

Cost Effectiveness for Monitoring, Reporting and Verification (Article 7 EED)

Authors

Gregor Thenius, Austrian Energy Agency

Bettina Reidlinger, Austrian Energy Agency



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List of abbreviations

BRZ	Federal Computing Centre
EED	Energy Efficiency Directive 2012/27/EU amended by Council Directive 2013/12/EU, Directive 2018/844, Directive 2018/2002/EU and Regulation 2018/1999/EU
EEOS	Energy Efficiency Obligation Scheme
ENEA	National Agency for New Technologies, Energy and Sustainable Economic Development
ESCO	Energy service company
GSE	Gestore Servizi Energetici, Energy Service Operator
MRV	Monitoring, reporting, verification
MS	Member State

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ENSMOV Project

ENSMOV is an EU-funded project aiming to support public authorities and key stakeholders in 13 Member States (MS) and the UK, represented by its consortium (Austria, Belgium, Bulgaria, Croatia, France, Germany, Greece, Hungary, Italy, Lithuania, Netherlands, Poland, Romania and the UK, addressing all 27 MS, the UK, and accession countries) to monitor, revise, improve and complement the design and implementation of their national energy efficiency policies by developing resources on practical and strategic issues arising from the Article 7 EED.

ENSMOV follows up on two other very influential projects that have helped to shape Member State policies to address Article 7 requirements of the EED – IEE ENSPOL (www.enspol.eu) and H2020 MULTEE (<https://multee.eu/>).

ENSMOV has the following strategic objectives that will deliver impacts beyond the duration of the project:

- a) to ensure that energy efficiency policies do not only promise, but also realise a major, long term contribution to the energy, environmental, economic and security goals of the EU and MS under the Energy Union; and
- b) to sustain an active platform and community for knowledge exchange of best practices in policy development and implementation of Article 7 EED policies, strengthening cooperation and improving the dialogue between national policymakers and stakeholders across the EU.

Representatives of EU Member States and beyond are invited to participate in

[international workshops](#) and can contact the [project coordinator](#) in order to arrange national workshops.

Report Introduction

During summer 2019, ENSMOV conducted a [survey](#) revealing the most relevant topics for EU Member States in the context of fulfilling Article 7 of the EED.

Designing policies in order to minimise the costs for all parties involved and cost-efficient provision of monitoring, reporting and verification (MRV) were among the crucial topics for Member States.

Thus, this report presents the cost drivers for energy efficiency policies and proposals on what to consider when defining and redesigning MRV procedures.

Please direct suggestions regarding revisions to bettina.reidlinger@energyagency.at (Austrian Energy Agency).

Introduction

Although MRV costs should normally be low relative to the monetary value of the savings being evaluated, they can play a role in the overall costs of a scheme. Decisions on MRV need to be shaped by the balance between the value added of additional monitoring and the resulting higher robustness of energy savings. Thus, there is no golden rule of how a MRV system has to be designed to be cost-effective. However, there are important drivers for MRV costs that policy makers have to take into consideration. The following report looks at these drivers and discusses the main ways that can reduce those costs and, thus, render MRV more cost-effective.

The cost drivers for MRV of energy efficiency policies include:

- Number of participants
- Eligibility criteria
- Documentation and reporting requirements
- Calculation of energy savings
- Data collection process
- Verification and evaluation

The first two drivers are part of basic decisions on policy design; the remaining four drivers can be influenced independently of policy design decisions.

Clear and transparent rules in relation to MRV need to be adequately communicated to all actors. This is a prerequisite for lowering the administrative burden of MRV in all kinds of energy efficiency schemes. Including the actors in the process of defining the last four drivers is advisable. It is equally important to provide actors with sufficient information in a timely way when starting a new policy in order to avoid confusion, poor data quality and ultimately, less solid energy savings.

In the Article 7 mix, a general pragmatic approach could be to implement more robust MRV procedures for measures with high expected energy savings and less demanding procedures for those with lower expected energy savings.

The [Snapshot report on EEOS](#) (2019) and the [Snapshot report on alternative measures](#) (2019) provide information on the costs for EEOS and alternative measures and learnings regarding the improvement of MRV procedures for different EU Member States.

Number of Participants

A policy measure can be open to a few or many participants. Participants are e.g. applicants for subsidies in a subsidy scheme or obligated parties in an EEOS.

The greater the number of participants in a scheme, the higher the MRV costs can be, because:

- More actors need to be informed about details of the scheme and administered from the point of view of the monitoring authority.
- More actors need to report data on implemented actions, which could considerably increase the volume of data.

The number of participants thus affects the costs for the participants themselves as well as for the administering authority. The [Snapshot report on EEOS](#) (2019) represents an overview of the costs of the EEOS for the obligated parties and the public authorities. Virtually all representatives from EU Member States agree on the fact that the financial burden for MRV have to be as low as possible for obligated parties and the public authority, but very few Member States actually have detailed data available on the costs for MRV procedures for both sides.

Recommendation:

- Balance the additional costs of involving more participants in a scheme against the value added of involving them to come to a cost-effective solution. This recommendation mainly applies to EEOS, e.g. in subsidy schemes, the aim would be to have at least enough applicants to distribute the budget available.
- For an EEOS, avoid obligating too many small companies, as they will face and trigger administrative costs, which will not be compensated by the additional savings of these companies.

Topics to be considered from the perspective of policy makers:

- How many participants should participate in the scheme?
- How many of them have to be involved in MRV?
- What would the effect be if this number were reduced?
- If necessary, how can the number of participants be decreased/increased?

Some countries, e.g. Austria, consider reducing the large number of obligated parties due to the high administrative burden and the relative low energy savings associated with them.

“There is a large number of obliged parties in the Austrian EEOS because of the obligation of energy companies in transport. This entailed a high administrative or control effort at all levels. It is therefore advisable, if possible, to keep the circle of obligated parties as low as possible without jeopardizing the total energy saving target.” (Snapshot report on EEOS in Europe, 2019, page 8)

Eligibility Criteria

The decision of which energy efficiency actions are eligible for a certain policy can influence MRV costs. This is because different actions bear different administrative costs. Important eligibility criteria comprise:

- Energy savings in final or primary terms
- Quality criteria for the technical implementation of the action
Examples: invoices, commissioning certificate, on-site inspection
- Requirements regarding materiality
Example: reason stated to implement individual energy saving action
- Requirements regarding additionality
Example: comparison with market average

When defining the eligibility criteria for the implementation of an action, it should be ensured that the criteria can be documented by participants at an acceptable cost, and it is equally important that they can be controlled by the monitoring authority. Criteria that either cannot be documented or controlled only raise administrative costs without adding value to the robustness of the scheme.

Recommendations:

- Evaluate all eligibility criteria against their added value to the scheme and assess the possibility to control them and the cost of monitoring them.
- Ensure good communication of the eligibility criteria to participants. Empirically, a majority of the scheme participants struggle with this topic.

Topics to be considered from the perspective of policy makers:

- What are the eligibility criteria for the scheme?
- For each criterion: is this criterion indeed necessary to secure the effectiveness of the scheme?
- For each criterion: how will the criterion be controlled?
- For each criterion that cannot be controlled or only be controlled at a very high cost: what are the alternatives?

Documentation and Reporting Requirements

This part of MRV is one of the strongest drivers of costs for the participating parties. The documentation requirements ensure the ability to prove that the quality of the actions were implemented as intended by the underlying policy measure.

Documentation is about collecting all proof (confirmation, receipts, etc.) for the specific energy efficiency action. The documentation will have to be transferred to the monitoring authority in order to receive a subsidy or show compliance with the obligation in an EEOS.

An important driver of the administrative burden is the decision on what part of the documentation needs to be submitted to the monitoring authority and what part can be kept by the participant and solely made available in case of in-depth audits.

A way of reducing MRV-related costs is to supply standardised reporting procedures and reporting templates to participants. Online systems and platforms can enable a standardised and paperless process for the submission of relevant documentation. These platforms should be easy to understand by the obligated party in order to provide solid data and, on the other hand, the submitted data should be ready for the purpose of evaluations (e.g. evaluation of the energy efficiency actions, measures and target achievement).

However, reporting does not stop at the level of participants; it is also relevant for other levels. The monitoring authority reports results of the scheme to the public authority (e.g. ministry) and finally, the public authority will need to report the effects of the schemes to the European Commission.

Recommendations:

- Avoid requiring redundant documentation: the documentation requirements should prove that the actions were delivered to the quality standard intended by the underlying policy measure.
- Anticipate the data needed by the public authority to verify and report savings before defining the reporting requirements for participants.
- Provide standardised reporting procedures and templates.
- Consider if it is possible for participants to collect the requested documentation and the level of effort it will require.
- Ensure good and clear communication of the documentation and reporting requirements to participants.

Topics to be considered from the perspective of policy makers:

- What documentation is necessary to prove the implementation of actions and to secure the quality of the scheme?

- What documentation needs to be submitted to the authority and what part can be kept for in-depth audits?
- What amount of energy savings can be attributed to the policy measure?

Calculation of Energy Savings

The costs of calculating energy savings can be strongly influenced by the respective rules and requirements defined by the public authority. A well-established way for reducing costs related to the calculation of energy savings is the reliance on standardised calculation methods. However, standardised methods render the savings results more generic and less accurate. On the other hand, the use of individual calculations for each single action increases MRV costs considerably. It is worth noting that the use of standardised calculation methods reduces MRV costs for those who calculate savings but also for those who verify these calculations.

Recommendation:

- Use standardised calculation methods when possible and reasonable. For this, a deliberate decision on a balance between accuracy and practicability in terms of costs and effort is necessary.
- Another possible approach is to start with individual calculation methods for the most effective policy measures (in terms of savings share), and use standardised calculation methods for the rest. Then, expand individual calculation methods as deemed necessary and to the extent it is cost-effective.

Topics to be considered from the perspective of policy makers:

- What energy efficiency actions will be implemented through the scheme and how will the energy savings be calculated?
- For which of these actions are standardised calculation methodologies feasible?
- What level of accuracy is expected by energy savings calculations?

Data Collection Process

Experiences with the implementation of Article 7 in the period 2014–2020 show that online systems and platforms dedicated to reporting have the potential to reduce MRV costs in data collection by introducing a standardised and paperless process. The tools help participants report their actions in a standardised format. These tools can then also be used to evaluate the data reported and can guide the monitoring authority through the verification and evaluation process.

When designing such tools, a close communication between IT programmers and the monitoring authority and other stakeholders is important. The complexity of the tools should be appropriate for the issues reported. Special emphasis should be placed on data security issues.

For the monitoring authority, an online system to collect participants' data has many advantages that also result in lower administrative costs for MRV. These are mainly connected with the better ability to make automated plausibility checks and cross-checks to identify e.g. double counting. Nonetheless, the costs for setting up the IT application and the maintenance must not be disregarded.

Recommendations:

- Install an online tool/platform for the reporting and monitoring of implemented actions.
- Define the data collection process and the monitoring and verification process before implementing an IT solution.

Topics to be considered from the perspective of policy makers:

- Is an automated system/reporting platform feasible for the scheme?
- Is an automated system/reporting platform cost-efficient for the scheme?
- What are the detailed requirements for an automated system/reporting platform?
- Who should be involved in the development of the automated system/reporting platform?

Examples of IT Tools for Data Collection

Austria: Austria has set up an M&V scheme based on clearly defined national regulation and rules. The Austrian Energy Agency as the designated national monitoring agency is responsible for collecting and processing the data. A single monitoring system has been introduced, accompanied by a well-defined data collection process. The necessary data on implemented energy efficiency measures is collected in a central online database called “Anwendung zum EEffG” (*Application relating to the Energy Efficiency Act*). The online database is developed by the Federal Computing Centre (BRZ), which is the IT service provider and market-leading e-government partner of the Austrian federal administration. The functionality of the IT tool consists of registering those enterprises required to carry out an energy audit or to implement an energy management system, collecting information on the enterprises' energy consumption and reporting energy efficiency actions implemented by the OPs subject to the energy efficiency obligation system, the federal state and federal provinces.

The energy savings reported are verified by means of plausibility checks and in-depth sample checks of a statistically significant proportion of projects.

Croatia: For the monitoring and verification of energy savings, the web application called 'SMiV' was developed in Croatia. The energy savings are calculated via a bottom-up methodology. The main users of the platform are the public sector, ESCOs, and subsidy providers. The web application simplified and improved the reporting process as well as the calculation of energy savings.

Finland: An online database was set up for the reporting and monitoring of the Energy Efficiency Agreements carried out by companies and municipalities. All participating companies and municipalities report their implemented energy efficiency measures annually via the online database. Training on how to use the online database is carried out mainly via webinars. The entrusted party uses the reported data to verify the energy efficiency measures, to create trust and credibility to all parties, and to fulfil reporting requirements for national and international obligations.

Italy: Monitoring tools are differentiated according to the mechanisms. For incentives based on tax deductions, Italy has a web portal created for the national energy agency (ENEA). The beneficiary is obligated to report the key elements of the intervention performed, which have been defined in a functional way for the energy and economic monitoring of the scheme.

For the mechanisms of White Certificates and Thermal Account, data based on specific inquiries related to various aspects of the energy efficiency projects proposed are collected by GSE (Gestore Servizi Energetici, Energy Service Operator) through its dedicated web applications.

Verification and Evaluation Procedures

Verification includes all steps taken to check whether reported actions have been implemented, and executed to the required quality standards.

During verification, the data reported is checked for accuracy and correctness. A three-step approach to verify actions is recommended:

- Automated plausibility checks of the data submitted to identify actions that do not meet the required standards
- In-depth desktop checks of a representative sample of actions – the sample should be representative with respect to the types of measures, the savings volume of actions, sectors, etc.
- On-site checks of implemented actions are recommended. It is advised merely to visit actions that do meet the quality requirements. The reasoning behind that is that actions that do not meet the quality requirements after an in-depth desktop check should not be rewarded with an additional chance of correcting during the on-site check. The check sample of the energy efficiency actions that do meet the quality requirements could be completely random. However, some requirements with respect to e.g. regional distribution of on-site checks could be made.

This three-step approach ensures that incorrect actions can be identified and removed from the system. An important pre-requisite for this process to be cost-effective is the existence of an online platform (see Chapter Data Collection Process).

The question of what percentage of actions should be checked in depth cannot be answered on a general level. The optimal percentage depends on the kind of actions and other circumstances (e.g. number of participating parties). The concept of different confidence levels for a statistically significant proportion of reported energy efficiency actions can be used as a guidance for the determination of the relevant percentage. Further information on the definition of the sample size is available on the [project website](#) of MultEE [Data collection process for bottom-up monitoring](#) (2016).

A factor for MRV costs of EEOS is how much obligated parties are to be involved in MRV. E.g., they could be responsible for contracting MRV organisations.

Evaluation is targeted more at the effects of the policy instruments. Thus, it answers the questions of whether the policy instrument achieved its goals.

The evaluation part builds on the verified and corrected actions from the verification phase. In this phase, a final correction for effects like double counting, rebound-effects, spill-over effects, etc. can be made. The ultimate result is mainly the step from gross to net savings that can be reported on a political level for the respective policy measure. The evaluation phase is particularly dependent on the decisions made in each previous phase.

Recommendation: In all decisions made on MRV, first analyse what data or other requirements will be needed for the sound evaluation of the policy.

Topics to be considered from the perspective of policy makers:

- What data is needed in order to make an evaluation of the scheme?
- What percentage of actions should be checked?
- How will incorrect energy actions be removed from the scheme?

Where to find more Information

Broc, J., Stańczyk, W., Reidlinger, B. Snapshot of energy efficiency obligation schemes in Europe (2019), ENSMOV.

<https://ensmov.eu/snapshot-of-energy-efficiency-obligation-schemes-in-europe-as-of-end-2019/>

Broc, J., Stańczyk, W., Reidlinger, B. Snapshot on alternative measures in Europe (2019), ENSMOV.

<https://ensmov.eu/snapshot-of-alternative-measures-in-europe-article-7-eed-as-of-end-2019/>

Thenius, G. Core Theme Series Report: Concerted Action Energy Efficiency Directive. Energy efficiency obligation schemes, monitoring impacts of eligible measures (2017).

Böck, E., Reidlinger, B. Policy brief on the definition of a data collection process for bottom-up monitoring (2016). MultEE

https://www.multee.eu/system/files/multEE_Policy%20Brief_Data_Collection.pdf

Iatridis, M., Tourkolias, C., Jamek, A., et. al. Synthesis report on European best practices for M&V schemes and coordination mechanisms (2016).

https://multee.eu/system/files/EU_Best_Practice_for_M%26V_schemes_%26_Coordination_Mechanisms.pdf

Pickl, N., Jellinek, R., Reidlinger, B., et. al. Data collection process for bottom-up monitoring (2016). MultEE.

https://multee.eu/system/files/D2.3_Data_collection_process_for_bottom-up_monitoring_online_0.pdf

Reidlinger, B., Pickl, N., Praher, C. Stakeholder needs assessment for the implementation of article 7 EED (2019). ENSMOV.

<https://ensmov.eu/wp-content/uploads/2019/11/D-2.1-Stakeholder-needs-assessments-for-the-implementationof-Art.-7-EED.pdf>