savings actions

About 50 standardised actions²² for the **residential sector** (catalogue updated frequently). These actions shall be **implemented by qualified contractors**. Actions in **other sectors** are considered on a project-by-project basis, using SEAI assessment tools or other methods.

In the period 2014-2016, 1,398 GWh/a (75%) energy savings were achieved in the non-residential sectors, 287 GWh/a (15%) in the residential sector and 184 GWh/a (10%) in the fuel poverty scope. Around 10% of savings in the non-residential sector, 30% of savings in the residential sector (including energy poor) were also supported with grants from SEAI programmes.

Key actors and scope

The **Ministry** (DCCAE) enforces the rules of the scheme, and **SEAI** is the implementing body.

The obligated parties (OPs) are **all energy suppliers** (all energy types and sectors) selling more than 600 GWh/a (about 10 electricity and/or gas suppliers + 1 entity representing the oil companies). Suppliers selling between 240 and 600 GWh/a are included on a voluntary basis. Public authorities and OPs meet within the **Quarterly Governance Forum** to discuss implementation issues.

OPs can use partnerships with **third parties** (service providers, local authorities, etc.). Exchange of savings between OPs and internal transfer of savings between sub-targets are allowed under certain conditions (done for less than 3% of savings over 2014-2015 for both options).

Accounting/crediting/validation of the energy savings

The obligated parties must have in place an **agreement** (including services in kind or monetary contributions) either directly or through a third party to final customers **prior to any energy savings being realised**.

An online **energy savings crediting system** has been set for actions in the **residential sector**. OPs shall implement quality control process (ISO 9001-like, and using ISO 50015 for the M&V guidelines) and perform audits of samples of non-residential projects representing at least 20% of the savings reported. In addition, SEAI are required to audit between 5 and 10% of the projects, including on-site inspections (both in residential and non-residential sectors).

The energy savings are **credited only for the year where the action is reported** (savings must come from new actions each year). A discounting factor is applied to energy savings from actions where the savings will not persist to 2020.

Specificities of the scheme or context

OPs may buyout up to 30% of their total cumulative target (fees defined by the Ministry each year). In addition to trading between obligated parties (but no market), a website was created to allow auctions of future projects by third parties. However, this has not been used by OPs as they see risks in committing funding for future projects that may not meet their requirements afterwards.

Specific provisions aiming at ensuring the quality of the actions. In particular, building professionals need to get a certification and to sign the Code of practice for retrofit to be registered by SEAI.

²² See <http://seai.ie/EEOS/EEOS%20Deemed%20Energy%20Credits%20Table%202016.pdf>

Interview with Josephine Maguire and Joe Durkan

Respectively National Coordinator of Better Energy
and EEOS Programme Manager,
Sustainable Energy Authority of Ireland



Have there been some changes since 2015?

M&V procedures have been improved on a continuous basis, with the objective of streamlining the process and encouraging the implementation of quality management systems (ISO 9001-like). Overall there was a move from IPVMP to ISO standards: ISO 50015 for M&V procedures and ISO 50001 for energy management systems.

For the new period (2017-2020), the target was increased. This was previously planned, in view to meet the Irish energy savings targets for 2020. This also takes into account the change in the implementation of the Energy Efficiency Directive (EED).

Energy suppliers selling between 240 and 600 GWh/a are now included in the scheme on a voluntary basis. These new thresholds were set to spread the scope of the scheme, without including the smallest suppliers. This was also a result from the consultation process to prepare the new period.

What is your experience feedback after the two first years of the scheme?

The previous voluntary agreement helped the obligated parties in getting a first experience. There was indeed a learning curve for both, obligated parties and SEAI. This can be seen in the increasing amount of savings reported, as well as in the clarifications of the guidelines, in particular for M&V. It became clear that there was no need to measure everything, but that efforts should be put on ensuring consistency. Initially, the obligated parties were too much relying on the validation by SEAI. They are now more involved in the verification of the

savings, and the savings reported can be directly considered validated.

A key component of the scheme was its “sectorisation”. Energy savings are cheaper to achieve in the non-residential sectors, but the sub-targets gave an incentive for projects in the residential sector, and in particular for the fuel poverty scope (with higher penalties). So far there was indeed an overachievement for the “fuel poverty” sub-target. Some of the obligated parties even reported that the obligation scheme provided them with a wider perspective for their business strategy, considering new activities they could develop.

What are the main challenges for the coming years?

Quarterly meetings with the obligated parties enable a continuous improvement as regard implementation issues. No big change is planned until the EED revision is completed. A new consultation will likely be organised then to prepare the post-2020 period.

One issue is cost data, as obligated parties do not have to report their full costs. Further studies are under consideration to analyse costs and performance of the scheme. Currently overachievements are observed. But the easiest actions may soon have been tapped. So costs may increase.

M&V will always be a challenge. But energy companies are used to implement robust quality processes for the rest of their business. So the approach is that they do the same for energy savings. This will be greatly facilitated by the move towards formal quality and management systems, such as ISO 9001, ISO 50001 and ISO 50015.



ITALY

Responsible authority : Ministry of Economic Development & Ministry of Environment
Managing authority : GSE (*Gestore dei servizi energetici*)

Status, timeline and current target

The scheme started in **2005**. Annual targets are defined within **multi-year period** (currently 2017-2020). The targets are expressed in both **annual primary energy savings** (in **Mtoe/a**) and in **number of certificates** (in **Mtee/a**, distinct unit due to the *tau* coefficient, now abolished from 2017, and supply-side actions eligible for the targets in Mtoe but not for certificates).

Annual targets for 2017-2020 (cumulative primary energy savings):

2017: 7.14 Mtoe/a ; 5.34 Mtee/a
 2018: 8.32 Mtoe/a ; 5.57 Mtee/a
 2019 : 9.71 Mtoe/a ; 6.20 Mtee/a
 2020: 11.19 Mtoe/a ; 7.09 Mtee/a

For 2005-2015, 40.0 Mtee were issued (against an overall target of 42.4 Mtee).

Energy savings actions

With the new guidelines, published in 2017, actions continue to be eligible in all end-use sectors, under strict additionality criteria. Calculation of energy savings has to be done either with a **new type of standard projects** (with deemed savings plus mandatory measurement on a sample of similar projects) or with **monitoring plan projects** (subject to pre-validation by GSE, then certificates issued based on measured data).

2005-2009: over 80% of the certificates for **standard projects** (large share of CFL)

2013-2014: over 80% for **monitoring plan projects** (mostly in **industry**)

2016: about 50% each for monitoring plan projects and standard projects.

Key actors and scope

The **Ministries** (Economy and Environment) set the general rules of scheme and the annual energy savings obligations. **GSE** (public body in charge of stimulating energy services) manages the scheme, and in particular the monitoring & verification tasks, with the technical support from **ENEA** (Italian Energy Agency) and **RSE** (technical centre owned by GSE). **AEEGSI** (Regulator of the energy markets) sets the penalties and DSO tariff allowance.

The obligated parties are the **distributors of electricity** (13) and **natural gas** (47) with more than 50 000 customers. They can directly implement project, have bilateral contracts with operators or buy energy savings via the **trading platform** managed by **GME**. About 99% of the projects have been presented in 2016 by eligible (non-obligated) parties (95% by **ESCOs**).

Many associations or federations of stakeholders are also active (e.g., FIRE for promoting energy services).

Accounting/crediting/validation of the energy savings

Obligated or eligible parties can submit **online application files**. **GSE** reviews their documentation and validates (after technical evaluation by **ENEA** and/or **RSE** when needed) within 60 to 90 days, then **GME** issues the certificates.

Certificates are usually **credited on an annual basis for 5 years**. The period of time over which certificates are credited can anyway vary from 3 years, for behavioural change projects, to 10 years, for more complex projects and high efficiency cogeneration.

GSE monitors target achievement annually, based on reports by the obligated parties. GSE also **randomly checks ex-post** whether the implemented project complies with the approved project and conducts **on-site inspections** during the implementation or useful lifetime of the project. Annual programme of controls must include on-site inspections for projects with energy savings > 3 000 toe/a.

Specificities of the scheme or context

Almost all the white certificates are traded. The scheme has been a push for the ESCOs market. Since 2013, it is not possible to cumulate a national public incentive and white certificates. Since 2016, ESCOs and energy managers must be certified for projects to be eligible for certificates.

Interview with Dario Di Santo

Managing Director

FIRE (*Federazione Italiana per l'uso Razionale dell'Energia*)



Have there been changes since early 2015?

The main change is that new legal guidelines for the scheme have been issued. They set the annual targets for the period 2017-2020.

They also revised the methodology to account for energy savings. The two previous categories of standard and analytical projects have been merged into a new approach of standard projects: energy savings have to be determined based on measurements on a sample of similar projects. The metered energy savings are then extrapolated and the extrapolation method must be justified. This change is meant to increase the accuracy of reported energy savings.

In parallel, the method for Monitoring Plan Projects (MPP) remains the same, with stricter rules for energy baseline. A list of eligible types of projects per sector has also been introduced. This restricts the set of eligible projects by taking into account both technical and economic additionality evaluation and synergies with other policies.

Projects for behavioural changes are now allowed (in all sectors), offering new options (practical details have still to be defined).

Another major change is that the use of tau coefficient (that weighted annual savings according to standard lifetime per action type) has been removed. A distinction is still made in terms of years of validity for the certificates (from 3 to 10 years depending on the action type). But overall this means that less certificates will be delivered for projects having long lifetime.

In addition, new requirements have been added about the qualification of the energy

savings projects and their operators. This is meant to increase quality insurance.

Stricter rules have also been set about the responsibilities of actors applying for certificates, making both ESCOs and end-users responsible in case of problems leading to penalties decided by GSE. This is important as small ESCOs may run big projects for large end-users, not always having financial capacity to cover these risks.

What is the experience feedback from the recent years?

It became difficult to meet the targets due to the additionality requirements (making some projects not eligible any more) and the fact that projects receiving national public aids are not eligible since 2013 (these aids are more attractive for end-users than the certificates, in particular for buildings). Also from 2013, the rules for MPP required more time to develop projects.

This can explain a recent rise in the prices of certificates from mid-2016.

What are the main challenges for the coming years?

The main challenges will be to meet the national targets, considering the stricter rules about the energy consumption baseline, eligibility of projects, and measurement and verification. GSE is preparing operational guidelines that will be critical for the revised scheme to work.

Is it planned to develop specific provisions about fuel poverty?

Not for the moment. Fuel poverty is tackled by other policies.

LATVIA

Responsible authority : Ministry of Economics

Managing authority : Ministry of Economics

Status, timeline and current target

The Latvian Energy Efficiency Obligation scheme officially started on 29 May 2017²³ with a startup period up to the end of 2017. The first obligation period will then be from 2018 to 2020. Further periods will be 5 years long (2021-2025, etc.) up to 2030.

The obligation is calculated each year as 1.5% of the electricity sales of this year (for example, 1.5% of the electricity sales in 2018 for the 2018 target). Sales to large electricity consumers and enterprises may be deducted from the obligation scope.

Energy savings actions

All actions that can demonstrate energy savings for the final customers are eligible (**all end-use sectors**), including information and consultation.

A **catalogue of standardised actions** has been developed by working group including representatives of the parties involved in the scheme and external experts, also using the Danish experience and taking into account the specificities of the Latvian context.

Other actions should be eligible, provided their energy savings are documented (for example with energy audits).

Key actors and scope

The **Energy Efficiency Division of the Ministry of Economics** is in charge of the scheme.

Obligated parties will be the **electricity suppliers or retailers** selling more 10 GWh/year in the previous year.

Obligated parties can fulfil their obligation by implementing programmes or through the payment to an energy efficiency fund (fee set at 70 €/MWh to be saved for the target). Obligated parties may report energy savings achieved from January 2014 (in line with the period covered by the Energy Efficiency Directive).

In case an obligated party would not have achieved at least 80% of its yearly target, a penalty must be paid to the energy efficiency fund (1.5 times the regular contribution fee). Overachievements may be transferred to the next years.

Accounting/crediting/validation of the energy savings

Baselines for the standardised actions are **based on current regulations**.

Obligated parties must submit to the Ministry an **annual report** describing the action plan implemented, the achievements of the previous year as well as the cost incurred by the obligated parties and the cost recovery they consider.

Possible overlaps with public programmes must also be mentioned in the reports, as well as the methodology and details of the energy savings calculation.

The reports are then controlled by the Ministry. In addition, **random controls** of reported actions can be done either directly by the Ministry or by independent auditors contracted by the obligated parties under Ministry's request.

Specificities of the Latvian scheme or context

Conformity with EED article 7 was a key consideration when preparing the scheme.

A key difficulty to overcome was the **fear of increasing energy prices** due to the scheme.

Municipalities were quite active in the discussions about the scheme as they want to keep the investments induced by the scheme within their own territory. Some intend to create municipal ESCOs or energy efficiency funds. As in the first obligation period municipal district heating companies are outside the scope of the scheme, obligated parties can fulfil their obligations only by implementing programmes or contributing to the National Energy Efficiency Fund (but not to municipal energy efficiency funds). While municipalities can be involved in energy efficiency through voluntary agreements.

²³ <https://www.vestnesis.lv/op/2017/97.7>



LUXEMBOURG

Responsible and managing authority :
Ministry of the Economy

Status, timeline and current target

The scheme has started in **January 2015**, for a period up to the end of **2020**.

The overall target has been set to achieve 100% of the target for the EED article 7: **5 993 GWh** of final energy savings cumulated **over 2015-2020**.

The individual targets are set annually (level of about **285 GWh/a** of new final energy savings).

Key actors and scope

The **Ministry** has the responsibility of the scheme, including its administration and management. The **Energy Regulator** applies the sanctions after decisions by the Ministry. The agency **MyEnergy** provides a technical support.

The obligated parties are all the **electricity** (9) and **gas** (5) **suppliers**, based on their sales in the **residential, service** and **industry** sectors. Some suppliers are both electricity and gas suppliers. In this case, their market shares in electricity and gas are added for the purpose of the calculation of their annual target

No trading is included, but **bilateral transfers** of energy savings may be possible between obligated parties. Energy savings projects can be led by third parties (installers, energy advisors, etc.), but they have to be directly subcontracted by the obligated parties (through call for projects, bilateral contracts or simple negotiations).

Energy savings actions

Actions are eligible in **all end-use sectors** to save **all types of energy**. A catalogue of **34 standardised actions** (including deemed savings) has been prepared. A calculation methodology is available for other types of actions. Behavioural actions may be eligible under conditions.

The results are counted in **1st-year final energy savings**, taking into account that the actions have to deliver savings in 2020. In 2015, in number of measures, most of them were realised in buildings. But in terms of energy savings, half were achieved in the residential/commercial sector and half in the industry sector.

Accounting/crediting/validation of the energy savings

Obligated parties have to **report their energy savings each year** (before 31th March). Actions are reported according to a standard template defined by the Ministry of the Economy. **Complementary details** have to be documented and **kept** for 10 years **in case of control** (especially the documentation of the type of intervention with the final customer and the attestation of anteriority).

Independent consultancies perform **annual random controls** of a representative sample of actions, under the supervision of the Ministry of Economy. The control of 5% of the energy efficiency measures validated for 2015 is currently in progress.

Penalties may be applied in case of non-achievement of the target, but the penalties are **not in full discharge** (the missing energy savings have to be achieved the next year).

Specificities of the scheme or context

The obligation is defined as a mission of public service. This allows the scheme to be partly funded by the State budget.

The high share of savings in the residential sector in 2015 can be explained because specific measures are more complex and time-consuming to implement. So few of them could be completed within the first year of the scheme.

Interview with Carla Oliveira

Policy Advisor at General Directorate for Energy
Ministry of the Economy



Have there been some changes since 2015?

The energy efficiency obligations (EEO) scheme has not changed since 2015. However, following the feedback of the obligated parties, work has been undertaken to amend the catalogue of standardised measures. Minor modifications of the scheme may be useful without affecting the fundamental principles of the scheme.

What is your experience feedback after the two first years of the scheme?

We noted that the majority of the obligated parties have made real efforts to achieve their annual targets. However, the increase of energy efficiency, like any change, requires a certain amount of time to establish. The EEO scheme and the work done by the obligated parties are perfect assets to promote energy efficiency to the general public.

However, the first years were difficult for all obligated parties but we are confident that the EEO scheme will allow to reach the overall goal by the end of 2020.

Are there key milestones in the coming years?

Legislative elections will take place in 2018, but this should not have any impact on the main principles of the implementation of the scheme.

What are the main challenges for the coming years?

Luxembourg implemented with the EEO scheme a completely new instrument to achieve its entire EED article 7 target. We think that the obligated parties are about to deploy huge efforts to be able to deliver the

savings under the obligation scheme. The main challenge in the coming years will be the monitoring of the proper spread out of the scheme.

Are there future changes under discussion or preparation?

Our Ministry is currently reviewing the catalogue of standardised measures, together with specialised experts under consideration of the comments and reactions of the obligated parties. The purpose of this revision is to facilitate the use of the standardised measures forms by the obligated parties and to correct or supplement certain data of the forms.

The revision requires the modification of a Grand-Ducal regulation. We hope to be able to adopt the Grand-Ducal regulation by the end of 2017.

Is it planned to develop specific provisions about fuel poverty?

No. It is in fact necessary to carefully explore if the obligation scheme is the right instrument to address energy and fuel poverty. Luxembourg has set up other public measures dealing with energy and fuel poverty. The poverty issue in general is a real and serious concern that should be addressed by public bodies and it is necessary to balance the pro's and the con's to delegate to obligated gas and electricity suppliers the promotion of measures fighting energy and fuel poverty.



POLAND

Responsible authority : Ministry of Energy

Managing authority : URE (Energy Regulatory Office)

Status, timeline and current target

The scheme started in **January 2013**. The first period ended in October 2016. The overall target was **14.7 Mtoe for 2014-2020**. A new Energy Efficiency Act was adopted in May 2016 setting the rules from October 2016 until the end of 2020 with a target to save **2.645 Mtoe in 2020** (in final energy).

Individual targets are set annually as 1.5 % of the energy sales (in energy units) to end-users (with possible exemptions).

About **720 ktoe** of annual **primary** energy savings were credited **over 2013-2016** (4 annual tenders).

Energy savings actions

There is no catalogue with deemed savings but an **official list** of eligible general types of action (covering residential, service and industry sectors, network losses, and “self-generation” of heat or electricity). Actions receiving a State or European incentive are not eligible.

The energy savings calculations are based on **ex-ante energy audits** (simplified or comprehensive according to action type). The energy savings were accounted for in annual primary energy savings up to October 2016, then in **annual final energy savings**.

Key actors and scope

The **Ministry of Energy** sets the rules of the scheme and the targets. **URE** administers the scheme.

The obligated parties are the **energy suppliers and traders** selling **electricity, heat, or natural gas** to end users. They can achieve their target through obtaining **energy efficiency certificates** for actions on their own asset, buying certificates (on the **Polish Power Exchange** or through **OTC transactions**), or paying **substitution fees** (250€/toe up to 2016, 375€/toe in 2017) to the National Fund of Environment Protection and Water Management (supervised by the **Ministry of Environment**). This last option is now limited to 30% of the obligation in 2016, 20% in 2017 and 10% in 2018.

Any actor is **eligible** to submit energy savings project to obtain white certificates. And the certificates can be **traded** on the Polish Power Exchange or in OTC transactions.

Accounting/crediting/validation of the energy savings

Up to October 2016, energy savings projects had to be submitted according to a yearly tendering procedure, with a selection based on quotas and cost-effectiveness criteria. From October 2016, projects can be submitted anytime. The project (or group of projects) needs to save more than 10 toe/a (in primary energy up to October 2016, then in final energy) to be eligible.

The documentation submitted shall include the **ex-ante audit report** (either simplified or comprehensive). The certificates are then issued for the awarded energy savings, once the applicant **confirms the project implementation**.

URE verifies annually the individual target achievements, organises **random controls** (possibly including on-site inspections) and decides penalties when needed.

Specificities of the scheme or context

The new limitations on the use of the “substitution fees” option are meant to drive the involvement of obligated parties in promoting energy efficiency actions. These limitations together with an increase in the substitution fees (50% in 2017, then 5% each next year) and the simplification of the crediting system should help overcome the previous shortage of white certificates available on the market.

Interview with Tadeusz Skoczowski

Professor, Head of the Chair of Rational Use of Energy
Warsaw University of Technology



What have been the main changes since 2015?

The main changes are due to the adoption of the new Energy Efficiency Act. It has extended the scheme until 2020 and changed some of the main rules to increase its flexibility:

- yearly tendering system removed, so that projects can be submitted continuously;
- projects not any more selected according to their cost-effectiveness, so that any eligible project can get certificates;
- no more distinction between the three general categories (actions on end-uses, on energy generation facilities²⁴ and on networks), meaning no more quotas per category;
- actions in sites covered by the EU ETS being now eligible.

Other key changes are the limitations on the “substitution fees” option and the switch from primary to final energy.

What were the main reasons for these changes?

The new EE Act was needed to fulfil the transposition of the EED. The changes in the obligation scheme were decided to simplify it, as its complexity was seen as the main reasons for lower delivery than expected. However, the rate of energy savings credited increased strongly in the last years (21 ktoe in 2013, 57 ktoe in 2014, 150 ktoe in 2015 and 495 ktoe in 2016, in primary energy). So it was maybe too early for such a complete revision of the scheme.

What will be the main challenges for the coming years?

A key challenge for Poland will be to meet its target for the EED article 7 only with the obligation scheme. Alternative measures may be needed.

Another challenge will be the implementation of the monitoring and verification rules. The new rules are not completely defined yet (about the share and selection of projects to be verified ex-post).

The new rules for crediting energy savings may also create a risk of over-supply of white certificates. The increased flexibility with the end of quotas per categories of actions may also decrease the share of energy savings achieved in the residential sector.

Does the Polish scheme include specific provisions related to fuel poverty?

Not for the moment. More generally, there is not yet in Poland an energy efficiency programme that would be directly meant to alleviate fuel poverty. However, most of the energy efficiency programmes in the residential sector can be considered as contributing to alleviate fuel poverty. According to Eurostat data²⁵, the share of the population in situation of inability to keep home adequately warm decreased from 16% in 2009 to 7.5% in 2015 (vs. 9.4% at the EU level).

²⁴ Energy consumption for own use (auxiliary equipment) in power plants, but not directly in energy generation excluding the main technological process (e.g. synchronous generators).

²⁵http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_mdes01&lang=en



SLOVENIA

Responsible authority : Ministry of Infrastructure

Managing authority : Slovenian Energy Agency

Status, timeline and current target

The obligation scheme is built on a previous scheme **started in 2010** collecting funds through fees on energy prices. The current rules of the scheme entered into force in 2015. All energy suppliers have now to achieve energy savings targets.

Targets are set annually **from 2015 to 2020**, as a **% of the energy sales in the previous year**: 0.25%/a for 2015; 0.5%/a (non-transport) and 0.25%/a (transport) for 2016-2017; and 0.75%/a (non-transport) and 0.25% (transport) for 2018-2020

Energy savings achieved:

66.3 GWh in 2014 (target: 87 GWh)

502.3 GWh in 2015 (target: 125.7 GWh)

327 GWh in 2016 (target: 177 GWh)

Energy savings actions

About 30 standardised actions (with deemed savings) cover **all end-use sectors**. Other actions can be reported through energy audits. Actions improving the efficiency of district heating, cogeneration and cooling installations are also eligible.

About **73% of the savings** achieved in 2015 came from **3 action types**: fuel additives (39%, transport), introduction of energy management systems (20%, industry), and renovation of heating sub-stations (14%, district heating).

Key actors and scope

The government (**Ministry of Infrastructure**) set the rules. The implementation of scheme is supervised by the **Slovenian Energy Agency** (authority regulating the energy markets) with a team dedicated to monitoring and verification. The Centre for Energy Efficiency of the Jožef Stefan Institute provides a technical support (especially in the development of the calculation methods).

The about 183 obligated parties are the suppliers of **electricity, natural gas, heat** (district heating), and **liquid and solid fuels** to final customers in **all end-use sectors** (with a lower target for transports: 0.25%/a for the whole period).

The scheme does not include a trading market. But the obligated parties may fulfil their obligations by **making a payment to Eco Fund** (fee = average costs (per kWh saved) as observed for Eco Fund programmes). Obligated Parties may also have agreements to transfer projects between them or from ESCOs, before reporting to the Energy Agency.

Accounting/crediting/validation of the energy savings

Obligated parties have to report annually their achievements to the Energy Agency, according to a template. Surplus of energy savings can be transferred over the next three years.

The Energy Agency will verify 2.5 to 5% of the measures. These controls are mainly focused on the documentation of the energy savings. This may complemented by on-site inspections.

Energy savings are accounted for the 1st year of the actions that are still delivering energy savings in 2020. The eligibility and specifications of the calculations methods are revised on a yearly basis.

Specificities of the scheme or context

From 2010 to 2014, the energy suppliers were mostly contributing to Eco Fund, based on contribution fees defined per energy type. Eco Fund has been proposing soft loans since 1993 and grants since 2010. This remains the main policy measure for the residential sector, explaining why the Obligated Parties mostly achieved energy savings in non-residential sectors. Transport is the main end-use sector in Slovenia, representing close to 40% of the final energy consumption. This also explains the high share of energy savings in transport.

Interview with Mojca Vendramin

Secretary of the Energy Efficiency and Renewable Energy Unit
Directorate for Energy
Ministry of Infrastructure



Have there been changes to the scheme since 2015?

There has been no major change since 2015. The annual reports from the Obligated Parties are used to monitor the scheme and see whether adaptations would be useful.

The main recent changes are about the revision of the calculation methods for heat pumps and fuel additives. In addition, a new rule was proposed in 2016 about the accounting of self-consumption of renewable electricity generated on-site and for the excess heat. The topic of on-site electricity generation was raised by Obligated Parties and as a possible alternative to feed-in tariffs for promoting renewable energy sources.

In parallel, there was also a change in the EcoFund, which is the alternative measure used by Slovenia to complement the EEO scheme to meet the target of EED article 7: the scope of the calls for projects has been widened from 2017. This will now also include calls for projects for SMEs. This has a link with the EEO scheme, as projects receiving a grant or loan from the EcoFund cannot be eligible for the EEO scheme.

What are the stakes for the coming years?

The first issue is the implementation of the Measurement & Verification processes, and in particular to develop on-site inspections. This is essential to ensure that the energy savings are actually achieved.

The second issue is to manage the trading of energy savings surplus that some Obligated Parties have achieved (especially suppliers of fuels for transport). Agreement between

Obligated Parties is allowed. But there is not yet a formal way to organise trading or transfer of energy savings between Obligated Parties.

The third issue is the discussions about the eligibility of actions for on-site electricity generation from renewable energy sources. This is an interesting topic for experience sharing with other Member States.

A fourth issue is that the about 60 small biomass retailers encounter difficulties to comply with the scheme. Their exemption is under discussion.

Then a remaining issue is that we are a small team in the Ministry to manage the implementation of all the Directives related to energy efficiency. So far we manage to develop administrative framework and capacity for the scheme, but still a lot of work is in front of us to assure the scheme will work properly and efficiently.

Is it planned to include provisions about fuel poverty in the EEO scheme?

At the moment not as an obligation on energy suppliers. The option to use the EEO scheme to alleviate fuel poverty is not considered possible in Slovenia. For example because households may distrust energy suppliers due to disconnection issues, and because it would be difficult for energy suppliers to identify who the eligible households would be. Therefore it is considered that using EcoFund to develop programmes against fuel poverty is a more effective approach. Energy suppliers may also develop programmes against fuel poverty on a voluntary basis.



SPAIN

Responsible authority : Ministry of Energy,
Tourism and Digital Agenda

Managing authority : IDAE
(Institute for Diversification and Saving of Energy)

Status, timeline and current target

The energy efficiency obligation scheme has started in **July 2014**. In a first phase, the obligations will be achieved only through **payments to a new National Energy Efficiency Fund**. In a second phase, the scheme may include tradable energy savings certificates.

The overall energy savings target for 2014-2020 amounts to **6 356 ktoe over 2014-2020**. Annual targets have been set to 131 ktoe/year (1 523 GWh) for 2014, and 262 ktoe/year (3 047 GWh) for 2015, 2016 and 2017.

Energy savings actions

The total contribution to the Fund amounted to 103 M€ in 2014 and then **about 207 M€ per year** in 2015, 2016 and 2017. The main programmes implemented have been²⁶:

- for **buildings**: 125.7 M€ committed for 2017;
- for **industry**: 115.2 M€ committed for 2015-2016 and 63.8 M€ for 2017;
- for **street lighting**: 64.7 M€ for 2015-2016 and 28.8 M€ for 2017;
- for **rail sector**: 13 M€ for 2016;
- for **desalination plants**: 12 M€ for 2016;
- for **mobility**: 8.0 M€ committed for 2015 and 3.7 M€ for 2017.

Specificities of the scheme or context

The programmes funded by the National Energy Efficiency Fund may also receive a co-funding from the European Regional Development Fund. The Fund is meant to finance schemes providing financial incentives (direct aids and other financing instruments), technical support, training and/or information. In a second phase, an energy savings trading scheme could be put in place (the option of contributing to the fund would likely still be allowed). The use of a National Fund for the first phase was made because IDAE has a long experience in implementing energy efficiency programmes, so it made possible to deliver programmes faster.

Key actors and scope

The **Ministry of Industry, Energy and Tourism (now Ministry of Energy, Tourism and Digital Agenda)** set the general principles, targets and rules of the scheme and has established the National Energy Efficiency Fund.

The **IDAE** manages the Fund, under the supervision of a **Steering Committee** including different ministries.

The obligated parties are the **suppliers of electricity and natural gas**, and **wholesale retailers of oil products and LPG**. In the first phase, they have to report each year about their energy sales (in GWh) to all their final customers the previous year, and then to pay in the year “n” in proportion to their energy sales in the year “n-2”. The **contribution fee** was set to **68€/MWh**.

Accounting/crediting/validation of the energy savings

The obligations and contribution fee were set taking into account the overall target for 2014-2020 and the estimated average costs for energy savings from the activities of the Fund.

The implementing text (Ley 18/2014) has defined **detailed rules about the types and levels of infringements, sanctions/penalties and related procedures**. They cover the possible situations of false declarations, frauds, non-compliance and non-achievements of the targets.

Energy efficiency **programmes** are **prepared by IDAE and approved by the government** (ministries involved in the Steering Committee).

²⁶ <http://www.idae.es/ayudas-y-financiacion/fondo-nacional-de-eficiencia-energetica>





UNITED KINGDOM

Responsible authority : BEIS (Department for Business, Energy & Industrial Strategy)

Managing authority : Ofgem (Office of Gas and Electricity Markets)

Status, timeline and current target

The first energy savings obligation started in 1994. ECO2 (**Energy Company Obligation 2**) ran from **1 April 2015 to 31 March 2017**. Reforms were made to ECO 2 and an extension (**ECO Help to Heat - ECO2t**) was decided to last **until September 2018**.

ECO2t includes 2 distinct targets continued from ECO2: **CERO** (Carbon Emissions Reduction Obligation, **7.3 MtCO₂** in lifetime carbon savings) and **Affordable Warmth Obligation (£2.76 billion** in lifetime energy costs savings) to be achieved between April 2017 and September 2018 (+ sub-targets for rural areas and solid wall insulation).

Preliminary results²⁷ for [Apr.2015-Mar.2017]: 16.7 MtCO₂ and £3.46 billion energy costs savings

Energy savings actions

ECO is focused on the **residential sector**. Eligible actions are divided into “**primary measures**” (wall and roof insulation measures, relevant district heating connection) and “**secondary measures**” (other insulation measures), installed at the same premises as a primary measure. Boilers are eligible for Affordable Warmth (only). Actions must be assessed and **installed by a certified professional** according to current regulations/standards.

Distribution for **Apr.2015-Mar.2017** (in % of number of the **611 577 actions installed**): cavity wall insulation (30%), boiler replacements (26%), loft insulation (14.5%), heating control measures (14.5%), solid wall insulation (8%).

Key actors and scope

The Ministry (**BEIS**) sets the general rules and the overall targets. The scheme is administered by the energy regulator **Ofgem**.

The obligated parties (OP) are the 15 **electricity and/or gas suppliers** above given thresholds of customers and energy sales, based on energy sales in the **residential sector**.

OP can implement their own programmes, conclude partnerships or agreements with **third parties** (e.g., social housing associations, local authorities, retailers, manufacturers) to deliver actions, or buy projects through a **brokerage system**. There is no market for trading energy savings, but transfers between obligated parties are possible under approval by Ofgem.

Accounting/crediting/validation of the energy savings

Until April 2017, OP had to use **standardised energy assessments** to provide carbon and costs savings when **notifying each action** (once installed). From April 2017, “**deemed scores**” replace the assessment procedure.

Information are **reviewed by Ofgem** that then approves the action in an online register, where OP can check its status. OP must report monthly their number of actions. Ofgem also requires OP to conduct **technical monitoring** (by a qualified and independent third party) of a sample (5%) of notified actions. Ofgem will conduct **audits of a sample of actions** (checking their documentation).

Ofgem **administration costs** are about **€3 million/a**. **Costs needed from OP** to meet their targets were estimated to be about £1.5 billion/a for ECO1 (Jan. 2013 – Mar. 2015), £860 million/a for ECO2 (Apr. 2015 – Mar. 2017) and £640 million/a for ECO2t (Apr. 2017-Sept.2018).

Specificities of the scheme or context

First national energy savings obligation scheme **in Europe** (since 2002). Scope limited to the **residential sector**. Special focus on **energy poverty** and **vulnerable households**.

²⁷ The outcome of ECO2 will not be finalised until after September 2018, because ECO2 was extended.

Interview with Rita Varsani

Senior Policy Advisor
Department for Business, Energy & Industrial Strategy



Have there been changes since early 2015?

The main changes are the decision to extend the scheme from April 2017 to September 2018, i.e. 6 months more than initially planned. This will allow more time for feedback on changes made. It will also give time to industry and OP to prepare and operate under the revised rules.

This extension, Eco Help to Heat (ECO2t), has lower targets but is meant to focus the efforts on households most in need: the overall Affordable Warmth obligation increased as a proportion of the obligation from approximately 36% to 70% of the estimated investments needed for OP to meet their new targets.

A cap on gas boiler replacements has been introduced to rebalance the Affordable Warmth actions that were mostly on boilers so far, while insulation actions proved to be more cost-effective. Certain types of insulation and heating actions on the least efficient dwellings of social housing are also now allowed for Affordable Warmth.

Another key objective was to simplify the scheme and reduce the administrative burden, by using deemed scores instead of individual assessments. Deemed scores are defined per dwelling type, using a limited set of criteria.

To complement the quality processes, OP are now required to report information about the installers, to enable tracking possible problems with the quality of the actions installed.

What are the main lessons learnt from the period 2015-2017?

In addition to the need for simplicity, feedback about ECO2 showed the difficulties to target the most vulnerable households, even in the area-based approach (CSCO - Carbon Savings Community Obligation). At the same time, the targets have been decreasing over the years. It was therefore needed to focus overall the efforts on interventions for vulnerable households. CSCO was then ended at the end of March 2017. The corresponding sub-target for actions in rural areas is maintained and transferred to CERO (15% of CERO target now needs to be achieved in rural areas).

In parallel, a new pilot approach is now tested by offering the flexibility for OP to achieve up to 10% of their Affordable Warmth target with partnerships with local authorities that will identify for them households in needs of intervention. Within this partnership, OP will not have to demonstrate that the beneficiaries are vulnerable households.

It was also found more effective to allow installing actions in buildings next to eligible households.

Little volumes of projects have been traded through the brokerage system, despite on-going improvements to make it more operational.

Are there further changes under discussion or preparation?

Not at this stage, as general elections have been recently decided for the 8th of June, 2017.

ANNEX: SUMMARY TABLE OF TARGETS AND ACHIEVEMENTS

Country	Scope of the obligation	Unit	Targets	Achievements
Austria	all energy types and sectors (threshold on energy sales: 25 GWh/ay) about 85% of Austrian final energy consumption	first-year final energy savings (PJ/y)	0.6% of the energy sales of previous year 2015: 5.5 PJ/y 2016: 5.97 PJ/y	2015: 13.8 PJ/y (also including energy savings from actions implemented in 2014) 2016: 7.21 PJ/y (preliminary result)
Bulgaria	all energy types and sectors (thresholds on energy sales set per energy type)	first-year final energy savings (GWh/y)	2014: 717 GWh/y then increasing up to 2020: 910 GWh/y	cumulative final annual energy savings over 2014-2016: 558 GWh/y
Denmark	electricity, natural gas, district heating and heating oil in all end-use sectors except transport	first-year final energy savings (PJ)	2013: 10.7 PJ 2014: 10.7 PJ 2015: 12.2 PJ 2016: 10.1 PJ	2013: 8.4 PJ 2014: 9.2 PJ 2015: 11.6 PJ 2016: 11.0 PJ
France	electricity, natural gas, oil products, heat (district heating) in the residential and service sectors and in transports	discounted and lifetime cumulated final energy savings (TWh cumac)	2015-2017: 850 TWh cumac (whose 150 "fuel poverty") 2018-2020: 1600 TWh cumac (whose 400 "fuel poverty")	Jan.2015-March 2017: 567.4 TWh cumac Jan 2016-March 2017: 90.7 TWh cumac "fuel poverty"
Greece	electricity, gas and oil products (LPG, gasoline, diesel and heavy fuel oil) in all sectors	new final annual energy savings (ktoe/y)	2017: 100 ktoe/y 2018: 133 ktoe/y 2019: 67 ktoe/y 2020: 33 ktoe/y	<i>started in 2017</i>
Ireland	all energy types and sectors (thresholds on energy sales: 600 GWh/a)	new primary annual energy savings (GWh/y)	2014-2016: 550 GWh/y 2017: 625 GWh/y 2018-2020: 700 GWh/y	2014: 355 GWh/y 2015: 754 GWh/y 2016: 759 GWh/y
Italy	electricity and natural gas in all sectors	primary cumulative annual energy savings (Mtoe/y)	2017: 7.14 Mtoe/y 2018: 8.32 Mtoe/y 2019 : 9.71 Mtoe/y 2020: 11.19 Mtoe/y (for 2014-2020, target equivalent to about 0.6 Mtoe of new primary annual energy savings each year)	2005-2015: 40 Mtee (certificates units) issued against an overall target of 42.4 Mtee 2016: 0.27 Mtoe of new primary annual energy savings
Latvia	electricity	final annual energy savings	1.5% of yearly electricity sales (sales to large electricity consumers may be deducted from the obligation scope)	started in 2017
Luxembourg	electricity and gas in the residential, service and industry sectors	final 1st-year energy	about 285 GWh/y (of new savings each year over 2015-2020)	first results under validation

		savings (GWh/y)		
Poland	electricity, heat, or natural gas in all sectors	primary annual energy savings (from 2013 to 2016)) final annual energy savings (from end of 2016)	Annual targets: 1.5 % of the energy sales Overall target: 2.645 Mtoe (final energy) in 2020	About 720 ktoe of annual primary energy savings credited over 2013-2016
Slovenia	electricity, natural gas, heat (district heating), and liquid and solid fuels in all sectors	final 1st-year energy savings (GWh/y)	2015: 0.25% of 2014 energy sales (125.7 GWh/y) 2016: 0.5% of 2015 energy sales for non-transport and 0.25% of 2015 energy sales for transport (177 GWh/y) 2017: 0.5% of 2016 energy sales for non-transport and 0.25% of 2016 energy sales for transport 2018: 0.75% of energy sales for non-transport and 0.25% of energy sales for transport and same rate for 2019 and 2020 as 2018	2015: 502.3 GWh/y 2016: 327 GWh/y
Spain	electricity, natural gas, oil products and LPG in all sectors	final annual energy savings (GWh/y)	2014: 1523 GWh/y 2015: 3047 GWh/y and same rate for 2016 and 2017 as for 2015	contributions to the national energy efficiency fund: 2014: 103 M€ 2015-2017: 207 M€ each year
UK	electricity and gas in the residential sector	Lifetime cumulated CO2 savings (in tCO2) and lifetime cumulated energy savings (in £ billion)	April 2015-March 2017 (ECO2): 18.4 MtCO2 and £3.7 billion April 2017-Sept.2018 (ECO2t): 7.3 MtCO2 and £2.76 billion	April 2015-March 2017: 16.7 MtCO2 and £3.46 billion (preliminary results)

Note:

- Results may differ between the national monitoring and the reporting to the European Commission, due to specific national rules that need to be corrected when reporting energy savings for the Energy Efficiency Directive (for example, possible bonus factors, differences in baselines, etc.). Whenever possible, the results presented here are the results from the national monitoring, as they are the results to be compared with the targets.
- For some of the EEOs with a target set in first-year or annual energy savings, the results may include factors weighting the energy savings according to a typology of action lifetimes (for ex., Denmark, Italy)

SOURCES AND REFERENCES

▪ European level

European Commission's webpage for NEEAPs (National Energy Efficiency Action Plans) and annual reports for the Energy Efficiency Directive (EED): <http://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive/national-energy-efficiency-action-plans>

European Commission's webpage for the notifications by Member States about EED article 7: <http://ec.europa.eu/energy/en/topics/energy-efficiency-directive/obligation-schemes-and-alternative-measures>

Detailed analysis of the EEOs made by ENSPOL: <http://enspol.eu/results>

Knowledge sharing platform about EED article 7 (built from ENSPOL): <http://www.article7eed.eu/>

Ricardo AEA, CE Delft, RKK, 2016. Study evaluating progress in the implementation of Article 7 of the Energy Efficiency Directive. Report for the European Commission (DG ENER), May 2016. https://ec.europa.eu/energy/sites/ener/files/documents/final_report_evaluation_on_implementation_art.7_eed.pdf

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▪ Other sources/references for Austria

Website of the Energy Efficiency Monitoring Agency, managed by the Austrian Energy Agency (homepage about the EEO, in German): <https://www.monitoringstelle.at/index.php?id=727>

Activity report about the implementation of the Energy Efficiency Act (in German): <https://www.monitoringstelle.at/index.php?id=762>

▪ Other sources/references for Bulgaria

Full text of the Energy Efficiency Act (in English): http://www.seea.government.bg/documents/ZEE_EN.pdf

SEDA website (page about the calculation methods): <http://www.seea.government.bg/bg/metodiki>

▪ Other sources/references for Denmark

Website of the Danish Energy Agency (page on the EEO, in Danish): <http://www.ens.dk/forbrug-besparelser/energiseelskabernes-sparsindsats>

Full text in English of the 2016 agreement between the Danish Energy Agency and the associations representing the obligated parties: https://ens.dk/sites/ens.dk/files/Energibesparelser/energisparsaftale_161216mbilag_6_eng.pdf

Last ex-post evaluation (done in 2015, in Danish): <https://ens.dk/ansvarsomraader/energibesparelser/energiselskabers-energisparsindsats/kontrol-og-evalueringer>

Catalogue of deemed energy savings for standardised actions: http://svk.teknologisk.dk/Pages_open/Default.aspx

▪ Other sources/references for France

Website of the Ministry in charge of energy (homepage about the EEO, in French): <http://www.ecologique-solidaire.gouv.fr/politiques/certificats-economies-denergie>

Bi-monthly newsletter issued by the Ministry in charge of energy (in French): <http://www.ecologique-solidaire.gouv.fr/cee-suivi-et-pilotage#e2>

ADEME guidelines for specific (= non-standardised) operations (in English): <http://www.ademe.fr/en/guide-to-filing-a-claim-for-energy-savings-certificates-for-a-special-operation>

Qualitative ex-post evaluation done by ADEME in 2013 (about 2011-2013 period, in French): <http://www.ademe.fr/evaluation-qualitative-dispositif-cee-2e-periode-2011-2013>

Website of ATEE (homepage about the EEO, in French): <http://atee.fr/c2e>

▪ Other sources/references for Greece

Regulation of the EEO (in Greek):

<https://diavgeia.gov.gr/doc/%CE%A8%CE%96%CE%9D%CE%964653%CE%A08-%CE%A4%CE%940?inline=true>

▪ Other sources/references for Ireland

Website of SEAI (homepage about the EEO, in English): <http://seai.ie/eeos>

Website of the Ministry in charge of energy (webpage about the EEO, in English): <http://www.dccae.gov.ie/en-ie/energy/topics/Energy-Efficiency/business/Pages/EU-obligations-under-Energy-Efficiency.aspx>

▪ Other sources/references for Italy

Website of GSE (homepage on the EEO, in Italian): <http://www.gse.it/it/CertificatiBianchi/Pages/default.aspx>

Website of GSE (page about the EEO, in English):

<http://www.gse.it/en/White%20Certificates/Pages/default.aspx>

Website of ENEA (page about the EEO, in Italian): <http://www.efficientaenergetica.enea.it/per-le-imprese/certificati-bianchi-tee>

Website of FIRE (page about the EEO, in Italian): <https://www.fire-italia.org/category/legislazione-e-incentivi/incentivi/certificati-bianchi/>

▪ Other sources/references for Latvia

Regulation of the EEO (in Latvian): <https://www.vestnesis.lv/op/2017/97.7>

- **Other sources/references for Luxembourg**

Website of MyEnergy (page about the EEO, in French or German):

<https://www.myenergy.lu/fr/entreprises/informations-et-outils/communication-relative-a-l-implementation-d-un-mecanisme-d-obligations-en-matiere-d-efficacite-energetique>

- **Other sources/references for Poland**

Website of URE (homepage about energy efficiency, including information about the EEO and the obligation of energy audits for large companies, in Polish): <http://www.ure.gov.pl/pl/efektywnosc-energetycz>

Full text of the new Energy Efficiency Act (March 2016, in Polish): <http://dziennikustaw.gov.pl/du/2016/831>

- **Other sources/references for Slovenia**

Website of the Ministry in charge of energy (webpage about the EEO, in Slovenian): <http://www.energetika-portal.si/podrocja/energetika/prihranki-energije/>

Annual reports about the implementation of the 2014-2020 Action Plan for Energy Efficiency (in Slovenian): <http://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/akcijski-nacrt-za-energetsko-ucinkovitost/>

- **Other sources/references for Spain**

Royal Decree establishing the EEO (in Spanish, see “Capítulo IV”):

https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-7064

Website of IDAE (homepage about the national energy efficiency fund, in Spanish):

<http://www.idae.es/ayudas-y-financiacion/fondo-nacional-de-eficiencia-energetica>

- **Other sources/references for UK**

Ofgem website (homepage on ECO): <https://www.ofgem.gov.uk/environmental-programmes/eco>

BEIS website (page about research on ECO evaluation):

<https://www.gov.uk/government/collections/green-deal-and-eco-evaluation>



The ATEE (Association Technique Energie Environnement) is committed to the advancement of controlled energy use and reduced greenhouse gas emissions.

The purpose of the Association is to **promote better energy control in companies and communities** and, more generally, to help energy users understand what they can do to better manage their **energy consumption and make savings**. In this way, they can contribute to achieving the national greenhouse gas reduction objectives whilst improving their own profitability. The Association has 2100 members.

ATEE brings together the participants in the energy supply and consumption chain to **exchange views and capitalise on feedback**. It introduces people from different backgrounds who share similar concerns, making everyone better informed and more efficient.

ATEE is a national network organised into regional groups. It provides its members with a forum for discussion and thought. Operating in a network reinforces the capability to **conduct multiple actions at the grassroots level and to work in partnership with other players**.

ATEE monitors **economic indicators and technological innovations** to inform, raise awareness, and motivate. To help its members increase their knowledge and optimise their management and decision-making processes, the Association supplies concrete information in a succinct form.

ATEE works for the general interest. The Association's particularity is to rise above the specific interests of each member, as different members sometimes have conflicting interests, and to seek common ground, for the good of all.

In this transparent, consensual approach for the common good, ATEE mobilises the skill and experience of its members to draw up proposals and hold discussions with public authorities to identify the measures that will promote energy control whilst limiting the greenhouse effect.

This means that the Association gives its members access to explanations and clarifications to put new policies and measures into perspective right from their preparation phase. At the same time, it allows the **public authorities to view their plans in the light of the realities out in the field**.

There are four Clubs within the Association:

- The Cogeneration Club,
- The C2E Club, involved in the practical implementation of the Energy Saving Certificate scheme,
- The Biogas Club, which aims to promote the development of biogas production and use, - The Energy Storage Club.

Every year with its regional delegations, the Association organises more than **50 colloquia and tours of technical facilities all over France**.

ATEE publishes **ENERGIE PLUS, the bimonthly energy control magazine**.

Find out more by visiting: www.atee.fr or www.energie-plus.com