LEAP 4 SME

ENERGY AUDIT POLICIES TO DRIVE ENERGY EFFICIENCY

Guideline document on SMEs selection criteria and stakeholders engagement

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Executive Summary

Energy-related data

At national level, the quality and scope of existing energy-related data for SMEs are frequently insufficient to thoroughly analyse energy consumption in SMEs. Most of the European countries do not have explicit data sources for energy consumption. Moreover the literature research carried out in previous LEAP4SME analysis revealed that no data on the share of renewables in SMEs and no data on GHG emissions in SMEs are publicly available and accessible in the project targeted countries [1].

In the case of SMEs, monitoring energy consumption and the potential to improve energy efficiency is difficult as countries most often use instruments encouraging entrepreneurs to perform an energy audit voluntarily, and not all SMEs are willing to do so. Therefore, no countrywide system for monitoring energy aspects in SMEs, which collects and analyses data on all SMEs, has been identified in the LEAP4SME targeted countries.

The issue of improving energy efficiency in SMEs arouses more and more interest among the EU member states. However, taking effective action in this area requires detailed data on the level and characteristics of energy consumption in SMEs and on areas with the potential to achieve energy savings.

According to the National Energy Agencies from the project, a main area that could have an impact on encouraging SMEs to carry out energy efficiency audits and undertake energy efficiency measures is the analysis of energy consumption, share of energy costs, purpose of energy use, relevant technologies and appliances used, as well as audit/self-audit needs in SMEs. It should also assess the enterprises' level of knowledge about energy efficiency topics.

The definition of micro, small and medium-sized enterprises introduced in the EU recommendation 2003/361 supports the consistency and effectiveness of policies targeting this sector. It establishes a common ground to be applicable in many areas such as financial mechanisms, the State Aid laws etc. The staff headcount, turnover and total balance sheet indicators used in the definition combined grasp the scale and performance of a company in a simple and sufficient manner that could be used in many instances. However, these indicators are not well reflecting the energy aspects of the enterprises such as total energy consumption,

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energy saving potential and energy intensity. For these reasons additional criteria should be used to better target energy efficiency policies for SMEs.

The major differentiating factor strongly impacting energy consumption is the area of operation represented by NACE codes categorization. Energy consumption is linked to the main activities in industrial companies in a major way. Targeted financing, regulatory requirements, benchmarks, trainings and dedicated information measures specific to the activities of energy intensive industries support this sector well. The lower staff headcount of SMEs in comparison to large companies is not always aligned with a lower energy intensity or higher resource efficiency of the processes, however, can impose substantial burden for SMEs to take advantage of the support. A balance between targeting the sector with dedicated measures and the burden it imposes on the SMEs to participate should be considered.

Identification of key stakeholders

It is crucial to engage stakeholders in the process of obtaining adequate information on energy consumption for further research and implementation of appropriate energy efficiency improvement measures. Thanks to their contribution it will be easier to implement a policy of improving energy efficiency.

Identified key stakeholders (Ministries, Governments, National Energy Agencies, energy efficiency associations, environmental association etc.) should be assisted by partners of LEAP4SME project in developing Energy Audit policies. Moreover, key stakeholders should also assist partners in establishing contact with SMEs' representatives and help with obtaining as much energy-related data in SMEs as possible.

In addition, in order to identify further needs of the SMEs on one side, and of policy makers and policy implementers on the other, the project will benefit in its next steps from the strong participation of business associations, trade associations, regional and municipal agencies. SMEs should be informed through media activities, capacity building activities (webinars to optimize cost-effectiveness in terms of number of participants), conferences and through the aforementioned associations that will gather their main needs. Furthermore, through policy development (at national and local levels) and by means of their specific business associations, the end users benefiting from the project results will be the SMEs themselves.

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Proposed KPIs

On the basis of the results from the internal consultation to the 9 National Energy Agencies involved in the project, relevant information has been gathered on the level of availability of KPIs, the impact of each proposed KPI on the policy development/implementation and the Agencies' expert opinion on the difficulties in implementing the indicator itself.

The development of policy-oriented KPIs will be integrated, through surveys and interviews, within the activities of the forthcoming task 3.2 in WP3 and WP4, where partners will have to assess what is available in terms of figures for some of the KPIs in order to have an idea of the characteristics of SMEs in terms of energy issues.

Proposed KPIs were divided into 3 groups:

- General sector KPIs – referred to all enterprises, both large and SMEs.
- General SMEs sector KPIs – referred only to SMEs
- Sectorial KPIs – referred only to SMEs.

KPIs relate to the general characteristic of the sector, energy consumption, energy production, energy sources, energy intensity, cost of energy, CO_2 emissions, energy audit, energy efficiency and energy saving (potential and implemented).

General sector KPIs are mostly available or partially available in partner countries. However, the energy-related KPIs are usually not available or available only for limited sample of SMEs or specific SMEs sub-sectors.

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1. Introduction

1.1. The LEAP4SME project and SMEs characterizations through stakeholders' engagement

LEAP4SME project aims to support Member States in establishing and improving effective policies for SMEs to perform energy audits and implement cost-effective recommended energy-saving measures. Based on the mapping the national and local context of SME support and understanding the main barriers to unlocking the potential of energy efficiency measures through the recommendations of the energy audits of the recommendations, this task aims at:

- The identification of a methodology for an energy-related characterization of SMEs.
- The systematic identification and involvement of stakeholders of the SMEs target sectors, National Governments/ Agencies in charge of collecting data from energy audit policies, policy makers.
- The identification of successful case studies in terms of policies and programs.

As a result of this task, the guidelines will be developed that will be supportive in achieving other objectives of the LEAP4SME Project, such as:

- Mobilizing stakeholders (including private stakeholders), engaging them in policy-related activities throughout the project; in this context, creating conditions for future fluid dialogue with policy makers.
- Propose solutions to policy makers and implementers on policy schemes that will include both energy and non-energy benefits, policy recommendations.
- Contribute, through LEAP4SME research, analysis and stakeholder engagement, to the ongoing debate for the purposes of Article 8 of the EED.

1.2. Availability of energy-related data

At the national level, the quality and scope of existing energy-related data for SMEs is insufficient to thoroughly analyse energy consumption in SMEs. Most of the countries do not

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have explicit data sources for energy consumption. Moreover the literature research revealed that no data on the share of renewables in SMEs and no data on GHG emissions in SMEs are publicly available and accessible [1].

In most of the partner countries energy audits for SMEs are not required by law, but are recommended on voluntary basis. The lack of energy audits makes it difficult to identify savings potential in the SME sector.

The preliminary estimated share of SME energy consumption in gross internal consumption (GIC) ranges from 9% to 18% for most of the partner countries. This means that there is a high consumption due to the SMEs and it is possible to hypothesize a large potential for energy savings in the SME sector. At the same time, the great diversity among small and medium-sized enterprises requires the most energy-intensive sectors to be identified and support instruments to be targeted at them first.

Energy audits are also used to determine the level and characteristics of energy consumption in enterprises, as well as the potential for energy savings through the implementation of recommended measures. Many EU member states - e.g. Austria, Italy, Sweden and Netherlands - , collect and analyse data obtained from mandatory energy audits. This allows them to monitor the energy consumption, the degree of implementation of audit recommendations and the energy savings achieved in large enterprises. For this purpose, the institutions in charge of verifying with the fulfilment of the obligation create databases on energy aspects in enterprises, which make it is possible to assess the quality of audits and the attitude of the companies towards the measures recommended in audits. This also helps in providing with information about the effectiveness of measures used by the State to convince enterprises to undertake energy efficiency measures [2].

Some countries use the following instruments to encourage SMEs to take action in the field of energy efficiency:

- grants for carrying out energy audits;
- voluntary commitment schemes whereby participants commit to an audit through which they obtain various types of information and are subject to simplified procedures;
- energy efficiency networks, which bring together businesses, encourage to energy saving measures and offer support in the form of training, consultancy and subsidies.

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Implementation of the above instruments provides the possibility to monitor the level of energy efficiency of the participating companies by collecting and analysing data from performed energy audits. It should be noted, however, that the data obtained do not reflect the situation of the entire group of SMEs, but only the part that is more active in the field of energy efficiency. Nevertheless, it appears to be the only method to regularly monitor the energy aspects of SMEs unless they are obliged to perform energy audits, as it is the case for large enterprises. A review of the policy instruments available for SMEs is provided in D2.2 [3].

Energy audits (initial consultations and advice on implementation) for enterprises are supported in Austria within the framework of the Domestic Environmental Support Scheme (UFI, a programme funded by the Ministry of Agriculture, Forestry, Environment and Water Management) in cooperation with the lands, but are not required by law. The Land of Lower Austria provides additional support to enterprises and communities on environmental and climate protection and energy efficiency via its Lower Austria eco-management advisory programme. The Land of Carinthia supports the provision of advice to Carinthian enterprises and municipalities in relation to environmental and climate protection and energy efficiency advice via the eco-fit programme. There is significant potential in SMEs audits, as SMEs have already good experiences and results with energy audits (“regional land programmes” and ‘SME energy efficiency check’). The results so far have shown that the audits carried out as part of the ‘regional land programmes were able to achieve a reduction of 47 MWh per audit and year. In comparison the ‘SME energy efficiency audit’ achieved a reduction of 54 MWh per audit and year.

Data from the annual EIB Investment Survey (EIBIS) for 2017 and 2018 show that there are large differences in the energy audit participation rates across EU countries [4]. In both surveys Croatia had the highest participation rate in SMEs which is a big difference compared to most EU countries. Its level accounted for 53% where the average EU participation rate was 30%. Croatia promotes energy audits in SMEs by offering them financial support for energy-efficiency improvements (including subsidies, loans with low interest rate) and providing them with educational support. Financial support was granted by the Investments and Environment Protection and Energy Efficiency Fund (EPEEF), from 2021 the Croatian government introduced new UE’s programme called “LIFE”.

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In Greece the Competitiveness Operational Program was prepared which contains from 2019 the SMEs Competitiveness Toolbox dedicated to support SMEs. All of presents plans are aimed at improving the energy efficiency of manufacturing enterprises, reducing energy costs, increasing their competitiveness, and also reducing the impact of climate change resulting from the excessive use of energy. The types of support planned for SMEs include either capital grants to implement energy saving interventions, interest subsidies on loans, guarantees to obtain bank financing or a combination of these.

Under EED art.8 Italy obliges large companies and energy consuming companies to perform an energy audit and at least once every four years. By including energy-intensive enterprises, the Legislative Decree 102/2014 extends the obligation to enterprises regardless of their size. Actions to promote energy efficiency in non-energy intensive SMEs are also carried out, renewing the co-financing initiatives for energy audits and energy management systems, for example establishing links with support instruments present at a national and local level, supporting energy efficiency training programmes in cooperation with the relevant trade associations, and laying the foundations to promote voluntary agreements between companies aimed at the promotion of energy efficiency.

In Malta energy audits for SMEs are not required but in 2018 a scheme was setup whereby Small and Medium sized enterprises can benefit from grants to help them carry out Energy Audits of their premises/processes/plants/transport fleet.

Poland does not require energy audits for medium and small enterprises. The performance of audits is promoted through a number of financial support instruments for improving energy efficiency as well as disseminating of knowledge on current legal requirements and new technologies and provision of access to sustainable energy expertise for SMEs.

The main scheme for energy audits in Portugal is the Management System of Intensive Energy Consumption (SGCIE). The SGCIE imposes mandatory energy audits, with a 6-year frequency, in energy-intensive facilities with consumption between 500 and 1000 toe/year. An energy audit period of 8 years is mandatory for facilities with energy consumption between 500 and 1000 toe/year. Facilities operators are obliged to conduct an energy audit and develop an Energy Consumption Rationalization Plan (PREn). Portugal has not historically distinguished between large enterprises and SMEs for the energy efficiency purposes, and around half of the more than 1000+ already participating companies in mandatory schemes

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such as SGCIE are SMEs and both SMEs and large enterprises can apply for funding through calls under the Energy Efficiency Fund.

Slovak Investment Holding (SIH) is the national development institution responsible for the implementation of financial instruments from EU sources used in the field of energy efficiency. Among others, SIH provides financial instruments to improve energy efficiency in residential buildings in the current programming period, while preparing financial instruments to improve energy efficiency in public buildings and small and medium-sized enterprises. Given the low projected energy savings potential of SMEs, the projected average contribution to the target is 2.9 GWh per year. The average total estimated annual expenditure is approximately EUR 0.6 million. In the Bratislava Region, this support is implemented through Act No 71/2013.

SMEs across the UK are being encouraged through ESOS (Energy Savings Opportunity Scheme) guidance to undertake an energy audit on a voluntary basis to identify ways to reduce energy consumption and to demonstrate their commitment to energy efficiency. Those who notify compliance have their data published by the Environment Agency to show they have met the requirements. The Energy Saving Trust provides SMEs with advice and support on energy audits and implementation. Regional programmes such as Resource Efficient Scotland also provide support.

The issue of improving energy efficiency in SMEs is of growing interest among the EU member states. However, taking effective action in this area requires detailed data on the level and characteristics of energy consumption in SMEs and on areas with the potential to achieve energy savings.

Research has shown that there is no explicit data on the energy consumption of SME in the EU member states and UK that would be sufficient to analyse energy consumption in the SME group and assess the potential for improving energy efficiency in this sector [1].

The most comprehensive data source for publicly available and accessible economic data of SMEs is Eurostat's structural business database (SBS). Every EU member state is obliged to submit annual economic data on SMEs to Eurostat. They collect information about non-financial business economy, which includes industry, construction, distributive trades and services, and also indicators of the number of enterprises, number of employees, turnover,

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and value added. Most data for SBS are collected by National Statistical Institutes (NSIs) by means of statistical surveys, business registers or from various other administrative sources.

The best available information on the ownership of SMEs is the Survey on the Access to Finance of Enterprises (SAFE).

The best publicly available data sources for energy data are Eurostat's energy balances. They provide information on energy consumption of different sectors and use of various energy sources. Energy balances collect information on a different data, for example, gross inland consumption, the amount of distribution losses, final energy consumption and final energy consumption of different sectors. It allows assessing the relative importance of different fuels and their contribution to the economy. It is also the best source to create various indicators and perform analyses of energy efficiency.

The study revealed that no data on the share of renewable energy in SMEs are publicly available and accessible. However, Eurostat publishes data on the general share of renewable energy in the EU on a national level.

In conclusion, the quality and scope of existing energy-related data for SMEs are at present insufficient to conduct research on energy consumption and improvement of energy efficiency in the targeted EU member States and UK.

It is a priority of the project to work with stakeholders to obtain adequate information on energy consumption for further research and implementation of appropriate energy efficiency improvement measures. Thanks to their contribution, it will be easier to implement a policy of improving energy efficiency.

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2. Methodology of identifying SMEs target sectors

The definition of micro, small and medium-sized enterprises introduced in the EU recommendation 2003/361 supports the coherence and effectiveness of policies targeting this sector. It establishes a common basis to be applicable in many areas such as financial mechanisms, the State Aid laws etc. The staff headcount, turnover and total balance sheet indicators used in the definition combined capture the scale and performance of a company in a simple and sufficient manner that could be used in many instances. However, these indicators are not well reflecting the energy aspects of the enterprises such as total energy consumption, energy saving potential and energy intensity. Therefore additional criteria should be assessed to better target energy efficiency policies for SMEs.

2.1. How and where should further efforts be focused in defining energy policy

As the SMEs represent more than 99% [5] of the 25 million enterprises, energy policies targeting the sector should reflect the diversity and needs of different types of companies within this sector [6]. This could be implemented within the policies in multiple ways. For many energy policies re-defining SMEs' concept in terms of energy peculiarities would support to better reach the energy efficiency potentials of companies.

2.1.1. Sectoral measures

The major differentiating factor strongly impacting energy consumption is the area of operation represented by NACE codes categorization. Energy consumption is highly correlated with the main activities in industrial companies. Targeted financing, regulatory requirements, benchmarks, trainings and dedicated information measures specific to the activities of energy intensive industries support this sector well. The lower staff headcount of SMEs in comparison to large companies is not always aligned with a lower energy intensity, neither easily correlated to the resource efficiency of the process; however it can impose substantial burden for SMEs to take advantage of the support. A balance needs to be considered between targeting the

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sector with dedicated measures and the burden it imposes on the SMEs to participate. For this purpose the staff headcount and energy consumption indicators are worth to be considered as a suitable option than turnover and total balance sheet, when defining the beneficiaries of the support. Active engagement and needs of the SMEs should be considered when establishing targeted support measures, as social aspects could strongly impact on the results of the measures in this sector. Cooperation with sectoral industry/trade/business associations, company networks and regional or local authorities in contact with SMEs throughout the process of establishing and operation of the energy policies for SMEs can help them better respond to the needs of SMEs.

2.1.2. Cross cutting measures

Broad measures addressed towards all SMEs such as information measures, trainings, energy technology lists etc. play an important role in supporting SMEs sector due to its size. Cross-cutting measures could be replicated in many SMEs regardless of their area of operation represented by NACE codes or number of employees. However, even for those measures it is important to consider energy related factors in making the measures easily accessible for SMEs. Collecting information on the purpose of the energy consumption, common energy carriers, costs of energy in combination with number of employees and area of operation would support to tailor policies to current market trends and identify sectors with substantial untapped potential. Cross-cutting and wide range policies should be combined with more focused and sector specific policies to maximize their impact.

2.1.3. Energy Audits for SMEs

Lack of information and expertise in SMEs are some of the key barriers for SMEs to implement energy efficiency projects. Energy audits or expert advice for SMEs could significantly limit the impact of that barrier. However, the implementation of energy audits and expert advice, needs to be balanced with limited resources such as time, human or financial ones among SMEs. Placing energy consumption, energy related costs and energy intensity factors next to staff headcount, turnover and total balance sheet enables to better target the policy measures that encourage SMEs to undergo the energy audit in a more precise way. It also allows to manage

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the costs of the support measures, applying different solutions more suitable to each targeted subsector.

Regulatory measures such as the requirement for carrying out the energy audit in the SMEs sector speed up the process of implementation energy efficiency measures as lack of knowledge on the consumption and energy saving potentials are common among SMEs [7]. Currently, some Member States already use additional energy consumption criteria in the energy audit obligation mechanisms (e.g. Bulgaria and Italy), which places some of the SMEs with higher energy consumption within the obligated group [8]. This reflects the need to switch the obligation from the staff headcount, turnover and total balance sheet towards more energy related criteria. This is also included in the proposal for the energy efficiency directive review [9] where the obligation for the energy management system is imposed on companies with over 100 TJ of average annual energy consumption and the energy audit requirement in case a company did not implement energy management system is imposed on companies with over 10 TJ of average annual energy consumption. Lowering the thresholds for each group to include more SMEs could be combined with additional support for SMEs to comply. This could include partial or full reimbursement of the energy audit costs preferably linked with the implementation of the measures proposed in the audit. However, this would require further analysis of the effectiveness of such regulation on a national level based on the numbers of companies targeted with such regulation and experts that could provide such services. To reduce the impact of the limited number of experts that could provide the services, the obligation targeting SMEs could be set at different intervals than the general obligation. To improve the impact of the energy audits for SMEs a dedicated methodology or requirements in terms of experience of the auditors working with SMEs should be considered to limit the communication barrier between the energy expert and the SME [10].

For the SMEs below a certain energy threshold, other measures could be applied. Apart from the promotion of the energy auditing services and the implementation of the energy management systems specific self-evaluation tools and methodologies could be applied. Those tools and methodologies should consider the time and knowledge limitations of the SMEs. For this purpose, identification of the SMEs' needs and their attitude toward energy efficiency measures and energy audits should be taken into account.

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2.2. Key Stakeholders of the energy audit policy

Stakeholder involvement in most of projects affects their success or failure. Every project has to be completed by fulfilling the expectations and needs of multiple the stakeholders. During the course of a project, the project manager and project team will need support and cooperation of various the stakeholders to make it successful. Stakeholders are people, groups, or organizations that are directly involved in the project, or that can influence the project with their power and money.

Effective stakeholder engagement requires interpersonal and communication skills, but also the development of a well-planned strategy to engage all stakeholders in the most productive manner to gain their support, which will be beneficial for the project. Stakeholder engagement efforts should be an on-going, consistent efforts through the project life cycle [11].

The role of stakeholders in energy audit policy implementation is significant. Their knowledge, ideas and opinions contribute to better adaptation of new policy to local conditions. Stakeholders may complete the lack of information which cannot be filled without them [12]. It can reduce the gap between technical expertise and other knowledge [13]. Stakeholders participation can improve decision-making process and e.g. accelerate it. They have to be identified correctly with determining their priorities. Various priorities and attitude of stakeholders can be valuable, because they lead to broader view to the project. Different stakeholders pay attention to various problems that may affect the project. Stakeholders' participation in decision-making processes is being sought in different themed projects, from local to international scales [14].

One of the main aims of LEAP4SME project is to impact the SMEs through the linkage and proposition of effective energy audit and energy efficiency policies to policy makers. Under this scope, it is considered a priority to target the efforts towards business associations, multipliers and collectors of SMEs data and needs more than involving SMEs directly (any sample on such wide population would easily lead to skewed results). Besides that, a number of activities has been planned for SMEs themselves.

In table 1 is drafted and described first characterization of stakeholders, their categorisation and possible areas of cooperation.

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Table 1. Types and first characterization of stakeholders and possible area of cooperation

Types of stakeholders	Influence of/ Interest in the project	Public/ Private	Main area of Action	Possible area of cooperation
Ministry/ Government	High influence/High interest	Public	National	Support in developing Energy Audit policies
National Energy Agency	High influence/High interest	Public/ private	National	Improving the implementation of Energy Audit policies Collecting energy-related data in SMEs
Other National Authority	Medium influence/High interest	Public	National	Improving the dialogue and interaction between different policies in SMEs Collecting energy-related data in SMEs
Industry/trade/ business association	Medium influence/High interest	Public/ private partnership	National/Regional	Providing a sectoral view on SMEs issues/barriers and needs Assistance in establishing contact with SMEs Collecting data on SMEs' approach to investments

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Types of stakeholders	Influence of/ Interest in the project	Public/ Private	Main area of Action	Possible area of cooperation
Energy efficiency association	Medium influence/High interest	Public and/or private	National/Regional	Providing a sectoral view on SMEs issues/barriers and needs Collecting energy-related data in SMEs
Environmental association	Medium influence/Medium interest	Public and/or private	National/Regional	Providing a sectoral view on environmental topics of relevance for SMEs Collecting energy-related data in SMEs
Consultancy	Low influence/Low interest	Private	Regional	Assistance in establishing contact with SMEs Insights on the difficulties in reaching SMEs
University/ research center	Low influence/Medium interest	Public/ private	National	Collecting data on innovative solutions for improving energy efficiency
Financing institutions	Low influence/Medium interest	Private	National	Collecting data on SMEs' approach to investments

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Types of stakeholders	Influence of/ Interest in the project	Public/ Private	Main area of Action	Possible area of cooperation
Regional/local Energy Agency	Medium influence/Medium interest	Public and/or Private	Regional	Collecting energy-related data in SMEs Collecting needs and barriers on the implementation of local energy audit programmes
Utility/ESCO	Low influence/Medium interest	Private	Regional/ National	Collecting energy-related data in SMEs. Collecting insights on the difficulties in performing energy audits in SME
NGO	Low influence/Medium interest	Other	National	Bottom-up support for SMEs, actions to promote good behaviour

Source: Own study, based on input from National Energy Agencies

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The above stakeholder analysis indicates that the stakeholders who can influence the energy audit policy implementation activities require the cooperation with different types of market actors. Partners will be asked about the ministries and national agencies in charge of Developing Energy policies in enterprises (including energy audit policies) and in charge of Developing Energy policies for Article 8 of EED in the respective countries. In most cases, both of these topics are implemented by the same stakeholders.

Table 2 Stakeholders in charge of Developing Energy policies in enterprises (including energy audit policies) and in charge of Developing Energy policies for art. 8 EED in countries of Project's Partners

Country	Ministry/Ministries	National bodies or Agencies
Italy	Ministry for Ecological Transition	ENEA*
Portugal	Ministry of Environment and Climate Action	General Directorate for Energy and Geology
Austria	Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation and Technology	Austrian Energy Agency*
Greece	Ministry of Development and Investments	Centre for Renewable Energy Sources and Saving (CRES)*
Slovakia	Ministry of Economy	Slovak Innovation and Energy Agency*
Croatia	Ministry of Physical Planning, Construction and State Assets, Ministry of Economy and Sustainable Development	Ministry of Physical Planning, Construction and State Assets, Ministry of Economy and Sustainable Development
Malta	Ministry for Energy, Enterprise and Sustainable Development	The Energy And Water Agency*
Poland	Ministry of Climate and Environment	KAPE*[1]

[1] No agency in Poland is not obligated to implement energy policies and policies for art. 8 EED, but some of them cooperate with large enterprises and SMEs. KAPE implements these policies on commercial rules.

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Country	Ministry/Ministries	National bodies or Agencies
United Kingdom	Department for Business, Energy and Industrial Strategy (BEIS)	Department for Business, Energy and Industrial Strategy (BEIS)

*Source: Own study, based on input from Partners. * Indicate LEAP4SME partner*

The identified key stakeholders should be assisted by partners of LEAP4SME project in developing Energy Audit policies. Moreover the key stakeholders should also assist partners in establishing contact with SMEs' representatives and help with obtaining as much energy-related data in SMEs as possible.

In addition, in order to identify the needs of SMEs and at the same time properly reach them, the project will benefit from the strong participation of business associations, trade associations, regional and municipal agencies (which have direct contact with the territory), as well as from several SME cases. SMEs should be informed through media activities, capacity building activities (webinars to optimize cost-effectiveness in terms of number of participants), conferences and through the aforementioned associations that will gather their main needs. Nevertheless, some specific capacity building activities have been planned for SMEs themselves. SMEs will be invited to webinars or workshops describing the national programmes of each participant in the field of energy audits, energy efficiency and related issues. Furthermore, through policy development, the end users benefiting from the project results will be the SMEs themselves.

The basis of about 37 stakeholders consists of the signatories of the relevant letters of support received during preparing LEAP4SME project, who expressed their interest in the project activities and project dissemination. In these letters they provided their address, telephone number and email for further contacts. Several of them highlighted the importance of developing new policies and measures to support energy audit schemes used in SMEs. All of the Stakeholders should be included in further project activities.

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2.3. Developing Key Performance Indicators (KPIs) and energy-related data needed

On the basis of the results of the internal consultation, relevant information has been gathered on the level of availability of KPIs, the impact of each proposed KPI on the policy development/implementation and the Agencies' expert opinion on the difficulties in implementing the indicator itself.

The purpose of the spreadsheet was not to collect data sets/numbers on KPIs, but rather to understand whether related data on a specific KPI is available somewhere in the country. If such data existed, the next step was to verify information on where or how it could potentially be collected in the future, in particular by involving relevant stakeholders, e.g. business/industry associations, enquiries to other agencies/ministries, within the Agency itself, confidentially, etc. (more information in the following chapters). Another important point in the analyses was the subjective assessment by individual Partners of the extent to which the KPI or data extract in the spreadsheet was useful for the purposes of further policy development and ideas on possible SME characteristics to be further developed.

The first objective was to develop/create a set of KPIs (without numbers) for policy making/implementation, to help policy makers and implementers to better improve their programs, for example by adding them to the energy audit web portal for Article 8 of EED, to propose to our national authorities to use them for data collection, as they are (the most useful ones we will address) needed for policy planning and cost/efficiency analysis. So basically answering the question, from the policy maker's point of view, "how can I improve my policy, my databases and my data collection process for KPIs in the future?".

To develop this report, the list of KPIs was prepared in a spreadsheet and then consulted with Partners in a double iteration. In the first step, Partners were asked to review the list of KPIs to get their feedback on it. Based on the comments received, the list and structure of the KPI list was improved. It should be mentioned here that some opinions were contradictory between different Partners, therefore the expanded KPI list was left in this iteration, available for use by all Partners in the next project task. However, this use should be tailored to the individual needs and concerns of each country. In the second step, the spreadsheet was asked to be completed qualitatively and, where possible, referenced to the data.

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In the spreadsheet three levels of KPIs are proposed in order to evaluate the energy efficiency potential of energy audits in SMEs, the development of the indicators should be done iteratively:

- General level: NACE 1-2 level (e.g. C23 - Manufacture of other non-metallic mineral products, or G - Wholesale and retail trade; repair of motor vehicles and motorcycles). This level is characterized from public information.
- Sectoral level: NACE 3-4 level (e.g. C23.5.1 - Manufacture of cement, or G47 - Retail trade). This level can be partially characterized at the second level using national data and refined through stakeholders involvement and detailed analysis.
- Enterprise level: At this level, specific key companies can be engaged to increase the knowledge of sub-sectoral KPIs

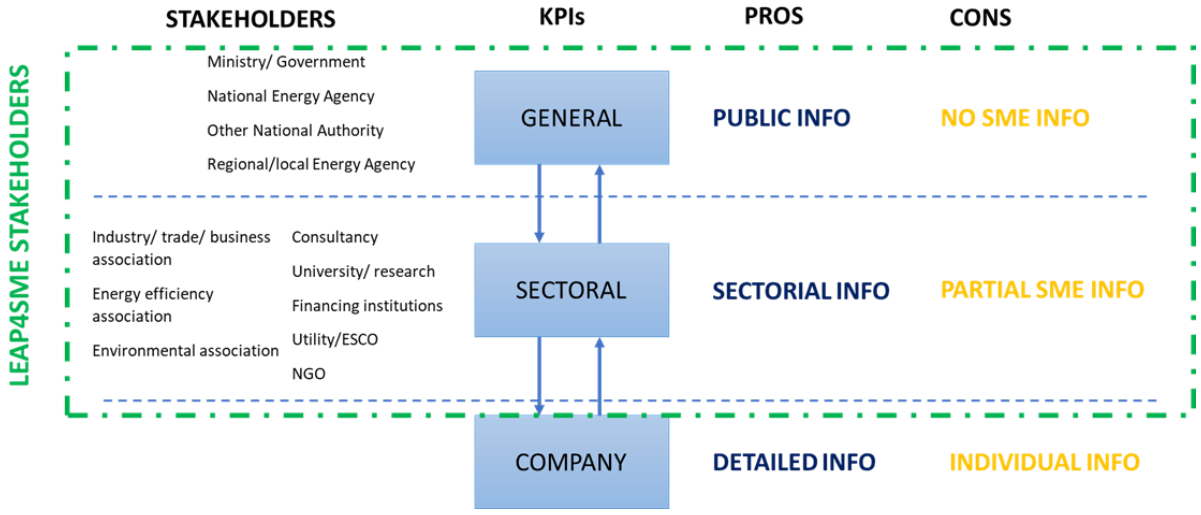

Figure 1. Scheme of sectors of KPIs and Stakeholders who could be engage in actions

Source: Own study, ENEA

The development of policy-oriented KPIs will be integrated, through surveys and interviews, within the activities of the forthcoming project tasks, where Partners will have to assess what is available in terms of figures for certain KPIs in order to have an idea of the characteristics of SMEs in terms of energy issues.

For energy efficiency in enterprises policy purposes (specifically for energy audits/energy efficiency programmes) it may be useful to consider different subsectors in-depth analysis or

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split when dealing with the SME sector. Partners were also asked about their opinion on a possible SME sector breakdown/definition. It was possible to choose 5 options:

- Option 1) Three sub-categories: energy intensive SMEs, medium consumption SMEs, low consumption SMEs;
- Option 2) Four sub-categories: energy intensive SMEs, medium consumption SMEs, low consumption SMEs, very low consumption SMEs (e.g. small family businesses in the food and beverage sector, small offices);
- Option 3) Three-four categories according to the most relevant sectors (industry, tertiary, transports...);
- Option 4) a further in-depth analysis per sector and dimension;
- Option 5) a different solution.

The most popular answer was Option 3 – it was pointed by: Italy, Austria, Greece, Croatia, Malta and Poland. In Portugal “considering the purpose “energy audits”, and from a practical point of view, the most appropriate is option 3 (sector approach). The NACE macro-sectors could inspire a “per sector” classification of SME, if the purpose is also to develop “energy efficiency programmes”, with SME prioritisation and goals, the option 4 (sector + dimension) may be the most appropriate for an in-depth and most complete approach." In Slovakia option 1 was indicated. In United Kingdom a different solution should be assessed and implemented.

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2.4. List of KPIs, current availability of data and importance of the indicator specifically for Energy audits & Energy Efficiency policy development and implementation

To answer the question from the policy maker's point of view, "how can I improve my policy, my databases and my data collection process for KPIs in the future?" it is important to focus on different types of data.

According to the Polish work on *Technical support for the promotion of energy audits and energy efficiency investments in small and medium-sized enterprises in Poland*, funded by the Structural Reform Support Service programme, the analysis of energy consumption, share of energy costs, the purpose of energy use, relevant technologies and appliances used, as well as audit/self-audit needs in SMEs represent the main area that could have an impact on encouraging SMEs to carry out energy efficiency audits and undertake energy efficiency measures through which economic savings can also be achieved. It should also assess the enterprises' level of knowledge on energy efficiency topics. This includes the types of technologies, potential savings and financing options and enterprises' attitudes towards acquiring additional knowledge and educating themselves on these topics.

In terms of energy usage types of energy carriers used in enterprises should be identified:

- electricity, hard coal, lignite, biomass, biogas, gas, heating oil, gasoline, diesel, CNG, LPG;
- hydrogen, district heating.

There is a need to identify the unit costs incurred by enterprises to purchase each energy carrier. Survey should also determine the share of energy costs in the total costs incurred by the enterprises and energy consumption per unit of value added.

It is also necessary to determine the applications of energy consumption in SMEs (lightning, office equipment, heating, air conditioning, refrigeration, manufacturing equipment, technological processes, transport, etc.) with an indication of the areas where energy consumption is the highest.

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Another type of data are renewable energy sources which are used in SMEs (photovoltaic installations, wind installations, small hydroelectric power plants, solar collectors, biomass, biogas, heat pumps) and determination of the share of renewable energy consumption in total energy consumption in enterprises.

The level of awareness of small and medium-sized enterprises about possible energy efficiency improvement projects and areas where they can achieve energy savings should also be determined have been also proposed in the assessment.

In the Table 3 there is a list of KPIs which was analysed by Partners. It is important to note that this very extensive list, should be refined (and reduced) prior to involve the stakeholders. An appropriate prioritization and selection of more representative KPIs will be developed in next task as function of available information and importance of the data. Excellent examples of EE KPIs can be found in [15]–[17].

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Table 3. List of KPIs

SECTOR	TYPE	KPI
1. GENERAL SECTOR KPIS REFERRED TO ALL ENTERPRISES, BOTH LARGE AND SMES PER SECTOR (INDUSTRY, TRANSPORTS, TERTIARY ETC.) - 1/2 DIGITS NACE CODE	GENERAL	Number of enterprises by sector
		Number of enterprises in EU-ETS
		Mean size of enterprise in the sector
		Sector included in EU-ETS
		Share of micro companies (0-9 employees) (in relation to all companies)
		Share of small companies (10-49 employees) (in relation to all companies)
		Share of medium companies (50-249 employees) (in relation to all companies)
		Share of large companies (+250 employees) (in relation to all companies)
	ENERGY CONSUMPTION	Final energy consumption in enterprises in total / Net energy consumption in enterprises

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SECTOR	TYPE	KPI
		Thermal final energy consumption (energy using for heating, included industrial processes with heating and cooling) in enterprises
		Share of heating, cooling and heat consuming industrial processes on enterprises' net energy consumption.
		Electrical final energy consumption (electricity used for lightning, RTV – included industrial processes like engines, machinery, excluded heating and transport) in enterprises in total
		Share of electricity consuming stationary equipment on enterprises' net energy consumption
		Transportation fuel final energy consumption (energy using in transport) in enterprises
		Share of transport energy/fuel consumption on enterprises' net energy consumption.
		Other final energy consumption
		Share of other above not mentioned energy consumption on enterprises' net energy consumption
	CO_2 EMISSIONS	CO2 emissions per energy consumption in enterprises

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SECTOR	TYPE	KPI
	ENERGY INTENSITY	(Final/Net) Energy consumption per unit of value added/turnover in enterprises
		(Final/Net) Energy consumption per unit of product
		(Final) Energy consumption per employee in enterprises
	COST OF ENERGY	Share of energy costs in the total costs incurred by enterprises
		Share of energy costs in the turnover incurred by enterprises
		Share of energy costs in the total GVA by enterprises
		GVA per energy consumption in enterprises
	POTENTIAL SECTOR	Potential to develop/implement EE measures/actions
		Share of overall savings potential in net energy consumption.
	GENERAL	Number of SMEs by sector
		Mean size of enterprise (SME) in the sector

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SECTOR	TYPE	KPI
1. GENERAL SMES SECTOR KPIS REFERRED ONLY TO SMES	ENERGY CONSUMPTION	Final energy consumption in enterprises in total / Net energy consumption in enterprises
		Thermal final energy consumption (energy using for heating, included industrial processes with heating and cooling) in enterprises
		Share of heating, cooling and heat consuming industrial processes on enterprises' net energy consumption.
		Electrical final energy consumption (electricity used for lightning, RTV – included industrial processes like engines, machinery, excluded heating and transport) in enterprises in total
		Share of electricity consuming stationary equipment on enterprises' net energy consumption
		Transportation fuel final energy consumption (energy using in transport) in enterprises
		Share of transport energy/fuel consumption on enterprises' net energy consumption.
		Other final energy consumption
		Share of other above not mentioned energy consumption on enterprises' net energy consumption

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SECTOR	TYPE	KPI
	CO_2 EMISSIONS	CO_2 emissions per energy consumption in enterprises
	ENERGY INTENSITY	Energy consumption per unit of value added/turnover in enterprises
		Energy consumption per unit of product
		Energy consumption per employee in enterprises
		Fleet Management - Energy consumption per passenger.km (passenger transport)
		Fleet Management - Energy consumption per ton.km (goods transport)
		Fleet Management - Energy consumption per vehicle.km (light duty vehicles + motorcycles)
	COST OF ENERGY	Share of energy costs in the total costs incurred by enterprises
		Share of energy costs in the total GVA by enterprises
		GVA per energy consumption in enterprises
	POTENTIAL SECTOR	Potential to develop/implement EE measures/actions

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SECTOR		TYPE	KPI
			Share of overall savings potential in net energy consumption.
2. SECTORIAL KPIS REFERRED ONLY TO SMES	2.1 - ENERGY CHARACTERIZATION	ENERGY PRODUCTION	Self-production of energy in total (in local sources)
			Self-production of electricity (in cogeneration, pv etc.)
			Self-production of heating
			Share of energy used for own purposes in relation to energy self-produced
			Share of self-produced energy from fossil fuels in total/net energy consumption in enterprises
			Share of renewable energy in total energy consumption in enterprises
			Share of enterprises that uses fossil fuels
			Share of enterprises that use renewable energy sources
		ENERGY SOURCES	Distribution of energy sources in final uses
		CO_2 EMISSIONS	CO_2 emissions per energy consumption by SMEs

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SECTOR		TYPE	KPI
		COST OF ENERGY	Share of energy costs in the total costs incurred by SMEs
			Share of energy costs in the total GVA by SMEs
			GVA per energy consumption in SMEs
		FINAL USES	Average share of energy consumption of main activities in total energy consumption
			Average share of energy consumption of auxiliary services in total energy consumption
			Average share of energy consumption of general services in total energy consumption
		COMPLEXITY	Complexity of energy consumption structure
	2.2 ENERGY EFFICIENCY	ENERGY AUDIT	Share or Number of SMEs that made energy audit or self-audit in last 4 years
			Share or Number of SMEs that regularly undertake energy audit or self-audit or with an energy management strategy
			Share or Number of SMEs that plan to undertake energy audit or self-audit in next 4 years

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SECTOR		TYPE	KPI
			Share or Number of SMEs that will not undertake energy audit or self-audit in next 4 years without external funding
		SAVINGS FROM EPIAS	Total achieved savings by EPIAs per year
			Achieved savings of electricity from declared interventions addressed in energy audits (since last audit)
			Achieved savings of thermal energy from declared interventions addressed in energy audits (since last audit)
			Achieved savings on transport fuels from declared interventions addressed in energy audits (since last audit)
			Other achieved savings from declared interventions addressed in energy audits (since last audit)
			Total potential savings by EPIAs per year
			Potential savings of electricity from identified interventions addressed in energy audits
			Potential savings of thermal energy from identified interventions addressed in energy audits

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SECTOR		TYPE	KPI
			Potential savings on transport fuels from identified interventions addressed in energy audits
			Other potential savings from declared interventions addressed in energy audits
			Most important intervention area
			Existence of incentives to support the project cost of most important intervention area
		IMPLEMENTED EPIAS	Annual average (or total) number of energy efficiency interventions introduced in last 4 years
			Annual average (or total) energy savings of interventions introduced in last 4 years
			Annual average (or total) energy savings of interventions introduced in last 4 years compared to total/net consumption
			Annual average (or total) energy investments associated to interventions introduced in last 4 years
			Average cost of energy saving (cost effectiveness)
			Share of SMEs that have an energy management system

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SECTOR		TYPE	KPI
		ENERGY EFFICIENCY AND ENERGY SAVINGS	Share of SMEs that have an environmental management system
			Share of SMEs that made an energy efficiency investment during last 5 years
			Share of SMEs that made RES investment during last 5 years
			Share of SMEs that plan to make an energy efficiency investment in next 5 years
			Share of SMEs that plan to RES investment in next 5 years
			Share of SMEs that will not make an energy efficiency or RES investment in next 5 years without external funding
		INVESTMENTS	Share of SMEs that choose to make an energy efficiency investment with SPBT < 1 year
			Share of SMEs that choose to make an energy efficiency investment with SPBT (1 year, 3 years)
			Share of SMEs that choose to make an energy efficiency investment with SPBT (3 year, 5 years)
			Share of SMEs that choose to make an energy efficiency investment with SPBT > 5 years

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SECTOR		TYPE	KPI
			Share of SMEs that would choose to invest in RES (if SPBT > 5 years)
			Share of SMEs that would choose to carry out thermal modernization (if SPBT > 5 years)
			Share of SMEs that would choose to replace production equipment (if SPBT > 5 years)
			Potential to develop/implement EE measures/actions
	2.3 POTENTIAL EE SECTOR		Share of overall savings potential compared to net energy consumption.

Source: Own study, based on input from Partners

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2.4.1. General sector KPIs

General KPIs from General Sector KPIs are mostly available and have been evaluated mostly as highly important, specifically for Energy audits & Energy Efficiency policy development and implementation. Number of enterprises by sector is available to all partners. Other General KPIs from this sector are only partially available to EWA, because some data are confidential and some data like share of companies (in relation to all companies) are available only for enterprises within Total Business Economy – e.g. in Greece (CRES) number of enterprises in EU-ETS is only partially available, while in United Kingdom (EST) these data are not available. In the United Kingdom (EST) also the *Sector* included in EU-ETS indicator is not available, but both not available indicators have been evaluated by EST as little important. To other partners general KPIs from this sector are available and have been evaluated as moderately important.

Energy Consumption KPIs are mostly available and accessible in Italy by ENEA; nevertheless this type of indicators would be available mostly by source, not by final use. Most of KPIs are available in Greece (CRES) and Slovakia (SIEA). In Portugal (ADENE), Malta (EWA) and Poland (KAPE) most of data are evaluated as not available, while KAPE (Poland) evaluated these indicators as highly important and ADENE (Portugal) evaluated these indicators as moderately to highly important. EWA (Malta) evaluated most of indicators as moderately important. Only Final energy consumption in enterprises in total are fully available in the United Kingdom (EST), while Thermal final energy consumption, Share of heating, cooling and heat consuming industrial processes on enterprises' net energy consumption, Electrical final energy consumption and Transportation fuel final energy consumption according to EST are available only partially in different form than is requested. The most available indicator to most partners is Final energy consumption in enterprises in total/Net energy consumption in enterprises.

CO_2 emissions per energy consumption in enterprises are available in most of the project Countries (eight out of nine).

KPIs from group Energy Intensity and Cost of energy type are mostly available in Italy (ENEA), while they are not available in Malta (EWA) and United Kingdom (EST). In Austria (AEA) all indicators from this sector are available, but most of them are available only partially, because

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according to AEA some data are difficult to gather. Share of energy costs in the turnover incurred by enterprises is not fully available to any partner and partially available only in Italy (ENEA), Austria (AEA) and Greece (CRES). The most available indicators from this sector are Energy consumption per unit of value added/turnover in enterprises and Energy consumption per employee in enterprises.

Potential sector KPIs in General Sector KPIs to all partners have been evaluated as highly important, but these indicators are not available to most of them. Only in Slovakia (SIEA), Poland (KAPE) and United Kingdom (EST) this data are available. According to SIEA (Slovakia) some own calculations would be needed and according to EST (United Kingdom) available data relates to buildings energy use not to all business.

Table 4 shows the average results from the survey for each category of indicators included in the General sectors KPIs.

Table 4. Overview of results for General sector KPIs

GENERAL SECTOR KPIS *REFERRED TO ALL ENTERPRISES, BOTH LARGE AND SMES PER SECTOR (INDUSTRY, TRANSPORTS, TERTIARY ETC.) - 1/2 DIGITS NACE CODE*		
KPI Group	***Availability***	***Relevance***
GENERAL		Highly important
ENERGY CONSUMPTION		Highly important
CO_2 EMISSIONS		Moderately important
ENERGY INTENSITY		Moderately important
COST OF ENERGY		Highly important
POTENTIAL SECTOR		Highly important

Availability of data for indicators: Green = available, orange = partially available, red = not available

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2.4.2. General SMEs Sector KPIs

Data on indicators from the group General from General SMEs sector KPIs are fully available to all partners except Malta (EWA) where data is only partially available. EWA (Malta) emphasize that data are available on Eurostat's SBS dataset, but some data are confidential. Mean size of enterprise (SME) in the sector data is also only partially available in Croatia (EIHP). Most partners evaluated these indicators as highly important.

In this sector KPIs from the group Energy Consumption are mostly not available. Only in Greece (CRES) significant number of indicators is available. CRES claims that only data about Share of electricity consuming stationary equipment on enterprises' net energy consumption is definitely not available. On the other hand in Malta (EWA), Slovakia (SIEA) and the United Kingdom (EST) only data about Final energy consumption in enterprises in total/Net energy consumption in enterprises is fully available. According to EWA (Malta) and EST (the United Kingdom) these data are only available from this group of KPIs. ENEA (Italy) emphasized that all data about indicators from group Energy Consumption are in Italy partially available, but only by source, not by final use. In Croatia (EIHP) there are no data available as regards indicators from this group. There is significant shortage of data in Energy Consumption group, while most partners described importance of these indicators as high.

KPI CO_2 emissions per energy consumption in enterprises in case of SMEs have been evaluated as highly important by most of partners except EWA (Malta) which determines level of importance of this indicator as low.

Data on indicators from the group Energy intensity are fully available in Portugal (ADENE). However data about fleet management is not accessible. On the other side in Malta (EWA), Croatia (EIHP) and United Kingdom (EST) these data are not available. In Italy (ENEA) Energy consumption per unit of value added/turnover in enterprises, Energy consumption per unit of product, Energy consumption per employee in enterprises according to ENEA (Italy) can be estimated based on the analysis and general KPIs. The rest of indicators from this group have been evaluated by ENEA (Italy) as little important. In Greece (CRES) and Slovakia (SIEA) only data about two indicators are fully available, while in Slovakia (SIEA) data about Fleet Management - Energy consumption per vehicle.km (light duty vehicles + motorcycles) is only partially available and according to SIEA (Slovakia) only technical estimation can be

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calculated. ADENE (Portugal), AEA (Austria) and EIHP (Croatia) evaluated indicators from Energy intensity as highly important, while EWA (Malta) and CRES (Greece) described importance of these indicators as little.

Indicators from the group Cost of energy have been evaluated by eight out of nine partners as highly important. The only data about every indicator from this group are available in Italy (ENEA), however according to ENEA (Italy) some data have to be estimated based on T2.1 Analysis and general KPIs. In Portugal (ADENE), Malta (EWA), Slovakia (SIEA), Croatia (EIHP) and United Kingdom (EST) data about indicators from this group are not available.

The last group – Potential Sector have been evaluated by all partners as highly important. However in Italy (ENEA), Austria (AEA), Malta (EWA), Greece (CRES), Croatia (EIHP) and the United Kingdom (EST) these data are not available. In Slovakia (SIEA) data about both indicators from this group are fully available. According to ADENE (Portugal) these data are partially available and can be extrapolated from studies and data from the Intensive Energy Consumption Management System (SGCIE). Table 5 summarizes the average results from the survey for each category of indicators included in the General SME sectors KPIs.

Table 5. Overview of results for General sector KPIs

GENERAL SME SECTOR KPIS ***REFERRED ONLY TO SME***		
KPI Group	***Availability***	***Relevance***
GENERAL		Highly important
ENERGY CONSUMPTION		Highly important
CO_2 EMISSIONS		Moderately important
ENERGY INTENSITY		Moderately important
COST OF ENERGY		Highly important
POTENTIAL SECTOR		Highly important

Availability of data for indicators: Green = available, orange = partially available, red = not available

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2.4.3. Sectorial KPIs

In sectorial KPIs data about indicators from the group Energy Production are not available in Portugal (ADENE), Austria (AEA), Malta (EWA), Slovakia (SIEA), Poland (KAPE) and United Kingdom (EST). In Italy (ENEA) data about indicators from this group is available only for a limited sample of SMEs. According to ENEA (Italy) data are available for single SMEs and only from non-public databases managed by national bodies. In Greece (CRES) data are available only per sector. Most of indicators have been evaluated as moderately to highly important by partners.

Data about Distribution of energy sources in final uses are available only for a limited sample of SMEs in Italy (ENEA), fully available in Greece (CRES), available only per sector in Croatia (EIHP) and available only for specific SMEs sub-sectors in Poland (KAPE). CO_2 emissions data are also available similar to data about Distribution of energy sources in final uses, but they are also available for a limited sample of SMEs in Austria (AEA). Both indicators have been evaluated as highly important.

Indicators from the group Cost of energy have been evaluated as little important by ADENE (Portugal) and United Kingdom (EST), however ENEA (Italy), AEA (Austria), CRES (Greece) and KAPE (Poland) described them as highly important. Other partners evaluated these indicators as moderately important. Most of partners admits these data are not available, but to ENEA (Italy), CRES (Greece) and EIHP (Croatia) these data are available only for a limited sample of SMEs or only per sector.

In case of indicators from the groups Final uses and Complexity seven out of nine partners evaluated them as highly important. Data about Final uses are available only in Italy (ENEA), but only for a limited sample of SMEs. To AEA (Austria) data about Complexity of energy consumption structure are fully available.

Share or Number of SMEs that plan to undertake energy audit or self-audit in next 4 years data and Share or Number of SMEs that will not undertake energy audit or self-audit in next 4 years without external funding data are not available to any partner, while Share or Number of SMEs that made energy audit or self-audit in last 4 years data are available in Italy (ENEA), Malta (EWA), Slovakia (SIEA) and United Kingdom (EST).

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Most of KPIs from the group Savings from EPIAs have been evaluated by partners from moderately to highly important. In Italy (ENEA) and Austria (AEA) most data are available only for a limited sample of SMEs and in Italy (ENEA) data are only for energy audits uploaded to official database ENEA. Data about Existence of incentives to support the project cost of most important intervention area is available for most partners.

Data on indicators from the groups Implemented EPIAs and Energy efficiency and energy savings are not available in two Countries out of nine. In Malta (EWA) and Italy (ENEA) data about KPIs from group Implemented EPIAs are available only for a limited sample of SMEs. In Italy (ENEA) data about Energy efficiency and energy savings are also available only for a limited sample of SMEs. Only data about Share of SMEs that have an energy management system and Share of SMEs that have an environmental management system are available in Greece (CRES) and United Kingdom (EST). ENEA (Italy), AEA (Austria), CRES (Greece) and KAPE (Poland) evaluated KPIs from these groups as highly important, while EWA (Malta), SIEA (Slovakia), EIHP (Croatia) and EST (United Kingdom) described them as moderately important.

KPIs from the group Investments have been evaluated as moderately important by ENEA (Italy), SIEA (Slovakia) and KAPE (Poland). Other partners described them as highly important. However data about these indicators are available only to ENEA (Italy), but only for a limited sample of SMEs. In other countries these data are not available.

Potential EE Sector have been evaluated as highly important by all partners, however for most of them data about this indicator are not available, except one Country where data are available only for a limited sample of SMEs.

Table 6 shows the average results from the survey for each subgroup and category of indicators included in the Sectorial KPIs.

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Table 6. Overview of results for General sector KPIs

GENERAL SME SECTOR KPIS ***REFERRED ONLY TO SME***		
KPI Group	***Availability***	***Relevance***
ENERGY CHARACTERIZATION		
ENERGY PRODUCTION		Highly important
ENERGY SOURCES		Highly important
CO_2 EMISSIONS		Highly important
COST OF ENERGY		Moderately important
FINAL USES		Moderately important
COMPLEXITY		Moderately important
ENERGY EFFICIENCY		
ENERGY AUDIT		Moderately important
SAVINGS FROM EPIAS		Highly important
IMPLEMENTED EPIAS		Highly important
ENERGY EFFICIENCY AND ENERGY SAVINGS		Moderately important
INVESTMENTS		Highly important
POTENTIAL EE SECTORS		Highly important

Availability of data for indicators: Green = available, orange = partially available, red = not available

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3. Next steps of SMEs characterization through stakeholders' engagement

The first phase of the next steps will be to focus on stakeholders' engagement. Basing on results of this document and the unit of *Methodology of identifying SMEs target sectors,* Partners will then focus on the identification of the key stakeholders in their countries such as: national and local authorities responsible for energy efficiency policies, local and regional energy agencies; business associations, corporations, energy service companies, finance institutions, suppliers of energy-efficient technology and equipment, and energy auditors.

The stakeholders' engagement process will be useful for refining the assessment of relevant KPIs for policy implementation purposes, to support the activity of characterization of the SME sector and to properly involve the stakeholders themselves in the next activities in coordination with WP4 and WP5. Also through the stakeholder engagement, the partners will conduct further analysis to adapt the addressed KPIs to each partners' national conditions and specificities.

The basic stakeholders engagement process consists of five components [18]: *Identify, Analyse, Plan, Act and Review*. In case of SMEs characterization this activity should be supplemented by aspects concerning the manner of communication. Looking at the activities in the LEP4SME project it is also possible to leave out the last point – *Review*, however, this point could strengthen all of the actions that aim to implement energy audit policies in better way. Below is presented the structure of part of the stakeholders engagement strategy applied to the KPIs evaluated in the previous sections.

Step #1: Analysis of KPIs in terms of the characteristics of SMEs, which (KPIs) should be adapted to national circumstances

This is essential to take into consideration that the aim of this action is to establish a broad base of support, to obtain information on the SMEs needs and constraints and to create the necessary linkages between all stakeholders, organize communications, disseminate knowledge and information to facilitate synergies.

The KPIs developed in this document could be used in initial consultations, which might range widely to identify:

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- priorities, challenges and barriers;
- opportunities for stakeholders to cooperate;
- existing resources that could be leveraged.

This step could be accomplished through internal workshops. The result of this point should be a list of KPIs which should be consulted with Stakeholders.

Step #2: Identify of stakeholders and grouping them taking into account the KPIs from step #1

It is important to define who the stakeholders of the project are and what the goals are in terms of cooperation with them. It is important to characterize the stakeholders and the scope of cooperation with them in order to facilitate our further cooperation It is also important to specify the extent and the effort in influencing each of the stakeholders in order to achieve the planned results. To more effectively identify and stakeholders, the Partners discussed on a classification into categories such as the types described in *Table 1. Types and first characterization of stakeholders and possible area of* cooperation*.*

Step #3: Analyse stakeholders and collect contacts to them

In order to work more effectively with stakeholders, it is important to learn as much as possible about them. To do this, it is important to prioritize limited human resources and time and distribute the work among the project participants. Therefore, time should be spent on analysing the availability of project participants, their skills and knowledge that they can bring to the project. At this level it is important to collect direct contacts to the representatives of Stakeholders, which we would like to contact with.

For Partners from National Agencies, the network of stakeholders, they work with, is often quite extensive and familiar. This step should not be difficult to implement at this level. It is, however, essential for the implementation of the next point.

Step #4: Plan the action

The next step is to create an action plan for stakeholder engagement and communication. Its scope includes:

- defining the information to be communicated to stakeholders,

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- the approaches to stakeholders that will be used,
- the people that will be working on the different tasks,
- the timing of individual tasks,
- the way of evaluation and dealing with received feedback from stakeholders.

At this stage, it is essential to determine what type of communication will work best for each stakeholder. Once all of the key stakeholders have been identified, their inputs will be collected through meetings, surveys, workshops or focus groups, using bottom-up participating approaches and methodologies towards stakeholders' engagement and co-creation of the intended new SME auditing programmes.

One of the core actions of next steps is to gather the data e.g. by the national surveys on SMEs main criteria for auditing. Partners will define the main topics to be covered by the national survey. They will set its relevance and define its content. Previous studies carried out in participating countries will be analysed. The survey will look at SMEs preferences for auditing, why they do not seek auditing and how they evaluate existing national programs. This national survey intends to collect the vision of SMEs on their preferences and difficulties. The questionnaire will be written to secure comparability of the results amongst participating countries and the number of inquiries will be defined within SMEs and within each of the participating countries. National teams will monitor public debate on issues related to the content of the survey. The number of queries will depend on the country. The results of the survey will define which tools are best suited to respond to low number of audits carried out by or on SMEs.

Step #5: Act and review

The next stage concerns the involvement of stakeholders in the project activities and use their insights. Having powerful insights can help you to assess and handle resistance. Actions should be made according the plan.

All partners will provide further data regarding the identified stakeholders. Some of them will be: the main aim or activity of the stakeholder (organisation or individual), a contact person that could be reached to make communication more personalised, how the specific stakeholder will benefit from the LEAP4SME Project and how the input provided from

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the stakeholder is of importance to LEAP4SME, if the main aim of LEAP4SME is somehow aligned with the aim of the stakeholder and whether the stakeholder would be willing to be involved in Project.

When all the required information for the identification of the stakeholders will be gathered for all the participating countries of the consortium, the result of the next step will be the *Report on SMEs characterization to address an effective policy development* and *Compilation of good practices*. All actions which will be made should be in the way which could help Partners to receive the best input and help in implementing effective energy audit policies for SMEs.

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