

# Energy Efficiency Obligation Schemes: Policy guidelines

*Deep Dive on Key Policy Mechanism That Can Be Deployed  
under Article 7 of the Energy Efficiency Directive*

*Prepared jointly by the European Bank for Reconstruction and Development  
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## Introduction

Energy Efficiency Obligation (EEO) schemes are a legislative mechanism that places requirements on ‘Obligated Parties’ (OPs) to meet quantitative energy savings targets across their customer portfolio. OPs may be retail energy sales companies, energy distributors, transport fuel distributors, and/or transport fuel retailers. Globally, the amount of finance mobilized for EE measures by EEO schemes has grown from approximately 5 billion USD to more than 25 billion USD *per year* between 2005 and 2015 (IEA, 2017).

EEOs are market-based instruments that do not prescribe the measures to be deployed – OPs are given the freedom to choose the measures and delivery routes that work best for them within the constraints defined by the scheme administrator. As a result, this instrument allows the market as a whole to discover the most cost-effective way to achieve energy savings in that particular context.

Article 7 of the Energy Efficiency Directive 2012/27/EU (the “EED”) plays a central role in the package of measures being delivered by the European Union (EU) to achieve a 20% improvement in energy efficiency (EE) by 2020. The importance of Article 7, which requires Member States (MS) to set quantified energy savings targets for the respective obligation period (2014-2020), has been further reinforced in the revised EED (Directive (EU) 2018/2002 on energy efficiency, "amended EED") which sets a legislative pathway to 2030 and beyond. The scope of the energy savings obligation has been a key focus both in negotiations regarding the 2030 headline targets and in the European Commission’s associated

regulatory impact assessment for the amended EED<sup>1</sup>.

Under Article 7 of the EED, EU countries and Energy Community Treaty Contracting Parties must achieve and set a cumulative end-use energy savings target that has to be achieved by 31 December 2020 either through an EEO scheme, one or more ‘alternative policy measures’ of the MS choice, or a combination of the EEO scheme and alternative policy measures.

The cumulative end-use energy savings obligation for EU countries is equivalent to new yearly energy savings from 2014-2020 of 1.5% of a reference quantity, taken as the annual energy sales to final customers averaged over the three-year period 2010-2012 and adjusted for certain allowances. The corresponding obligation for Energy Community Contracting Parties is to achieve a cumulative energy savings obligation equivalent to new yearly energy savings from 2017-2020 of at least 0.7% of the average annual energy sales to final customers taken from a reference period of 2013-2015 and adjusted for similar allowances.

This requirement has stimulated a number of EU Member States to set up EEO schemes and the measure is expected to contribute the greatest share of energy savings in delivering the 2020 target, and likewise be of central importance when looking forward to 2030.

Given this take-up of new EEO schemes among EU Member States, their potential applicability within Energy Community Contracting Parties for meeting their own Article 7 targets both to 2020 and beyond to 2030 is under serious consideration. Ensuring that any such implementation takes into account the lessons learnt and best

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<sup>1</sup> [https://ec.europa.eu/energy/sites/ener/files/do](https://ec.europa.eu/energy/sites/ener/files/documents/1_en_impact_assessment_part1_v4_0.pdf)

[cuments/1\\_en\\_impact\\_assessment\\_part1\\_v4\\_0.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/1_en_impact_assessment_part1_v4_0.pdf)

practices and is appropriate to the market in question is therefore of primary concern.

As a financial institution, the EBRD is interested in EEOs for the potential to open new financing pathways for energy efficiency improvement measures. The Energy Community Secretariat (ECS), responsible for extending the EU internal energy market rules and principles to its Contracting Parties, is interested in EEOs as a means for countries to achieve Article 7 obligations of the Energy Efficiency Directive. **Given the common interest in EEO roll-out amongst respective countries, EBRD and ECS have jointly developed these Policy Guidelines to support countries in their decision-making as to the most appropriate policy mix for achieving the required end-use energy savings under Article 7 of the EED.**

## 1. History of EEOs

EEO schemes began life in the United States (US) as part of a drive towards Integrated Resource Planning following the oil crises of the 1970s, by seeking to consider energy efficiency as part of a holistic least-cost approach to energy sector planning<sup>2</sup>. The positive results have seen the popularity of the schemes broaden across the US with the IEA counting 24 operational EEO schemes now in place<sup>3</sup>.

In the EU, four countries (GB, Denmark, France and Italy) followed by implementing EEO schemes in the 1990's and early 2000's. While the US schemes were dominated by vertically-integrated markets with utility firms enacting measures within their own customer base, the EU examples demonstrated the applicability of EEOs to

competitive market structures. This was particularly true for GB and France where the obligation was placed on unbundled retail suppliers of electricity and gas – in the case of GB with unregulated tariffs.

Further expansion of EEOs within the EU has been largely driven by the requirement of EED Article 7. Ireland, Austria, Slovenia, Bulgaria, Luxemburg, Poland, Greece and Malta have all responded by setting up their own schemes, with the focus on retail entities as the Obligated Parties.

Elsewhere, EEOs have been implemented in Asia, Australia and South America to bring an estimated total of 46 operational schemes by 2017<sup>4</sup>. While they vary hugely in terms of scope, focus and design, they all meet the essential definition of an EEO as a regulatory mechanism that requires Obligated Parties to meet quantitative energy savings targets by delivering or procuring eligible end-use energy savings. The IEA estimates that together these schemes stimulated around 26 billion USD (21 billion EUR) of additional investment in energy efficiency in 2015 (with around 40% of those costs being met directly by the Obligated Parties)<sup>5</sup>.

## 2. Status of EEOs in EBRD and Energy Community Contracting Parties

In response to the amount of energy savings required by Article 7, EEO schemes have been adopted, are in the process of being set up, or are under consideration in several EBRD Countries of Operation (COOs) or Energy Community Contracting Parties. This is summarized in Figure 1 below.

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<sup>2</sup> Fawcett T., Rosenow J. and Bertoldi P. (2017), *The future of energy efficiency obligation schemes in the EU*, European Council for an Energy Efficiency Economy.

<sup>3</sup> International Energy Agency (2017), *Market-Based Instruments for Energy Efficiency: Policy Design and Choice*.

<sup>4</sup> *ibid*

<sup>5</sup> *ibid*

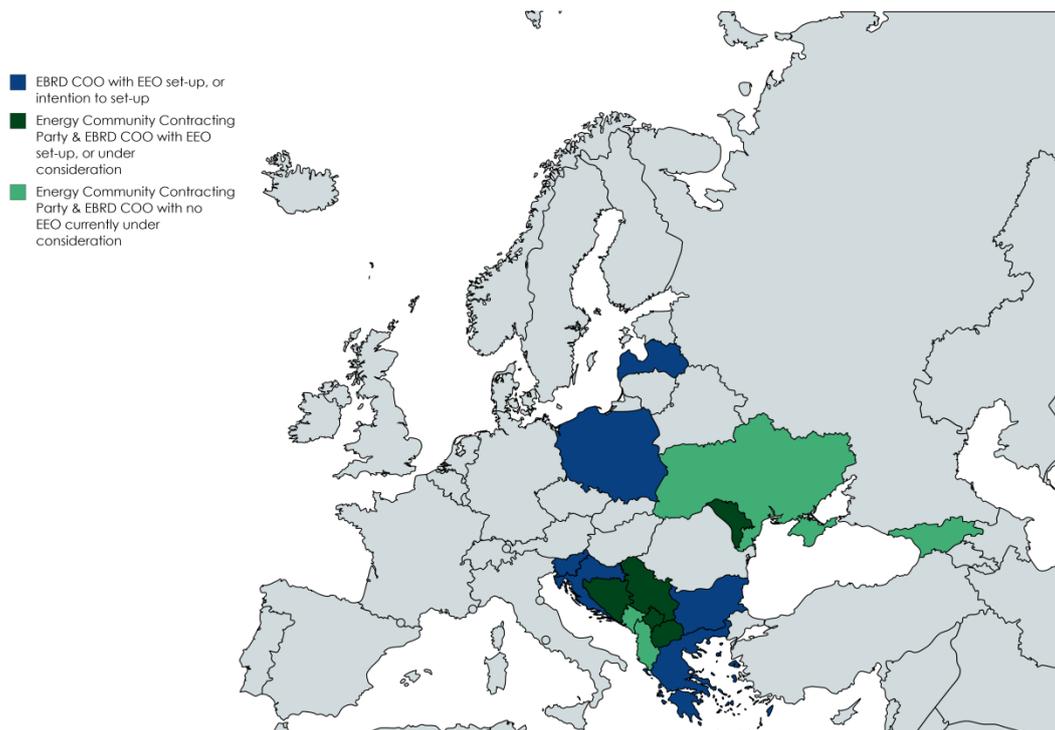


Figure 1 – Status of EEOs in EBRD and Energy Community countries. See Annex A for full details.

The 2020 deadline is fast approaching and therefore little time remains to establish new EEO schemes which will make a significant contribution towards the national energy saving targets under Article 7. It is noted as a “key policy” beyond 2020, with targets retained and expected to contribute around half the additional savings targeted by the EU by 2030. The amended EED extended the energy savings obligation to achieve new annual energy savings of at least 0.8% (of final energy consumption for all MS, but Cyprus and Malta (0,24%)) during the next period 2021-2030 and beyond, coming from new energy efficiency renovations or other measures in end-use sectors (~13% more ambitious than in the period 2014-2020).

Member States will likely retain the option of using alternative measures in place of an EEO scheme although the scale of savings required is expected to encourage the further roll-out of EEOs across the Union.

### 3. Key components of EEO schemes

Many EBRD and Energy Community Contracting Parties, despite having the intention to adopt an EEO, are facing challenges putting in place an effective scheme. This section summarizes the main components of an EEO scheme and international best practice considerations when putting in place an EEO. These include an adequate **legal framework**, **scheme administration** (institutional structures and capacities, operational methodologies, M&V systems) and **obligated party delivery models** (delivery mechanisms, funding / financing products, methodologies, organisational strategies, monitoring and verification systems). It then highlights key issues / considerations in the context of EBRD COOs and Energy Community Contracting Parties particular circumstances. Annex B provides a case study of the Irish EEO scheme which

reflects many of the best practice guidelines described by the components.

### 3.1. Component 1: Legal and regulatory framework

The obligation itself is typically required to be stipulated in effective primary law which also empowers relevant entities to establish and exercise the necessary secondary legislation for implementation. The primary law is usually an energy law, or dedicated EE law. There is substantial variety in the detail of scheme design stipulated in the primary law but in many cases it covers at least a description of scheme targets, fuel coverage, responsibilities of different agencies and empowering the levy of penalties for non-compliance of all relevant provisions. Secondary legislation may then be used to describe specific methodologies regarding the savings target, definition of penalty rates, calculation of energy savings attributable to a given measure, and monitoring and verification (M&V) responsibilities.

At what level and to what detail within the legislative framework the various aspects of the scheme design are described will in part be driven by the norms of the legal systems for the country in question. At a minimum primary legislation (typically either within the Energy Law or a dedicated EE Law) will empower enforcement and allocate implementing responsibilities by laying out the institutional framework together with the roles and responsibilities of each relevant entity. It will give powers to the relevant

ministry and the regulator to develop associated secondary legislation and put in place the governance structure concerning quality control and assurance, scheme processes and enforcement, and co-ordination. This includes empowering the energy regulators to be able to exercise their powers in the area of energy efficiency if necessary.

Secondary legislation should then “fall-out” of the obligations stipulated in the primary legislation and build upon its enabling powers. With respect to an EEO scheme, this may be expected to define the operational processes of the scheme and relevant responsible entities as well as describe the content and structure for associated regulations (tertiary legislation), such as calculation methodologies, and lead to their development.

There exists an extensive body of literature describing the scope, options, relative advantages and potential pitfalls of various design choices in the establishment of an EEO scheme. The table below provides a summary overview.

The business model (see Component 3) is directly shaped by the regulatory framework. Often, policy makers neglect to take into account the limitations on business models imposed by market maturity (or lack thereof). This can lead to regulatory frameworks that impose overly onerous constraints on obligated parties, leading to inaction.

Table 1: Summary table of components related to an EEO legal and regulatory framework

Component	Typical responsible	Best-practice considerations (success factors / potential pitfalls)	Country examples
<b>Defining Obligated Parties</b>	Line Ministry	<ul style="list-style-type: none"> <li>Defined in primary legislation</li> <li>Ensure OPs are identifiable (consider starting with only electricity/gas)</li> <li>Set a minimum threshold for the obligation to apply</li> </ul>	Austria (Article 10 of EE Law) Croatia (Article 13 of EE Law) Greece (Article 9 of EE Law)

<b>Defining the size of the target</b>	Line Ministry (supporting methodology and analysis by scheme administrator <sup>6</sup> )	<ul style="list-style-type: none"> <li>• Targets should be clear and predictable by OPs</li> <li>• Start at realistic level to gain confidence</li> <li>• Targets should not result in increase in tariffs of &gt;2% → check ex-ante in an RIA<sup>7</sup> and monitor ex-post</li> <li>• Should be accompanied by clear communication of scheme benefits to consumers</li> </ul>	Slovenia/Latvia – build target Bulgaria – unpredictable targets Austria – clear communication on benefits
<b>Compliance periods and scheme duration</b>	Line Ministry	<ul style="list-style-type: none"> <li>• Must be sufficient to demonstrate political commitment</li> <li>• Longer compliance periods provide flexibility and clarity</li> <li>• Limited banking/borrowing within compliance periods helps with flexibility</li> </ul>	GB/France/Ireland – 3 to 4 year compliance periods
<b>Methodology for setting targets</b>	Line Ministry (support from scheme administrator)	<ul style="list-style-type: none"> <li>• Proportionate to sales volumes</li> <li>• Consider lifetimes (lifetime targets or cumulative annual targets)</li> <li>• Accredit all savings from a measure to OP if contribution is material irrespective of leverage level</li> </ul>	Ireland/Austria – Cumulative target GB/France – Lifetime target
<b>Cost-recovery mechanism</b>	Regulator	<ul style="list-style-type: none"> <li>• In liberalised markets should be treated as cost of doing business</li> <li>• Regulated tariffs should explicitly enable cost recovery (typically as opex)</li> <li>• Start with standard cost-pass through arrangement then consider performance-based incentive (PBI)</li> </ul>	GB/Ireland/Austria/Slovenia – cost of doing business Denmark/Italy/France – regulated tariffs New York – PBI mechanism
<b>Defining eligible measures</b>	Administrator (principles defined by Line Ministry)	<ul style="list-style-type: none"> <li>• Allow savings in all major fuel sources</li> <li>• Only count end-use energy savings (careful on RES applications)</li> <li>• Allow a route for OPs to propose new measures</li> </ul>	Slovenia – issues in counting of solar PV and eligibility GB – route for OPs to propose measures
<b>Calculation methodologies</b>	Administrator (with technical support)	<ul style="list-style-type: none"> <li>• If possible, hold methodologies separate from formal legislation to ease updating process</li> <li>• Need to consider issues of materiality, additionality and free riders</li> <li>• Deemed savings lists and standardised calculation tools for engineering estimates can greatly facilitate ease of implementation by OPs</li> </ul>	France/GB – deemed savings lists held separately Poland – concern on additionality Ireland – engineering estimates tools
<b>M&amp;V and QA</b>	Administrator (principles defined by Line Ministry)	<ul style="list-style-type: none"> <li>• M&amp;V procedures should be established by both the OPs and administrator</li> <li>• This should be supported by Quality Assurance (QA) requirements for accrediting/certifying firms and</li> </ul>	Ireland/GB – clear M&V and QA guidance documentation

<sup>6</sup> Selection of an appropriate entity to act as the scheme administrator is discussed further under Pillar 2

<sup>7</sup> Regulatory Impact Assessment

		materials for eligibility in the scheme.	
<b>Enforcement</b>	Government or Administrator	<ul style="list-style-type: none"> <li>Buy-out provisions and/or penalties are necessary for scheme scale-up from voluntary set-ups</li> <li>Ensure they are sufficient to incentivise OPs to act, proportionate, transparent and predictable</li> <li>Payments should to the extent possible be retained within the EE sector</li> <li>Clear empowerment of enforcement body and process for collecting penalties</li> </ul>	Ireland/Slovenia/Austria – moved from voluntary to formal EEO with buy-out option Bulgaria – example of insufficient incentive and lack of empowerment GB – penalties remain in EE sphere
<b>Methods for generating and trading certificates</b>	Administrator (principles defined by Line Ministry)	<ul style="list-style-type: none"> <li>OPs should be able to generate energy savings certificates both by themselves and through contractors (third parties)</li> <li>Third parties may also be permitted to generate certificates although full, open trading adds complexity and is not recommended in initial stages</li> </ul>	Denmark/GB/Ireland – enabling inter-OP trading France – platform for smaller players Italy – use of White Certificates created complexity and concerns on windfall returns
<b>Sub-targets and ring-fencing</b>	Line Ministry	<ul style="list-style-type: none"> <li>Ring-fencing a proportion of savings from residential sector addresses stronger barriers among these consumers</li> <li>Ring-fencing or providing preferential credit to low income actions can help address regressive nature of EEO scheme</li> </ul>	Ireland – ring-fencing for residential and low income France – bonus to savings from low income groups GB – sole focus on low income Slovenia – perceives better dealt with by EE Fund

### Key challenges related to translating legal framework for EEOs in EBRD COOs and Energy Community Contracting Parties

Cost-recovery mechanisms have been noted as a particular challenge in the countries covered by the report. In many markets where EEOs have been rolled-out, the electricity market is liberalized meaning that costs incurred are treated as a cost of doing business by the OPs and may be passed on to consumers to the extent competitive conditions allow. The cheaper the target is delivered, the lower the pressure on an OP to increase costs. In regulated tariff

environments, cost-pass through provisions must be explicitly enabled in the legal framework. The ‘cost’ to consumers therefore becomes more visible than the benefits derived from the scheme and thus politically difficult. This is particularly the case in many EBRD COOs where energy tariffs have historically received subsidy support, regulated margins are tight and consumers’ disposable income is comparatively low. But cost-recovery pathways are essential for an EEO scheme to be viable. European EEO schemes have typically represented up to 2% of retail tariffs<sup>8</sup>. While this is a small proportion of overall energy costs and is

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[https://ec.europa.eu/energy/sites/ener/files/documents/final\\_report\\_on\\_study\\_on\\_costs\\_and\\_benefits\\_of\\_eeos\\_0.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/final_report_on_study_on_costs_and_benefits_of_eeos_0.pdf)

vastly outweighed by the estimated benefit, it is important to remember that most supplier costs are pass-through elements (ie wholesale energy, network tariffs and taxes). The uplift to tariffs therefore represents a much larger percentage of supplier costs and profits. To be financially viable to implement will require the affected entities to recover associated costs.

Another element where issues have been observed in the region is the design of penalty schemes, and giving a clear, legal basis for issuing penalties in case of non-compliance that will incentivise OPs to deliver. In newly liberalized / liberalizing electricity markets with weaker regulators, as is frequently the case in the countries under consideration here, this is particularly important as non-compliance will quickly harm scheme credibility.

The low institutional capacity also has repercussions for the strength of the M&V regimes established. In each of the countries where an EEO scheme is operational – Poland, Slovenia and Bulgaria – some concern regarding M&V processes has been cited. Clear guidance on accreditation, requirements and the capacity to undertake necessary sampling checks (both by the OPs and by the administrator) on claimed savings are important if confidence is to be gained in the schemes’ effectiveness. A list of measures with deemed energy saving values can help this process by simplifying the M&V process while retaining transparency.

### **3.2. Component 2: Scheme administration**

EEO schemes require the development of administrative capacity in the form of appropriately skilled staff and supporting documentation, and tools to ensure the processes are in place for effective governance. This will cover accreditation, auditing and scheme monitoring among other aspects.

The responsible body for the administration and first layer of enforcement of an EEO is typically either a relevant government ministry, a semi-independent energy agency or an independent energy regulator. A good practice approach would be to ensure a degree of separation between the policy setting and policy implementing bodies with either an agency or independent regulator as the key administrative and monitoring body.

The scheme administrator will be responsible for ongoing operational tasks to ensure the EEO scheme runs effectively and smoothly. These will include the vital task of collecting, approving and accrediting claimed savings as well as undertaking/directing related auditing requirements. The administrator will have to report at least once a year to the government and publish information on scheme progress (costs and volumes) and detail any problems encountered.

One further important task is the development and maintenance of non-legislative documentation necessary for scheme operation. This includes process and technical guidance, pro forma templates for evidencing and submitting claims, and maintenance of a centralised database for their processing. The administrator may also assist OPs by providing supporting tools for calculating energy savings (eg deemed energy lists or spreadsheets for calculating scaled savings).

While an extensive array of responsibilities, the resourcing requirements for the above tasks should not be overly onerous. Ongoing costs for a typical EU country may include one full-time equivalent technical expert and one full-time equivalent administrative staff. Verification would most likely be contracted to an outsourced panel of verifiers (and must be done independently of the OP). Additional support, possibly contracted in, will be required for development of the necessary regulations and guidance documents as well

as setting up of the information and communication technology to enable efficient administration (through web-based submissions). There will be ongoing maintenance costs for this also.

The following table seeks to summarise the key elements to EEO scheme administration, best practice considerations in their application and useful examples of such application.

Table 2: Summary table of components related to administration of an EEO scheme

Component	Typical responsible	Best practice considerations (success factors / potential pitfalls)	Country example
<b>Guidance to OPs on scheme operation</b>	Administrator	<ul style="list-style-type: none"> <li>• “Plain English” interpretation of legislation to clearly lay out the scheme approach and responsibilities</li> <li>• Clearly define target setting process, principles of operation, timelines, credit allocation, process for accreditation, penalties and buy-out rules</li> </ul>	Ireland – provision of clear guidance documentation
<b>Technical guidance on M&amp;V and QA requirements</b>	Administrator (technical support may be contracted)	<ul style="list-style-type: none"> <li>• Stipulate the certification or accreditation standards necessary for suppliers (and how to check for these)</li> <li>• Lay out the monitoring and verification processes that must be set up and followed by measure category (with derogations)</li> <li>• Reporting requirements to administrator</li> </ul>	UK – provides easily accessible and clear information on expected processes and standards
<b>Deemed energy saving credits table</b>	Administrator (technical support may be contracted)	<ul style="list-style-type: none"> <li>• Should cover common, replicable large-volume measures</li> <li>• Based on proven and independently verified energy saving values</li> <li>• Accompanied by technical standards and updated periodically</li> </ul>	France / Ireland / Slovenia – provide deemed energy savings lists for common measures
<b>Calculation tools for scaled savings</b>	Administrator (technical support may be contracted)	<ul style="list-style-type: none"> <li>• Simple to follow spreadsheets for estimating energy savings</li> <li>• Useful for measures such as electric motors in industry</li> </ul>	Ireland – online tools to support “scaled savings” estimates for common industrial measures
<b>Appropriate IT systems</b>	Administrator	<ul style="list-style-type: none"> <li>• Specification and procurement of necessary software</li> <li>• This may be tied to centralised M&amp;V database for all EE measures</li> </ul>	Croatia – centralised M&V Platform embedded in regulations for use on all NEEAP policy measures
<b>Pro forma template</b>	Administrator	<ul style="list-style-type: none"> <li>• For use by OPs to demonstrate proof of involvement</li> </ul>	UK – online templates of necessary documentation
<b>Cost reporting</b>	Administrator	<ul style="list-style-type: none"> <li>• Monitoring cost impact of the scheme as well as impact on competition</li> <li>• May include a periodic update of RIA</li> <li>• Information may lead to revision for next compliance period</li> </ul>	Denmark – cost reporting, benchmarking and reviews undertaken annually

Trade facilitation	Administrator / other	<ul style="list-style-type: none"> <li>• The administrator should provide simple processes for notifying of any inter-OP trade of certificates</li> <li>• If third-party certificate generation is allowed then a trading platform may be considered</li> </ul>	Ireland – clear process for inter-OP trading Italy / Poland – exchange-based trading of White Certificates
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### Key challenges related to implementing EEO scheme administration in EBRD COOs and Energy Community Contracting Parties

EEO schemes within the EU, according to several experts that provided experiences from Member States during the course of preparation of the guidelines, have frequently benefited from being run by arms-length agencies (either focused on sustainable energy or more general in nature) who are able to operate with greater flexibility and independence than a ministry. Such agencies are seen as more responsive to the demands of OPs and can help foster a collaborative working arrangement. However, in many EBRD COOs as well as in the Energy Community, the presence or willingness to support establishment of such an agency is lacking, while support is also lacking to dedicate the necessary resources within the civil service to scheme establishment and operation. This has slowed decision making and development.

The lack of supportive documentation, notably a deemed energy saving list, has also proven problematic in some jurisdictions. Reference to such a list provides transparency and simplicity, substantially reducing the administrative burden on OPs. The deemed savings contained in such lists

need to be based on robust and independently verified analyses which may also be lacking.

### 3.3. Component 3: Obligated parties delivery mechanisms / business models

This covers the Obligated Party strategy for EEO implementation. The envelope of options for addressing these issues will be led by the legislative framework of the scheme but there will typically be a number of eligible approaches and indeed a variety have been tested in EEO schemes to date.

EEO schemes often meet resistance from the OPs during their proposal and set-up stages. Such resistance tends to be driven first and foremost by concerns regarding recovery of costs (and potential to be at a competitive disadvantage<sup>9</sup>). Other key concerns relate to the lack of experience of OPs in the energy efficiency sector (particularly in the Energy Community) and the potential to cannibalise their own revenues by lowering demand for energy.

Experience in operating EEO schemes in the EU suggests the predominant delivery mechanism has been grant financing. See box 1 for examples below.

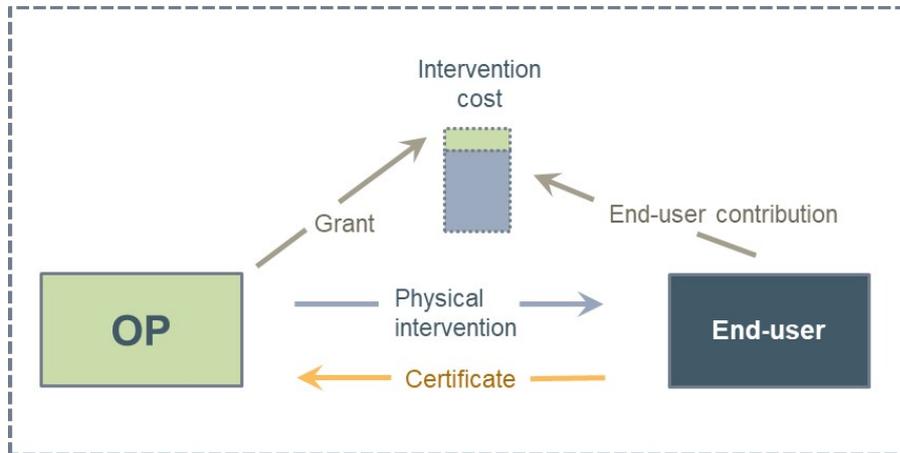
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<sup>9</sup> Concern has been voiced in a number of EEO schemes regarding minimum threshold levels for energy sales volumes below which retailers are not obligated under the scheme. Relatively high levels have been cited as distorting the market

and providing unfair advantages to smaller players, while low thresholds have proven problematic for very small entities lacking capacity to cope with the administrative burden.

### Box 1. Business models for EEOs

Directly by the OP who installs the EE measure itself (possibly via a subsidiary unit);

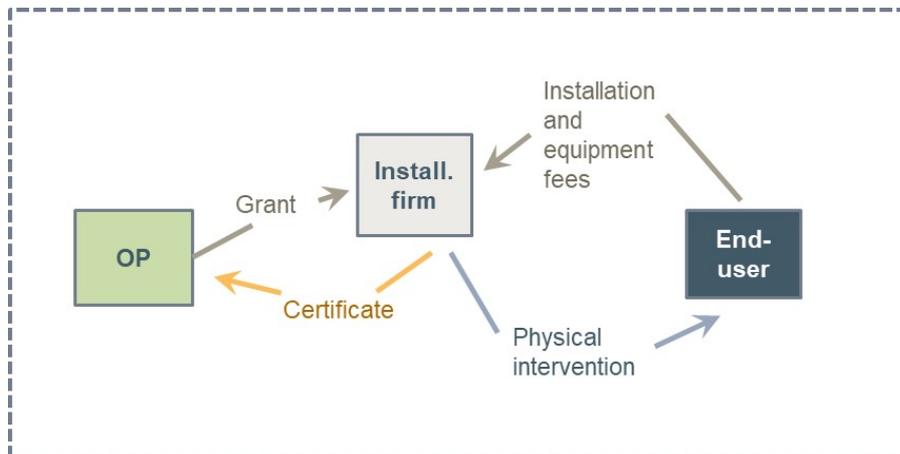


Obligated party directly engages the end-user:

- OPs subsidize installation costs
- End-user contributes the remaining cost

Leverage rate varies by scheme, sector and end-user but averages around 2:1

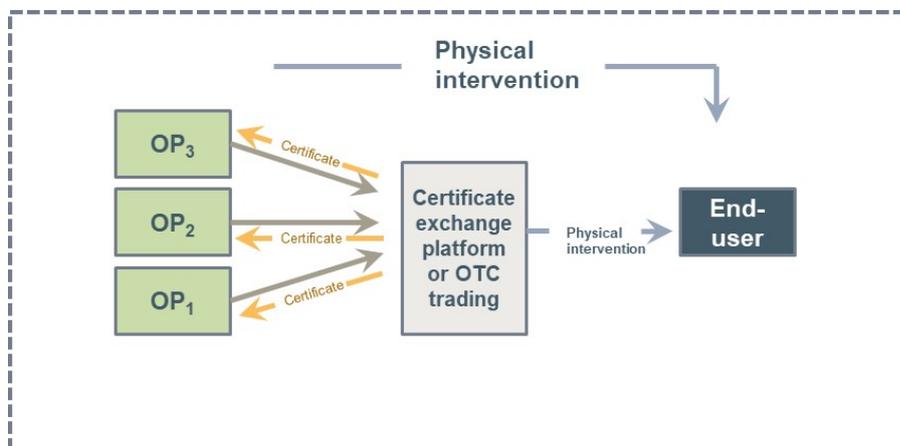
Provide to a third party contracted by the OP to install an EE measure;



Obligated party sub-contracts energy service / installation firms to implement interventions:

- End-users pay the service firm directly for installation
- OPs subsidize installation costs
- Energy service firms offer specialised interventions

Paid by the OP to a third party in exchange for an energy saving certificate either over-the-counter (OTC) in a bilateral deal or on a platform/exchange.



OPs trade certificates on an open exchange or through OTC transactions:

- Interventions include subsidised financing products

The third party has in some jurisdictions been an Energy Services Company (ESCO) who then delivers the energy savings measures using forms of Energy Performance Contracting (EPC) or loans at concessional rates (with the concession being supported by the grant funding of the OP).

Cost recovery of the grant support usually takes place in the year of delivery either through an allowance in regulated tariff setting or in price-setting by the OPs as part of their cost of doing business in a liberalised tariff environment. Both approaches reduce the strain on OP cash flows beyond any initial set-up costs.

While permitted under many EEO schemes, loans have not formed a significant delivery mechanism. In a number of non-European schemes (eg Brazil, some US schemes and South Africa), EEO schemes have been used to provide financial assistance to ESCOs as described above but the OP contribution still takes the form of a grant to the ESCO rather than a direct financing offer. Activity derived from this approach has focused on the

“MUSH” (municipalities, universities, schools and hospitals) sector.

Beyond EEO schemes, the general experience of energy efficiency loan programmes is that results are weak (particularly those targeting small consumers) unless they are combined with technical assistance, outreach programmes, mechanisms to ease contracting and the aforementioned softening of financial conditions to accelerate uptake. Without such efforts, they risk merely repackaging activities which would have taken place in the market anyhow.

It is plausible that loan type arrangements could reduce the costs of an EEO scheme for OPs, softening the impact on tariffs and improving political willingness (a key concern among EBRD COOs) to implement. However, the lessons learnt from wider EE concessional loan schemes – particularly those targeting lower cost measures – need careful consideration and mitigation strategies. Also on this matter is the need for capitalisation of the financing entity to manage cash flow in the early years.

Table 3: Summary table components related to EEO scheme delivery by OPs

Component	Typical responsible	Best-practice considerations (success factors / potential pitfalls)	Country example
<b>Engagement</b>	OP / Administrator	<ul style="list-style-type: none"> <li>Engagement of OPs through previous EE schemes (voluntary EEO or other) builds mutual understanding</li> <li>Early engagement develops EE competency within OPs</li> </ul>	Ireland – Better Energy Scheme and involvement of utilities Greece – early engagement and collective planning
<b>Understanding of the scheme operation</b>	Administrator	<ul style="list-style-type: none"> <li>Prior to and in the initial stages, run a series of workshops with OPs</li> <li>Back up the guidance document with details for dedicated contact point in administrator</li> <li>Clear website</li> </ul>	Austria – extensive workshop programme
<b>Developing administrative capacity</b>	OP	<ul style="list-style-type: none"> <li>OPs should have a staffing plan for delivery of obligation</li> <li>Must have capacity for implementing M&amp;V processes</li> </ul>	

<b>Internal Action Plan for delivery</b>	OP	<ul style="list-style-type: none"> <li>• This may be a formal element of scheme (approved by administrator) or an internal document</li> <li>• Identify business model for delivery – internal/subsidiary, contracted, purchased (WC or buy-out), pooled</li> <li>• Scheduling of roll-out</li> </ul>	France – formal Action Plans which may be approved by administrator, streamlining accreditation
<b>Choice of delivery mechanism(s)</b>	OP	<ul style="list-style-type: none"> <li>• Main options are: grant support, soft loans, technical assistance</li> <li>• Cash flow considerations need addressing</li> <li>• Financing support can be channelled through an ESCO</li> </ul>	Ireland – explicitly allows 4 options but concentration on grants
<b>Financial products for OPs</b>	Private sector / IFIs / national development banks	<ul style="list-style-type: none"> <li>• Financing of OPs is important, as utility capital may be already stretched</li> <li>• Cost of financing needs to be taken into account when evaluating cost-recovery mechanisms</li> </ul>	Bulgaria – focus on loans and lack of cost-recovery mechanisms hindered utility financing
<b>Product innovation</b>	Administrator	<ul style="list-style-type: none"> <li>• Deemed savings list profit retention can result in narrow focus on simple, low cost measures</li> <li>• Incentives may need consideration to bring forward more innovative and deep solutions</li> </ul>	New South Wales – had concerns of narrow focus on low cost measures so tweaked rules Italy – enabled windfall gains on CFLs <sup>10</sup>

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<sup>10</sup> Compact Fluorescent Lamps

## Key challenges related to EEO scheme delivery by OPs

In the countries of the region, utilities lack technical capacity / experience on starting an EE business line, and often lack upfront capital to undertake measures (which would then be repaid through tariff cost-recovery).

Successful EEO schemes have been introduced gradually with rigorous pre-implementation planning between both the administrator and future OPs. Such planning, as occurred recently in Greece, helps bridge the knowledge and capacity gap that faces many potential OPs in the region by helping provide a clear picture on how targets may be achieved in the initial stages of the scheme. The pressure to comply in a timely manner with the obligations of the EED should be balanced with the need for such a robust planning period.

If a cost-recovery mechanism through tariffs is not possible then this constrains the range of delivery models significantly. Only in very mature markets would it be possible for an energy supplier to put in place a profitable business line for EE. Under these circumstances, EEOs will be viewed as eating into profits, and will meet resistance from utilities. Cost-recovery modalities heavily influence business model choice.

Monopoly providers remain in place within a given fuel source (particularly for electricity) in many EBRD COOs. This can dilute the market benefits to be gained from the competitive nature of EEO schemes that arise in liberalised environments.

## 4. Perspective on EEO scheme roll-out in EBRD and Energy Community region

### 4.1. Experience to date

As identified in the introduction to this report, the opportunity for EEO schemes within the EBRD COOs and Energy Community

Contracting Parties is substantial. Extensive cost-effective potential is available for energy efficiency within the region. EBRD COOs and Energy Community Countries which have already attempted to implement EEO schemes have done so with mixed success. Therefore, to assist in more consistently effective roll-out, this report aims to support the region by learning not just from global best practice but also from lessons learnt in overcoming the particular challenges common to the region and in doing so provide a useful tool for their future development.

The longest running EEO scheme among EBRD COOs is that of **Poland** which underwent significant revision in 2016. The original scheme, commenced in 2013, was perceived to be overly complex, depending upon annual tender rounds, categorisation by sector, and open trading. The new scheme design bears closer resemblance to that seen in other newer EU Member State EEOs such as Ireland, Austria and Slovenia, albeit with the inclusion of open trading. It is noticeable that the level of savings achieved even under the old design had increased substantially by 2015, indicating that the time required for learning by both OPs and the administrator were as important a barrier as the scheme's complicated design.

This finding is supported by the largely successful implementation in **Slovenia** which built gradually upon a pre-existing levy placed on energy tariffs for funding energy efficiency activities through the centralised "Eco-Fund". By increasing the EEO target in steps and by virtue of the precedent set by the levy, Slovenia managed a relatively smooth introduction of its EEO. Nevertheless, it remains noticeable that the only year where the target was not achieved directly by the OPs (as opposed to indirectly using the buy-out mechanism) was the first year of 2014, despite 2014 having a lower target than subsequent years. This reaffirms the importance of gradually growing the target.

**Bulgaria** originally intended to commence its EEO in 2014. However, delays caused in part by changes in government (an issue also encountered elsewhere in the region) set back its formal initiation to 2017. Further difficulties with a lack of understanding among OPs regarding responsibilities and opportunities, and the absence of effective enforcement and cost-recovery mechanisms, have hindered its progress.

Elsewhere in the region, the other operational EEO schemes in **Greece** and **Latvia** have been implemented too recently to draw firm conclusions regarding their operation. It is noticeable, however, that both have adopted scheme structures broadly similar to that of Slovenia (as well as the successful schemes run in the Republic of Ireland and Austria). **Croatia**'s proposed scheme following revision is similarly aligned to this increasingly common format within the EU Member States (eg an obligation placed on retailers, a broad base of fuel carriers covered, and a buy-out option to a centralised National Energy Efficiency Fund).

No schemes are as yet operational within the Energy Community with only **Bosnia and Herzegovina** so far indicating a firm commitment to establishment, while other Contracting Parties continue to assess their options.

#### 4.2. Common challenges

Most challenges to setting up a robust EEO scheme are common to all jurisdictions and have been tackled across the world. Extensive literature is available regarding options for scheme design and best practice implementation. However, there are commonalities across the EBRD COOs regarding the form and relative importance of certain challenges which merit specific comment here.

#### *Challenges in scheme establishment and legislation*

At a high level there is the issue of **international obligations**. Targets for most EBRD COOs are set, at least in part, by reference to the demands of Article 7 and Annex V of the EED (as transposed for the Energy Community) which are uniform across all EU Member States.

A number of successful EEOs in the EU have been able to build upon either pre-existing schemes or well-established energy efficiency policy mechanisms, with the corresponding institutional knowledge, experience and capacity already established to support implementation and operation. Such capacity and experience is more frequently lacking among policy makers, administrators and OPs in the EBRD COOs and Energy Community CPs, providing a particular challenge for establishing and operating a new EEO scheme. With the 2020 deadline now fast approaching, policy design for new EEOs is best advised to turn its attention to the 2030 policy environment, ensuring a long-term perspective is taken on scheme design and development. The alignment of EEO schemes with Alternative Measures, as permitted by the EED, is discussed further below.

**Public and consumer cost** is another area of clear and repeated concern. Again, while a common issue internationally, the lower GDP per capita and income levels of the EBRD COOs and Energy Community Contracting Parties as compared to other EU Member States, lends increased prominence to the issue. This impacts in a number of ways. Firstly, financial capacity may be lacking in the government and designated administrator for dedicating the necessary human resources to both scheme establishment and operation, as well as to ensure the required expertise is available for it to be designed and implemented consistent with international best practice.

There can also be strong opposition to the notion of cost recovery via energy tariffs. Prices for households and small businesses in the region for electricity in particular remain low by international standards, are largely regulated, and have a history of subsidisation. This has a double impact by:

- reducing the end-user's savings from implementing EE measures on energy expenditures (thus increasing the pay-back period required); and
- increasing the uplift to tariffs required as a percentage of total bills.

Regulated tariffs provide an additional complication due to the inevitable political nature of agreeing to price rises, which can result in very tight profit margins for utility firms. Combating the cost issue is difficult but surmountable. The scale of cost-effective opportunities for EE activity is vast and by spreading the obligation across energy carriers the impact on tariffs can be contained, albeit at the cost of greater administrative complexity. It is important also that the substantial benefits (both direct and indirect) of EEO schemes are as visible to both politicians and the public as the cost. EEO schemes are highly cost-effective in aggregate for society but this message is often lost.

Similarly under regulated tariffs, **cost-recovery mechanisms** must be implemented with the involvement of the energy regulator. EEO schemes represent a small proportion of overall retail tariffs (typically no more than 2%) but a much larger proportion of utility profits. Without cost recovery allowances, financial distress or non-compliance is inevitable. Standard regulatory practices including close oversight, benchmarking, and performance-based incentive mechanisms can be used to incentivise cost efficiency in such circumstances.

**Enforcement mechanisms** for the payment of the buy-out price and/or penalties for non-payment have also been lacking or proven difficult to establish within the legislative frameworks. Without credible and effective enforcement policies, OPs will likely not be sufficiently incentivised to act. Slovenia provides a positive example of where clear enforcement occurs with late payment to the Eco-Fund of any shortfall subject to interest and legally enforceable. Penalties are also proportionate to the infringement which has occurred.

#### *Challenges in scheme administration*

Related to the above challenges is the issue of selecting an appropriate **administrator** for the scheme. The most common approach among EU countries, which has had a good level of success, is the use of an arms-length **energy agency** (sometimes dedicated to sustainability matters). Agencies generally have greater flexibility in the hiring of staff, are partially protected from day-to-day political pressures, and have proven better able to foster a cooperative environment with OPs. However, setting up such an agency can encounter opposition, particularly in the EBRD COOs where cost and lack of political control cause concern. Early planning and coordination with other areas of energy legislation as well as the ministry responsible for finance can help overcome this hurdle. In the absence of such an agency, the energy market regulator or directly within the ministry are alternative options for administration.

A common challenge in the region, including in Poland, Slovenia and Bulgaria, has been establishing robust **monitoring and verification** systems. Administrators have relied largely upon desk-top document reviews as opposed to physical inspections, leading to concerns regarding the veracity of claims. GIZ, through its Open Regional Fund (ORF) for South-East Europe, assisted in the roll-out of M&V software platforms to the

countries of the Western Balkans region. Croatia integrated the system within its national legislation and it is planned to be used for the new EEO scheme. However, the system is understood to yet to be put into full operation in any of the remaining recipient countries. Appropriate IT systems are an important cornerstone of managing an effective EEO scheme.

#### *Challenges for Obligated Parties*

A **lack of understanding of EE potential and appropriate measures** has been a repeated concern expressed by potential OPs across a number of proposed and operational EEOs in EBRD COOs. Many OPs do not have a history of involvement in EE programme delivery and lack the internal capacity and know-how for seeking and identifying cost-effective opportunities. Strong coordination and communication between the administrator and OPs prior to scheme establishment, with information sharing regarding EE potential can help mitigate this challenge. Working with industry associations, particularly for the liquid and solid fuel sectors where there is no ongoing relationship with end-users, is another option which has proven beneficial in Ireland and Denmark.

EBRD COOs are also typically at an earlier stage of energy market liberalisation than the wider EU Member States. The presence of regulated tariffs and **monopoly providers** can dilute the benefits to be gained from competition that an EEO scheme can offer. In a competitive retail market EEO costs are treated as a cost of doing business and there is a clear incentive for cost efficiency in order to gain market advantage. This incentive is absent under regulated environments. Nevertheless, this issue alone should not be seen as an insurmountable barrier to delivery. Indeed the success of schemes placed on network firms, which are inherent monopolies within their region/fuel, attests to the flexibility of EEOs as a policy tool.

OPs are often concerned about **conflicting incentives** stemming from their position as energy sales businesses being obligated to reduce energy consumption. Allowing OPs to initiate savings in any end-use fuel type means it is not necessarily the suppliers' own sales which are affected. Furthermore, delivery of energy services is being increasingly seen by retail firms as a potential growth area for their businesses and therefore the positive potential of EEOs to contribute towards this shift in focus needs emphasising. For network firms the same concern will depend on whether tariffs are formulated on an energy (kWh) basis or a capacity (kW) basis and will anyhow be partially mitigated in markets where tariffs are decoupled from throughput volumes (ie using a total revenue rather than a price cap). Similar decoupling mechanisms can help for retail firms in markets where retail prices remain regulated.

Lastly, the **market size** of EBRD COOs is typically smaller than those of EU Member States with the longest running EEO schemes. Particularly in markets where a monopoly provider's position is unlikely to be challenged, a more collaborative and prescriptive approach between government and OPs in scheme design, planning and delivery, such as is the case in Malta and Lithuania, could be a workable solution.

#### **4.3. Recommendations for getting started**

Based upon the above discussion of common challenges, the following recommendations are drawn for EBRD COOs to get started with an EEO scheme:

**Be realistic on scope and timetable:** Policy makers should take heed of the region's experience by putting in place a realistic timetable for scheme development and implementation. Starting with a target at a realistic level before growing over subsequent years is a proven method of

improving outcomes, while softer penalty regimes and/or voluntary arrangements can also be used to smooth the introduction. Taking time to ensure the legislative framework is well structured, focused on the long-term objectives of the country, and comprehensive in scope, will also pay-off in the long-run.

**Consider related alternatives (perhaps for a transitional period):** Schemes which co-opt energy firms for delivery but in a more managed manner such as in Flanders, Lithuania and Malta may lose some of the competitive element but provide a simpler administrative arrangement. This can be attractive for a transition period or in a small market where competition is anyhow unlikely to become established.

**Early engagement of the Ministry of Finance and energy regulator are essential:** EEOs have strong net benefits and are a cost-effective delivery mechanism of EE measures. However, energy bill increases are always a politically sensitive subject and therefore early engagement of entities with jurisdiction on financing matters is essential in order to ensure they are fully informed as to the scheme's proposed operational structure and its expected benefits.

**Early engagement of Obligated Parties is also essential:** There is a general lack of experience among utility firms in the EBRD COOs in EE matters. Concern over EE potential and how to identify suitable opportunities is a common occurrence. Holding a series of stakeholder workshops to address these concerns, share information, and establish action plans for early stages of scheme roll-out prior to its commencement are recommended mitigation actions.

**Pay specific attention to M&V and the development of supporting documentation:** Good quality guidance documentation regarding scheme operation and M&V

obligations and processes, simplified calculation processes (eg through establishing a list of common measures with deemed energy savings), pro forma templates for submitting claims and transferring credits between OPs, and supporting IT systems, are all essential ingredients to a well-functioning scheme.

**Regular reviews are necessary:** With the best will in the world, all scheme designs will have areas of potential improvement that will only become apparent once in operation. Periodic reviews (around every 3 years) are therefore recommended to update processes as necessary and update or fine-tune areas which need attention.

**Back-up the obligation with effective, proportionate and dissuasive penalties:** Despite the potential of voluntary mechanisms for smoothing the introduction of a new EEO scheme, achievement and compliance at scale is likely to necessitate the introduction of a penalty regime. The basic principles of such a regime are that incurring a penalty should be more costly for the OP than complying with their obligations, that the size of the penalty is proportionate to the size of the breach, and that funds recovered through penalties should remain within the energy efficiency sphere.

## 5. EEOs place in the policy measure mix for meeting the national energy savings target provided in EED Article 7

### 5.1. The contribution of EEO schemes towards the 2020 Article 7 obligation

Close to 500 different policy measures were notified by EU Member States to the European Commission for the purposes of meeting their Article 7 energy savings obligations<sup>11</sup>. In addition to EEO schemes and National Energy Efficiency Funds, these policy measures can be defined using the (non-exhaustive) list of categories given in Article 7 Paragraph 9:

- Energy or CO2 taxes
- Financing and fiscal schemes
- Regulations
- Voluntary agreements
- Standards and norms
- Energy labelling schemes
- Training and education programmes

Despite this variety in the types of policy measures used by MS to contribute towards the Article 7 obligations, EEO schemes are expected to be the category which provides the largest single contribution in terms of energy savings<sup>12</sup>.

### 5.2. The future role of EEO schemes in the Article 7 policy measure mix

The prominent position of EEO schemes in the wording of Article 7 has been retained for the amended EED, extending the obligation to 2030, as recommended by the corresponding impact assessment. This is largely due to their relative cost-effectiveness – a point evidenced by the very low use of

buy-outs to National Energy Efficiency Funds availed by Obligated Parties in markets where this is an option. The buy-out price is typically based upon the cost to the Fund of undertaking equivalent energy saving activities. Hence the low uptake indicates Obligated Parties predominantly find ways to achieve savings at lower costs themselves. This finding is to be expected given the structure of EEO schemes is intended to encourage competition.

Due to their cost-effectiveness, the increase in the uptake of EEO schemes among Member States seen in response to Article 7 obligations for 2020 may be expected to continue in the period to 2030.

Nevertheless, few Member States or Contracting Parties are expected to pursue their Article 7 obligations solely via an EEO scheme (only Denmark and Luxemburg aim to do so for 2020). This leads a policy maker to consider how to select the most suitable mix of Alternative Measures alongside an EEO scheme.

### 5.3. Selecting an effective and coherent policy mix for Article 7

For 2020, the majority of non-EEO measures notified by EU Member States had been pre-existing at the time of adopting the EED or are adaptations of existing measures<sup>13</sup>. This lessens the burden on savings to be borne by a new EEO or other major Alternative Measure and the associated uncertainty of a new scheme. Inevitably, the policy mix chosen by individual Member States or Contracting Parties is also influenced not only by the location of the most cost-efficient

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<sup>11</sup> All such notified savings must comply with the requirements of Annex V of the EED

<sup>12</sup>

[http://www.europarl.europa.eu/RegData/etudes/STUD/2016/579327/EPRS\\_STU\(2016\)579327\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2016/579327/EPRS_STU(2016)579327_EN.pdf)

<sup>13</sup> See:

<http://enspol.eu/sites/default/files/results/D3.1%20Report%20on%20Alternative%20schemes%20to%20Energy%20Efficiency%20Obligations%20under%20Article%207%20implementation.pdf>

energy saving potential but also by climatic, political and cultural considerations.

The ability to select an optimum policy mix from a cost-efficiency perspective can be further hampered by the lack of reliable data on the costs and benefits of many measures, lack of foresight on unintended consequences, and multiple policy objectives. Nevertheless, consideration should be given as to the complementarity of the policy options selected and whether they are mutually reinforcing, or conversely overlap in application and thus risk delivering less than the sum of their individual impact. Overlapping policies can result in double counting of energy savings (which must be eliminated as required by EED Article 12) and potential over-compensation to recipients<sup>14</sup>.

Criteria to consider in the selection of an appropriate policy mix include:

- Whether they **address the specific barriers** identified in the market in question.
- Their **scalability** in delivering energy savings: i.e. the degree to which the option has been proven, or can reasonably be expected, to deliver a significant quantity of energy savings.
- The **market transformation potential** of the measure: will it act as a “pull” on the rate of market change as an EEO does, or does it address late adoption as with minimum performance standards?
- **Cost-effectiveness:** noting the cost of administering the policy option, its

efficiency in translating the direct costs involved into energy savings and who is to bear these costs.

- The **complementarity** or potential overlap of the policy option with other policy options; some measures complement each other to a greater extent than others.
- The sensitivity of the option to **political and cultural acceptance** and its stability in terms of sustained funding.
- Difficulties in **verifying** the energy savings (a particular difficulty for energy taxes) and ensuing the eligibility of the option for meeting Article 7 targets.
- The **complexity** of the policy option.

Labelling, information campaigns and training, as well as minimum performance standards, will continue to provide an essential role in bringing forward energy savings via improving the efficiency of markets and addressing the issue of late adoption. However, it is the **EEO schemes, other financial and fiscal measures (including auctions), energy or CO2 taxes and voluntary agreements**, which will bear the heavy lifting of delivering energy savings under Article 7 by aligning with its core objective of improving the rate at which upgrades occur.

Careful crafting of these schemes will allow them to work together in concert, delivering energy savings at sufficient scale to meet targets, across end-use sectors, and with due consideration of distributional effects.

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<sup>14</sup> For a full discussion on the considerations in designing a policy mix for meeting Article 7 objectives, see the EU-funded ENSPOL project in report D5.1 “Combining of Energy Efficiency Obligations and alternative policies”,

<http://enspol.eu/sites/default/files/results/D5.1Combining%20of%20Energy%20Efficiency%20Obligations%20and%20alternative%20policies.pdf>

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## ANNEX A: Detailed overview of EEO schemes in EBRD COOs / Energy Community Contracting Parties

	Country	Evidence that OPs are making investments in EE measures within the EEO scheme?	Estimated aggregate amount of investments being made by OPs in 2016 / 2017	Notes on current status and expectations for investments to 2020
<b>Energy Community Contracting Parties / EBRD COOs</b>	Bosnia & Herzegovina	N/A (scheme not yet set up)	N/A (scheme not yet set up)	In Bosnia and Herzegovina, the primary and secondary legislation is in draft form, yet to be adopted. The EEO features in the latest NEEAP and the scheme has been under development for 3 years with support of USAID. A high-level roadmap for the EEO has been drafted as well as a detailed guidebook and other associated secondary legislation. There is a moderate likelihood that OPs will be making EE investments in 2019.
	FYR of Macedonia	N/A (scheme not yet set up)	N/A (scheme not yet set up)	FYR of Macedonia is still finalising its draft Law on Energy Efficiency. An EEO scheme in combination with alternative measures is foreseen but the relative weightings between measures are yet to be decided. Given the lack of progress to date, no substantial investments are considered likely in 2018-2020.
	Kosovo*	N/A (scheme not yet set up)	N/A (scheme not yet set up)	The new Law on Energy Efficiency for Kosovo* prescribes the establishment of an EEO scheme. No decisions have yet been made regarding the obligated parties, targets (and proportion of Article 7 to be met through them), role of the Kosovo Energy Efficiency Fund, or other scheme design elements.
	Moldova	N/A (scheme not yet set up)	N/A (scheme not yet set up)	Moldova adopted its new Energy Efficiency Law transposing in full the requirements of the EED in July 2018. The law foresees the development and implementation of an EEO scheme to contribute towards the country's Article 7 targets. This scheme is scheduled for commencement in 2019, delivering new annual energy savings of 12.23 ktoe a year. The expected cost over the first 2 years of the scheme operation to Obligated Parties is estimated at approximately €50M (€25M per year).
	Serbia	N/A (scheme not yet set up)	N/A (scheme not yet set up)	Serbia is yet to make a formal decision regarding its policy approach to Article 7 of the EED and whether to adopt an EEO scheme. The country is receiving support from the EBRD's Regional Energy Efficiency Programme Plus (REEP Plus) in this process. Both an

				EE Fund and an EEO scheme are under consideration. The main barriers at present are the lack of ministerial capacity and competition in the energy supply market for electricity, as well as the combination of low electricity prices and a sluggish economy.
<b>EBRD COOs only</b>	Bulgaria	No	Negligible	The Bulgarian EEO is adopted and in operation. Investments to date have been hindered by a lack of clarity on targets, mechanisms for cost recovery, and enforcement procedures for non-compliance. With these issues corrected, investments by OPs in the order of €25M in 2018 and €50M in 2019 and 2020 each are considered possible.
	Croatia	N/A (scheme not yet set up)	N/A (scheme not yet set up)	The Croatian Law on Energy Efficiency was passed in 2014 obligating distribution firms and intended for commencement in 2016. Corresponding draft secondary legislation was also prepared with the support of the EBRD. However, following further discussions it was agreed that the Law would be amended to designate suppliers as OPs. Due to political changes, this amendment was heavily delayed. The Energy Agency (CEI), which was previously tasked with administering the scheme, has since been disbanded (for non-EE reasons), adding to the inertia. Nevertheless, there is now fresh impetus, an amended Law has been drafted and went through public consultation in August 2018.
	Estonia	No	€0mIn	Primary legislation is in place to allow for an EEO scheme (Energy Sector Organisation Act 2016), however, Estonia has subsequently decided to pursue alternative measures for achieving targets. These are energy and carbon taxes and funding schemes.
	Greece	Yes	€25 million <sup>15</sup>	The Greek EEO scheme commenced in April 2017 placing an obligation on energy retail companies across electricity, gas and liquid fuels. Obligated Parties have the option of paying into an Energy Efficiency Fund to buy-out a proportion of their target. Penalty provisions apply for non-compliance.
	Latvia	Partial	Negligible (2017)	Scheme started in May 2017 on a pilot scale initially covering 9 electricity suppliers and targeting 10% of the total Article 7 commitment by 2020. In January 2018, the scope of OPs was widened to include the heating sector (6 heat suppliers understood to have joined on voluntary basis). To date it, is understood that only information campaigns have been implemented.

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<sup>15</sup> No data is yet available on the new Greek EEO scheme regarding compliance or costs. In this calculation we have assumed the full 2017 target of 100 ktoe was achieved at an average investment cost to OPs of approximately €0.03/kWh-saved.

	Poland	Yes	At least €23 Million <sup>16</sup> (2016)	The Law on Energy Efficiency (20 May 2016) requires that from October 2016 Obligated Parties, who are energy suppliers of electricity, natural gas and heat, invest in Poland's EEO scheme by generating or purchasing White Certificates (WCs) or paying the "substitution fee" – a buy-out mechanism for up to 30% of their target. Based on the traded value of WCs on the Polish Power Exchange as well as the substitution fee, at least 100 million PLN (23 million Euros) were invested by OPs in the final three months of 2016 through the EEO scheme.
	Slovenia	Yes	€10 Million <sup>17</sup> (2016)	Scheme commenced in 2014 with the obligation placed on suppliers of all major fuel types in all end-use sectors. The target will increase for 2018-2020 by approximately 50%. However, the level of over-achievement may drop with changes to the calculation methodologies for fuel additives, which was the most popular measure in 2016 (39% of savings).

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<sup>16</sup> The EE Law does not require OPs to report the costs of investments. Based on the data from the Polish Energy Regulatory Office (URE) in relation to White Certificate costs, from the 1st of October 2016 to the 31st of December 2016, 112241,379 toe of final energy has been saved: 105277,812 toe proven by WCs and 6963,567 toe by the substitution fee. The WAvG price of PMEF (white certificates on the Polish Power Exchange) at the end of December 2016 was 988,43 PLN/toe, while the substitution fee in 2016 was 1000 PLN/toe, to give around 111 mIn PLN (1€=4.3 PLN). However, this is likely to be an under-estimate as the savings figure does not capture all OPs. The lack of requirements regarding additionality further complicate any cost estimation.

Useful sources:

[https://tge.pl/fm/upload/Raporty-Miesieczne/2016/RAPORT\\_grudzie\\_2016.pdf](https://tge.pl/fm/upload/Raporty-Miesieczne/2016/RAPORT_grudzie_2016.pdf)

<https://bip.ure.gov.pl/bip/efektywnosc-energetyczn/realizacja-obowiazku/3632.Informacja-o-osiagnietej-oszczednosci-energii-finalnej.html>

<sup>17</sup> In 2016 OPs under the Slovenian scheme achieved a reported 327 GWh in energy savings as against a target of 177 GWh. The significant over-achievement, lack of ring-fencing of residential or low-income customers and concern over Monitoring and Verification suggests the average price paid by OPs was significantly lower than the buy-out price of €0.08/kWh-saved. Based on costs reported in the similarly structured Irish scheme we have therefore taken an estimate of €0.03/kWh-saved in this calculation.

## ANNEX B: Case study on Ireland's EEO scheme

The Republic of Ireland provides a useful case study of an EEO scheme that has been designed in direct response to the requirements of the EED Article 7 and which has proven successful and well-crafted in delivery, considering all three of the components described in these Policy Guidelines.

### Legal and regulatory framework

Ireland's legal structure allowed for the full requirements of Article 7 to be transposed via secondary legislation, namely Statutory Instruments 131 of 2014<sup>18</sup> and 634 of 2016<sup>19</sup> supplemented by notices from the Minister which are published in Ireland's official gazette (*Iris Oifigiúil*). The Statutory Instruments provide the grounds for:

- Identifying Obligated Parties and setting their energy saving targets under the EEO scheme;
- M&V and QA processes for certifying savings achieved;
- The application of buy-out and penalty clauses; and
- Appointment of the Sustainable Energy Authority of Ireland (SEAI) as the scheme administrator.

The Ministerial notices concern announcements of individual OP targets and the setting of buy-out and penalty rates.

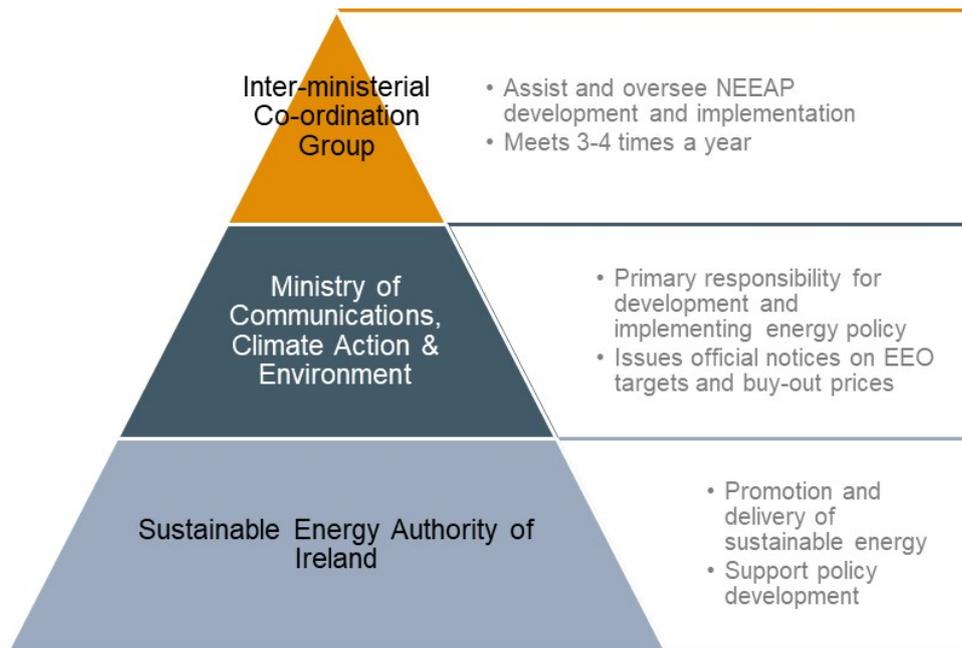
The development of these legal instruments was driven by Ireland's strong policy support for sustainable energy development, rooted in a series of National Climate Strategies (2000, 2007, 2015), Energy Policy White Papers (2007, 2015), and the country's National Energy Efficiency Action Plans (2007, 2012, 2014, 2017). This continuity in policy and political consensus in support of energy efficiency helped to smooth the ground for establishing the EEO scheme and its acceptance among policy makers and other stakeholders, demonstrating the importance of strong political will.

The legal and policy framework therefore defined the institutional structure summarised below.

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<sup>18</sup> <http://www.irishstatutebook.ie/eli/2014/si/131/made/en/print>

<sup>19</sup> <http://www.irishstatutebook.ie/eli/2016/si/634/made/en/pdf>



**Figure 3 – Institutional structure for Ireland’s EEO scheme**

The key entity in the process is the SEAI, established in 2002 as a statutory agency responsible for promoting and assisting renewable energy and energy efficiency. The SEAI has a central role in delivery of NEEAP policies and the EED more broadly. It provides:

- An independent resource of data analysis to help inform policy choices;
- Leads on direct delivery of central measures such as the EEO scheme; and
- Undertakes monitoring and reports on progress of such measures.

### **Target design and setting**

The design of Ireland’s EEO scheme is clearly drawn from the requirements of the EED. Following a voluntary trial period of 2011-2013, the mandatory scheme was established for 2014-2020 with individual savings targets set and allocated for the first 3 years of 2014-2016 (“Phase 1”). The aggregate target represents approximately half of Ireland’s overall Article 7 target with Alternative Measures contributing the balance.

The obligation in the Irish scheme is placed on energy retailers across all major fuel types, including transport. The decision to include oil products is in part due to their significant role in residential and commercial heating in the country. In Phase 1, the obligation was applied to all entities with annual energy sales in excess of 600 GWh per annum with 16 OPs participating.

The 3-year foresight on target size helped provide predictability for the market. An OP’s individual target could change during the course of the 3 years only if their market sales volume experienced a consistent change in excess of 10%. This rule acted as a compromise between the needs of a predictable target and its fair allocation. Given the expectation that opportunities in the industrial and commercial sectors would be cheaper in unit cost terms for OPs, Ireland was keen to ensure activity was stimulated in the residential sector and among fuel poor consumers. It therefore set two ring-fenced sub-targets whereby at least 25% of the OP’s overall target must be met through activity in the residential sector, and 5% of that must be targeted at customers deemed to be

“energy poor”. Excess overall savings in a year by an OP can be carried over to subsequent years, while excess savings within the ring-fenced areas can be used to meet the OP’s overall target for that year. Shortfalls can be carried over without penalties up to a limited proportion of the cumulative target. However, due to the cumulative nature of the target, catch-up becomes more onerous.

This structure is summarised in Figure 4, which provides an example of an OP with a 100 GWh annual target over the 3-year period. The “cumulative target” in this case is 300 GWh although unlike the EED this is expressed in annual terms with accumulation deriving from continued savings from measures installed in previous years.

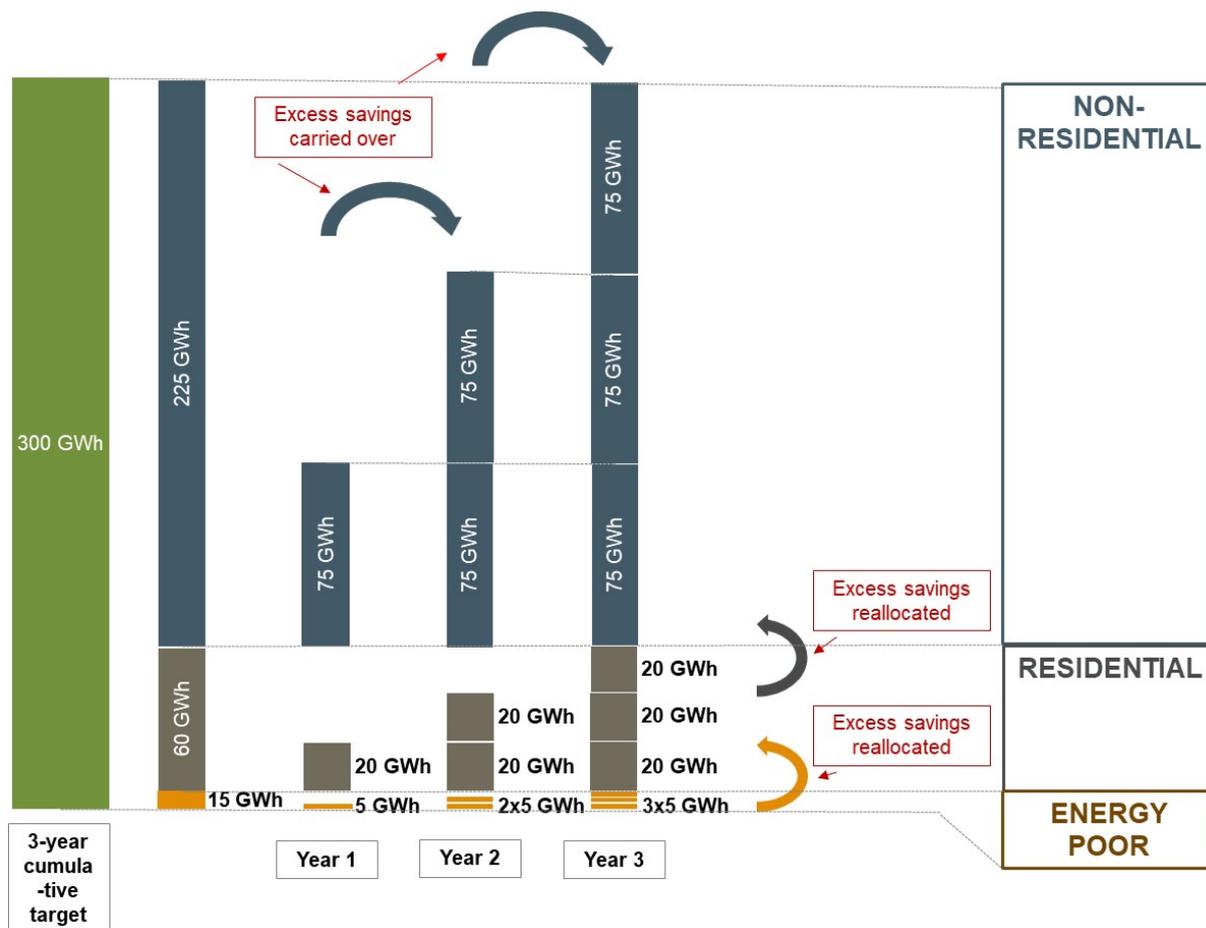


Figure 4 – Example disaggregation of 300 GWh cumulative OP target in Irish EEO scheme

Figure 4 indicates the baseline approach whereby an OP exactly meets its annual and cumulative targets for each year. Figure 5 illustrates the effects of including a carry-over allowance for shortfalls, using the non-residential sector as an example, by comparing:

1. The baseline Approach 1 where the annual target is exactly met in each year, with
2. Approach 2 where only achieving the minimum cumulative target is achieved in each year.

As can be seen in Approach 2, even to keep pace with the minimum target and avoid penalties, due to carry-over of the shortfall (represented by cross-hatching in Figure 5) and accumulation, in year 3 the OP is required to achieve a minimum of 108 GWh of new annual savings (90% of the

total non-residential target inclusive of carry-over savings from previous years) as opposed to just 75 GWh under Approach 1. This clearly demonstrates the benefit of early action.

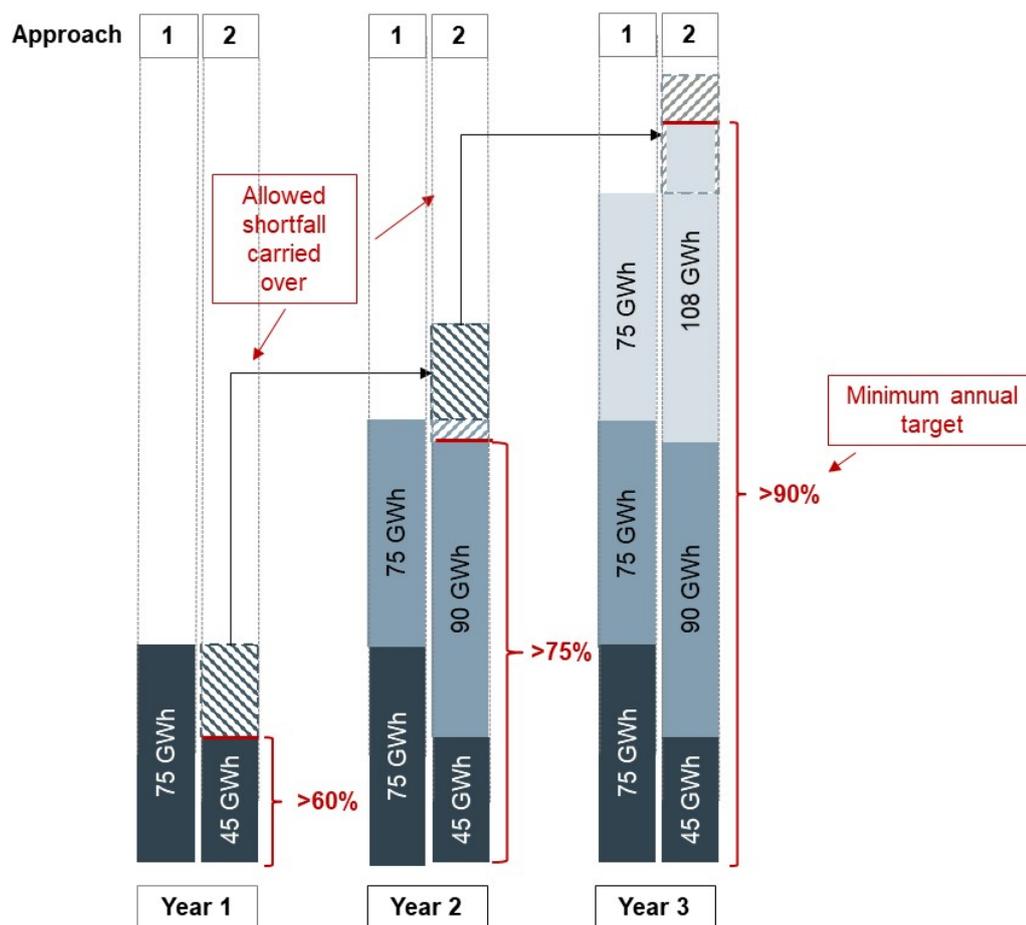


Figure 5 – Example application of minimum annual cumulative target in Irish EEO scheme

### Buy-out and penalties

The Irish EEO scheme has adopted the option proposed through Article 7 and Article 20 of the EED that an OP may make a “buy-out” of a proportion of their target through a payment to a National Energy Efficiency Fund. The price is set to ensure that the country can make-good the shortfall in energy savings that results by taking account of:

- The estimated cost to the State of achieving equivalent savings to those not achieved by the obligated parties [through government support schemes];
- Submissions from the Energy Suppliers’ Governance Group in quarter 3 of the year for which the buyout will apply; and
- Market factors.

The actual buy-out prices are approved by the Minister for Communications, Climate Action and Environment and published in the *Iris Oifigiúil*. The buy-out price has remained constant since 2014 at €0.06/kWh for non-residential savings, €0.204/kWh for residential savings and €0.88/kWh for energy poverty savings. These relative prices reflect the comparatively high costs of initiating savings in the residential sector, and particularly in the low income sector.

To date no Obligated Party has paid the buy-out price for any of their target. As the buy-out price represents a ceiling on what OPs will be willing to pay, this suggests even the highest cost measure undertaken was less than the buy-out price. This has likely contributed to the relatively low level of trading between OPs (as allowed by the rules).

If an OP fails to achieve either it's overall or sectoral energy saving targets, and fails to pay the buy-out price or secure credits through exchanges with other OPs, then a penalty will be imposed. The penalty price is set at a 25% premium to the buy-out price and is similarly paid into the centralised Energy Efficiency Fund. As with the buy-out, the penalty "clears the EE debt".

To date, no penalties have been imposed and given they represent a simple premium to the buy-out price for the same end-result it is likely that only a financially distressed or inept OP would find itself in a position where such a penalty is paid.

### Administration and M&V

The SEAI has been highly proactive in guiding OPs and facilitating the claiming of energy savings. A set of guidance documentation is provided on the website covering<sup>20</sup>:

- The **overall design of the scheme** covering target setting, rules for credit allocation, data submission, M&V requirements, trading between OPs, buy-out, and penalties.
- Specific guidance on **authenticating and claiming credits** identifying the measures (this document was actually prepared by the OPs and their consultants). This document specifies when a "derogation" from full M&V (direct measurements of savings based on ISO 50015 or equivalent) through the use of engineering calculations; namely for small, commonly deployed measures.
- An "**Energy Saving Credits**" table which provides deemed values of assumed energy savings for common measures installed in dwellings based on Energy Performance Certificates.
- A set of excel-based **calculation tools** for undertaking scaled savings calculations based on engineering assumptions for common industrial applications.
- **Templates** for submitting uploading claims to SEAI's bespoke credits management systems.

The guidance notes that the SEAI will audit a "statistically significant sample of credits, ranging between 5% and 10% of all works submitted by obligated parties". Audited works must also approximate 20% of the obligated party's savings. Quality of works are audited for all measures while savings achieved are audited for those involving non-deemed measures.

Obligated Parties in the Irish scheme are required themselves to initiate independent audits for 20% of works done as part of their own QA regime. These should also approximate 20% of the obligated party's savings and must include a representative sample of project types, size, sub-sector and location. All issues identified should be rectified and where a failure rate in excess of 20% is found, it is deemed to be endemic and a remediation plan is to be agreed with the SEAI.

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<sup>20</sup> <https://www.seai.ie/resources/publications/EEOS-Guidance-Document.pdf>

## Cost recovery

As the Irish retail markets for energy are liberalised, no regulation of cost pass-through is undertaken. However, the Commission for Regulation of Utilities (CRU) does monitor energy costs in order to ensure effective competition and proportionate impacts of policy initiatives. In the CRU's October 2017 paper assessing the first 3-year phase of the EEO scheme, it indicated that total EEO costs for electricity and gas equated to around 0.75% of retail tariffs with an average cost of €c 5.6/kWh-saved in 2016<sup>21</sup>. However, there was a large range in costs between suppliers with the most expensive reporting costs four times that of the cheapest. While a small proportion of overall retail tariffs, the obligation represents a much larger proportion of supplier costs (up to 10%) and is therefore a key area of price competition.

Costs have unsurprisingly been higher in achieving residential and energy poor targets, although this is the reason the ring-fenced requirements are included. It is noticeable that in these sectors, and for energy poor customers in particular, co-funding via OP participation in a government-led energy efficiency scheme has played a vital role in delivery (Figure 6).

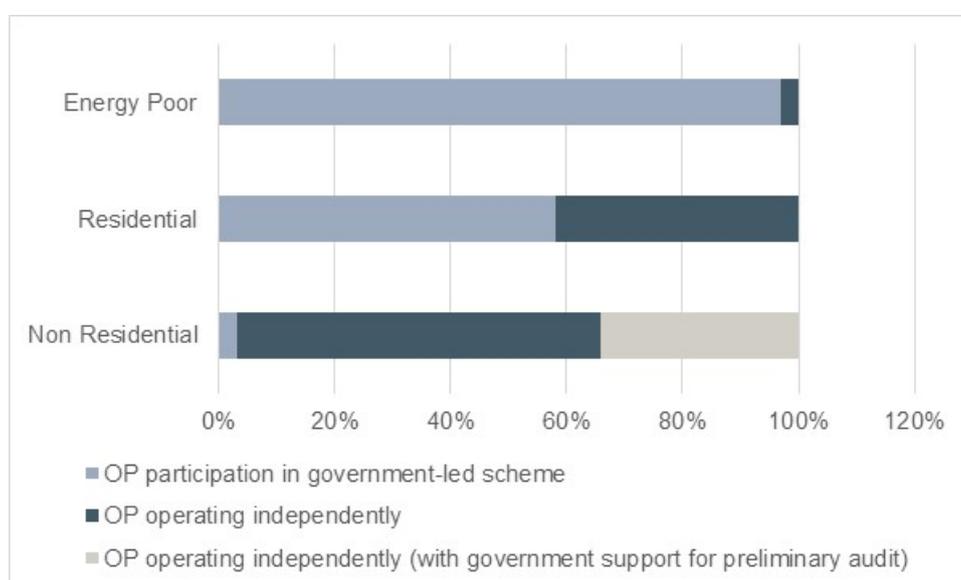


Figure 6 – Share of Credits (GWh) derived from OP involvement in government-led energy efficiency schemes (source: adapted from Ireland's 4<sup>th</sup> NEEAP)

## Business models

The business models employed by OPs in the Irish EEO have varied substantially. They include subsidiary and contracted energy service companies (ESCOs), integrated energy efficiency units, and voluntary pooling of the target. This latter approach was taken by oil suppliers who have weaker connections with individual customers, more limited experience in previous energy efficiency initiatives, and less of an incentive to build in-house capability. In pooling their target via the Irish Petroleum Industry Association (IPIA), oil distributors and suppliers agreed to ignore the 600 GWh threshold due to concerns regarding market distortion and set up a subsidiary EEO management agent company, which in turn procured and contracted a specialist external company

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<sup>21</sup> <https://www.cru.ie/wp-content/uploads/2017/10/CRU17291-RFI-Information-paper.pdf>

to provide a full 'arms-length' EEO delivery service to it. The EEO management agent company is thus effectively the OP and the specialist external company is termed a 'counterparty'. The funding contributions from all industry players to meet of the costs of this service are on a pro rata sales basis. The contract is paid on a performance basis.

## Summary

At the completion of the first 3-year phase, Ireland consulted upon the scheme and its design. The general consensus was positive and reflected the intensifying demands from forthcoming EU policies beyond 2030 and the Paris Agreement. It was decided to extend the next mandatory period to 4 years (2017-2020) for greater regulatory certainty and to reflect the EU's proposals to extend Article 7 in the updated EED. The proven cost effectiveness of the EEO scheme was highlighted as a reason to increase the targets (from 550 GWh per annum to 625 GWh per annum in 2017, rising to 700 GWh per annum for 2018-2020)<sup>22</sup>. The threshold for participation was also lowered to 240 GWh per annum to reduce market distortions and encourage innovation in delivery, albeit with a transitional voluntary period for affected entities.

This positive response to the first phase of the scheme reflects its success and strong design. Targets have been achieved without recourse to buy-out or penalties, with clear M&V and QA safeguards, and a wide range of measures undertaken. The allowance of ring-fencing and a degree of banking and borrowing do complicate scheme design and increase delivery cost but help ensure a degree of activity takes place in traditionally difficult areas (noting the key role of co-funding).

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<sup>22</sup> <https://www.dccae.gov.ie/en-ie/energy/consultations/Pages/Energy-Efficiency-Obligation-Scheme-Consultation-on-the-2017-2019-Phase-of-Operation.aspx>