



Policy Brief No.1

Policy recommendations on Monitoring & Verification schemes in EU

Christos Tourkolias, CRES

Minas Iatridis, CRES

Executive Summary

Monitoring and Verification (M&V) schemes are essential for the effective implementation of energy efficiency measures and the achievement of the corresponding imposed targets. From the mapping of the existing M&V schemes and the analysis of best practices across the EU we derived six concrete policy recommendations to contribute to the development of more robust and efficient M&V schemes:

1. Keep political responsibility for energy efficiency policy design and M&V in the same hands,
2. Involve sub-ordinate bodies or other specialised institutions in the administration of the scheme,
3. Clearly define the responsibilities between the responsible line Ministry, possible supporting institutions and data providers,
4. Develop and use bottom-up methodologies for monitoring wherever economically feasible,
5. Centralised databases with clearly defined collection procedures ensure availability and accessibility of data for reporting and evaluation purposes,
6. The most effective verification and reporting procedures should be integrated into the M&V scheme.

In addition, the development of integrated IT systems can indisputably enhance the effectiveness of the required measurement, monitoring, verification and reporting procedures within the framework of the M&V schemes.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649829.

I Introduction

The establishment of effective Monitoring and Verification (M&V) schemes is considered as a prerequisite for the fulfilment of the specified energy savings targets from the Member States within the framework of the Energy Service Directive (ESD) and the Energy Efficiency Directive (EED). To this direction useful policy recommendations and effective findings were elaborated by the mapping of the existing M&V schemes and the analysis of the identified best practices in order to facilitate the design and the implementation of the energy efficiency measures.

Recommendation No. 1

Keep political responsibility for designing and Monitoring and Verifying Energy Efficiency policies in the same hands

EU countries tend to place the official responsibility for M&V in the hands of the responsible ministries regarding the design and implementation of the energy efficiency measures. In 12 countries only one ministry has the legal competence, while in the rest of the examined countries more than one ministry is involved in the formulation of energy efficiency policies. This is based on the fact that the majority of the energy efficiency measures focus on interventions in completely different sectors requiring the contribution of the responsible authority in order to ensure the applicability and the effectiveness of the planned measures.

Best practices for further elaboration¹

UK

The Ministerial Department of Energy and Climate Change (DECC) was created in 2008 in order to undertake the administration and coordination of the M&V scheme. The three overall objectives of this department are to ensure that energy is secure, affordable and efficient, to facilitate the transition to a low-carbon Britain and to achieve an international agreement on climate change.

¹ The identification of the best practices was performed through the conduction of a specialized procedure within the framework of multEE project taking into consideration specific characteristics of the existing M&V schemes among the examined countries.

Recommendation No. 2

Involve sub-ordinate bodies or other specialized institutions in the administration of the scheme

Taking into consideration the lack of resources or specialized expertise for the majority of the M&V schemes, it is suggested involving other authorities in their coordination and administration in cooperation with the responsible line Ministry. These are first and foremost energy agencies or subordinate bodies, which possess and provide the required technical expertise.

According to the mapping of the existing M&V schemes, in ten countries the ministries, which are responsible for the formulation of the energy efficiency policy, have undertaken the administration and the coordination of the M&V scheme. Other countries have appointed responsibilities to another governmental body, an agency, an energy regulator, or a third-party contractor regarding the coordination and administration of the M&V schemes. Finally, a combination of the abovementioned organizations appointed for the coordination of the M&V schemes constitutes an alternative option.

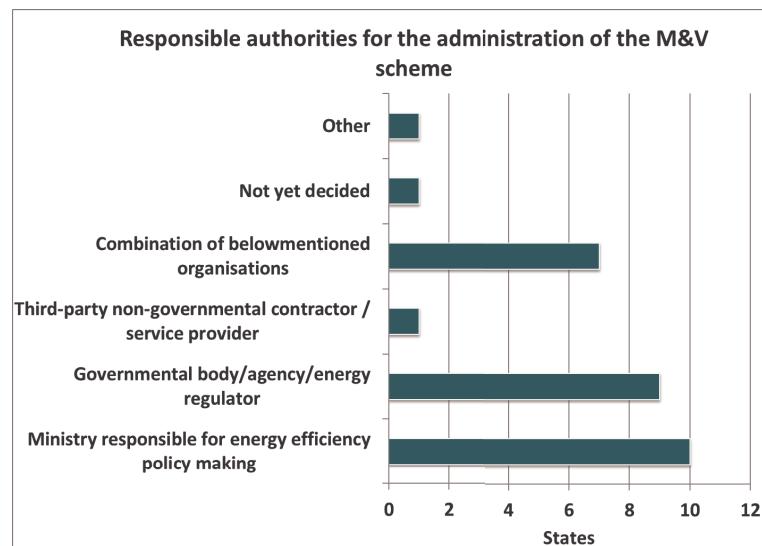


Figure 1 - Responsible authorities for the administration of the M&V schemes

Best practices for further elaboration

Austria Austria has set up a M&V scheme based on clearly defined national regulation and rules. The Austrian Energy Agency is the designated national monitoring agency responsible for collecting and processing data. A single monitoring system has been introduced accompanied by a well-defined data collection process.

Spain The Spanish Institute for Energy Diversification and Saving (IDAE) is the administrative authority, which is responsible for the administration and coordination of the M&V scheme. The mission of the IDAE is the promotion of energy efficiency and the rational use of energy in Spain, while it provides technical consultancy to the government at national, regional and local level.

Recommendation No. 3

Clearly define the responsibilities between the responsible line Ministry, possible supporting institutions and data providers

The allocated responsibilities lines of reporting and coordination among all the involved institutions should be defined by the adoption of primary and/or secondary legislation. The deployment of the necessary legislation is crucial for the clarification of the requirements regarding the administration and coordination of the M&V schemes.

Best practices for further elaboration

Austria

The responsibilities and duties of the Austrian Energy Agency as national monitoring agency are manifold and are specified in articles 24 and 25 of the Federal Law on energy efficiency. Those responsibilities include the evaluation of the target's achievement of the Federal Law on energy efficiency, the compilation of the NEEAPs, metering and evaluation of the measures implemented by companies, energy suppliers, etc., as well as the development of bottom-up methods just to name a few.

Recommendation No.4

Develop and use bottom-up methodologies for monitoring wherever economically feasible

The development and utilization of a diversified range of bottom-up methodologies is considered an advantage in order to cover all the potential energy efficiency measures. Its introduction will ease the assessment of the applied energy efficiency measures' effectiveness, will facilitate the comparative analysis of the examined measures and will improve and standardize the reporting of the achieved energy

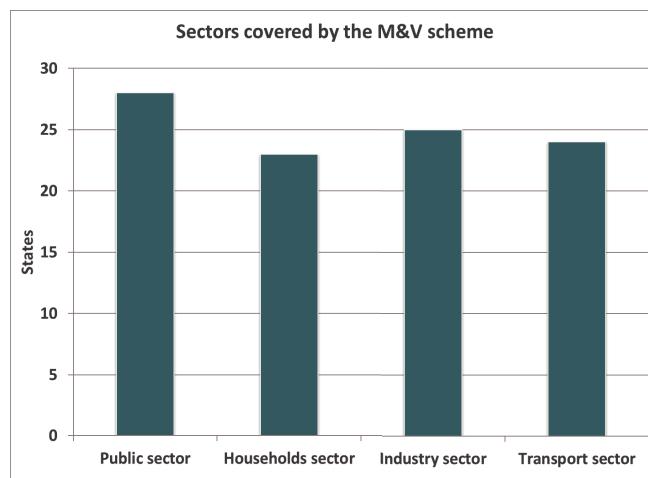


Figure 2 - Sectors covered by the M&V scheme

savings. Regarding the sectoral and spatial dimension, the analysis confirmed that all final energy consumption sectors and all administrative levels should be integrated into the M&V schemes. The development of bottom-up methodologies for all the implemented measures will contribute to the most accurate monitoring of the achieved energy savings in comparison with top-down monitoring, while simultaneously can be proved an essential part of the established coordination mechanisms facilitating the monitoring and the exchange of the required information among the different administrative levels for the implemented energy efficiency measures. Nevertheless, taking into consideration the relatively high administrative costs, the development of the bottom-up methodologies should be performed in the most cost-effective way ensuring the economic viability of the M&V scheme.

According to the mapping of the existing M&V schemes, the involved authorities in 14 examined countries seem not to have sufficient financial and human resources in order to plan and implement the measures as defined in their national plans, while only 5 of the examined countries assessed the current status of financial and human resources as capable.

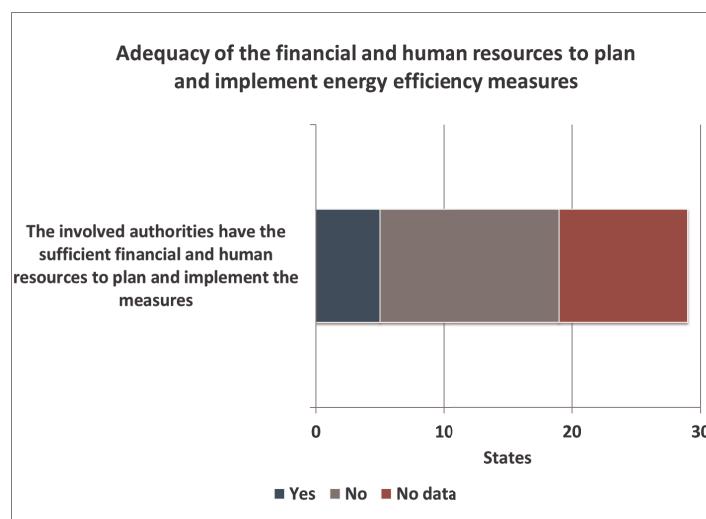


Figure 3 - Adequacy of the financial and human resources to plan and implement energy efficiency measures

Best practices for further elaboration

Austria

The Austrian monitoring agency has developed a wide range of bottom-up methods to calculate energy savings from energy efficiency measures implemented by the different bodies affected under the EED. It is continuously developing additional bottom-up methods, updating the existing methods and has also defined national default values in consultation with relevant stakeholders.

Croatia

Bottom-up methodologies have been developed for 20 different energy efficiency measures and have been introduced to the IT-tool called SMIV (System for Monitoring, Measurement and Verification for Energy Savings). The bottom-up monitoring procedure and the methodology were developed in cooperation with many relevant institutions and were built upon the already existing rulebook.

Spain

Specialized bottom-up monitoring approaches are utilized in order to measure the achieved energy savings from the implemented energy efficiency measures according to the proposed methods of ANNEX V of the EED. The determination of the energy savings is

performed with the implementation of various methods depending on the type and the characteristics of each measure separately. The IDAE is responsible for the development of the appropriate methodology and the utilized indicators targeting to ensure in any case their effectiveness and applicability according to the requirements of the EED.

Recommendation No. 5

Centralized databases with clearly defined collection procedures ensure availability and accessibility of data for reporting and evaluation purposes

The official national statistics office, national databases and data from paid subsidies comprise the most common data sources utilized as outlined by the analysis of the current status. Moreover, the provided data from the White Certificate Schemes, from the obligated parties within the framework of Article 7 of the EED and from the conducted energy audits (including the energy investigations according to the requirements of the Energy Performance of Buildings Directive) consist of additional data sources.

The standardization of the data collection procedure is also crucial, while the introduction of centralized databases or information systems can indisputably facilitate the overall procedure. According to the mapping of the existing M&V schemes, the Ministries, which are responsible for

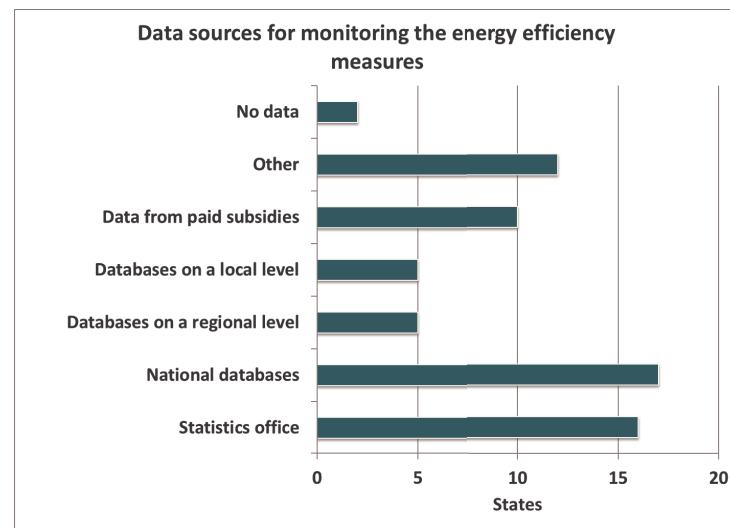


Figure 4 - Data sources for monitoring the energy efficiency measures

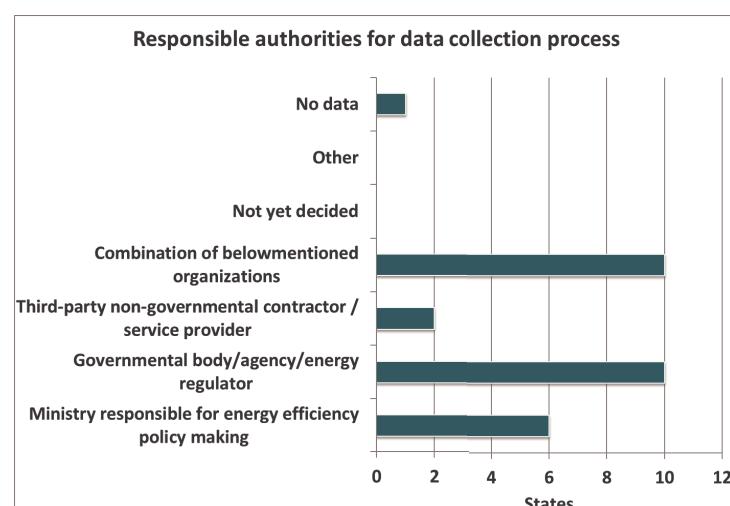


Figure 5 - Responsible authorities for data collection process

the formulation of the energy efficiency policy, have undertaken the coordination of the data collection process in some cases. Nevertheless, the involvement of a governmental body or an agency or an energy regulator is relatively frequent, while the participation of a third-party non-governmental contractor or a service provider is limited. Finally, the combination of the above mentioned organizations constitutes a popular alternative due to the elaboration of the technical requirements, which are required for the coordination and application of the data collection process.

Best practices for further elaboration

Austria

The majority of the data on energy efficiency measures stems from the regional and national funding agencies, which provide subsidies for financing parts of the investment costs of energy efficiency measures. The energy suppliers subject to the energy efficiency obligation scheme and federal bodies contribute to the acquisition of the required data as they have to report energy efficiency measures to the national monitoring agency on a yearly basis.

FYR of Macedonia

The acquisition of data in the public sector is performed through regular reporting on annual basis from the public building owners. Also, regular energy audits provide data for this sector. The acquisition of data for the residential sector, as well as for the industry sector is mainly based on statistical data, surveys and analyses. Transport sector data mainly stems from the national statistical office.

Recommendation No. 6

The most effective verification and reporting procedures should be integrated into the M&V scheme

The integration of effective verification and reporting procedures are considered essential parts within the M&V schemes in order to ensure their effectiveness. The conduction of inspections in a representative sample of the implemented energy efficiency measures is the most usual type of verification, while the utilization of specific information systems and reporting templates can be implemented as an alternative means of verification. The implemented checks have to be performed by certified and qualified energy auditors independently. Finally, in some cases the verification can be performed through specialized models and algorithms comparing the expected energy savings with the theoretically expected.

The utilization of specialized templates is considered as an effective approach in order to fulfil the reporting obligations homogenizing the collection of data. Nevertheless, taking into consideration the relatively high administrative costs for

the administrative authorities to plan and implement energy efficiency measures, the development of the appropriate verification and reporting procedures should be performed with the most cost-effective way ensuring the economic viability of the M&V scheme.

Best practices for further elaboration

Austria	The energy savings reported are verified by means of plausibility checks and in depth sample checks of statistically significant proportions of projects.
FYR of Macedonia	The verification of energy savings is performed through the completion of annual reports for the achieved energy savings by the Energy Agency of the Republic of Macedonia.
Croatia	The measured energy savings are being verified through algorithms in SMIV – the M&V system.

II How to increase the effectiveness of the M&V schemes?

The **development of integrated IT systems** can significantly enhance the effectiveness of the M&V schemes in fulfilling their measurement, monitoring, verification and reporting requirements. Specifically, the introduction of IT-tools will facilitate the homogeneous measurement of the achieved energy savings, the continuous monitoring of the implemented energy efficiency measures in conjunction with the corresponding imposed targets, the implementation of effective verification procedures and the homogenous and accurate reporting of the achieved energy savings.

Even if the majority of the examined countries do not use integrated tools for the homogeneous monitoring and reporting of the M&V schemes, the utilization of information systems has started to be introduced as an effective procedure as displayed by the analysis of the current status. According to the mapping of the existing M&V schemes, a type of tool (including various types of databases) is in operation and utilized in 10 countries in order to facilitate the M&V procedures.

Best practices for further elaboration

Austria

The necessary data on implemented energy efficiency measures is collected in a central online database. 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 subject to carrying out an energy audit or to implement an energy management system, collecting information on the enterprises energy consumption and reporting energy efficiency measures implemented by energy suppliers subject to the energy efficiency obligation system and the federal state.

FYR of Macedonia

ExCITE is the first software solution that is used by the local authority for monitoring energy consumption providing several types of reports. The software was developed by the United Nations Development Programme and is operated by the Association of the units of local self-government of the Republic of Macedonia (ZELS). Moreover, MVP, which is the second tool, was presented at national level, but is still not in permanent use. It takes into account all national and local plans, as well as other sectors (industry, households etc.) and its aim is to facilitate the effective monitoring of the implemented energy efficiency measures.

Slovakia

Three different tools are utilized. Specifically, the ITMS facilitates the monitoring, the management and the verification of the projects, which are financed by Structural Fund and Cohesion Fund. The INFOREG is used for collecting and processing information about socio-economical events and activities of partial actors in regional development. Finally, the energy performance certificate database constitutes another tool.

III Further Reading

multEE Report (D.1.2)

[Synthesis report on M&V Schemes and coordination mechanisms in EU countries](#)

multEE Report (D.1.3)

[European best practices for M&V schemes and coordination mechanisms](#)

Policy Brief No.1 | July 2016

Policy recommendations on Monitoring & Verification schemes in the EU

Authors

Christos Tourkolias

Centre for Renewable Energy Sources and Saving (CRES)

Email: ctourkolias@cres.gr

Minas Iatridis

Centre for Renewable Energy Sources and Saving (CRES)

Email: miatri@cres.gr

Editors

Nina Pickl

Austrian Energy Agency (AEA)

Andreas Prahlf

Ecologic Institute

Project Coordinator

Benjamin Struss

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Project communication

Chiara Mazzetti

Ecologic Institute

Andreas Prahlf

Ecologic Institute

Layout

Beáta Vargová

Ecologic Institute

Chiara Mazzetti

Ecologic Institute

Website & Social Networks

Website: www.multee.eu

Twitter: #multEE

E-mail

Email: Communication@multee.eu

The multEE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649829.

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the information contained in this publication. The views expressed are the sole responsibility of the author and do not necessarily reflect the views of the European Commission.

Photos: Cover Page © Fotolia/Alswart



Implemented by:
giz
Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



SIEA



EIHP



FEI



eA
AUSTRIAN ENERGY AGENCY

LEI