DEESME

National schemes for energy efficiency in SMEs

Deliverable 5.3

Tailored direct support strategies to the National Authorities and country reports on the outcome of direct support

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3. Legal Notice

4. About

Unlike large companies, SMEs have less technical human and financial resources to improve their energy efficiency. Barriers have been deeply investigated including lack of awareness, low capital, difficulty to access financing, doubts around actual saving potential and the lack of technical human resources. To provide SMEs with technical resources such as methodologies, best practices, technology inventories and subsidies, national schemes exist. Some of the schemes introduce mandatory actions (energy analysis) to obtain such subsidies. Nevertheless, national policy schemes have failed to some extent to convince companies that the energy audit is something more than a "bureaucratic fulfilment" to obtain a contribution and to push large companies to take the step from the analysis to the investment. To overcome that, DEESME aims at:

a) Enabling companies to manage the energy transition by taking profit of multiple benefits and energy management approaches,

b) Supporting the development and implementation of energy efficiency EU policies in the framework of article 8 of the Energy Efficiency Directive, beyond the project, by providing national authorities with guidelines and recommendations on how to strengthen the national schemes, and

c) Enhancing the adoption of the DEESME approach by National Authorities beyond the project timeline through the implementation of institutionalization activities.

The project will identify and share best practices from national schemes, EU projects and other initiatives with national authorities and support them in developing more effective schemes dealing with energy audits and energy management systems. It will finally assist SMEs to develop and test the technical DEESME solutions by organizing information and training initiatives, realising energy audits and implementing energy management systems starting from international standard and adding the multiple benefits energy efficiency approach.

The project is built on a strong consortium of academics, research organisations, consultancies and government offices from Belgium, Bulgaria, Germany, Italy, the Netherlands and Poland, namely: IEECP (NL, coordinator), FIRE (IT), SOGESCA (IT), Fraunhofer ISI (DE), CLEOPA (DE), SEDA (BG), ECQ (BG), KAPE (PL), EEIP (BE).

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5. Table of Contents

6. Executive Summary

This deliverable describes the direct support to the NAs of the 3 participating countries (Bulgaria, Italy and Poland, with Germany planned but not looking for support) in the implementation of the proposals for modifying existing laws or for making new laws linked to the Energy Efficiency Directive Article 11. It also includes indirect support for the EU and beyond level (indirect support covering multiple countries, involvement in initiatives). Important part of it explains how results of DEESME project have contributed the development of the new Article 11 EED Guidance.

7. Introduction

The plans of the task included offering direct support to the NAs of the 4 participating countries (Bulgaria, Germany, Italy and Poland) and EU level (general support covering at least one more country direct policy change) implement proposals for modifying existing laws or for making new laws linked to the Energy Efficiency Directive Article 11 (then 8). The goal was to help to accelerate the progress of the NA in using the documents and proposals prepared within the DEESME project to improve their policies.

Timeline and implementation

The work on the direct support started with the identification of the national challenges in implementation of the Article 8 (Deliverable 2.1 Inventory of needs and requirements of NAs from the January 2021), from which the strategy of future direct work has been developed and included:

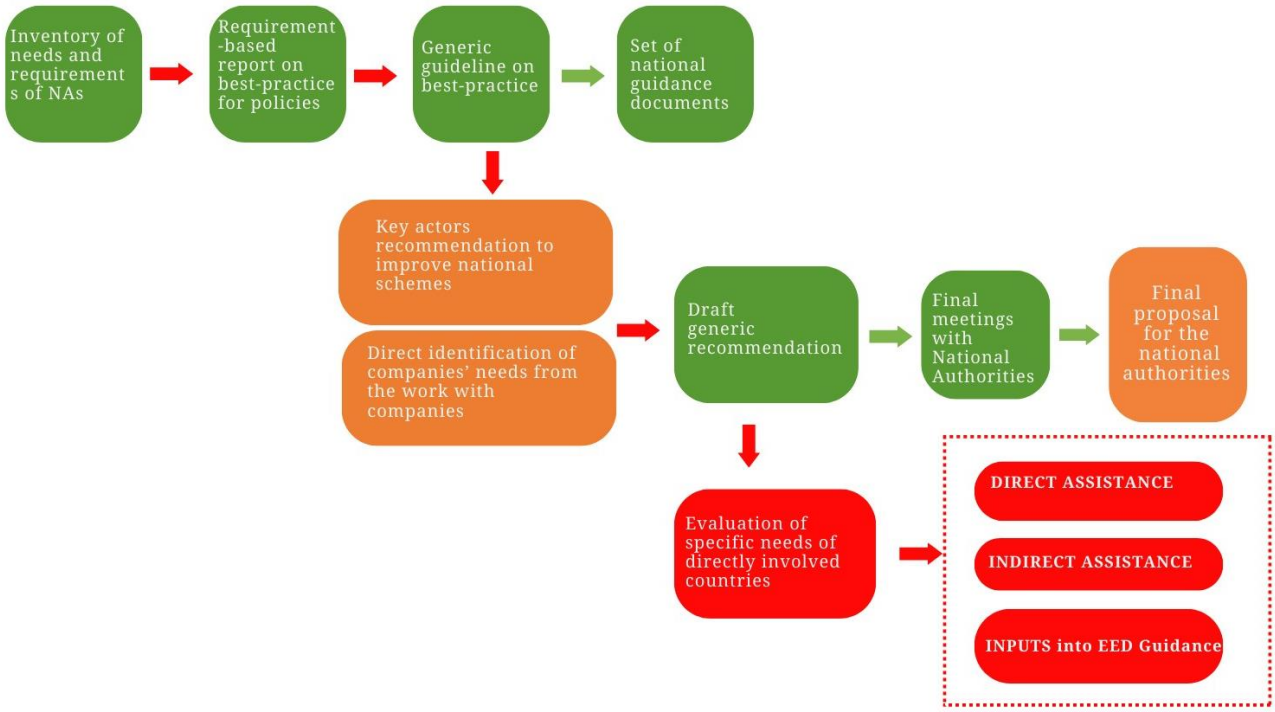

Figure 1 Process leading to direct assistance

This process of assisting involved NAs includes Direct Assistance, Indirect Assistance and DEESME inputs into EED Guidance.

Original project plan was to contribute to the transposition of the 2023 EED Recast Article 11, offering advise during the process of transposition, these advice responding to the foreseen challenges, in the view of the EED changes and new obligations:

DATA GATHERING

- encourage the enterprises to provide information in their annual report about their annual energy consumption in kWh, their annual volume of water consumption in cubic metres, and a comparison of their energy and water consumption with previous years,

AUDITS AND EMS

- initiatives geared towards motivating and offering technical assistance to SMEs not covered under specific paragraphs, encouraging them to conduct energy audits and subsequently execute the recommendations derived from these audits,
- enterprises with an average annual consumption higher than 85 TJ of energy over the previous three years, taking all energy carriers together, implement an energy management system,
- companies with an annual consumption exceeding 10 TJ over the past three years (across all energy types) and that lack an energy management system are mandated to undergo an energy audit,
- cost-effective, high-quality energy audits available,

ACTION PLANS AND IMPLEMENTATION

- Action Plans and the recommendation implementation rates are published in the enterprise's annual report,
- programmes to encourage enterprises that are not SMEs to undergo energy audits and to subsequently implement the recommendations arising from those audits,
- mechanisms, like energy audit centres for SMEs and microenterprises, financial assistance to cover audit costs and the implementation of highly efficient recommendations,

MULTIPLE BENEFITS

- support to SMEs in quantifying the multiple benefits of energy efficiency measures within their operation, in the development of energy efficiency roadmaps and in the development of energy efficiency networks for SMEs, facilitated by independent experts.

DEESME has developed relevant advises, knowledge and materials that are to answer to the above-mentioned challenges. However, the specific timeline of the project was not perfectly aligned with the legislative process in the development of the new EED.

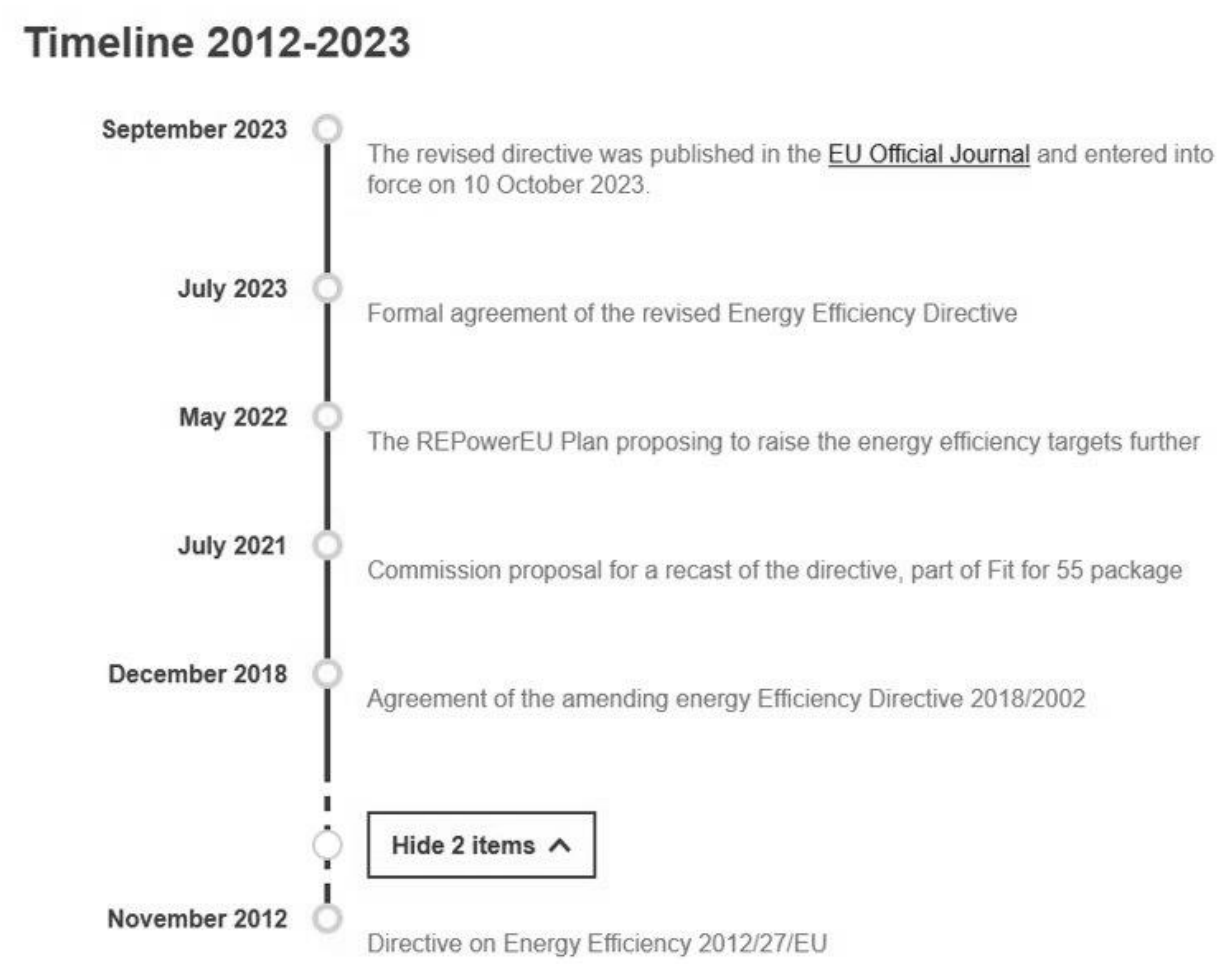

Figure 2 The revised EED legislative process

Due to the timeline of EED development, for some of the planned advises and direct assistance, there was no clear expectations from the changes expected in Article 11. Also, since the finalised EED was published only in September, the accompanying implementation Guidance is not finished yet. Therefore, the direct assistance towards NAs could not be straightforward as expected, with some MS like Finland explicitly stating that they could need some support by mid 2024. However, partners have used their developments during the project and knowledge gained plus followed the developments of the EED, to give as useful contribution as possible. This could be seen in the relevant country chapters. One of the target countries (Germany), in the absence of apparent challenges, was not in the need for direct assistance. Partners therefore use this assigned time to include the work that can contribute on the EU level, as described in the schematics:

- direct assistance towards Bulgaria, Poland and Italy
- indirect assistance to the other countries (UK, Croatia, Finland etc.)

- indirect assistance towards multiple EU level initiatives (EEFIG, CCCE, CA EED, CEN & CENELEC working group)
- contribution towards the EED guidance

The achieved impact is higher than expected.

8. Reports per country

8.1. Bulgaria

Challenges from the country

Chosen strategies and actions

As part of the DEESME project, 5 main challenges were identified for Bulgaria, of which 3 concern Non-SMEs and 2 concern SMEs.

The first challenge for Non-SMEs was identification of obliged companies, which could be overcome through assisting in self-declaration of companies and possible creation of a central database. This challenge is extremely important both for NA, which would be able to enforce the audit obligation thanks to such a list, and for companies, which would know that such an obligation applies to them. The following strategies have been identified to help overcome this challenge:

- Identify companies based on existing registers
- Identify companies based on data collection
- Assist the self-declaration of companies

Another challenges for Non-SMEs is ensuring compliance and enhancing the uptake of measures. Finding a good balance between following up on the implementation of measures while limiting the additional burden for companies is a practical challenge in the monitoring process concerning non-SMEs in Bulgaria. Furthermore, while energy audits and energy management systems help companies to understand potential energy efficiency measures, a practical challenge is that the recommended measures are not always implemented. The following strategies have been identified to help overcome these two challenges:

- Underline the added value of audits
- Use informational instruments to create awareness
- Use informational instruments to increase implementation rate

Concerning the SMEs the most important challenge is linked to creation of support mechanisms. Common barrier that stop SMEs from realizing energy audits/management systems and implementing measures include a lack of awareness on benefits and on available support schemes. Information can help to reduce the relevance of such barriers by increasing awareness and knowledge within the companies.

Even if the SME is aware of the benefits from EE measures implementation very often they do not know where to find information on the available instruments for support and also very often they do not have the needed experience to assign energy audit.

Strategies that could help to overcome this challenge are:

- Use informational instruments to create awareness on energy efficiency
- Design an adequate financial support system
- Show SMEs the benefits of energy efficiency
- Provide personal support

The last identified challenge is guiding SMEs with limited available resources to action. Even if SMEs are aware of the potential benefits from more strongly engaging in energy efficiency, a challenge is their reluctance to participate in activities, e.g. due to a fear of administrative burdens, a lack of experience in participation and the difficulty to analyze the associated costs and benefits. This is related to limited personnel resources and often a lack of a dedicated person in charge of energy issues in SMEs.

The indicated strategies for this challenge are:

- Provide a clear overview of available support schemes

- Simplify the application process

Feedback questionnaire from National Authorities

The survey aimed at collecting recipients' experiences, suggestions and opinions regarding the energy audit scheme and tools made available by SEDA (the national authority responsible for the energy audit scheme in Bulgaria).
The received guideline for Bulgaria is described to be generally easy to understand and clear. Implementing the indicated strategies though would not be that easy to put in practice. Legislation procedures concerning non-SMEs are quite strict and involve not only main Energy Efficiency Law but also numerous by-laws ordinances. Overcoming barriers are linked to changes in the legislation which is often slow and heavy procedure.
When it is about SMEs and seeing that main challenges are linked to awareness rising the involvement of sector trade associations is considered as crucial for reaching the companies and to informing them about existing financial support mechanisms as well as energy audits and energy efficiency measures benefits.
Summary of meeting minutes with NA responding to the challenges:

- There is no a clear understanding among all companies of which official websites in Bulgaria to consult to obtain information on obligations, benefits and other aspects related to energy efficiency. Some of them are familiar enough and know where to look for the information. They share an opinion that the information published on the website of SEDA regarding the obligations under the Energy Efficiency Act is up-to-date and comprehensive. With regard to energy efficiency benefits, there are still no clearly developed and easy-to-use end-user accessible materials that provide sufficiently understandable and technically uncomplicated information, not only for businesses but also for domestic end-users. But there are also companies that share they are not familiar enough.
- There is currently no permanent incentive mechanism for energy audits, for SMEs as well as for large enterprises. Incidental interest appears when there are EU funding schemes. Since recently such procedures do not imply an audit, therefore the interest is minimal, almost non-existent. In addition, large businesses obliged to do audits do not worry about fines, respectively postpone the required audits in the years. There are dozens of new large businesses NOT on the indicative lists and NOT interested in energy audits. Thus, a huge proportion of SMEs and Large Enterprises have virtually NO regular interest in energy audits, and respectively are NOT actively pursuing an energy savings policy.
- With reference to the existing incentive systems, a centralized information hub would be appropriate for information rather than a division of information availability between several subjects (e.g. State, Regions, Agencies, etc.). Maybe there should be a centralised centre to cover both SMEs and Large Enterprises in Bulgaria. It should provide major updates on annual basis. Systematizing the information and making it accessible would contribute significantly to be better informed.
- Investments in energy efficiency have significant added value, but only when implemented correctly and as prescribed.

- The carbon footprint should be mandatory for companies obliged to carry out the energy audit.
- The risks associated with energy efficiency interventions should be thoroughly evaluated. The unassessed risks of implementing the measures can significantly affect a business.

What have been already done/implemented?

According to Article 57 of the Energy Efficiency Act, all companies operating in Bulgaria that are not SMEs must carry out an energy audit every four years. All industrial systems with an annual energy consumption above 3000 MWh are also subject to a mandatory audit, even if they are SMEs. The audits must cover all energy consumption, i.e. buildings, industrial processes/services etc. of the whole company/industrial system.
Obligated companies/industrial systems have to declare themselves to the SEDA via an online platform. The list of obligated companies is updated annually. Companies that have performed audits must provide a summary of the audits in the online reporting platform and fill in data on energy consumption, energy efficiency measures and expected energy savings, emissions and financial savings.
The recast of the EED should be transposed in the National legislation by October 2025. The procedures for the transposition will likely to start in the beginning of 2024. All actions to undertake the identified barriers will be addressed during the transposition process. Some of the challenges would need additional financial resources, for example possible development of centralized database for identification of obligated companies. For this challenge, legislative changes would not be enough. Without additional state budget, neither responsible authority for database maintenance can be appointed nor the database itself can be created.

What are main barriers and why?

The main identified problems that national authorities are facing or that may arise when making further amendments are, e.g.:

- Lack of funds for centralised database to identify companies obliged to perform an energy audit

In the absence of funds for development of database and for managing authority may rise to a significant problem during the implementation of solutions/schemes.

- Showing SMEs the benefits of energy efficiency

Due to the large number of SMEs and also the diversity of the companies in this category reaching the group would require significant efforts that NA cannot provide. The support from branch organizations is crucial.

The concept of multiple benefits is well known by the NA. Implementing the multiple benefits in non-SMEs and SMEs is related to the energy audits. Adding an additional requirement to the audits would lead to rise in its cost and this could be a significant burden, especially for the SMEs.

Chosen strategy

Taking into account the discussions during the project as well as the new requirements of the EED recast there are some actions that could be implemented:

- ✓ Carrying out information campaigns about the new requirements and benefits of energy audits, the energy management system or energy efficiency investments, incl. ESCO for measures' financing.
- ✓ Ensuring that all energy audits and energy management systems are carried out in the public sector in line with European or international standards.
- ✓ Establishing a national register of the companies obligated to perform energy audits.
- ✓ Determination of financial support for companies performing energy audits.

Results of the work done

During the course of the project, several meetings with the stakeholders were held, in which various key actors participated. During these meetings, various issues were discussed, including changes in regulations and their implementation. Changes in the regulations always go through procedure of public consultation and the discussed issues will be considered by NA when the transposition of the EED starts.

8.2. Germany

As already stated in D5.2: During the design phase of the DEESME project, Germany was excluded as a target country for DEESME, as previous experience with the implementation of the former Article 8 EED had flagged Germany as being very advanced in many aspects of implementation. Despite this initial assessment, it was decided to reassess this at a later stage of the project and to include Germany on a provisional basis in the list of target countries. In order to identify and assess the potential need for assistance, the German implementing body[1] and the responsible ministry[2] were contacted by telephone and e-mail in June 2023 and asked about the need for assistance with the implementation of the forthcoming Article 11. Both institutions confirmed initial assumptions that no active support from DEESME would be required. In order to rule out any change in the situation, another follow-up contact was made in October 2023 with no change in the situation. In the absence of any apparent challenges, it was decided to take no further action in the case of Germany.
Accordingly, the following questions/topics could not be addressed or were not applicable:

- Challenges chosen for each country
- What have been already done/implemented?
- What are main barriers and why?
- Chosen strategy
- Results of the work done

[1] BAFA: Federal Office for Economic Affairs and Export Control
[2] BMWK: Federal Ministry for Economic Affairs and Climate Action

8.3. Italy

Challenges chosen for each country

Chosen strategies and actions

The implementation of the old EED art. 8 has been quite successful in Italy and ENEA (the Italian Agency for New technologies, Energy, and Sustainable economic development, acting as agency in charge of the energy audit obligation), in accordance with the Ministry of Environment and Energy Security, has been able to implement most of the recommendation provided by DEESME. On the other hand, it was too early to consider some support on the implementation of the new art. 11 EED. So FIRE has developed a collaboration with ENEA to collect the view of energy managers and energy management experts on the Italian energy audit scheme.
This has been done through a survey addressed to two types of FIRE's stakeholders:

- The Italian energy managers which FIRE manages on behalf of the Ministry of Environment and Energy Security.
- The energy management experts certified according to Italian technical standard UNI CEI 11339.

From these two networks, the subjects belonging to industrial, commercial, and transport sectors were selected for a total of 1,234 recipients.
To make filling easier, the survey was set up on an online platform (LimeSurvey) and sent to all the recipients.

Feedback questionnaire from National Authorities

The survey aimed at collecting recipients' experiences, suggestions and opinions regarding the energy audit scheme and tools made available by ENEA.

68% of the respondents implemented an energy audit compliant with art. 8 of the Legislative Decree 102/2014 (Italian transposition of EED 2012/27/EU), 17% implemented an energy analysis compliant with Annex II of Legislative Decree 102/2014 as ISO 50001/14001/EMAS certified organizations, and 14% did neither of them. Among the companies that carried out energy audits, 71% chose to rely on an Energy Management Expert as an external consultant to implement them, 17% chose to rely on an ESCo, whereas only 13% profited of an Energy Management Expert as a company employee. To this end, it is worth mentioning that the Italian legislation requests that energy audits under the EED obligation are carried out either by certified ESCos (according to the Italian UNI CEI 11352 standard) or by certified Energy Management Experts (according to the Italian UNI CEI 11352 standard), called EGE (*esperti in gestione dell'energia*) in Italy.

A relevant 67% of respondents considered the energy audit/analysis useful for their organization. A positive outcome that confirms the importance of energy audits as tool to support energy management.

On the contrary, those who have found a partial or no usefulness of the audit justify this evaluation mainly for the following reasons:

- There is an insufficient interest from top management because it is perceived merely as a regulatory obligation.
- Energy efficiency measures proposed were already known thanks to a depth knowledge of the consumption profiles.
- Energy efficiency measures proposed were inadequate or not applicable because of the specific company features.

Moving on to the analysis of the answers concerning the post-audit, 72% of the respondent declared to have implemented energy efficiency measures suggested by the energy audit. This analysis shows how the majority has implemented at least one energy efficiency measure, while those who have not implemented any measures are starting the appropriate investments to do so. This confirms that in the most cases an energy audit can stimulate organizations to take one or more steps towards energy efficiency, at least when the interest of the top management is present.

What are main barriers and why?

The percentage of those who have not carried out any energy efficiency measure is nevertheless not negligible. This suggests that more attention and effort are put on informing companies on how to take advantage from the energy audits report and on the potential benefits in terms of energy and cost savings, GHG emission reduction, energy supply related risk reduction and other non-energy benefits. Alternatively, policy measures can push obligated companies requesting the mandatory implementation of energy efficiency measure with economic indicators above a certain threshold (e.g. in terms of pay-back period or IRR) and/or complement the energy audits obligation with policy schemes supporting the implementation of such energy efficiency measures (both options have already been added to the Italian legislation in the last years).

Recently, the identification of non-energy benefits (NEB) within energy audits has assumed increasing importance: many case studies have shown that if one or more NEBs are identified for an energy efficiency measure, the economic indicators (NPV, PBT) improve and therefore the probability that the measure is implemented increases. Surveys carried out by FIRE in the past showed and extended understanding from medium and large companies towards a qualitative analysis. Projects like M-Benefits were able to raise attention toward the quantitative analysis and to offer methodologies to do that, however, such analysis is still seldom used, probably because the methodology for identifying non-energy benefits is not yet mature and known enough.

The data shows nevertheless an improvement with respect to the past years and 41% of the respondents already implement a quantitative analysis, even if limited to the options easier to evaluate: where the energy audit made it possible to identify one or more NEBs, these mainly concerned the reduction of CO_2 emissions and the reduction of maintenance costs.

Chosen strategy

The energy audit scheme cannot be static but must be constantly evolving to respond to market needs. For this reason, the survey contained the question "*How do you think the energy audit scheme can be improved to*

increase its effectiveness?" aimed at collecting suggestions to improve the current scheme and better meet market needs.

This question has received many open answers, among which the main suggestions deal with:

- Introducing tax incentives or other benefits to implement the energy efficiency measures identified in the audit.
- Introducing the obligation to implement, after the audit, an energy management system and/or other consumption monitoring systems to avoid that the audit is perceived merely as a four-year regulatory obligation.
- Increasing public commitment in the communication strategy so that the usefulness of the energy audit is better understood in the organizations.
- Extending the energy audit obligation also to SMEs

Results of the work done

The final part of the survey was dedicated to general suggestions on energy audits. The most significant proposals concerned:

- The evolution of the energy audit obligation to most dynamic scheme, capable of encountering today's challenges and encouraging the concrete implementation of energy efficiency measures, the monitoring of consumption and the implementation of energy management systems.
- The obligation extension to organizations currently excluded (SMEs).
- The increase in the availability of sectoral guidelines and benchmarks.
- The introduction of bonus/malus systems for those who carry out/not carry out the identified energy efficiency measures.

The survey among energy managers has highlighted interest in energy audits and how the obligation is carried out in "administrative" terms, especially in industry. The fact that almost all energy audits are followed by the effective implementation of at least one of the suggested energy efficiency measures confirms that it has become a useful tool for organizations to understand where to start and how to act to improve energy efficiency.
However, the fact that technological interventions on general/auxiliary services (lighting, compressed air, etc.) are still the most implemented demonstrates that the capability of the energy audits to promote more specific and process-related measures is still partial and shall improve.
The survey also suggests investing in communication actions to eliminate the residual mistrust or lack of comprehension on the usefulness of energy audits for organizations. Similarly, the adoption of the analysis of non-energy benefits must increase considering the positive impacts that these can have on the implementation of energy efficiency measures.
Energy managers recognize the functionality and usefulness of the tools made available by ENEA but believe that energy audits are the starting point of the energy management action. A starting point that should lead to include continuous monitoring of energy consumption and to implement energy management systems.

It is worth noticing that the push towards energy management systems provided for in the recast of the EED under finalization should allow to overcome the issue of promoting process related measures and to satisfy the expectation of energy managers in the future.
ENEA confirmed in the face-to-face interview carried on in November 2023 the usefulness of the survey and is working with the Ministry to introduce improvements in the legislation in view of the transposition of the new EED.

Feedback questionnaire from National Authorities

ENEA was not able to answer the survey since they discussion on how to transpose the new EED art. 11 is still in its early stages. The knowledge of the DEESME activities and tools and their usefulness has been in any case recognized during the cited interview. The summary of the interview is available here.
ENEA believes that the new directive correctly releases the EA obligation from registry-based business parameters by promoting a consumption-based logic, which is more in line with the purposes of the directive itself – to reduce overall energy consumptions. In the case in point, the new consumption-based parameter will, according to ENEA, broaden the range of obligated entities to include all those small and medium-sized enterprises that today are not subject to any obligation but whose consumption has a non-negligible impact on the total. At the same time, the revision of the parameter will leave out of the obligation scheme a number of large enterprises that have so far experienced the EA tool as a mere bureaucratic fulfillment devoid of real value, due to the low energy consumption (the Italian legislation provides a minimum threshold of 50 toe for the EA obligation).
The new consumption-related parameter, on the other hand, makes the identification of obligated parties more complex. However, it gives the opportunity to structure a comprehensive, digital and up-to-date national database.
About energy management systems (EMS), ENEA has always looked at EA as a preliminary step for the application of an EMS and the entry of the company into a more correct and functional logic of continuous improvement of its energy performance. One critical issue, in this view, concerns the scope of application of the EMS. Cases have not been uncommon in the past of organizations certified according to major international standards that covered, however, only some sites or some production lines. The extension of the obligation to apply an EMS to certain entities is seen as a major step forward, necessary for the achievement of EU goals in terms of decarbonization and reduction of primary consumption. Such an extension could provide the right opportunity to relaunch national, regional, or local calls for tenders to incentivize companies to adopt energy management systems compliant with ISO 50001 or other adequate EU or international standards.
Concerning the link between water and energy consumption, in several sectoral analyses conducted by the national NA, it was pointed out that these consumptions were in some cases not negligible. Moreover, the issue has a good international resonance and in the face of an increase in the price of the water carrier it is considered to be of particular importance. ENEA supports the option to add water consumption to the EA, something that many companies already do.
Multi-benefit analysis is an approach that ENEA considers functional and effective. Even after the interesting results achieved in the respective European project, ENEA's intention is that the tool can be spread and strengthened. One of the main critical issues encountered in this regard concerns the lack of in-house know-how in companies. There are two main options for overcoming this obstacle: professionalization of supply chains on the one hand and the adoption of alternative and more effectively calibrated international standards on the other (such as, but not limited to, ISO 50009 for SMEs and/or districts). With a view to creating supply chain or district synergies, ENEA believes that renewable energy communities can also act as a driving force.

About the role of NAs in implementing the mechanism, ENEA believes that NAs can play a fundamental role not only in monitoring but also in disseminating knowledge and expertise. The revision of the directive sees the role of NAs directly mentioned in the adoption of the scheme, which bodes well with respect to a growing and more effective role of NAs in the overall landscape. The hope is that the role of NAs can also grow in terms of responsibility, moving from operational arm to supervisor, providing know-how and support to national governments based on the collected EAs and supporting companies in implementing energy efficiency measures.

A number of other side discussion points were brought to the table during the interview, which are reported below:

• The inclusion of data center consumption in the obligation scope of the mechanism is considered positive by ENEA, given the rising energy demand related to ICT data management;

• According to ENEA, an important point is the implementation of the interventions, which would revive the mechanism from a mere bureaucratic fulfillment to a true efficiency driver; the new EED introduces some interesting option, but there is more than can be done by MSs to stimulate the implementation of energy efficiency measures, both through incentives and specific obligations;

• ENEA pointed out that as EA cycles have progressed, the average quality of audits has improved. However, the reluctance of some companies to draft documentation in the first two cycles remained intact. In 2019, there was a significant step forward in this regard, mainly related to the ENEA's drafting of sectoral guidelines. In this regard, a key role was played by the dialogue with trade associations, which made it possible to grasp and interpret the real needs of enterprises. As a result of the drafting of so-called "energy efficiency notebooks," levels of compliance and document quality have increased significantly.

• According to ENEA, the radically changing economic and geopolitical scenario and its impacts have helped a deeper awareness among businesses of the central role of energy efficiency and management. An analysis conducted by ENEA on the percentage of voluntary entities' adherence to the EA requirement saw the figure rise from about 0.4 percent in 2015 to nearly 10 percent in 2022. Among those adhering were numerous entities among local health agencies, universities, and municipalities-an indication that the message has also gotten through in public administration.

• A central criticality, according to ENEA, concerns the lack of human resources (internal or external) in companies deputed to energy management. This barrier, ENEA points out, makes obligated parties mostly passive toward regulatory obligations and significantly worsens the quality of EAs.

• With regard to the signing of EPC contracts as an alternative to implementing an EA, the national authority made no particular comments, since it lacks presently information on how such option will be implemented; theoretically, there is the same risk as with EMS to ensure that the EPC will effectively impact the energy consumption of the enterprise, and not just one or two energy services with low overall impact.

Regarding the usefulness of the DEESME project for national agencies, ENEA expressed an overall favorable opinion on the point, stressing, however, the importance of coordination among the various European projects (it is worth noticing that ENEA was also the coordinator of the Leap4SME project implemented in the same period of time as DEESME). Indeed, the risk of overlapping project areas and the lack of coordination risk preventing a rational use of the human, economic and time resources available, both for EAs and companies involved in surveys and other support actions within EU funded projects. In this perspective, a board of project scientific referees or other management coordination would avoid overlaps and facilitate synergies. The role of DEESME, as a whole, is seen as important both in terms of support and identification of specific case studies. ENEA directly mentioned the survey

implemented in cooperation with FIRE, the webinar about directive 2023/1791 art. 11, and the DEESME guidelines as useful actions.

8.4. Poland

Challenges chosen for each country

Chosen strategies and actions

As part of the DEESME project, 6 challenges were identified for Poland, of which 4 concern Non-SMEs and 2 concern SMEs.

The first challenge for Non-SMEs was the lack of resources in the Managing Authority and the Ministry to implement the changes, which could be overcome through automatic monitoring and verification of audits.

Another challenge for Non-SMEs is the identification of obligated companies. In particular, it concerned the creation of a complete list of all obligated entities, taking into account market developments. This challenge is extremely important both for NA, which would be able to enforce the audit obligation thanks to such a list, and for companies, which would know that such an obligation applies to them. The following strategies have been identified to help overcome this challenge:

- involve industry associations and regional institutions in informing companies of the obligation;
- using a combination of existing databases to supplement the current company register;
- consider usage of energy-related thresholds to reduce the burden on businesses.

Improving the quality of audits was also identified as a challenge, which could be ensured through the following strategies:

- introduce requirements for auditors and ensuring that they are met;
- provision of support material for auditors to standardise audit results;
- implement more in-depth quality control procedures;
- increase visibility of energy audits benefits and integrate assessment of non-energy benefits into audit procedures;
- link audit obligation to support mechanisms.

This challenge is important because the audit should be a functional document and useful for companies. It should be performed by people with appropriate education and experience. In addition, there should be procedures in place to check the quality of audits and auditors should provide companies with a multi-benefit assessment and support mechanisms.

Improved audit quality can help solve another challenge, which is to increase the implementation of audit results. It is also important from the point of view of the usefulness of the document. The following strategies were indicated as possible to solve the problem of still low implementation of audit results:

- require companies to present the results of energy audits to management;
- include a justification as to why the measure was not implemented in the report;

- committing companies that do not implement any measures to participate in educational activities.

The first call indicated for SMEs is the coordination of support mechanisms provided by different institutions and the establishment of national mechanisms for SMEs. This is an important challenge, as SMEs often need not only support mechanisms, but also information. The following strategies have been identified to overcome this challenge:

- create central information centre for SMEs;
- develop guidelines for institutions providing financial support to SMEs;
- establish national financial support programme for SMEs to implement audit results.

The last challenge for Poland, and the second for SMEs, is raising awareness of the benefits of energy efficiency, taking into account the inactive participation of SMEs in sector associations. Overcoming this challenge is the basis for the activation of SMEs. They need materials, information and meetings with other companies that will share their experiences with them. The indicated strategies are:

- maximise the impact of existing materials and tools;
- create a strategy to expand, maintain, and better distribute available materials and tools;
- create success stories related to financial support and implementation of innovative solutions;
- consider pilot implementation of peer networks;
- enhance the use of non-energy benefits of energy audits and financial support.

Feedback questionnaire from National Authorities

A representative of the Ministry of Climate and Environment responded to a questionnaire concerning the received document describing the challenges identified for Poland in the implementation of Article 11 (previously 8) and strategies that can help solve these challenges.

The representative of the Ministry considered the received guideline for Poland to be generally easy to understand and clear, but the usefulness of the document in terms of the possibility of implementing the indicated strategies is not high.

The representative of the Ministry also answered questions about individual challenges and strategies indicated for Poland:

Challenge 1: The limited appropriations for transposition have been identified as significant and the authorities plan to find a solution to this challenge. Automation of repetitive processes was not considered the most appropriate and easy to implement.

Challenge #2: Identifying and ensuring compliance of obliged companies in Poland was also considered important. It is also planned to find a solution to this challenge.

Challenge #3: The quality of audits has been identified as the most important and a solution to this challenge is planned. Most of the strategies identified were found to be relevant and useful. A few of them can be difficult to implement.

Challenge #4: Increasing the implementation of measures has also been considered important, and a solution to this challenge is planned. These strategies are adequate, but not 100% matched.

Challenge #5: The creation of support mechanisms has been recognised as important, but there are no plans to find a solution to this challenge at this time. Both of the strategies proposed are not the most suitable, but they are not ill-matched either.

Challenge #6: Raising awareness of the opportunity was not considered relevant, and the Ministry representative tended to disagree with tailored strategies to overcome the challenge.

What have been already done/implemented?

The EED Directive is implemented into Polish legislation through the Energy Efficiency Act of 20 May 2016. The Act has recently undergone significant changes and was amended in 2021 and 2023. The Act defines, m.in the rules for the implementation of the obligation to achieve energy savings (Chapter 4) or the rules for conducting an energy audit of the company (Chapter 5).

In order to address the challenges identified in the study, a number of actions have been taken to address the problem.

In the case of the challenge of improving the quality of energy audits in order to better reflect the cost-effectiveness of activities, the amendment to national legislation has clarified, m.in, the requirements to be met by the person preparing the energy audit. An energy efficiency audit may only be carried out by a person who: has at least two years of professional experience in the operation, operation or installation of a given type of technical equipment or installation, or in the operation or operation of a given type of facilities covered by an energy efficiency audit, or a higher education programme leading to a master's degree, a master's degree in engineering or an equivalent degree confirming a university degree at the same level or postgraduate studies – the curriculum of which takes into account issues related to energy, electrical engineering, energy efficiency, performance of energy audits of buildings, energy-efficient or renewable construction.

For some challenges, no significant changes have been made. This is particularly evident in the lack of funds in the Managing Authority and the Ministry to implement the changes. In the case of the challenge "Identification of obliged companies, in particular the creation of a complete list of all obliged entities, taking into account market developments", no significant changes have been made to the legislation. Significant changes will be introduced by the implementation of the EED Recast Directive, which introduces a new definition of companies obliged to prepare energy audits and implement energy efficiency improvement measures – according to their annual total energy consumption.

In the case of the challenge of facilitating SMEs' access to information on available support mechanisms provided by various institutions and establishing national mechanisms for SMEs, a notice of the Minister of Climate and Environment on the list of programmes and financial instruments for end-user energy efficiency projects was published in 2022. In addition, the Ministry of Climate and Environment has prepared a list of financial instruments that are available to implement energy efficiency improvement measures and the Central Register of Final Energy Savings.

In addition, by making available on the www.gov.pl website materials and tools for SMEs related to energy efficiency and energy audits, the Ministry increases the awareness of SMEs, which was also indicated as one of the biggest challenges in Poland.

What are main barriers and why?

The main identified problems that national authorities are facing or that may arise when making further amendments are, e.g.:

- Significant diversity among SMEs, making it difficult to make changes;

In Poland, the Environment is characterized by significant diversity, both in terms of the industry, the technologies used, the number of employees or the attitude to modern technologies and solutions. Due to the above-mentioned diversity, problems may arise during the implementation of suggested solutions or developed schemes.

- Lack of funds in the managing authority for the implementation of changes;

Due to the lack of funds declared in the budgets of most SMEs for the increase of energy efficiency, most SMEs can ask the managing authorities for funding for this purpose. In the absence of funds in the managing authorities to allocate to the increase of energy efficiency among SMEs, it may give rise to a significant problem during the implementation of solutions/schemes.

- Inability to identify companies obliged to perform an energy audit due to the lack of an open list of companies and their core business;

Due to the inability to identify companies obliged to perform an energy audit, there is a significant problem with verifying the necessity and possible inspection.

National authorities are familiar with the concept of multiple benefits, they are aware of the benefits of their application, but in order to implement the multiple benefits in SMEs, energy audits must first be carried out in the majority of enterprises.

Chosen strategy

Strategy a. Cooperation with key actors including energy agencies, auditors, DSO, local authorities, etc. has been selected for direct support.

Results of the work done

During the course of the project, several meetings with the Ministry were held, in which various key actors participated. During these meetings, various issues were discussed, including changes in regulations and their implementation. Possible further support to NA were also discussed.

8.5. Other countries – indirect assistance

Most of the indirect assistance towards the countries has been provided as a result of Task 5.2. Although originally Task 5.2. was supposed to help knowledge exchange among the NAs (joint workshop) and meetings with the NAs, some of the countries' meeting included more valuable and long term exchanges, providing also direct inputs in the documents.
For example, partners have reviewed and contributed report for the UK policy development based on the case studies from the EU: *International Industrial Energy Efficiency Policy Case Studies*

9. EU level contribution to initiatives

9.1. Group of Experts on Energy Efficiency (UNECE)

Contribution towards the meetings and sharing insights, also including the report on the Leveraging Financial Mechanisms for Increased Investment in Energy Efficiency (GEEE-9/2022/INF.4): GEEE-9.2022.INF .4 EE financing.pdf (unece.org)

9.2. The Energy Efficiency Financial Institutions Group (EEFIG)

Contribution towards Working Group on Stimulating consumers' demand for energy efficiency investment EEFIG Plenary Meeting 2022 - European Commission (europa.eu)

9.3. The Covenant of Companies for Climate and Energy (CCCE)

Inputs from the project trough CCCE's Steering Committee: Steering Committee - European Commission (europa.eu)

9.4. CEN/CENELEC JTC 14 Energy management and energy efficiency in the framework of energy transition

H2020 DEESME provided technical (content, knowledge) inputs towards the Technical Committee regarding the multiple benefits calculation and integration methodologies.

10.Communication with the European Commission

Since the end of 2022, Fraunhofer ISI has been involved in the project "Technical assistance for the support in the negotiations and the development of the guidelines for the implementation of the EED recast, in particular Articles 2, 3, 4, 11, 20, 21, 22, 24, 27 and the related annexes".[3] For Art. 11 on energy management systems and energy audits,[4] Fraunhofer ISI and e7 are supporting DG ENER in:

- the elaboration of the Guidance Notes, which will help EU countries fully transpose the different elements of the EED recast into national law.
- the Contractors Report: report by the consortium providing additional information and good practices.

For the elaboration of both documents, which are almost finalised but not yet published,[5] the extensive knowledge gathered within the DEESME project has been very useful. In particular, all the information gathered from the MS on the challenges and example of good practice for the implementation of Art. 8 of the previous EED was very relevant. In this regard, D2.4 "Generic guideline on best-practice"[6] was very valuable and was mentioned, where appropriate, in both of the above-mentioned documents under preparation.

Similarly, the results of the DEESME project were useful and regularly used during the meetings with the European Commission's policy officers.
In conclusion, it was very fortunate to have the DEESME project already well advanced at a time when the final work on the recast of the EED was being prepared.
Thanks to this situation, it can be considered that the DEESME project has had an indirect impact at EU level for the implementation of Article 11 of the EED. 11.

[3] Specific Tender under Framework Contract ENER/2020/OP/0021
[4] Recast of Art. 8 of the former EED
[5] expected early 2024
[6] Guidance for national authorities on overcoming challenges in the implementation of Article 8 EED, see: https://www.deesme.eu/wp-content/uploads/2021/07/D2.4_Generic-guideline-on-best-practise-public-version.pdf

11. Conclusion / Summary / Policy recommendations

The direct support of NAs, which has been ongoing since the creation of the country-specific guidelines, has been made possible by constant contact. NAs took part in several project activities, and the meetings and discussions with them allowed us to identify the most important challenges and barriers in individual countries in terms of EED implementation, and in particular energy audits. With direct support, they sought to find solutions to overcome the most critical challenges. Challenges that are difficult to overcome with the current possibilities have also been identified.
In addition to the 1:1 meetings, NAs were involved in wider meetings to exchange views on the situation or to listen to various key actors, including representatives of associations and companies that are struggling with audit issues.
Unfortunately, the possibility of support was a little bit reduced by the unfortunate timing of the project if compared with the issuing of the new EED. Many NAs will presumably need support by mid 2024 on on this subject. However, the activities in the field of NA support do not end there, as the guidance will be developed and modified as part of new projects.