



D4.3 Report on the Integration of SMEs energy audit policy with other legislation and programmes

December 2023



DELIVERABLE 4.3	Report on the Integration of SMEs energy audit policy with other legislation and programmes
Related Work Package	WP4 - Framework for the Implementation of Energy Audit Programmes and Services for SMEs
Deliverable Lead	ENEA
Author(s)	Chiara Martini, Enrico Biele (ENEA)
Contact	enrico.biele@enea.it
Revised and Approved	Enrico Biele (ENEA)
Grant Agreement Number / Funding body	893924 / Horizon 2020 Research and Innovation Programme
Start date / Project Duration	1 SEP 2020 / 36 months
Type of Deliverable (R, DEM, DEC, Other)¹	R
Dissemination Level (PU, CO, CI)²	PU
Date of Last Update	15 th December 2023
Project Website	www.leap4sme.eu

REVISION NO	DATE	DESCRIPTION	AUTHOR(S)
VERSION 1.0	22 November 2023	FIRST DRAFT	ENEA
VERSION 1.1	15 December 2023	FINAL REPORT	ENEA

The content of this report reflects the views of the authors, who are responsible for the facts and accuracy of the information presented herein. The opinions expressed in this report are the author's own and do not reflect the views of the Agency or the European Commission.

¹ R=Document, report; DEM=Demonstrator, pilot, prototype; DEC=website, patent filings, videos, etc.; OTHER=other

² PU=Public, CO=Confidential, only for members of the consortium (including the Commission Services), CI=Classified



Table of Contents

D4.3 REPORT ON THE INTEGRATION OF SMES ENERGY AUDIT POLICY WITH OTHER LEGISLATION AND PROGRAMMES

EXECUTIVE SUMMARY	4
1 INTRODUCTION	5
1.1 Objectives of the LEAP4SME project.....	5
1.2 Introduction to Task 4.3 and to the report.....	5
2 SMES IN THE IMPLEMENTATION OF EED ART. 7 AND 8.....	6
2.1 Overview of EED art. 7 and 8	6
2.2 Implementation of art. 7 in the project partner Countries and the role of SMEs.....	7
AUSTRIA	7
CROATIA.....	8
GREECE	9
ITALY	11
MALTA	13
POLAND	14
PORTUGAL.....	14
SLOVAKIA	16
UNITED KINGDOM	17
2.3 Implementation of art. 8 in the project partner Countries and the role of SMEs.....	18
AUSTRIA	19
CROATIA.....	20
GREECE	21
ITALY	23
MALTA	25
POLAND	26
PORTUGAL.....	27
SLOVAKIA	27
UNITED KINGDOM	28



3 INTEGRATING SME-TARGETED POLICIES, PROGRAMMES AND INITIATIVES WITH OTHER POLICIES	30
AUSTRIA	30
CROATIA.....	31
GREECE	33
ITALY	34
MALTA	37
POLAND	38
PORTUGAL.....	39
SLOVAKIA	41
UNITED KINGDOM	43
4 ENERGY VULNERABILITY AND ENERGY POVERTY	45
4.1 Overview of Energy vulnerability and Energy Poverty concepts	45
4.2 Energy poverty concept applied to micro-enterprises and small family businesses	48
AUSTRIA	48
CROATIA.....	49
GREECE	51
ITALY	52
PORTUGAL.....	54
SLOVAKIA	56
UNITED KINGDOM	57
COMMENTS FROM OTHER COUNTRIES	58
KEY MESSAGES FROM INDIVIDUAL COUNTRIES	58
4.3 Results from the survey for organisations.....	59
5 ENERGY VULNERABILITY IN SMES: A PROPOSED FRAMEWORK FOR POLICY MAKERS	62
6 CONCLUSIONS	68
APPENDIX.....	70



Executive Summary

This report describes the results of the analysis, at project partners' Country level, of a first assessment on the possible integration of SMEs energy audit programmes with other articles Energy Efficiency Directive (EED) and other relevant legislation. In particular, partner countries answered to questions and provided insights on: the role of SMEs in EED art. 7 and 8 transposition; the integration of SME-targeted policies, programmes and initiatives into art. 7; the application of energy poverty concept to micro-enterprises and small family businesses; the integration of SME-energy policies with other legislation, programmes and initiatives at national and local level.

The answers to the question on the topic of energy poverty have shown that in most countries an official definition of energy poverty does not exist and, when existing, it does not include businesses. In several countries support measures for vulnerable firms are in place and in one case also for a specific sector considered particularly vulnerable. The results of the LEAP4SME survey for Organizations included a question on "Evaluating the application of Energy poverty measures for small family businesses". Public institutions, private organisations, private associations and other organisations provided in total 177 answers, which on average show a moderate interest in the topic.

These two pieces of information provided the basis for exploring the similarities between households and small family businesses and micro enterprises, in order to check the feasibility and potential application of the energy poverty and energy vulnerability concepts to SMEs. SMEs, in particular micro enterprises, have peculiarities in their level of exposure and vulnerability to energy related risks.

On these basis, a qualitative matrix is proposed to represent different possible cases for both the SME characterisation and context and to show their impacts on determining an energy vulnerability condition. This qualitative matrix, providing a simplified and not exhaustive representation, is a first step policy makers would need a framework to understand the reasons behind them and how they interact to determine a higher or lower risk.



1 Introduction

1.1 Objectives of the LEAP4SME project

The H2020 LEAP4SME Project aims to improve the national and local policies to encourage SMEs to undertake energy audits and implement the recommended energy-saving measures. As a first stage, the existing policies and programmes have been mapped and their strengths and weaknesses identified. The project aims to overcome the barriers to SMEs in taking up energy audits, while it will offer a series of replicable recommendations applicable to SMEs across the partner Agencies' countries and the EU more widely. Interaction with a range of stakeholders, by means of workshops, questionnaires, consultations and meetings, is also a key focus of the work done in the frame of LEAP4SME. Through these outward engagements project partners look to build the capacity and disseminate project findings to policymakers and relevant stakeholders at the European, national, and regional levels.

1.2 Introduction to Task 4.3 and to the report

This report describes the results of the analysis, at project partners' Country level, of the role of SMEs in art. 7 and 8 of Energy Efficiency Directive (EED), conducting a first assessment on the possible integration of SMEs energy audit programmes with other relevant legislation, including EED art. 7. Part of the work deals with exploring similarities between households/families and small family businesses and micro enterprises, in order to check the feasibility and potential application or extension of the Energy Poverty alleviation techniques and programmes to vulnerable micro-SMEs. The data and the information used in the report are elaborated from interviews with senior experts of the partners National Energy Agency, literature research and surveys/assessments carried out in the LEAP4SME activities between M1 and M34.

The Countries assessed are: Austria, Croatia, Greece, Italy, Malta, Poland, Portugal, Slovakia and United Kingdom. The set of questions is presented in the Appendix.



2 SMEs in the implementation of EED art. 7 and 8

2.1 Overview of EED art. 7 and 8

The Directive 2012/27/EU defined a set of binding measures to help the European Union achieve the 20% energy efficiency target by 2020. According to the directive, all European countries were required to use energy more efficiently at all stages of the energy chain, including energy generation, transmission, distribution, and end-use consumption. Adopted in its first version in 2012, the directive was updated in 2018 and 2023, setting rules and obligations for achieving the Union's ambitious energy efficiency targets.

art. 7 establishes energy savings targets and the rules to be followed in calculating and reporting them, requiring Member States achieving such savings by establishing an energy efficiency obligation scheme (EEOs) referred or by adopting alternative policy measures. In designing policy measures, Member States shall consider the need to alleviate energy poverty by requiring that a share of energy efficiency measures under their national EEOs, alternative measures, Energy Efficiency National Funds, to be implemented as a priority among vulnerable households (including those affected by energy poverty and social housing).

Art. 8 deals comprehensively with energy audits and energy management systems, establishing that Member States shall promote the availability to all final customers of cost-effective and high-quality energy audits. Also, Member States are required to develop programmes to encourage SMEs to undergo energy audits and the subsequent implementation of the recommendations from these audits and to bring to the attention of SMEs, including through their respective representative intermediary organisations, concrete examples of how energy management systems could help their businesses. Member States shall also develop programmes to raise awareness among households about the benefits of such audits through appropriate advice services. Member States shall encourage training programmes for the qualification of energy auditors to facilitate sufficient availability of experts.



SMEs are cross-cutting to both articles: they contribute with energy savings to targets set up in art. 7 also through EEOS and alternative measures and are directly interested by art. 8 provisions in terms of supporting programmes for energy audits for small businesses.

2.2 Implementation of art. 7 in the project partner Countries and the role of SMEs

The answers provided by individual countries on art.7 and the role of SMEs are included in the following sections (Question 1 in the Appendix). Anticipating the main findings, we can observe that in most cases there is no obligation for SMEs. Thus, the target set for 2030 are relevant for large enterprises and for SMEs acting on a voluntary basis. The policy mix to comply with art. 7 is generally represented by an integrated approach with an energy efficiency obligation scheme and alternative measures. Nevertheless, in some cases only alternative measures are used.

Austria

According to the Austrian implementation of art. 7, SMEs are not obliged to implement energy efficiency measures and to achieve savings. SMEs should be motivated to implement energy efficiency measures on a voluntary basis through investment subsidies and awareness raising. There are various environmental investment subsidies for all businesses (e.g. replacing old lighting systems with LED), also for SMEs. The Federal Government (Ministry of Climate Action) is responsible for environmental subsidies in Austria. In addition, there are many funding initiatives by states (regional programs).

The KPC (Kommunal Kredit Public Consulting) is commissioned to handle the funding and gives comprehensive funding advice. It is also important that the energy consultants of SMEs know about the different subsidies and can therefore advise the companies comprehensively (<https://www.umweltfoerderung.at/betriebe>).

Funding advice is therefore an important part of energy advice. The implemented funded measures are counted top down for the national energy efficiency targets (reduction of final energy consumption; by 2030 max. 920 PJ).



Among the initiatives for awareness raising, programs such as klimaaktiv and the regional programs motivate SMEs to implement measures.

Croatia

During the art. 7 of the EED transposition, Croatia has chosen to meet its cumulative energy saving target through the combination of energy efficiency obligation scheme (EEOS) and alternative measures (AM). In the period 2021-2030, it is envisaged that the activities performed through EEOS will deliver 70% of this target, while the alternative measures are supposed to deliver the remaining 30%.

The responsible body for overseeing the overall implementation of art. 7 is the Ministry of Economy and Sustainable Development. The Ministry leads the monitoring systems for energy efficiency, which is based on the online platform (SMiV – *Sustav Mjerenja i Verifikacije*, the measurement and verification system) for the calculation and verification of energy savings achieved through individual actions in energy efficiency field. Through this scheme, it is mandatory for each obligated party within the EEOS to enter its projects (and proofs that they are implemented as well as proofs that savings were achieved) into SMiV. The public bodies that are implementing the AMs are responsible for documenting all projects implemented with the state support in the system. This way, a comprehensive data base of all energy efficiency projects, that are implemented under the umbrella of art. 7, is ensured.

The obligated parties within the EEOS are the utilities - energy suppliers of power, natural gas, heat and oil products, whose annual sales volume is higher than 50 GWh. There are approximately 50 obligated parties currently in the EEOS. These obligated parties are free to choose which energy efficiency measures they will use to meet their requirements.

The alternative measures, AMs, are defined within the National Energy and Climate Plan (NECP) and National Energy Efficiency Action Plan (NEEAP). They include energy renovation programmes for single-family houses, multi-apartment building, public buildings, cultural heritage buildings, public lighting as well as electric vehicles and EE measures in the manufacturing industries. Basically, the AMs are financing programmes, that are using both the national and EU (RRF and ESIF) sources to provide grants for listed eligible EE and RES measures.



As was the case in previous observations, the small and medium enterprises do not have any special treatment, neither within EEOS nor in the AMs. Obligated parties within EEOS may opt to implement measures in SMEs, but that is up to their own business decisions. On the other hand, the obligated parties have the option of purchasing the energy savings. This could become an additional incentive for an SME to invest in energy efficiency measures with clear outcomes, as they might then sell the verified energy savings to the obligated parties. However, this market development has not yet been fully utilised. The low awareness about the system and the possible benefits would be a major obstacle to such market development.

As for AMs, they are, again, not specifically designed for SMEs. For example, grant programme for manufacturing industries from RRF is open to all enterprises, and the rate of such grant is differentiated only by the size of the company, with SMEs having the higher grant rate in accordance with state aid rules.

All these unconventional options are pointing towards a need to organize the information of SMEs about available possibilities with a market value.

Greece

Under Art. 7 of the EED, Greece had a target of achieving cumulated energy savings for 3,333 ktoe (140 PJ) between 2017 and 2020. In its National Energy Efficiency Action Plan of 2017, the government indicated several measures in different sectors to achieve this target. The measures expected to deliver the highest amount of savings were “energy managers and action plans for public buildings” (18 PJ) and “obligation schemes” (14 PJ). Data on achieved energy savings show that the energy managers delivered far fewer savings than expected (0.2 PJ), while the EEOS exceeded their target, reaching 61.4 PJ of cumulated energy savings. However, the total cumulated energy savings from 2017 to 2020 were 101 PJ, lower than the target of 140 PJ.

Greece’s EEO started in 2017 and is managed by the CRES, while the responsible authority is the Ministry of Environment and Energy. Obligated parties are electricity, gas, oil products suppliers or retailers whose market share is higher than 1%. The number of obligated parties was 35 in 2022. Obligated parties receive certificates (white certificates) for verified energy



savings and must achieve certified energy savings according to annual targets through their own efforts or by purchasing certificates from other obligated parties. There is no market platform for certificate trading, and the EEO excludes third parties from receiving and trading certificates. Penalties are foreseen if obligated parties do not fulfil their annual target. Actions tackling fuel poverty are eligible for a bonus factor of 40%. From 2017 to 2020, the EEO exceeded its target demand reduction by 80%, with annual savings growing from 7.3 PJ to 36 PJ.

A new cycle of energy savings is expected under the EED for EU countries from 2021 to 2030. Greece is expected to achieve cumulative energy savings of 7,229 ktoe (305 PJ) by the end of this period. In the government's plan, EEOs will account for 20% (61 PJ) of the total cumulative objective, whereas a total of 9 alternative policy measures are to be implemented to cover the remaining part of the objective. These include energy upgrading of public and private buildings; improving energy efficiency through energy service companies; energy managers in public buildings; upgrading pumping, lighting and transport infrastructures; and promoting alternative fuels in road transport.

Based on Greece's current National Energy and Climate Plan (NECP) of December 2019, there are two policy measures concerning the promotion of energy audits and energy management systems in SMEs, which are expected to be implemented during the period 2021-2030.

Moreover, several financing instruments can be used by energy service companies (ESCOs) that need financing to implement energy efficiency plans in order to better manage repayment thereof, while consideration will be given to extending their scope to SMEs.



Italy

The approach adopted in Italy to comply with EED art.7 includes both an obligation scheme and alternative measures. The measures notified in the art. 7 Annual Report³ are as follows:

1. Mandatory scheme - White certificates, managed by GSE
2. Alternative measure 1 - 'Conto Termico' (Thermal energy account), managed by GSE
3. Alternative measure 2 - Tax relief, managed by ENEA and Agenzia delle Entrate
4. Alternative measure 3 - National Energy Efficiency Fund, managed by Invitalia
5. Alternative measure 4 - 'Piano Impresa 4.0' [Business Plan 4.0], managed by the Ministry of Enterprises and Made in Italy
6. Alternative measure 5 - Cohesion policy, managed by the Italian Government Presidency of the Council of Ministers, Department of cohesion policy
7. Alternative measure 6 - Information campaigns, managed by ENEA
8. Alternative measure 7 - Sustainable mobility, managed by the Ministry for Transport and Infrastructures

These measures all contributed to the 25.5 Mtoe of cumulative end-use energy minimum energy target to be achieved between 2014 and 2020 under EED art.7.⁴ According to the National Climate and Energy Plan, also the energy saving target for the period 2021- 2030 will be achieved by this mix of policy measures, which will correspond to a cumulative estimated saving of 57.44 Mtoe (to be compared with the binding energy saving target of 51.44 Mtoe).

Most of these measures are not targeted only to SMEs, but they are focused also on this type of companies. SMEs can access White Certificate scheme but there is no public availability of data to identify them (employees and turnovers/balance sheets) throughout the scheme implementation. It is possible to identify a disaggregation on SMEs in terms of employees (1-49 Small, 50-249 Medium) on a sample of 850 energy proposals evaluated. A total of 497 energy efficiency measures are referred to SMEs split in half between medium and small

³ MiSE (2021) *Relazione annuale sull'efficienza energetica. Risultati conseguiti e obiettivi al 2020*. Italian Ministry of Economic Development. Available at: https://www.mise.gov.it/images/stories/documenti/IT_Relazione_Annuale_EE_2020.pdf.

⁴ According to the information in the Italian Energy Efficiency Annual report, the achieved saving was 23.24 Mtoe/year, 9% lower than the target.



enterprises (EU-Merci Project, 2017). The Thermal energy account can be accessed both by public administration and private parties, including businesses and enterprises (most likely small-medium sized ones). Private parties may apply for incentives only for small-scale projects concerning systems for producing thermal energy from renewables and high-efficiency systems. Costs for energy auditing and energy certification are also covered for some of the interventions, but only when associated with the above projects and subject to specific requirements. The audit must comply with the standard UNI CEI EN 16247. The public information on the overall incentive granted for audits implementation refers to the whole residential, part of the public administration and SMEs, with no further disaggregation.

SMEs can also use the tax reliefs on energy efficiency of buildings (Ecobonus)⁵ as well as the National energy efficiency fund, granting soft loans and guaranteeing financing operations for EE measures⁶. Businesses and particularly SMEs have not yet benefitted of the fund: reasonably this could be due to the complexity of administrative rules and to the difficulties in reaching the interested stakeholders (MiSE, 2021)⁷. Finally, the information campaign Italia in Classe A⁸ is targeted to, among others, both large enterprises and SMEs, in industrial and service sectors. It is aimed at raising awareness in the execution of energy audits, in the implementation of the actions suggested in the audits themselves and/or in the adoption of an energy management system compliant with the ISO 50001 standard. In this context, a survey has been implemented among those companies that provided a communication to ENEA of energy efficiency actions implemented and not incentivised through any existing energy efficiency support.⁹ According to this method it was possible to evaluate the energy savings due to the information campaign, but not disaggregating the results for SMEs.

Two of the alternative measures listed above have a relatively higher focus on SMEs, and they are represented by National Business Plan 4.0 and Cohesion policy.

⁵ Further information on the works eligible for support and the results obtained can be found on the ENEA information portal <https://www.efficienzaenergetica.enea.it/detrazioni-fiscali.html>

⁶ Further information available at <https://www.invitalia.it/cosa-facciamo/rafforziamo-le-imprese/fnee>

⁷ Same reference than in footnote 1.

⁸ Further information can be found on <http://italiainclassea.enea.it/>

⁹ Preziosi, M., Federici, A. and Merli, R. (2022) 'Evaluating the Impact of Public Information and Training Campaigns to Improve Energy Efficiency: Findings from the Italian Industry', *Energies*, 15(5), p. 1931. doi: 10.3390/en15051931

The first measure covers all the sectors of the economy and is aimed at enabling SMEs to equip themselves with tools capable of supporting their digital transformation¹⁰. Financial intermediaries are involved, aiming to further enhance a widespread use. This incentive, which is not in the art.7 policy mix, can be also cumulated with other existing measures, in particular the Guarantee Fund devoted to support innovation.

The second measure, cohesion policy, refers to the use of European funds¹¹. Both in industry and tertiary sector, SMEs are eligible to participate to the regional calls which could be open also to large enterprises. It is important to note that cohesion policy could be connected to the Ministerial Call for co-financing described in Question 1) point 3). Indeed, European funds, such as the European Regional Development Fund, could be exploited in the regional calls organised in the framework of this art.8 measure.

Malta

Malta's cumulative end-use energy savings target set in EED Art. 7 is expected to be met by a mix of policy measures, adopted during the obligation period, addressing the residential, transport, industry and services sectors and public sector.¹² No Energy Efficiency Obligation measures (EEOs) have been adopted to achieve this target. Moreover, the Energy and Water Agency is the entity responsible for the implementation of the provisions set in EED Art. 7.

In effort to achieve the target set out in Art. 7 of the EED, the Energy and Water Agency in collaboration with the Malta Enterprise has developed the 'Investment Aid for Energy Efficiency Projects' programme¹³. The subsidy programme aims to support enterprises in carrying out investments in technological solutions leading to improved energy efficiency and directly contributing to a reduction in energy consumption of the beneficiaries. The aid may be awarded either in the form of a cash grant or a tax credit or a combination of both.

¹⁰ https://www.mimit.gov.it/images/stories/documenti/investimenti_impresa_40_ita.pdf

¹¹ <https://politichecoesione.governo.it/it/la-politica-di-coesione/>

¹² Further information on the adopted policy measures may be found in Malta's 2030 National Energy and Climate Plan (NECP).

¹³ Further information on this programme may be found in the material provided as part of T2.2.



Although SMEs receive a higher aid intensity as per State Aid Regulations, thus making the scheme more attractive from a financial point of view, SMEs may lack the necessary in-house setup to look out for and tap into such opportunities. Furthermore, despite having an attractive grant, the return on investment (ROI) for certain measures may still be high. Consequently, this may discourage SMEs from investing in such measures.

Nevertheless, Malta is in the process of updating its National Energy and Climate Plan (NECP) which might possibly include new measures targeted towards SMEs.

Poland

According to KAPE, out of 2.15 million enterprises in Poland, 99.8% belong to the small and medium-sized enterprises sector. SMEs employ 6.8 million people and contribute 49.1% to GDP. The economic potential for energy savings estimated by KAPE in the entire sector of SMEs amounts to approximately 1 548 639 toe/year, which constitutes approximately 34.7% of total energy consumption in the sector. It is therefore difficult to overestimate the role that SMEs can play in the impression of Art. 7 in Poland.

Given such a huge potential for savings in the SME sector, it is very important, as it were, to force them to increase energy efficiency, which will bring economic benefits to the enterprise, as well as contribute to a positive impact on the environment. This goal is achieved mainly through various support systems, as described in the previous section, which enable the enterprise to increase energy efficiency, even without performing an energy audit.

Portugal

Regarding art. 7 transposition and the setting up of an energy efficiency obligation scheme, Portugal has opted for the alternative approach and that was notified to the European Commission in December 2013. The transposition of art. 7 was done by art. 4 and 5 of Decree-Law n° 68-A/2015, that refer to the cumulative goal of energy savings and the specific actions to achieve it. SMEs are not particularly referred in any case – the transposition is done considering enterprises in general.



The Intensive Energy Consumption Management System (SGCIE) was published on April 15th, 2008, through Decree-Law nº 71/2008. It was changed by the Law nº 7/2013 and later by the Decree-Law nº 68-A/2015, of April 30th. The energy savings from this programme are accounted to accomplish to the obligation set up in art. 7 of the EED.

Its objective is to promote the increase of energy efficiency through the modification of production processes, the introduction of new technologies and behaviours changes. The SGCIE applies for all companies and facilities (also named “Operators”), SME and non-SME that have an annual consumption over 500 toe/year, imposing binding energy audits, with an 8-year periodicity. Facilities under European Emissions Trading System (ETS) are not covered by SGCIE, but they may participate on a voluntarily basis, as can facilities with annual energy consumptions lower than 500 toe.

Intensive energy users are obliged to elaborate and execute Energy Consumption Rationalization Plans (PREn), establishing targets for Energy and Carbon intensity and Specific energy consumption, which also outlines energy rationalization measures. The Plan must be submitted through an online system to the Directorate General for Energy and Geology (DGEG), as well to submit biennial execution and progress reports. Upon DGEG’s approval, as the competent authority that supervises and inspects the SGCIE’s operation, PREn becomes a Rationalization Agreement for Energy Consumption (ARCE). By the end of each PREn period, operators must reduce their target indicators – Energy intensity and Specific energy consumption – in 4% or 6% depending on if they have reference energy consumptions over 500 toe/year or under 1000 toe/year respectively. They also must, at least, maintain Carbon intensity.

The ARCE provides facility operators with excise duty exemptions on oil (Imposto sobre Produtos Petrolíferos – ISP), electrical power and energy products (coal, oil coke, fuel oil, oil gases, and natural gas), as well as possibility to apply for incentives on energy audit costs and on investments in energy management and monitoring equipment.



Slovakia

Energy efficiency measures are focused mainly on decreasing the energy intensity of industry by realisation of measures identified in energy audits (eligible for SMEs only) and using other supportive measures for decreasing energy intensity in industry. The main support instrument is represented by financial sources from EU structural and investment funds (ESIF) used in Slovakia. Specific measure for energy audits in SMEs was set for Bratislava region, financed as a subsidy scheme from the state budget by Ministry of Economy. Slovakia do not use the EEOs, applying for alternative measures only.

Capacity and awareness building

The goal of the national project Energy professionally is to provide qualified information to specialists who are dedicated to the implementation of low-carbon measures, especially in the field of energy efficiency and the use of RES. The project, implemented by the Slovak Innovation and Energy Agency, is financed by the European Regional Development Fund through the operational program Quality of Environment.

The main activity of the project is the introduction of a system of regular advice and awareness raising i.e for energy managers, auditors and energy service providers - specialists for energy sector incl. industry and SMEs - refresher training of energy auditors, preparation of technicians for inspection of heating systems and air-conditioning systems, preparation of managers for business in electric energy industry, thermal energy industry and gas industry.

As a supplement to national activities, SIEA is also active in the field of international projects focused on the field of energy audits in industry. As part of the LEAP4SME project (Horizon 2020), the situation in the area of energy consumption, needs and barriers for energy audits in SMEs was analysed, information workshops for policy makers and stakeholders were held, and an illustrative information energy audit guide was also developed, taking into account the specifics of energy audits with SMEs, which met with interest among energy auditors and stakeholders from SMEs.

Operational Program Quality of Environment (2014 – 2020)



Under investment priority 4.2 Support of energy efficiency and use of energy from renewable sources in enterprises, there is Specific objective 4.2.1 Reducing energy intensity and increasing the use of RES in enterprises which aim is an introduction of a program to support energy audits for SMEs for objective determination of energy savings potential, on the basis of which they will design measures in the field of energy efficiency and use of RES. There were two activities planned – Activity A Execution and processing of energy audits in SMEs by professionally qualified persons and Activity B Implementation of energy measures energy audits. By supporting implementation of such measures will reduce the energy intensity of production in enterprises, thereby increasing them competitiveness.

United Kingdom

Prior to the UK's exit from the EU, the responsible authority for the implementation of Art. 7 of the EED was the Department for Business and Energy Strategy (now Department for Energy Security and Net Zero). Some aspects of implementation of Art. 7 were devolved to the governments of Scotland, Wales and Northern Ireland. The national policies under Art. 7 in the UK mainly targeted buildings in the domestic sector, through programmes such as the Energy Company Obligation scheme. Some policies aimed at the non-domestic sector also impacted SME, however there were no policies specifically targeting SMEs. A policy which impacts some SMEs are the building regulations for non-domestic buildings. The regulation requires new buildings to meet a minimum standard for thermal efficiency and efficient heating systems. The standard applies to existing buildings when extensions were planned, or heating systems were replaced. There isn't data available that shows how many SMEs were impacted by this policy, but the total savings achieved by this policy between 2014 and 2020 were 65TWh.

Smart metering in the non-domestic sector also contributed to the UK's activity under Art. 7. The Department for Energy Security and Net Zero and Ofgem, the UK's energy regulator led the roll out of smart meters. The rollout aims to improve the energy systems flexibility and encourage energy efficiency. Most of these non-domestic sites where smart meters are being installed are microbusinesses and SMEs. By June 2021, 1.1. million smart meters were operational in smaller non-domestic sites.



Climate Change Agreements is another scheme run by the UK government which may affect some SMEs. Under the scheme businesses can choose to enter a voluntary agreement to reduce their operational energy use and carbon emissions, in exchange for a tax reduction. Participating businesses which comply with the scheme requirements receive a discount on the Climate Change Levy, which is a tax applied to energy bills. Businesses that consume less than 1,000 kWh electricity or 4,397 kWh gas in an average month are exempt from this levy, so it's likely that smaller SMEs are not affected by this policy. The scheme has been in operation from 2013 till present. Participating businesses are required to meet sector-specific carbon reduction targets, which are measured against a base year for that sector.

NISEP is an annual £8 million fund collected from all energy consumers in Northern Ireland through a Public Service Obligation and is managed by Energy Saving Trust on behalf of the Utility Regulator in Northern Ireland. NISEP has been running since 2008 and was one of the ways that the UK complied with Art. 7 requirements. The aim of the fund and NISEP is to improve energy efficiency and secure a sustainable long-term energy supply. The fund is used to support domestic and non-domestic energy efficiency projects, although the majority of projects funded are aimed at the domestic sector. To apply for funding the Primary Bidders describe their project and the measures that will be installed and the resultant estimated energy, carbon and monetary savings.

2.3 Implementation of art. 8 in the project partner Countries and the role of SMEs

The following sections include the answers provided by individual countries relative to art. 8 and the role of SMEs (Question 2 in the Appendix). As already observed in the context of art.7, in most cases there is no obligation for SMEs to develop energy audit or to implement energy efficiency measures. At the same time, in most countries specific policies exist targeted to SMEs, in particular to support the development of energy audit on a voluntary basis.



Austria

In Austria, paragraph 8 EED is implemented with paragraphs 41–45 (including Annex 1) of the Energy Efficiency Act (Amendment BGBl. I 59/2023 of June 14, 2023). The Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology is responsible for the implementation of the EED, and the E-Control authority is designated as the national monitoring body.

Large companies are obliged to carry out energy audits (at least every 4 years) or install an acknowledged management system, but there is no obligation to implement energy efficiency measures. However, the energy audit reports shall document which recommendations from a previous energy audit report have been implemented and justify if recommendations from a previous energy audit report have not been implemented.

Large companies are companies that, alone or together with others in a group of companies, exceed the thresholds for a small or medium company. Small companies are companies with no more than 49 employees and with a turnover of no more than ten million euros or a balance sheet total of no more than € 10 million. Medium-sized companies are companies with no more than 249 employees and with a turnover of no more than € 50 million or a balance sheet total of no more than € 43 million, unless they are small enterprises.

SMEs play an important role in Austria, around 99.65 % of the companies in Austria are SMEs. According to the Austrian Energy Efficiency Act, SMEs are not obliged for themselves alone to carry out an energy audit or to implement energy efficiency measures. However, as part of a group of companies that all fall under the audit obligation for large companies (due to the fact that they are more than 50% owned by another enterprise or hold more than 50% ownership in other enterprises and have exceeded the thresholds for a medium-sized enterprise in the preceding calendar year in all enterprises related to them by more than 50% together), SMEs can fall under an audit obligation, too.

Regarding SMEs, § 41 (4) of the Austrian Energy Efficiency Act stipulates the following:

“Small and medium-sized companies can make use of energy services and can report the results to E-Control, in particular with regard to energy consumption and savings potential.”



The Austrian Energy Efficiency Act also defines in § 44 the requirements for the professional qualification or requalification of energy auditors and energy advisors. A regulation by E-Control, which will regulate the qualification and now also the requalification system for energy auditors and energy consultants in more detail, is currently under review.

Federal support programmes for energy consultancies in KMUs:

The federal support programmes are controlled by the nine provinces of Austria and are tailored to SMEs. Among other things, these programmes offer grants for consulting services, e.g. for energy checks in SMEs. The federal support programmes (regional programmes) have networks of qualified consultants for climate-relevant topics in SMEs in line with the Austrian Energy Efficiency Act.

There are also subsidies available for energy management systems that can be made use of by SMEs, which are handled by the Austria Wirtschaftsservice Gesellschaft mbH (aws): With the aws energy & climate program, the Ministry of Climate Action supports small and medium-sized companies in introducing an energy management system and build energy know-how (source: <https://www.aws.at/>).

Croatia

The topics of art. 8., energy audits and energy management, are most directly transposed within the Law on energy efficiency. Its art. 19 defines the obligation of the large enterprises to undertake mandatory independent energy audit at least once every four years. The mode of performing these audits, the conditions of issuing and cancelling the authorizations for performance of energy audits, and other related issues, are prescribed in the Ordinance on energy audits, issued by the responsible Ministry. Currently, this is the Ministry of Economy and Sustainable Development.

The Ministry also keeps the register of authorised persons to perform energy audits as well as the register of performed energy audits. The register is publicly available.

As said, the obligation applies only to large enterprise. The SMEs are not addressed by these legislative provisions, although the energy audits may be performed for them (on voluntary basis) by the authorised auditors and according to the prescribed audit methodology.



The large enterprises which introduce a system of energy/environmental management, are considered as compliant to the above-described legal requirement, without mandatory energy auditing, as the audits issued in scope of such management are acceptable. Here, a certificate issued by an independent body, compliant with EU/international standards, is understood.

The small and medium enterprises that are willing to do an energy audit, and introduce the energy management, are relying on the system established through these regulations, generally counting on the availability of auditors, validity of certificates and established channels. Therefore, the effectiveness of the auditing system for large enterprises would be an incentive for SMEs to do the audits, and the clearly exposed benefits.

The slow functional establishment of this system, the lacking market maturity of the auditing services, and the financing issues have a certain impact on the perceived reliability of auditing activities. These are, in principle, the main barriers to the effective transposition of the art. 8, as far as the small and medium enterprises are considered.

Greece

In compliance with Art. 8 of the EED, Greece implemented in December 2016 a requirement for large industry to either conduct an energy audit every four years, or implement an energy or environmental management system such as ISO 50001. The integrated management system in Greece was expanded in 2016 according to the ISO 50001 standard. Companies are not obliged to implement the measures identified in the audit, and the government does not provide support for conducting the audits or implementing the identified measures. SMEs will also have access to quality energy audits due to these policies.

The EED has been formally transposed into the Greek legislative framework with Law 4342/2015. The law provides a framework to promote energy efficiency measures and sets the institutional framework for carrying out energy audits. According to Art. 14 of this law, energy audits are designed to identify potential energy efficiency improvement measures and are applied independently to all final consumers, including domestic, commercial customers and small industrial customers.



A Joint Ministerial Decision (JMD) defines the procedures, requirements and guidelines of energy inspection on the premises and spaces of an industrial or building complex in order to guarantee effective and high quality services. Energy audits under schemes based on voluntary agreements between interested bodies and public organisations are carried out in accordance with the above requirements.

The competent ministry for the implementation of the EED in Greece is the Ministry of Environment and Energy. The Center for Renewable Energy Sources and Saving (CRESS) has been designated as the national body for the promotion of renewable energy sources, the rational use of energy and energy saving.

The existing framework for mandatory energy audits on large enterprises in Greece will facilitate the promotion of similar audits on SMEs and households. Furthermore, incentives will be established for implementing the energy savings measures proposed through energy audits not only to obliged large enterprises, but also to SMEs and households. Moreover, new measures will be developed to support the implementation of energy management systems in SMEs in order to keep improving their energy efficiency.

In 2023, the government introduced the “Energy Efficiency Improvement in SMEs” programme. The programme is co-financed by the European Regional Development Fund and the Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020. The programme has a budget of €700 million and aims to support energy efficiency improvements in 25,000 companies, of which 3,400 are new companies and more than 6,500 have research and innovation action plans. The programme provides a subsidy of 40% for each investment, from a minimum of €30,000 to a maximum of €1 million.

In Greece, there are some financial support programs, but SMEs do not apply to them due to bureaucracy and limited information on these available programs. This is related to limited human resources and often the lack of a dedicated person responsible for energy issues concerning SMEs. Other challenges include, among others: (a) poor understanding of the value and purpose of audits, (b) SMEs may be reluctant to undertake the audits to avoid any obligation to enact the recommendations of the auditors, (c) low confidence in audit process and (d) lack of expertise.



Italy

SMEs are supported under EED art. 8 by four main policies, belonging to different policy categories: 1) Energy intensive industry programme, including an energy tax relief combined with the obligation to develop an energy audit and devoted 2) Regional calls for developing energy audits and, in some cases, proposed energy efficiency interventions, which provide financial support when specific conditions are met 3) National awareness raising plan for SMEs, which is a communication-based tool.

- 1) This measure is devoted to all the electricity-intensive companies (large or SMEs), identified basing on the consumption threshold equal to 1GWh/y and belonging to specific manufacturing sectors. According to the Legislative Decree 73/2020 these companies are obliged to implement at least one of the energy efficiency measures identified in the energy audit. Energy audits of energy intensive SMEs are submitted to ENEA, following Legislative Decree. 102/2014, whereas the companies for which the tax relief is granted are listed by the Environmental Energy Services Fund - CSEA. An analogous scheme has recently been introduced for gas intensive companies (Ministerial Decree of Ministry of Ecological Transition n. 541, 21 December 2021).
- 2) Italian regions, since 2016, have promoted and supported the carrying out of energy audits in SMEs through the co-financing of national funds or using European funds (ROP, ERSF etc). The Decree of the Ministry of Economic Development and the Ministry of the Environment of 12 May 2015 started a program aimed at stimulating SMEs towards a more efficient energy consumption. The Ministerial Call for co-financing consisted of an incentive divided at 50% between individual Regions and Ministry of Economic Development, to finance the implementation of energy audits in SMEs (with a maximum contribution of € 5,000 per audit) or the adoption of an ISO 50001 certified energy management system (with a maximum contribution of € 10,000). Regarding the call for 2015, seven Regions have set aside almost € 11 million for the co-financing of energy audits of SMEs and for the adoption of energy management systems in accordance with ISO 50001. The initiative was repeated in 2016 and 2017 (€ 2,4 and 2,2 million respectively). Less than half of Italian regions



(seven out of twenty) joined the calls¹⁴ and only three, among these, achieved concrete and satisfactory results. In all the three cases the regional calls also included the financing of the energy efficiency intervention implemented after the audits. In a further case the extension to 100% of the contribution for the costs for the realization of the audits or for the adoption of ISO 50001 certification was introduced, as well as the establishment of a Subsidized Finance Fund aimed at supporting companies, in particular for the realization of interventions in energy efficiency and production from renewable sources. Regions were the managing authority for this measure, which was also mentioned in the National Climate and Energy Plan. Recently, nine regions have organized new calls, in most cases devoted specifically to SMEs, to support investments in energy efficiency and renewable energy. Depending on the chosen approach, the support is provided by non-repayable grants or soft loans, with the first being more common; in general, the calls are more frequently devoted to all sectors, with few of them targeting only specific sectors.

- 3) According to Legislative Decree 102/2014, as amended by Legislative Decree 73/2020, ENEA must carry out from 2021 to 2030 an annual program to raise awareness and provide assistance to SMEs regarding the development of energy audits and the implementation of the energy efficiency measures proposed. In the first year of implementation, the National awareness raising program included six events in five different regions¹⁵: the territorial dimension was crucial for ensuring the involvement of local actors (municipalities, regions, local business associations, professional orders, chambers of commerce) and in this way making the plan more effective. In total, 1300 participants and more than 20 business associations were involved.

¹⁴ For more information see Toro et al., 2022.

¹⁵ https://www.enea.it/it/sequici/events/pianosensibilizzazionepmi_2022/campagna-2022



Malta

In line with the provisions set out in Art. 8 of the EED, the Energy and Water Agency developed a subsidy programme ‘Promotion of Energy Audits in Small and Medium Sized Enterprises’¹⁶, aimed at encouraging all SMEs to carry out an energy audit. Moreover, through the aforementioned programme, SMEs are encouraged to engage with certified professionals (i.e., energy auditors) to conduct an energy review of the entity’s activities and identify cost-efficient energy saving options.

To date, around seventy (70) enterprises have expressed their interest in benefitting from this scheme. EWA noticed that the launch of the informational campaign on energy audits, which was targeted towards enterprises and focused on the multiple benefits derived from energy audits, has led to a significant increase in the uptake of this scheme. Furthermore, enterprises who benefitted from this scheme were also encouraged to use the energy audit report as a prerequisite to apply for the ‘Investment Aid for Energy Efficiency Projects’ scheme to implement the recommended energy efficiency measures.

With regards to barriers faced, the Agency observed that in some cases the funding received is not sufficient to cover the cost of the energy audit, reason being that the amount of the financial aid depends on the size and NACE code of the enterprise. Furthermore, in view of the lack of capital costs, SMEs, particularly small enterprises, may also find it difficult to pay the energy audit themselves in advance and then get refunded at a later stage.

The MERCA pilot project¹⁷ will, amongst other actions carry out a number of energy audits within the identified establishments to characterise the energy and water usage in the food retail sector, whilst assisting these outlets with the available opportunities to implement audit recommendations. The Agency will also gather information on the consumption patterns and savings achieved. In this way, enterprises will be able to assess their performance and potentially, similar enterprises can identify the opportunity cost of changing their productive processes. The project is also aiming to support the participating companies to implement some of the measures that are identified through the audits being carried out.

¹⁶ Further information on this programme may be found in the material provided as part of T2.2.

¹⁷ Further information on this project may be found in the material provided in T3.3.



In a similar way the GUEST project is being carried out within the accommodation sector, specifically targeting guesthouses. A number of audits are being carried out within this hospitality sector in order to help them identify improvements and also best practices that can be shared within the whole sector. Such projects have the aim of gaining insights of particular sectors but most importantly create collaborative and learning environments within these sectors.

Poland

Main acts on energy audits are Law of May 20, 2016 on energy efficiency (Journal of Laws of 2021, item 2166) and Law of April 20, 2021 on amending the Law on Energy Efficiency and certain other laws, which implements a provision of the Directive of the European Parliament and of the Council (EU) 2018/2002 of December 11, 2018 on energy efficiency.

Main article in the act is Art. 36 on the obligation to conduct energy audit of enterprise and auditing entities.

An entrepreneur within the meaning of the Law of March 6, 2018. - Entrepreneur Law (Journal of Laws of 2021, item 162), except for a micro, small or medium entrepreneur within the meaning of this Law, shall conduct an energy audit of the enterprise every 4 years or have it conducted.

There are not obliged to audit large companies if energy audit of the enterprise has been conducted as part of below systems:

- an energy management system as defined in the Polish Standard for energy management systems, requirements, and recommendations for use, or
- the environmental management system referred to in Art. 2 point 13 of Regulation (EC) No. 1221/2009 of the European Parliament and of the Council of November 25, 2009 on the voluntary participation of organizations in a Community eco-management and audit scheme (EMAS).



The Energy Regulatory Office (ERO) is responsible for verifying the obligation to perform an energy audit. The utility notifies the ERO that the obligation has been fulfilled. The ERO imposes a possible penalty for failure to perform the audit.

The requirements are implemented, and the Law provides for verification of the implementation of the Audit and the possibility of imposing a penalty of 5% of revenue - this is a large enough financial ailment that consciously no one evades the obligation, and unconscious non-implementation of the obligation is extremely rare as well. Rather, there are no barriers to fulfilling the obligation under Art. 36 of the Law.

Portugal

In Portugal, the EED implementation is the responsibility of the Ministry of Environment and Climate Action. The Directorate General for Energy and Geology (DGEG) under this Ministry is the entity responsible for EED supervision. EED was first transposed to national law by Decree-Law n° 68-A/2015, which also reviewed Decree-Law n° 23/2010 on cogeneration. For the implementation of the amendment of the Directive (Directive (EU) 2018/2002) the articles mentioned above were amended through Decree-Law n° 64/2020. Regarding art. 8 on energy audits and energy management systems, Portugal already had mandatory energy efficiency schemes in place, namely for Industry (SGCIE) and Transport (RGCE-ST) sectors, being the minimum criteria to its scope the annual energy consumption. Paragraph 4 of this article created the obligation of conducting energy audits by non-SMEs, which was transposed by art. 12 and 13 of Decree-Law n° 68-A/2015. Therefore, SMEs are not obliged to conduct energy audits, through the national transposition of EED art. 8, but may choose to do so within the Industry or Transport energy efficiency schemes in place.

Slovakia

Support for SMEs is concentrated in three main areas for which the Ministry of Economy of the Slovak Republic is responsible, and activities are implemented by SIEA. The first area is informational activities aimed at increasing information and awareness of customers, represented by the Live by Energy programme, which i.e. focuses on industrial enterprises, including SMEs. The second area is the support of improving the quality of energy audits and



the awareness of professionally qualified persons providing audits through the re-freshing training of energy auditors within the Energy professionally programme and the related information portal for energy specialists. The project of expanding the energy efficiency monitoring system (MSEE, operated by SIEA) with a specific updated and expanded module for energy audits/energy auditors is also related to this area. The third area is investment measures aimed at financing energy audits in SMEs (especially in the Bratislava self-governing region) and financing measures listed in energy audits, which are financed through Operational Programme Quality of Environment (administered by the Ministry of Environment, energy-related part administered by SIEA) and from the state budget (Ministry of Economy). A specific activity was the presentation of the results of the LEAP4SME project at the conference Energy Audit and Services / Tools for Efficiency (22-23/11/2022 in Banská Bystrica¹⁸) where some outputs and analyses from the project were also presented, and the handbook/booklet Energy audits – Practical guide for more energy efficient business was also of great interest to the auditors.

In the framework of ESIF investment projects, the following were identified as the main barriers, in particular, lack of knowledge and understanding of SMEs on the benefits of the audits; missing requirements on quality of the audits in the programs resulting in purchasing the cheapest, not the best audit; insufficient data provided by the auditors from energy audits in SMEs to the monitoring system; bureaucracy and long application approval process; limited SMEs capacity to properly apply for funds; necessity to better record the data and to provide funds for recommended measures.

United Kingdom

Since the UK's exit from the European Union, the UK is not required to follow the EED. However, while the UK was a Member State, it implemented the Energy Saving Opportunities Scheme (ESOS), to comply with the Art. 8 requirements. ESOS required large companies that meet certain criteria, to implement energy audits every four years. ESOS excludes SMEs, although in 2021 in a consultation issued by the national government, there was a proposal to

¹⁸ https://www.siea.sk/wp-content/uploads/poradenstvo/aktuality/2022/energeticky_audit_a_sluzby/SIEA_Energeticky-audit-a-sluzby_221122_PROGRAM.pdf



include energy-intensive and some larger SMEs in this scheme. To date, no changes have been applied to the ESOS scheme.

In the UK there are no regulations related to energy efficiency or audits that are specifically aimed at SMEs and there is no national government plan or strategy aimed at supporting SMEs with energy efficiency, energy audits or decarbonisation in general. Other regulations which impact SMEs directly include the non-domestic minimum energy efficiency standard, which requires owners of non-domestic rented properties to ensure that that the building has an EPC E rating. This requirement used to apply only to new tenancies, or when a tenancy was renewed or extended, but since April 2023 this requirement applies to all privately rented properties. Although this regulation is not specifically aimed at SMEs, it is more likely to affect them, because SMEs are more likely to occupy buildings with a low energy performance rating.



3 Integrating SME-targeted policies, programmes and initiatives with other policies

The following sections include the answers provided by individual countries relative to integrating SME- targeted policies, programmes and initiatives with other policies (Question 3 and 5 in the Appendix). Three main policy typologies emerge as being integrated with SMEs energy efficiency policies and programmes, namely: training and information campaigns, environmental policies and Innovation policies. Policy integration is observed for most countries, with a higher relevance of environmental policies, followed by the other two categories. In all countries SMEs are mentioned in National Recovery Plans.

Austria

The chart below shows the interfaces between the three main programmes addressing SMEs which are mentioned above:

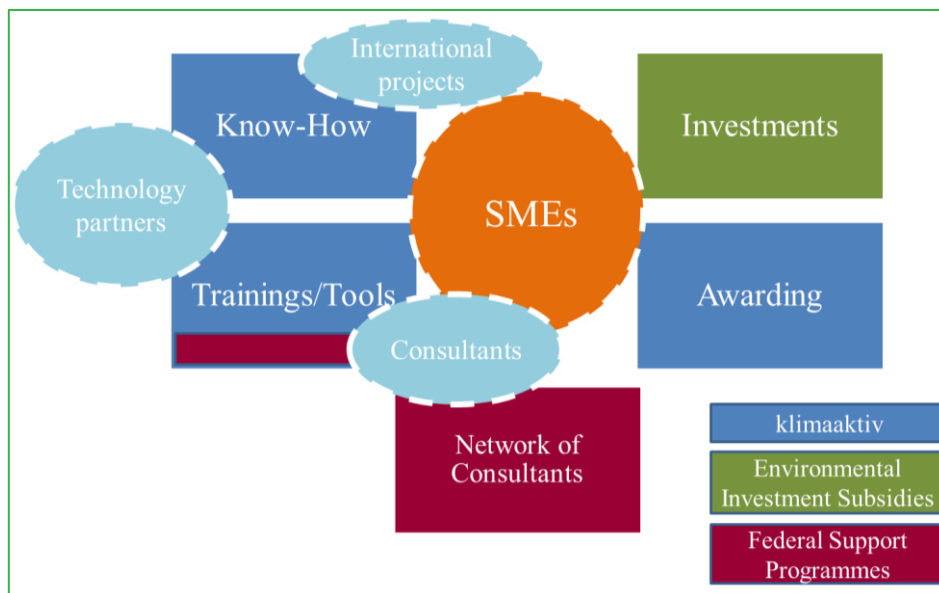


Chart by AEA: Energy Efficiency Network in Austria

- klimaaktiv programme (highlighted in dark and light blue) is connected to energy auditing according to § 41–43 Austrian Energy Efficiency Act
- Environmental investment subsidies (highlighted in green) for the implementation of energy efficiency measures are connected to saving final energy consumption
- Federal support programmes are connected to energy auditing according to § 41–43 Austrian Energy Efficiency Act

The klimaaktiv programme is the climate protection programme of the Austrian Government. Primary objectives are to introduce and promote climate-friendly technologies and services with high standards of quality. klimaaktiv gives advice to households, businesses and communities, cooperates with a large network of partners and provides education and training for professionals.

The klimaaktiv programme for businesses supports SMEs in climate-related actions and assists the government as well as federal provinces in climate protection initiatives. It is operated by the Austrian Energy Agency on behalf of the Ministry of Climate Action. As shown in the chart above (highlighted in dark blue and light blue) the main objectives of the klimaaktiv programme for businesses are:

- improve the know-how of energy experts of businesses and energy consultants e.g. by providing them audit guidelines to technologies like compressed air, ventilation, electric motors systems and steam systems and by organising webinars to present good practices;
- training energy experts of businesses and energy consultants in energy relevant technologies;
- awareness raising;
- awarding businesses who implemented good practices.

Croatia

Regarding art. 7, there isn't a specific programme, policy or initiative targeted specifically for small and medium enterprises. The relative policy framework could be regarded as relying on the Croatian national action plans for the energy efficiency, periodically brought for the



respective periods. Within this plan, the sectors of energy consumers are set as the buildings sector, public sector, industry and transport.

The small and medium enterprises mostly fall under the industry, considering also that the buildings are intersectoral group, and measures for them do apply to the majority of consumer subjects. The measures for the sector of industry are therefore regarded as referent for SMEs, mostly. Even so, the targeted measures are scarce, and based on the grants from the Recovery and resilience mechanism. The currently sole effective measure is a part of the “Incentivising the energy efficiency, district heating and renewables for the decarbonization of the energy sector”, the activity of the National recovery and resilience plan. This measure of the action plan pertains to the “increase of energy efficiency and use of renewable energy sources in the manufacturing industries”.

What may be of interest for SMEs, in the rationale for this activity, is the notion that the number of individual projects, among manufacturing industries, applied for financing in previous similar calls, was comparatively high. Based on this interest, it was concluded that the industrial companies in Croatia have a very significant potential for active increase of energy efficiency, for lower consumption, and for decrease of share of the fossil fuels. This measure from the action plan has grants targeted to such measures in manufacturing industries. It further aims to achieve a decrease of min. 20% of the supplied energy, relative to the referent figures, through obtaining a higher energy efficiency and through the increase of share of the renewables. The measures for the more energy efficient buildings within manufacturing facilities are also included, if they achieve at least 40% of the improvement, to the reference figures. Nominally, this measure is targeted for micro, small, medium and large industrial enterprises, privately owned.

Of other legislation, programmes and initiatives that could be of importance for small and medium enterprises, the National recovery and resilience plan can be regarded as a framework for support. Within this, the subjects that are applying their projects for other related programmes and schemes are supported.

From the industry and service sector, as far as the privately owned companies are regarded, it is mostly the SMEs that are preparing such applications. These applications are targeting the programmes like *Green Deal*, *Fit for 55*, *REPower*, and other of this kind. Although, the



REPower programme still needs to be developed to the effective level. Combined with such applications, the required co-financing and other support can be provided within the national plan. Also, the dedicated research programmes, like the *Innovation fund*, or the *Targeted scientific research* (within the *NextGenerationEU* framework), are aiming for the partnership between research institutions and micro, small, medium and large enterprises.

The recovery plans and measures for mitigation the impacts of “force majeure” (like COVID pandemic, earthquake and indirect consequences of the war in Ukraine) are of specific and temporary nature, and its energy aspects are marginally affecting the SMEs.

Few decades ago, a set of national energy programmes (NEPs) was started nation-wide, to promote and support the development of energy efficiency and renewable energy sources. The consecutive activities and programmes, that are partly descending from these NEPs were integrated into energy policies and initiatives of institutions and associations that are including SMEs. Most notably, the HUP (Croatian Employers’ Association), the HGK (Chamber of Economy) are frequently having the energy related issues on their agenda, and the SMEs form the largest part of their subjects.

The effective integration of policies, which pertain to SMEs, with other legislation, programmes and schemes in Croatian conditions, calls for a more thorough insight into the possibilities, viable combinations, and dissemination of information.

Greece

With regards to art. 7, over the period 2014-2020, none of the implemented measures was focused on SMEs. However, SMEs are anticipated to be supported in Greece through energy upgrading of private buildings and energy efficiency measures through ESCOs between 2021 and 2030.

About other policies, programmes and initiatives, three guarantee instruments facilitating access to finance for Greek SMEs are expected to be established by the signature of a contractual framework between Greece and the European Investment Bank (EIB), under which the European Investment Fund (EIF) will manage €400 million of the Recovery and Resilience Plan Greece 2.0 to help SMEs.



The EIF will implement three guarantee instruments: (a) the Sustainability Portfolio Guarantee, which will support financing of investments in climate action, energy efficiency and renewable energy in SMEs, (b) the SME Competitiveness Portfolio Guarantee which will support the competitiveness and growth of local enterprises and (c) the Innovation and Digitalisation Portfolio Guarantee, which will enhance access to finance of Research & Innovation-intensive Greek enterprises, and support the uptake of digital technologies and digital transformation.

In addition, there is the “Save-Business” Program, which is expected to be implemented with resources from the Recovery and Resilience Fund, amounting to €200 million. The program, which aims to improve the energy efficiency of SMEs, includes a special fund of €100 million for the tourism sector.

Moreover, to shield domestic consumers from the effects of the global energy crisis, the Greek government has announced a series of electricity subsidies on household tariffs, among others, including SMEs.

Italy

EED art.7 and 8 are not explicitly integrated but there are interesting interconnections, listed below:

- 1) In both the interventions implemented and identified by the mandatory energy audits (EED art.8), existing EE incentives are often directly used, or mentioned. According to the national energy audit guidelines, the identified interventions, resulting from the energy audits' recommendations, should be described in a business plan, to be developed with and without incentives. White certificates are often included in business plans from energy audits of companies in industrial sector, whereas tax reliefs are more common in energy audits of companies in the tertiary sector.
- 2) The obligation for energy intensive companies to implement at least one intervention in the four-year period between the mandatory energy audits, introduced in 2020 (EED art. 8)¹⁹, will contribute to the achievement of 2030 target. In this context, the information available from the energy audit database, in particular relative to the

¹⁹ Art. 8 comma 1 Legislative Decree 73/2020.



payback time with and without incentives and to different sectors, could contribute to monitoring the effectiveness of the measures to comply with EED art.7.

- 3) Regional calls are the only example of policy having a direct connection between the two articles. This connection refers to the non-obligated parties defined in EED art.8. Indeed, when regional calls employ cohesion funds, there is a connection between the two articles in terms of savings. In particular, the savings under the alternative measure 5 – Cohesion policy (industry and tertiary) may derive also from the implementation of energy audits in non-obligated companies and/or from the adoption of EE recommendations.
- 4) According to Italian legislation²⁰, by the end of March each year companies should provide a communication to ENEA on energy efficiency actions implemented and not incentivised through any existing energy efficiency support scheme. A share of the savings generated by these interventions is counted in art.7 EED, as deriving from communication and information campaigns. It should be considered that these interventions are implemented in both art.8 obligated and non-obligated parties.

Referring to other policies, programmes and initiatives, an integration exists both with decarbonization and innovation policies. In the first case, several regions have introduced new regional calls after the end of the Ministerial co-financing program described above (question 1 point 3), and these new initiatives often were not only or directly related to EE but primarily to decarbonization. In six Italian regions, plus two Autonomous provinces and one province, new regional calls to support energy efficiency interventions have been published in 2023, in some cases devoted also to renewable energy.

In the second case, several innovation policies devoted to SMEs exist, having direct or indirect impacts on energy efficiency, even if no direct information is available to quantify them. These are represented by:

- 1) Guarantee fund for SMEs;
- 2) Capital goods support scheme “Nuova Sabatini”;
- 3) National Strategy for innovative start-ups and SMEs;

²⁰ Art. 7 comma 8 of Legislative Decree 102/2014.



4) Sustainable Investments 4.0.

The guarantee fund for SMEs, mentioned in question 2, has been created by the Budget Law 1997 in Mediocredito Centrale and has been operational since 2000. It provides public guarantees to SMEs in manufacturing, construction and services and is the most important financial support measure for SMEs in Italy. The fund works in two main ways: direct guarantee and counter-security, associated to financing already guaranteed by mutual guarantee institutions or regional funds. A comparison of the access to the guarantee fund in several Italian regions²¹ shows that removing limitations in the fund functioning, such as reserves for counter-securities, improves SMEs access and reduces the corresponding costs.

The National Strategy for innovative start-ups and SMEs is a comprehensive framework aimed at facilitating the creation and the growth of new innovative companies. To do this, the Strategy provides a set of different support mechanisms to accompany new companies in different phases of their life, namely incubators, start-ups and SMEs; among these mechanisms, there is also the simplified access to the guarantee fund. At sectoral level, around 38% of innovative start-ups and 31% of the total number of innovative SMEs operate in the production of software, IT consultancy and related activities. In addition, a significant proportion of innovative start-ups (14%) and innovative SMEs (13%), are involved in scientific research and development.²² In both cases, there could be implications on the technologies available for energy efficiency improvements, for example in terms of systems for monitoring energy consumption or building energy management systems. Unluckily, the available data do not allow a combined analysis of the measure with indirect effects on the energy efficiency of companies.

The Capital goods support scheme “Nuova Sabatini” has been operational since 2014, and in December 2016 was aligned to the Plan Business 4.0, described above. The measure is relatively well known and used, thanks to the clearness in the access requirements and speed

²¹ Lavecchia, L., Leva, L. and Loschiavo, D. (2020) *Accesso diretto e indiretto delle PMI alle garanzie pubbliche: un esercizio di valutazione delle normative regionali*. Bank of Italy Working Papers n. 558. Available at: https://www.bancaditalia.it/pubblicazioni/qef/2020-0558/QEF_558_20.pdf

²² MiSE (2021a) ANNUAL REPORT TO PARLIAMENT Giancarlo Giorgetti Minister for Economic Development on the implementation and impact of policies in support of INNOVATIVE STARTUPS and SMEs. Italian Ministry of Economic Development.



in the process schedule. By contrast, the additionality of activated resources is relatively low, and it could be increased targeting the measures towards specific firms²³.

The last measure Sustainable Investments 4.0 only opened in May 2022, and thus it is not yet possible to examine its results.

Finally, in the National Recovery and Resilience Plan examples of measures having indirect impacts on energy efficiency can be found, and their implementation and monitoring could provide interesting insights.

Malta

Art. 8 of the EED requires Member States to encourage SMEs to undertake energy audits and subsequently implement the cost-effective recommended measures. In line with the provisions laid out in this article, the Agency believes that an energy audit shall lead to identification of energy saving opportunities within an organisation to eventually implement the cost-effective recommended measures to achieve a reduction in energy consumption. In view of this, the Agency believes that further harmonisation between the two articles may yield to better results and thus, energy auditing in SMEs may support EED Art. 7 implementation.

The Agency encourages SMEs to apply for schemes for the financing of energy audits and the implementation of energy efficiency projects. For instance, the Agency encourages SMEs benefitting from the 'Promotion of Energy Audits in Small and Medium Sized Enterprises' to apply and benefit from the 'Investment Aid for Energy Efficiency Projects' to implement the cost-effective recommended measures identified during the energy audit.

Considering other legislation, programmes and initiatives at national and local level, further to the support mentioned above as part of Art. 7 implementation, other support is being made available to SMEs²⁴. For instance, SMEs are being provided support through the Recovery and Resilience Plan (RRP) funds to undertake building renovation projects²⁵. Actions financed

²³ MiSE (2021c) *Relazione sugli interventi di sostegno alle attività economiche e produttive*. Available at: https://www.mise.gov.it/images/stories/documenti/RELAZIONE266_WEB2021.pdf

²⁴ One must note that energy savings arising from the support mentioned in this section is not being counted towards the achievement of the Art. 7 target.

²⁵ <https://fondi.eu/business-enhance/schemes-and-open-calls/renovation-of-private-sector-buildings/>



through these funds shall reduce the primary energy demand (PED) of the building by at least 30%.

Additional support for SMEs in the agricultural sector is also being made available through funds from the European Agricultural Fund for Rural Development programme²⁶. The funds being made available under this funding programme aim to support SMEs and agricultural holdings to undertake investments relating to rainwater harvesting and renewable energy among other priority areas. Consequently, since these funds intend to support SMEs to invest in rainwater harvesting, these also aim to address the energy-water nexus within the agricultural sector.

SMEs may benefit from the 'Smart and Sustainable Investment Grant' providing funding for businesses to undertake investments in equipment and machinery resulting in the business becoming more sustainable and energy efficiency in their operations²⁷. SMEs may also benefit from Invitation to Bid (ITB) schemes providing financial support for solar photovoltaic electricity generation²⁸.

Poland

Separate mechanisms should be planned to support and monitor energy consumption in SMEs (Alternative Mechanism) and SMEs should be supported, for example, by a programme co-financing the preparation of applications for the White Certificate system (Art. 7); Energy policy in the SME sector in Poland is partly contained in such documents:

- Energy policy Polish until 2040;
- National Energy and Climate Plan;
- Long-term building renovation strategy.

²⁶ <https://fondi.eu/what-funding-is-available/measure-4-1-support-for-investments-in-agricultural-holdings/>

²⁷ <https://www.maltaenterprise.com/sustainable>

²⁸ <https://www.rews.org.mt/#/en/tender/544-invitation-to-bid-itb-for-support-for-electricity-from-installations-producing-electricity-from-renewable>



At the local level, SME energy policy issues appear in documents such as:

- Assumptions for supply plans for: heat, electricity and gaseous fuels;
- Low-Carbon Economy Plans, etc.

There are financial support systems (mainly from the EU) managed by NFOŚiGW, PARP, Marshal's Offices (ROP).

Portugal

EED art. 7 transposition envisage energy savings potential through energy audits, not having into account the enterprise dimension, thus including SMEs and non-SMEs. On the other hand, art. 8 transposition accounts with the enterprise dimension, focusing essentially on non-SMEs. Thus, art. 7 and 8 in future should be directed to the same universe of enterprises, not having into account the enterprises' dimension, but their energy consumption, as it already happens in Portugal with the SGCIE system. These synergies may assist with the implementation of both articles.

Referring to the possible integration of SME-energy policies with other legislation, programmes and initiatives at national and local level, the following ones are worth to be mentioned:

- **National energy and climate plan 2030**, which aims to establish goals, objectives, policies, and measures regarding the reduction of greenhouse gas emissions, incorporation of energy from renewable sources, energy efficiency, energy security, internal market and research, innovation, and competitiveness, as well as a clear approach to achieve the objectives and goals.
 - Action 2.3: Ensure the improvement of the energy consumption management of the various sectors of the national economy.
 - Action 2.6: Encourage the research, development, and innovation in the field of energy efficiency.
 - Action 7.1: Promoting the industry decarbonization.
 - Action 8.4: Promoting information to consumers and enterprises contributing to better energy literacy and simplifying interactions with the market.



- Action 8.1: Ensure the fair energy transition.
- Decree-Law number 101-D/2020 of December 7th, which establishes the requirements applicable to buildings to improve the energy performance and regulates the Energy Performance Certificate System for Buildings. Special focus is placed on art. 34 related to financial incentives to support the building's renovation, in which point 4 mentions initiatives that promote scale solutions are encouraged, namely grouping of projects that allow access to investors and enterprises.
- Long-Term Renovation Strategy for Building, which aims to promote the energy renovation of the national building stock, improve its energy performance and progressive decarbonization, also contributing to the mitigation of energy poverty.
- Action 4 - Training and qualification: Increase the technical capacity of professionals in construction and energy, aligning it with the objectives promoting energy efficiency and buildings decarbonization.
- Action 6 – Information and awareness: Raise awareness of citizens and public companies and private for (non) energy benefits of renewal, providing them with information that enhances and facilitate the performance of interventions.
- Recovery and Resilience Plan, a strategic community instrument to mitigate the economic and social impact of the crisis, capable of promoting economic convergence and the resilience of the economies of the European Union, helping to ensure long-term sustainable growth and to respond to the challenges of the dual transition to a more sustainable society ecological and digital.
- Component 5: Capitalization and business innovation.
- Component 11: Industry Decarbonization.
- Energy Saving Plan (ESP) 2022-2023, is one of the instruments aimed at achieving the voluntary 15% reduction in gas consumption launched by the European Union Member States (“Save gas for a safe winter”). The ESP 2022-2023 includes separate measures for reducing energy consumption and enhancing water efficiency, with a particular emphasis on energy-related measures. Regarding its application scope, is divided in three sectors, namely: central public administration, local governments and private (including industry, commerce, and services, and residential).



Slovakia

Energy savings are delivered i.a. by realisation of measures identified in energy audits (eligible for SMEs only) and using other supportive measures for decreasing energy intensity in industry (e.g., information/awareness raising activities towards the customers and preparation of needed specialists for energy sector).

The main support instrument is represented by financial sources from EU structural funds used by 2023 in Slovakia. Specific measure for energy audits in SMEs was set for Bratislava region, financed as a subsidy scheme from the state budget.

It can be assumed that the use of proven types of financial instruments, provision of advice and update training for energy specialists will continue. The new tool will probably be just prepared regional centres for sustainable energy at the local and regional level, which can clarify the possibilities of savings at these levels and create an information base also for SMEs and micro-enterprises, considering their specificities, either by providing information and advice as well as by implementing one-stop-shop mechanisms for local energy, local entrepreneurs, municipalities/public sector or energy communities.

It is expected that the sector and subsequent activities will be affected by the transposition of the revised EED Directive.

Program Slovakia (Program Slovensko) (2021 - 2027)

The Slovak Innovation and Energy Agency, within the framework of the Program Slovakia managed by the Ministry of Investment, Regional Development and Informatization, implements in the years 2021-2027 measures aimed at supporting energy efficiency, the use of RES and the development of intelligent energy systems. In total, more than €900 million is allocated for this purpose.

Support for the industry sector will be provided within the Specific Objective 2.1 Support of energy efficiency and reduction of greenhouse gas emissions; Measure 2.1.1 – Improving energy efficiency in enterprises. The aid will be directed towards the transition to climate neutrality and the reduction of the energy intensity of businesses, especially SMEs. Energy efficiency measures for businesses will be supported if they are recommended in an energy



audit, where energy consumption is assessed and propose measures for three basic parts - buildings, technological equipment and means of transport (e.g. improving the thermal protection of buildings intended for business, improving the efficiency of existing equipment for the production of electricity/heat/cooling in enterprises, or their replacement for new more efficient devices, introduction of systems for monitoring, optimization and management of energy consumption, increasing efficiency of energy distribution)²⁹.

Recovery and Resilience Plan - K4 Decarbonization of industry (2021 – 2027)

It includes Reform 2 Cost-effective reduction of greenhouse gas emissions in industry, representing cost-effective support for the decarbonization of industry, while the introduction of the best currently available technologies (BAT) in industrial production and industrial processes will be supported. The Investment 1 Decarbonisation of industry activity will be used to compensate part of the investment costs necessary for the implementation of measures bringing the reduction of GHG emissions in sectors that participate in their creation in a significant volume, or have a high potential for reducing them through the introduction of cleaner production technologies. It is expected that the coordination mechanism will be established among different EU Funds providing sources of financing for decarbonization projects in industry³⁰.

Modernization Fund

State aid scheme for decarbonisation of industry is aimed at supporting decarbonisation and energy efficiency measures in industrial facilities that do not prolong the use of solid fossil fuels, which will lead to a significant reduction of greenhouse gas emissions, phasing out fossil fuels, better energy efficiency, as well as a just transition in carbon-dependent regions. Eligible projects are targeted to reduce or eliminate greenhouse gas emissions from industrial processes and aid aimed at increasing energy efficiency. Supported activities are:

a) installation and modernization of technologies for reducing GHG emissions in the production or the processing process through the innovation of material- and energy-intensive operations, by introducing the best available techniques (BAT) into industrial processes as a

²⁹ <https://www.eurofondy.gov.sk/program-slovensko/index.html>

³⁰ <https://www.planobnovy.sk/>



minimum requirements, including modernization, reconstruction or replacement of equipment, support for replacement of coal in combustion in industrial energy and technologies, increasing energy efficiency and support for the use of waste heat in industrial energy; b) measures related to changes in technological procedures for the purpose of reducing greenhouse gas emissions, including changing the configuration or electrification of production or processing equipment; c) energy efficiency in industrial facilities that do not prolong the use of solid fossil fuels and a reduction in greenhouse emissions will be achieved. Part of the activities should be supported by energy audits³¹.

Concerning the potential integration of SME-energy policies with other legislation, programmes and initiatives at national and local level, it is intention of SIEA to explore the interconnectedness of policies formulated in recast EU directives, market rules and transformation, design and control of energy systems incl. sector coupling at regional and local level and others transformed into legislative regulations, support programs financed from ESIF as well as new instruments responding to current developments.

United Kingdom

There are currently no plans in the UK for the audit scheme that was set up to comply with Art. 8 to be extended to SMEs, although if it were extended, it would be offer an opportunity to support SMEs. Similarly, the policies that were linked to the UK's compliance with Art. 7 requirements, could reference SMEs more explicitly and offer more targeted support.

Although there is no specific policy framework or strategy in the UK to support the decarbonisation of SMEs, there are policies which impact SMEs spread across a number of other strategies and frameworks. The UK has a national Net-Zero strategy to achieve carbon neutrality by 2050. There are also some sector specific initiatives which impact SMEs in those categories, for example the National Food Strategy outlines ambitions that would support the decarbonisation of SMEs in the hospitality and horticultural sectors. Aside from the Net Zero Strategy, other strategic documents published by the UK government which impact SMEs are the Industrial Decarbonisation Strategy; the Heat and Buildings Strategy; the Transport Decarbonisation Plan; the Hydrogen Strategy; Our Waste, Our Resources: A Strategy for

³¹ <https://www.mhsr.sk/energetika/modernizacny-fond?csrt=15532783669240793473>



England. The UK government also has strategies in place to support the growth, competitiveness and innovation of SMEs, these too may indirectly have implications for SME decarbonisation. For example, there is a target in the UK to increase procurement from SMEs by government and a plan outlining the ways to achieve this target.

The Heating and Buildings Strategy outlines the UK's plans to decarbonise buildings in the domestic, commercial, industry and public sector. The strategy acknowledges that the financial products to support SMEs with decarbonising their buildings is limited and mentions that finance institutions are working to understand what type of financial products could support SMEs.

The Industrial Decarbonisation Strategy focuses on the decarbonisation of larger businesses within industry but references some actions to support smaller business by helping them to combine purchasing power and benefiting from economies of scale.

The Travel Decarbonisation plan includes plans to encourage businesses to use more sustainable travel options and makes reference to a travel reward scheme supported by businesses.



4 Energy vulnerability and Energy Poverty

4.1 Overview of Energy vulnerability and Energy Poverty concepts

In the last years energy poverty themes have attracted a steadily increasing attention from European and national policy makers. The recently approved EED Recast (2023/1791) introduces a definition of energy poverty in art.2:

‘energy poverty’ means a household’s lack of access to essential energy services, where such services provide basic levels and decent standards of living and health, including adequate heating, hot water, cooling, lighting, and energy to power appliances, in the relevant national context, existing national social policy and other relevant national policies, caused by a combination of factors, including at least non-affordability, insufficient disposable income, high energy expenditure and poor energy efficiency of homes.

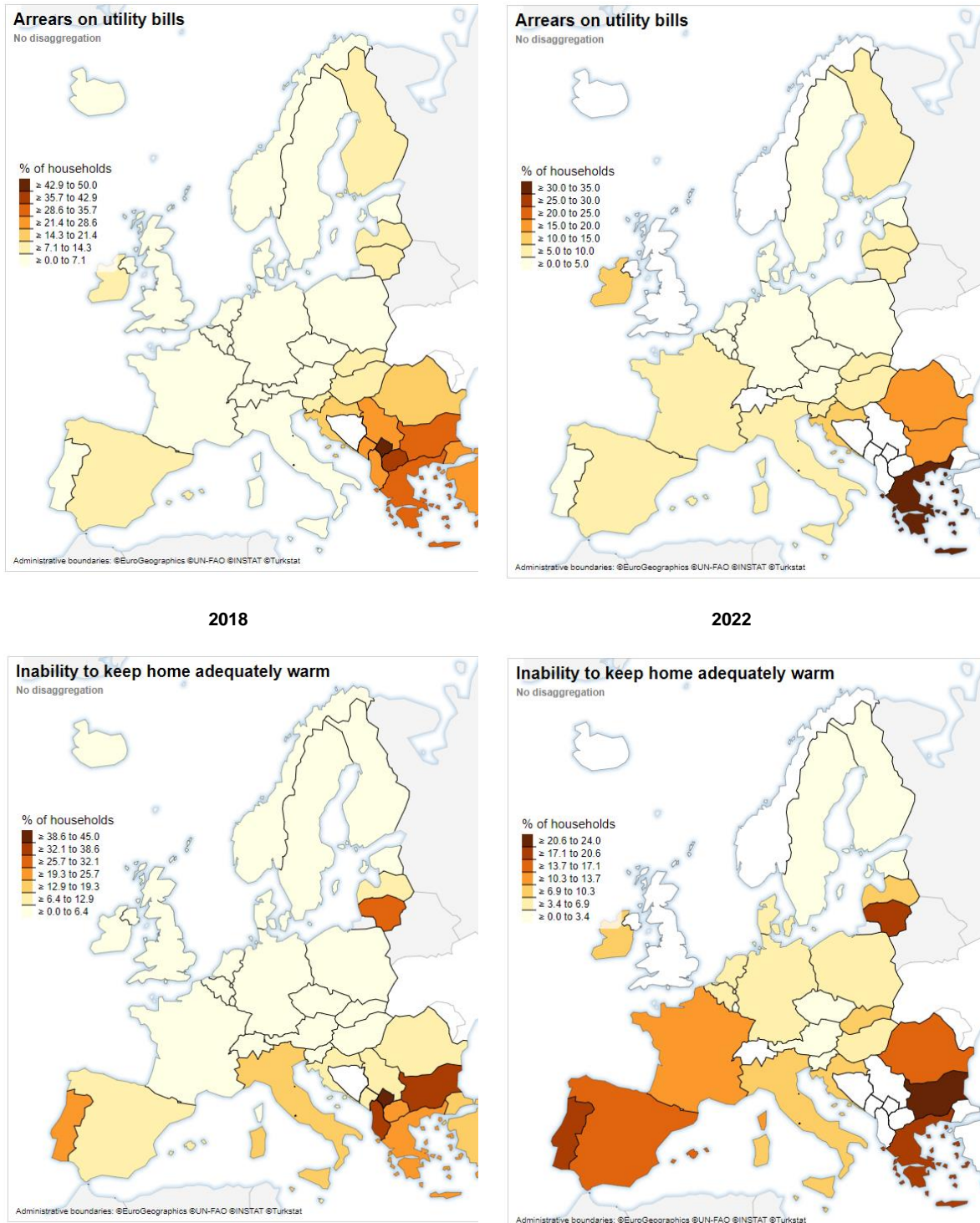
The approach previously adopted by the Energy Poverty Advisory Hub (EPAH) is relatively in line with the new definition. Indeed, EPAH considers energy poverty associated to the inability of households to ensure their energy needs: as such, it can derive from different causes and different policy solutions may be appropriate depending on the context. For example, energy poverty could be associated to the access to energy, with long periods of power outages, or to the adequate availability of energy services, relative to heating, cooling or other required energy services. A different perception of this phenomenon was observed in different MS as well as the lack of a harmonised definition and measure³².

Energy poverty affects a growing number of European households, also due to the pandemic and the energy crisis. For example, Figure 1 shows two EPAH indicators, namely the share of population having arrears on utility bills (above) and difficulties in keeping home adequately warm (below), comparing 2018 and 2022.

³² European Energy Network (2019), EnR Position Paper on Energy Poverty in the European Union, <https://www.energiaenergetica.enea.it/vi-segnaliamo/enr-position-paper-on-energy-poverty-in-the-european-union-january-2019.html>



Figure 1 – Comparison of EPAH indicators “Arrears on utility bills” and “” in 2018 and 2022



Source: EPAH, <https://indicator.energypoverty.eu/>



Energy poverty can be measured using several indicators, which are able to assess different aspects of the problem and considered together are able to provide a comprehensive picture³³. Information at national and local level is available on EPAH website, using the EP indicators' dashboard and its four macro areas identified by the Covenant of Mayors, namely Climate, Facilities/Housing, Mobility, Socioeconomic aspects. Each macro area is divided into subtopics and a breakdown of indicators by dwelling type, income decile, tenure type and urbanisation density is also possible.

The information basis provided by EPAH is aimed to serve as a guiding framework for national and local mitigation actions. The phenomenon has social, economic, political, environmental and health implications and thus it is relevant for the European governance and policy strategy at different levels³⁴. Indeed, several NECPs tackled the issue already in 2020 and in the current updating process.

Already with the Clean Energy for All Europeans package, the European Commission proposed a range of measures to address energy poverty through energy efficiency and safeguards against disconnection. Energy poverty is mentioned in key legislation, namely the Energy Efficiency Directive (2018/2002), the Energy Performance in Buildings Directive (2018/844), the Governance Regulation (2018/1999) and Electricity Directive (2019/944). It is important to mention that, when the energy market is considered, a criterion to define consumer vulnerability could be the energy poverty condition, but between the two concepts a distinction remains, as shown in Directive 2019/944.

As specified in the Directive 2018/2002, energy efficiency should be considered as complementary to social security policies when tackling energy poverty at MS level. Particular attention should be devoted to the accessibility to energy efficiency measures for consumers affected by energy poverty as well as to their cost-effectiveness and affordability. When

³³ For an overview of all available indicators, the report https://energy-poverty.ec.europa.eu/discover/publications/publications/epah-report-energy-poverty-advisory-hub-national-indicators-uncovering-new-possibilities-expanded_en can be accessed, which update previous EPAH report "National Indicators: Insights for a more effective measuring"(Gouveia et al., 2022).

³⁴ Papada, L. and D. Kaliampakos (2018), A Stochastic Model for energy poverty analysis, Energy Policy 116, 153–164.



designing the measures to fulfil energy saving objectives, MS could require “a share of energy efficiency measures under their national energy efficiency obligation schemes, alternative policy measures, or programmes or measures financed under an Energy Efficiency National Fund, to be implemented as a priority among vulnerable households, including those affected by energy poverty and, where appropriate, in social housing” (art. 7). The EU Regulation 2018/1999 sets out that Member States in their NECPs assess the number of households in energy poverty (art. 3) and monitor the trend of the phenomenon as well as the policies and measures addressing it. Furthermore, according to Directive 2018/844, MS could define their own criteria to take into account energy poverty and establish which are the relevant actions for its alleviation, to be outlined in their long-term renovation strategies (art.2). In the Directive 2019/944 (Electricity Directive), art. 28 and 29 deals with vulnerable consumers and energy poverty.

As specified at the beginning, the recast process of the EED has focused a higher attention on energy poverty: beyond having introduced an official definition, a specific article is also devoted to energy poverty (art. 24) and obligations are set for energy savings in art. 8 and 9.

4.2 Energy poverty concept applied to micro-enterprises and small family businesses

The following sections include the answers provided by individual partner countries relative to 4.2 the potential application of the energy poverty concept applied to micro-enterprises and small family businesses (Question 4 in the Appendix). According to these answers, in most countries an official definition of energy poverty does not exist and when existing, it does not include business. In several countries support measures for vulnerable firms are in place and in one case also for a specific sector considered more vulnerable.

Austria

To address households at risk of energy poverty a quality standard and training with 4 modules was developed within the klimaaktiv programme. This energy consultancy training was created for social workers, who have direct contact to households at risk of poverty.



AEA is partner of the EU project ENPOR, within materials for energy consultancy households at risk of poverty were developed³⁵.

Energy poor households are also addressed by the new Austrian Energy Efficiency Act: The definition of beneficiary households (meaning either low-income or energy-poor households) is laid down in § 37 Z 3. Energy suppliers above a certain energy sales volume must set up counselling centres for end consumers and also address the needs and opportunities for beneficiary households. Also, the federal government shall implement appropriate measures in such a way that, in relation to the cumulative final energy savings of at least 570 PJ, the savings for households shall amount to at least 34% and additionally for beneficiary households to at least 3%. In addition, a coordination office for combating energy poverty has to be established.

Support for very small businesses:

“In addition to the energy cost subsidy for companies, which was implemented as a special subsidy for energy-intensive companies due to the Ukraine war, micro and small companies are supported based on the Company Energy Cost Subsidy Act (UEZG) as part of a flat-rate subsidy model, analogous to the "Energy Cost Subsidy for Companies" funding guideline. The energy costs of the company in 2022 are used and these are to be halved (optional: doubling of the energy costs in 2021). Of this, 30% is funded at a flat rate according to levels. The subsidy amount after the lump sum is at least € 300 (this corresponds to € 2,000 in energy costs) and maximum of € 1,800 (with € 12,000 in energy costs)”³⁶.

Croatia

In Croatia, the applicable definition of energy poverty is not yet in place, nor the criteria or methodology for establishing that status. In the expert literature, two mostly used definitions of energy poverty are considered:

- households that need to spend more than 10% of its income to keep the housing adequately warm, and

³⁵ <https://www.enpor.eu/de-AT/>

³⁶ https://www.bmk.gv.at/service/presse/gewessler/2022/20220928_energiekostenzuschuss.html



- inability to heat the housing and cover the basic energy needs up to the socially acceptable level.

In the absence of other definition, some substitute indicators are taken into account, in line with EU statistical practices, like:

- the inability of the appropriate heating of the housing,
- due obligations in unpaid energy bills, and
- deteriorated conditions in the building (regarding roofing, walls, floors, foundations, windows etc.).

With such insights, some pilot programmes were initiated, in the frame of the Programme of energy refurbishment of family housings until 2020 (a new Programme until 2030. is in the drafting phase). They are considering co-financing, up to 100%, of the most vulnerable groups of citizens that are the owners/co-owners of a family housing. The implementing body here is the national Fund for energy efficiency and environmental protection. The implementation model for such programmes is set in four steps: 1) a detailed analysis of needs and priorities, 2) signing of a contract between the local authority (county) and the Fund, 3) implementation activities by the county, and 4) reporting.

There is no stipulation of micro-enterprises and/or small family businesses in these plans, or any other regulation that may be dealing with energy poverty. Hence, such enterprises can only apply to programmes of energy poverty mitigation by means of being owners of the housings which comply with the above prescriptions. Therefore, only the family businesses could fall under the definition which could qualify them for such supports.

Specifically, the areas which were affected by the earthquakes in Croatia in 2020 have specific measures for the reconstruction, where the SMEs from these areas are included. Further, there are government financial and fiscal measures aimed for the mitigation of the consequences of COVID pandemic, in which a significant portion of SMEs was included. These mitigating instruments are of temporary nature and do not specifically target the energy poverty.



In the future, the specific measures for the mitigation of energy poverty could be defined for distinguished groups of micro-enterprises and small family businesses. For example, the enterprises with the status of OPG (family agricultural business) have the specific energy issues and possible vulnerability that can be addressed through such measures. For a large portion of other micro and small businesses, the Croatian Chamber of trades and crafts, as a business association, is the institution that could be a pivotal in proposing and shaping the policies regarding energy poverty at SMEs.

Greece

Greece's NECP notes that energy poverty has been increasing and that reducing it is an important policy priority; the objective is to reduce it by at least 50% by 2025 and bring it below the EU average by 2030. The government estimates that in 2021, 17.5% of the total population and 36.7% of economically vulnerable consumers were unable to adequately heat their homes; these figures are higher than the 8% average for the European Union. In September 2021, Greece released an Action Plan to Combat Energy Poverty, which gives a quantitative definition of energy poverty and defines a broad strategy backed by specific measures to reduce energy poverty. The plan includes measures to raise consumers' awareness of existing programmes and indicate that improving building energy efficiency is key to reducing energy poverty.

Regarding energy poverty in SMEs, it has been concluded that the smaller a business is, the greater its inability to pay its energy bills. While, based on the different geographical region, there are no big differences. Annual turnover, on the other hand, plays a key role. Thus, we observe that of all businesses with revenues almost up to €50,000, 1 in 5 have unpaid bills. As the turnover increases, the percentage of businesses that owe steadily decreases to reach businesses with revenues of more than €300,000, with the result that only 1 in 20 owes. The same trend is confirmed by the distribution of unpaid bills based on the number of employees. The largest percentage of unpaid bills (18.9%) is observed in companies that do not employ staff. This percentage is constantly decreasing as we look at companies with a larger number of employees, to reach companies with more than 5 staff having arrears at 7.2% of the



companies. Overall, the Greek government has been less effective in tackling the energy poverty challenge facing SMEs.

Italy

According to the Integrated National Energy and Climate Progress Reports process, MS should measure and monitor of energy poverty. Italy used new energy poverty definition and measure in its 2017 National Energy Strategy, and later on, in the Integrated National Plan for Energy and Climate (NECP). The indicator, applied to residential sector, combines three elements: 1) the presence of a high level of energy expenditure, measured by a share of energy costs more than twice the average share of energy expenditure; 2) total expenditure below the relative poverty threshold, associated to a household budget, after energy costs are deducted, below the national poverty line set by the National Statistical Institute; 3) a null value for the expenditure on heating, detected when total expenditure is below the median.

Although energy poverty has been usually associated to household sector, new literature contributions, start to suggest that energy poverty could be an issue also in the productive sector. In this context, energy poverty could be referred to: inadequate heating levels, when the business premises coincide with the family residence; risk that electricity is an obstacle to the firm's operations, due to scarce financial resources; low access to energy carriers.

Several policy approaches are employed to mitigate energy poverty by Member States and they can be grouped in three main categories: a) support mechanisms which lower energy cost by bill discounts or alternatively lower prices for specific customers; b) energy consultancies and information campaigns, aimed at promoting efficient energy use; c) financial tools to sustain structural energy efficiency investments.

The policy tools in the categories above are devoted to energy poverty mitigation in the household sector, but similar tools are in force for the business sector, although not explicitly aimed at fighting energy poverty. Indeed, a first group of support policies for SMEs are conceived to sustain energy efficiency and innovation; directly or indirectly, they are likely to affect the capacity of the firm to afford energy expenditures. A second group of support for SMEs is associated to the covid pandemic first and then to the energy crisis: national



government should sustain business sector, which experienced exacerbated difficulties in satisfying its energy needs and in remaining active on the market.

Relative to the first group of policies, the energy efficiency policies have been described in a previous question. Three main policies exist in Italy devoted to support innovation in SMEs, having indirect consequences on energy expenditures and energy efficiency: the Guarantee fund for SMEs, the Capital goods support scheme “Nuova Sabatini” and the National Strategy for innovative start-ups and SMEs; in May 2022 a new measure was created, named Sustainable Investments 4.0

The Guarantee fund is the most important financial support measure for SMEs in Italy: operational since 2000, it provides public guarantees to SMEs in manufacturing, construction and services. To access the fund, the bank has to verify the eligibility of the firm through a scoring system designed to minimize the default likelihood and thus to ensure the financial sustainability of the fund. The fund works in two main ways: direct guarantee and counter-security, associated to financing already guaranteed by mutual guarantee institutions or regional funds; it was reformed in December 2017, in order to better reflect the actual financial constraints of SMEs. The National Strategy for innovative start-ups and SMEs aims at facilitating the creation and the growth of new innovative companies and providing different support mechanisms, among which the simplified access to the Guarantee fund. The Capital goods support scheme “Nuova Sabatini” has been operational since 2014, and in December 2016 was aligned to the Plan Industria 4.0, allowing an increased contributions for SMEs investing in the material and immaterial goods included in a specific list (Investments 4.0). Beneficiaries can access the measure only with bank financing or financial leasing, with a coverage until 100% of the investment; Nuova Sabatini can be cumulated with other existing incentives, also with the Guarantee Fund.

Referring to the second group of policies, examples of interventions during the covid pandemic are represented by deferral of tax payments, temporary provision of more generous welfare payments and income support, waiving or deferring employer and self-employed social security contributions, moratorium on debt repayments, packages to help SMEs address cash flow needs and diversify export markets. To face the recent energy crisis, specific provisions in the Guarantee fund have been introduced to support energy efficiency investments, and



accrual of energy bills have been introduced, as well as tax rebates in energy bills. The Fund for supporting businesses damaged by the Ukrainian crisis has also been created in May 2022, aimed at providing aid in the form of a non-repayable grant to SMEs suffering economic repercussions of the energy crisis.

Finally, it is worth mentioning that energy poverty solutions for the household sector could be beneficial also for enterprises, in particular when new plants from renewable sources can be used in combination by households and businesses, as in a recent project in Saragossa³⁷.

Portugal

Currently, there is still no approved definition of energy poverty, however, the Portuguese government has outlined a long-term strategy, still waiting for final approval, to fight energy poverty that considers three vectors as essential for someone to be in energy poverty: energy costs; low income and the energy performance of the building. There is also a social energy tariff that is assigned exclusively to residential consumers, so we can say that currently in Portugal the focus is more on this type of consumer.

In the referred strategy, all monitoring indicators are also focused on residential consumers, with no indicators for companies. The only current form of monitoring SME is through the energy performance certificate that allows identifying the energy performance of the installation.

In future terms, the analysis of energy poverty in small enterprises requires data crossing, which allows characterizing for this type of organizations, which financial results were obtained, the weight of the energy bill in their results and the energy performance of the installation, allowing the creation of properly targeted incentive programs.

Current incentives for energy poverty also focus exclusively on residential consumers, so support for small businesses exists, but without the focus on energy poverty, only on improving the conditions of the installation where they are located. There is also no standard technical

³⁷ https://energy-poverty.ec.europa.eu/system/files/2022-02/EPAH_inspiring%20cases%20from%20across%20Europe_report_IT.pdf



support for private companies, which must resort to technical services available on the market and at a cost.

Although currently energy poverty is not focused on companies, the reality is that companies with lower income need more support to participate in the energy transition, for this, it will be necessary to create a plan to monitor and identify companies in a more vulnerable situation and create specific actions for these entities, such as access to decentralized energy production solutions under more beneficial conditions, for example in collaboration with municipal entities. This will allow to reduce their energy bill. By integrating companies in a more vulnerable situation, it will be possible for them to have better conditions to create value in their product, be more competitive and at the same time contribute to improving national indicators related to energy and climate.

Carrying out a superficial analysis at the sector of small business, there are some important barriers that have to be overcome, because many of these buildings haven't an energy certificate, which can lead to measures that do not meet to their real needs as well the lack of literacy to understand the behaviours and the energy built.

However, there is space to integrate this target of business in some measures to mitigate the energy poverty at this sector as for example:

- Dissemination of mechanisms for changing behaviour in energy use, resulting in savings in energy bills, comfort, and environmental benefits;
- Strengthen advisory and assistance structures to promote incentive systems and increase energy efficiency;
- Financial support for renewable energy;
- Energy literacy.

Within the scope of renewable energies, the Renewable Energy Communities (CER) can also play an important role here as an instrument for promoting and developing the value chain and cooperation between the different sectors in a global sustainability logic.

In this way, there is a great opportunity for energy communities and collective self-consumption in the fight against energy poverty and in the promotion of collaborative, solidary and participatory consumption.



Slovakia

In the previous several years, the preparation of the Concept for the protection of consumers meeting the conditions of energy poverty was underway in the Slovak Republic. At the meeting on January 25, 2023, the Government of the Slovak Republic took note of the concept developed by the Regulatory Office for Network Industries (RONI/ÚRSO)³⁸. At the same time, on February 8, 2023, a supra-departmental working group was established at the RONI, whose task is to develop a draft wording of the definition of energy poverty and a draft of related legislative amendments in the course of 2023.

The concept proposes a methodology for defining energy poverty, not a specific definition of energy poverty, because it is a complex topic that combines aspects of social policy, energy policy, the socio-economic situation of society and individual consumers in households, and the RONI does not have legislative competence or enough data on all relevant aspects related to the socioeconomic social situation.

The concept also includes a proposal for framework measures to address energy poverty and is focused almost exclusively on households, as there is a link between energy and income poverty. It does not focus on other consumer categories such as e.g. businesses. In the conditions of the Slovak Republic, the availability of the necessary amount of energy and water is mainly a question of the financial situation of households and not a physical lack of energy and water. In the near future, RONI recommends solving possible situations regarding social assistance through existing tools and at the same time systematically building a system of support for energy-poor households based on relevant data and expert analyses.

The proposed measures deal mainly with the issues of tariffs, payment schedules, energy measurement and amendments/expansion of definitions in legislative regulations, but also tax incentives, targeted financial support, increasing the availability of measures to increase energy efficiency and renewable energy sources from public sources, consultancy/provision of information and the involvement of local governments. The practical application of the measures can also have an impact on SMEs, e.g. to building administrators/managers, energy consultancy specialists or one-stop-shop services and regional centres for sustainable energy

³⁸ <https://rokovania.gov.sk/RVL/Material/27993/2>



or energy efficiency monitoring, but also for SMEs focused on the thermal renovation of buildings (thermal insulation) and their energy equipment or the provision of services in the field of energy supply by municipalities through e.g. energy communities with their participation.

United Kingdom

The Energy Company Obligation is the government-run, national support scheme in the UK aiming to address energy poverty. The scheme is focused on the domestic sector only and does not support businesses. While the UK has a definition for energy poor households, there is no definition of energy poverty for businesses.

In the context of the energy crisis and the covid-pandemic, the financial strain on small and medium sized businesses is acknowledged but support for businesses struggling with the cost of energy has been limited. The Energy Bill Relief scheme offered businesses financial support during the energy crisis; however, this scheme did not address issues of energy efficiency and reduction of energy demand.

The Federation for Small Businesses, a trade association representing the interests of small businesses in the UK, conducted a survey of its members in 2022 and found that 96% of businesses were concerned about the cost of energy and 38% were extremely concerned. There are therefore calls for the UK government to do more to support businesses with the rising cost of energy through policies such as: setting a maximum price for per unit of energy; providing more financial support with the cost of energy; reduction of business taxes; offering protections to business energy consumers that are similar to those offered to domestic consumers, e.g. protections against disconnection; grants to invest in energy audits and energy efficient measures; tackling the issue of split incentives within the commercial rental market; and improving access to resources and support to help businesses become more energy efficient.



Comments from other countries

In Malta due to climatic characteristics, and typically low household energy consumption, the concept of energy poverty is addressed within the wider context of vulnerable and/or poor households. Measures are therefore generally intended to alleviate poverty in general within households rather than micro-enterprises and businesses.

In Poland, there is no legal definition of energy poverty even among households. Moreover, the problem of energy poverty of micro and small family businesses is not solved and almost nothing is happening in this direction in Poland.

Key messages from individual countries

The most interesting messages from individual countries can be summarized as follows:

- Family business is entitled for specific support measures.
- Specific groups of micro-enterprises and small family businesses, for example in the agricultural sector, may be characterised by possible vulnerability which can be addressed by targeted support measures.
- A correlation may exist between the dimension of a business and its inability to pay its energy bills.
- SMEs may have a limited capacity to afford the costs of standard technical support.
- There is a lack of data on the SMEs, for example in terms of the weight of the energy bill on total expenses of the energy performance of the installation: in order to develop effective incentive programs, these data would need to be merged with financial information at firm level.
- Companies with lower income are likely to need more support to play their role in the energy transition, for example they could be better enabled to access decentralized energy production solutions by connecting them with municipal entities and introducing beneficial conditions.
- Reducing the vulnerability and improving the access to energy would create other benefits for SMEs, for example increasing their competitiveness, improving the structure value chains and contributing to the long term national targets.



- Often SMEs have a limited technical capacity to plan effective and well dimensioned EE interventions as well as the energy literacy to understand the implications of their consumption behaviours. This requires targeted training and advisory activities, without which the vulnerability of such firms is likely to increase.
- Energy communities could play a relevant role in both reducing energy poverty at household level and decreasing the risk of energy vulnerability for SMEs.
- Existing measures to mitigate energy poverty may also have indirect effects on SMEs, for example in terms of increasing the availability of energy consultancy specialists or one-stop-shop services.

4.3 Results from the survey for organisations

In late 2021 the Consortium prepared and launched a Survey to Organisations, Authorities, Business associations and Stakeholders dealing with energy efficiency and specifically energy audits/EnMS in SMEs.

The survey (https://ec.europa.eu/eusurvey/runner/LEAP4SME_Survey_Organizations) was prepared with multiple goals, such as: to assess the point of view of organizations and companies on policy barriers and needs in SMEs; to identify the most relevant energy audits needs for SMEs; to understand how to increase the implementation of the recommended energy efficiency measures for SMEs; to define more effective tailored policy schemes for SMEs,

A total number of 177 answers were collected from public institutions, private organisations (i.e. financing institutions, ESCOs), private associations (i.e. business associations) and other organisations (including academia and NGOs). One of the questions was aimed to understand the interest of the respondent in “Evaluating the application of Energy poverty measures for small family businesses”. The respondent could choose one of five options, ranging from a full agreement to a full disagreement with the sentence.

Overall (Figure 2), we can consider a general interest in the proposal, with 46% respondents agreeing or fully agreeing. Also, it is interesting that 44% answered neutral; this can be explained with the newness of the concept, almost never been considered at the time of the launch of this survey. Below (Figure 3 and Figure 4) are also showed the answers in percentage from respondents from the Public sector (e.g. National Agencies, Governments,



Universities, Regional Agencies) and the Private sector (including a relevant number of Business associations and consultants). The shares in terms of disagreement with the proposal are 8% and 12 % respectively. An interesting acceptance of the approach (fully or mostly agreeing) comes from both the public sector (the half of responses) and from Private Stakeholders (about 44%). The answer “neutral” is still prevalent on any other option in both cases.

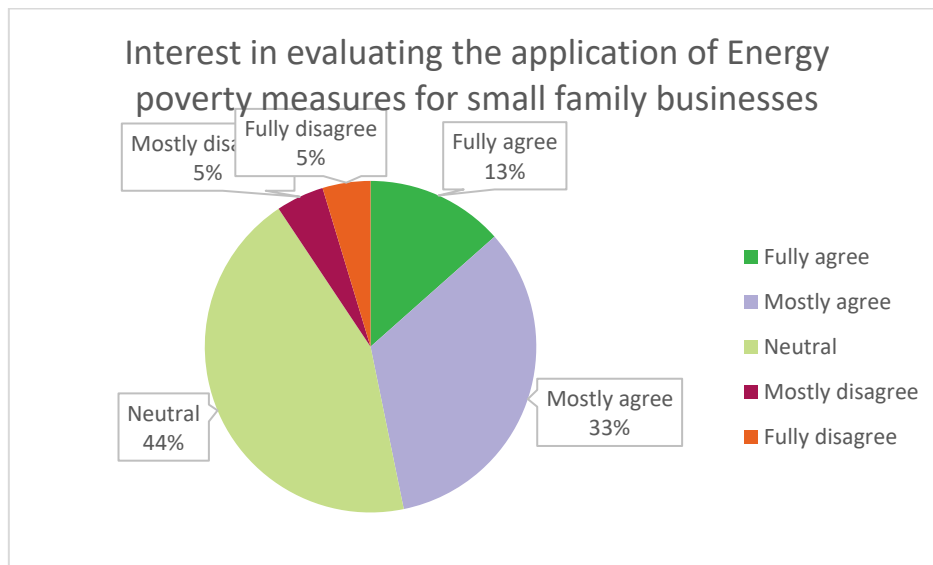


Figure 2 – Interest in the application of EP measures to SMEs, All answers2

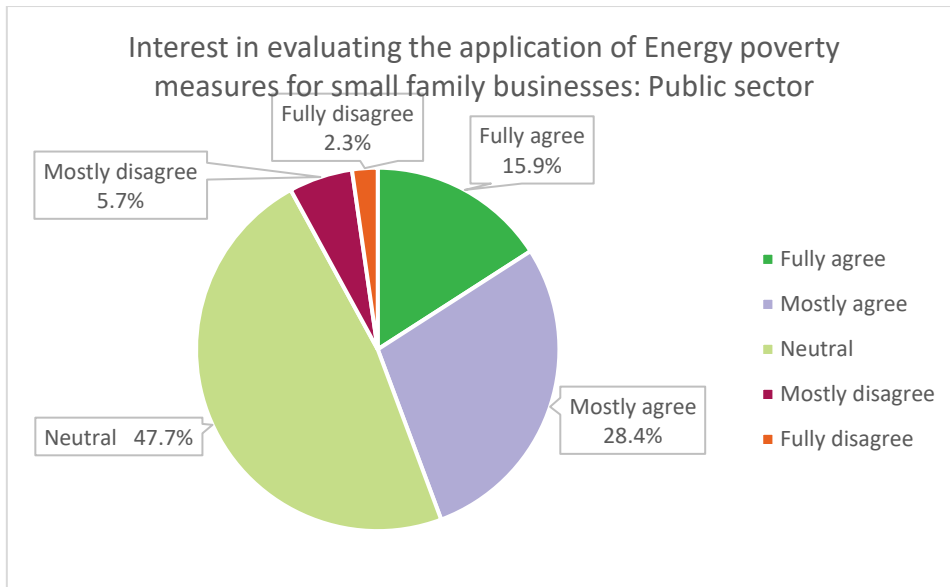


Figure 3 – Interest in the application of EP measures to SMEs, Public sector

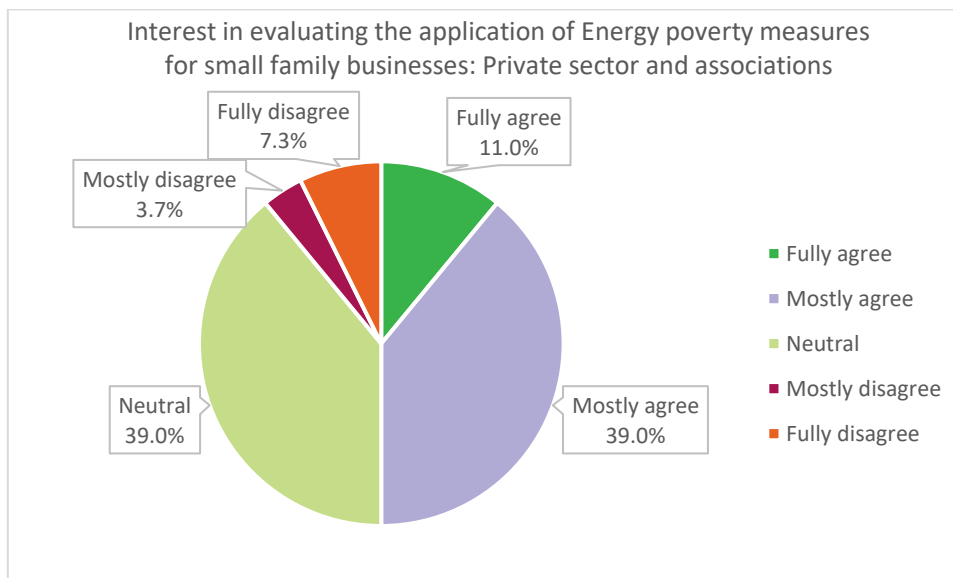


Figure 4 – Interest in the application of EP measures to SMEs, Private sector and associations

5 Energy vulnerability in SMEs: a proposed framework for policy makers

The key messages emerged from the partner consultation on the interactions between art.7 and 8 – see Section 4.2 – as well as the interest in the energy poverty within enterprises shown in the survey for organisations – see Section 4.3 – formed the basis to develop the framework presented in this Section. In particular, the previous sections allowed to explore the similarities between households and small family businesses and micro enterprises, to check the feasibility and potential application or extension of the energy poverty and energy vulnerability concepts to SMEs.

The idea underlying the assessment is that SMEs, in particular micro enterprises, may have a connection with the energy poverty concept. According to our knowledge energy poverty and vulnerability have been never investigated in the SMEs context, with very few exceptions, for example a study targeted to Greece³⁹. This connection revolves around their vulnerability and level of exposure to energy related risks, specifically referring to fluctuations in energy prices and their ability to cope with related expenses⁴⁰. These energy related risks are referred here as the “risk of energy vulnerability”. If a risk of energy vulnerability exists, as a first step, policy makers would need a framework to understand the underlying factors contributing to it and how they interact to determine the extent of this risk, whether high or low.

The proposed qualitative matrix represents different possible cases for both the characterisation of SMEs and the contextual factors, with a simplified representation of the possible factors influencing energy vulnerability. The rows of the matrix represent a simplified list of several factors affecting energy vulnerability risk and the columns represent different conditions associated to each of these aspects (Figure 5). A broader availability of sector-

³⁹ Vatikiotis, L (2021) Energy Poverty in Small and Medium Enterprises in Greece, IME GSEVEE Working Papers 22, https://imegsevee.gr/wp-content/uploads/2021/03/Βατικιώτης-Ενεργειακή-φτώχεια8_3_21.pdf

⁴⁰ The rationale applied here is similar to the one adopted in the [Confindustria Regional Report on SMEs](#), where two specific risks related to climate change are introduced and analysed, namely physical risk and transition risk.

specific-survey based studies would definitely help policy makers in categorising SMEs operating within a particular sector, providing a better understanding of how businesses align with SME characterisation.

The characterisation section is aimed to describe the company in terms of: sector, company organization and company infrastructure from an energy point of view. Relative to the question in the first row, the idea is that, in general, a company belonging to the tertiary sector has more similarities in the consumption profile with the residential sector than one operating in industry. In this sense, the concept of energy vulnerability risk could be more easily applied to companies in the tertiary sector. For this reason, the proposed matrix accounts for aspects more related to companies operating in the tertiary sector.

The context is focused on two main aspects: the difficulties in paying energy bills and the awareness of own energy consumption. Relative to the second aspect, the energy audit could be considered in a simplified manner, as the annual accounting of energy consumption by energy carrier. The energy audit model changes significantly depending on the company size and sector.⁴¹

⁴¹ LEAP4SME Deliverable 4.2 Report on the Framework for the development of national SMEs Energy Audit Programmes and schemes, 2023.

CHARACTERISATION	Sector	Which is the company sector?	Industry		Tertiary		
	Location	Does the business activity take place within the living premises?	Yes		No		
		What is the location of the activity?	Urban	Rural	Industrial		
	Employees	How many employees do you have?					
		What are the types of employees?	Family members	External employees	Both		
	Ownership	Does the company own the site where the business activity takes place?	Yes		No		
	Building and plants characteristics	When was the last time the building was renovated?					
		How old are the heating and cooling systems?					
		Are the heating, cooling and lighting systems shared between the business and the living premises?	Yes		No		
		Do you have an efficient lighting system?	Yes		No		
		Do you employ renewable energy?	Yes		No		
		Are building automation systems implemented?	Yes		No		
	Turnover	Turnover bracket					
Bank debts on turnover							
Incidence of energy costs	Incidence of different energy costs on total costs	Cost of electricity	Cost of thermal energy	Total energy cost			
CONTEXT	Arrears on energy bills	Temporary or structural difficulty in paying bills?	Temporary		Structural		
		The difficulty relates to	Electricity bill	Gas bill	Other thermal energy bill	Electricity and thermal energy bill	
	Awareness of energy consumption	Awareness level of energy consumption	Low	Medium	High		
		Has an energy audit ever been carried out?	Yes		No		
		Was the energy audit carried out in the past 3 years?	Yes		No		
		Were incentives used to cover the audit cost?	Yes		No		
	Knowledge of EE support	What is the awareness of EE incentive measures?	Low	Medium	High		
		What is the knowledge of EE information campaigns?	Low	Medium	High		
	Positioning in productive sector	Membership in business networks	Local	Sectoral	Both	None	
		Membership in trade associations	Yes		No		
	Investment capacity	Access to credit	Low	Medium	High		
		Was an EE intervention carried out in the last 3 years?	Yes		No		
		If yes, with incentives?	Yes		No		
If yes, with external capital?		Yes		No			
What is the payback time of the implemented intervention?							

Figure 5 – Matrix for characterising SMEs and their energy vulnerability risk⁴²

The level of exposure can then be defined relative to the different cells of the matrix, represented in different colours when identifying a case of low vulnerability (green), medium vulnerability (yellow) and high vulnerability (red). The part of the matrix relative to the SME context has been filled in Figure 6 to provide an example; the assessment is likely to change depending on the country and sector.

⁴² In the matrix, the term “EE interventions” refers to any energy efficiency improvement action implemented by the company, both at technological or organizational level; the term “EE incentives” is used to indicate the energy efficiency support measures, which for example provide grants, soft loans or technical assistance.

Arrears on energy bills	Temporary or structural difficulty in paying bills?	Temporary		Structural	
	The difficulty relates to	Electricity bill	Gas bill	Other thermal energy bill	Electricity and thermal energy bill
Awareness of energy consumption	Awareness of energy consumption	Low	Medium		High
	Has an energy audit ever been carried out?	Yes		No	
	Was the energy audit carried out in the past 3 years?	Yes		No	
Knowledge of EE support	Were incentives used to cover the audit cost?	Yes		No	
	What is the awareness of EE incentive measures?	Low	Medium		High
Positioning in productive sector	What is the knowledge of EE information campaigns?	Low	Medium		High
	Membership in business networks	Local	Sectoral	Both	None
Investment capacity	Membership in trade associations	Yes		No	
	Access to credit	Low	Medium		High
	Was an EE intervention carried out in the last 3 years?	Yes		No	
	If yes, with incentives?	Yes		No	
	If yes, with external capital?	Yes		No	

Figure 6 – Example of assessment of energy vulnerability risk

To summarise, the conditions that determine a high risk of energy vulnerability in an SME can be listed in a simplified manner as:

- Structural difficulty in paying energy bills;
- Lack of awareness on their energy consumption;
- Low level of knowledge of incentive measures for energy efficiency;
- Low level of awareness of information campaigns for energy efficiency.

Policy makers may also be interested in drafting policy interventions to reduce the risk of energy vulnerability, either by introducing new measures or optimising existing ones. This qualitative matrix could serve as an initial tool to assess the potential suitability and effectiveness of different type of policies for SMEs with different characterisation and context.

In particular, with respect to energy vulnerability mitigation policies, four different options are considered here, adopting a simplified and not exhaustive approach:

- **EA** - subsidy for carrying out an energy audit;
- **I** - subsidy for carrying out energy efficiency interventions;
- **CEA** - information campaign describing how to carry out an energy audit (even in a simplified version) and the associated benefits;
- **CI** - information campaign on possible energy efficiency interventions and related incentives.

The matrix can be filled in by entering the policy that seems most appropriate to mitigate the energy vulnerability risk in the several cases shown as rows. Figure 7 provides an example for this assessment, referring to the four policies listed above and to certain rows, mostly included in the SME context part of the matrix.

<i>Building and plants characteristics</i>	Do you have an efficient lighting system?	Yes	No
		CI	EA, I
	Do you employ renewable energy?	Yes	No
		CI	EA, I
<i>Building and plants characteristics</i>	Are building automation systems implemented?	Yes	No
		CI	EA, I
	Are energy-efficient insulation and fenestration installed?	Yes	No
		CI	EA, I
<i>Awareness of energy consumption</i>	Awareness of energy consumption	Low	Medium
		EA	CEA
	Has an energy audit ever been carried out?	Yes	No
		I	EA, CEA
<i>Awareness of energy consumption</i>	Was the energy audit carried out in the past 3 years?	Yes	No
		I, CI	EA, CEA
	Were incentives used to cover the cost of the audit?	Yes	No
		CI	I, CI
<i>Knowledge of EE support</i>	What is the awareness of EE incentive measures?	Low	Medium
		CI, CEA	CI, CEA
<i>Knowledge of EE support</i>	What is the knowledge of EE information campaigns?	Low	Medium
		EA	EA
<i>Positioning in productive sector</i>	Membership in business networks	Local	Sectoral
		I	CEA, CI
<i>Positioning in productive sector</i>	Membership in trade associations	Yes	No
		EA, I	CEA, CI
<i>Investment capacity</i>	Access to credit	Low	Medium
		I, EA	EA, CI, CEA
	Was an EE intervention carried out in the last 3 years?	Yes	No
			EA, CI, I
<i>Investment capacity</i>	If yes, with incentives?	Yes	No
			I
<i>Investment capacity</i>	If yes, with external capital?	Yes	No
			I

Figure 7 – Example of policy evaluation for energy vulnerability mitigation

According to the matrix, several categories of enterprises can be identified, listed below with number and letters:

- Enterprises with low / high awareness of their energy consumption: (1) / (2);
- Enterprises with low / high presence of energy efficiency measures (3) / (4);

- Enterprises with low / high awareness of energy efficiency incentives (5a) / (5b);
- Enterprises with low / medium / high access to credit (6a) / (6b) / (6c).

For each of them the relevance of the different examined policies can be defined, as in Figure 8:

	Low relevance	High relevance
EA	(6b)	(1), (6a)
I		(2), (3), (6a)
CEA	(5b), (6b)	(1), (5a), (6c)
CI	(5b), (6b)	(2), (4), (5a), (5c)

Figure 8 – Relevance of different mitigation policies by company type

It should be noted that energy vulnerability may exacerbate the barriers to energy efficiency investments⁴³. The impact can be affected by the characterisation and context of a SME, as shown in Figure 2, and/or by the share of SMEs in a specific sector. Similarly, different multiple benefits⁴⁴ of energy efficiency can contribute to a reduced energy vulnerability risk, depending on the SME context and characterisation. Finally, a higher effectiveness of policy intervention in energy vulnerability risk mitigation at SMEs level, as well as in overcoming EE barriers, may enhance the creation of energy efficiency multiple benefits stemming from energy efficiency.

⁴³ LEAP4SME Deliverable 2.3 Energy audits market overview and main barriers to SMEs, 2021.

⁴⁴ LEAP4SME Deliverable 6.1 Report on the literature review analysis of multiple benefits, 2022.

6 Conclusions

This report provides a first assessment on the possible integration of SMEs energy audit programmes with relevant EED articles and other legislation. The data and the information used in the report are elaborated from interviews with project partners and surveys/assessments carried out in the LEAP4SME activities. In particular, experts in the nine energy agencies involved in LEAP4SME were interviewed on the role of SMEs in EED art. 7 and 8, the integration of SME-targeted policies into art. 7, the application of energy poverty concept to micro-enterprises and the integration of SME-energy policies with other legislation.

The Directive 2012/27/EU was updated in 2018 and 2023, setting rules and obligations for achieving the Union's ambitious energy efficiency targets. Art. 7⁴⁵ establishes energy savings targets and commits Member States to define a policy mix to achieve them. Differently, art. 8 deals with energy audits and energy management systems, requiring also that Member States develop programmes to encourage SMEs to undergo energy audits and implement the recommendations included therein. SMEs contribute with energy savings to the targets set up in art. 7 and are directly interested by art. 8 provisions.

The answers provided by individual countries on art.7 show that the policy mix to comply with energy efficiency targets is generally represented by an integrated approach with energy efficiency obligation schemes and alternative measures. In most cases there is no obligation for SMEs and then the target set for 2030 are relevant only for SMEs acting on a voluntary basis. Similarly, in most cases there is no obligation for SMEs in the context of art. 8, namely on carrying out energy audits or implementing energy efficiency measures. On a voluntary basis, many countries adopted policies aimed to support the development of energy audit in SMEs. According to MS replies to the interview, the integration of SME-targeted policy initiatives is observed with reference to three main policy categories: training and information campaigns, environmental policies, and innovation policies. Policy integration is observed for most countries and environmental policies have the highest relevance.

⁴⁵ The EED articles in this report are referred to the 2012/27/EU EED (before the 2023 recast).



The potential application of the energy poverty concept applied to micro-enterprises is also assessed in the interviews and the answers show that support measures for vulnerable firms are in place in several countries. An energy poverty definition rarely exists, and it never encompasses business. The survey for organizations, extensively discussed in D3.2 and D4.3, also referred to the interest in “Evaluating the application of Energy poverty measures for small family businesses”. The 177 answers provided by public institutions, private organisations, private associations, and other organisations on average show a moderate interest in the topic.

The last two pieces of information provided the basis for studying the possibility that SMEs, in particular micro enterprises, have a connection with the energy poverty and energy vulnerability concepts. In particular, the connection revolves around their level of exposure to energy related risks, specifically referring to fluctuations in energy prices and their ability to cope with related expenses. A framework to allow policy makers to understand the factors contributing to the energy vulnerability risk is proposed, by means of a qualitative matrix representing different possible cases for both the characterisation of SMEs and the contextual factors. This categorisation would help in understanding how different factors interact to determine the extent of the energy vulnerability risk, whether high or low.

Literature contributions on the application of energy poverty and energy vulnerability concepts to micro-enterprises and small family business do not exist, with rare exceptions. In this report, the topic is considered in the context of the interaction of SME policies with other types of policies and issues on the political agenda. Attention to energy poverty and vulnerability is steadily increasing, as witnessed by the recast of the EED, and by the attention that the European Parliament had placed on the topic in an early version of the legislative text. In the future, the applicability of the framework proposed in this report could be tested on specific sectors. At the same time, dedicated surveys could be developed, which could help to inform and enrich the framework developed in this report.



Appendix

1) The role of SMEs in EED art. 8 transposition in each Country

Please describe how, and if, SMEs are supported under EED art. 7 transposition in your Country. Please start with a description of art. 7 implementation in your Country, the responsible and managing Organisations, the programmes, results and barriers. Explicitly mention if your Country uses EEOs, alternative measures or both, and which ones are referred ONLY or ALSO to SMEs. Or if they are referred also to enterprises more in general, including SMEs. Comment and expand the role of SMEs in such policies and programmes.

2) The role of SMEs in EED art. 7 transposition in each Country

Please describe how, and if, SMEs are supported under EED art. 7 transposition in your Country. Please start with a description of art. 7 implementation in your Country, the responsible and managing Organisations, the programmes, results and barriers. Explicitly mention if your Country uses EEOs, alternative measures or both, and which ones are referred ONLY or ALSO to SMEs. Or if they are referred also to enterprises more in general, including SMEs. Comment and expand the role of SMEs in such policies and programmes.

3) Integrating SME-targeted policies, programmes and initiatives into art. 7 EED

Please describe potential future points of contact of the SME topic across the two EED articles; if and how energy audits in SMEs under art. 8 could be supportive to art. 7 implementation, and vice-versa; if this is already happening and there are already interactions between the two articles on the topic.

4) Energy poverty concept applied to micro-enterprises and small family businesses

Please focus on the energy poverty concept, providing a short overview of how it is applied in your Country. Focus most of the paragraph in describing where and if energy poverty deals also with businesses and not only citizens. Please focus on how you see its potential future application in your Country to very small business, Pros and Cons, barriers, insights.

5) Integration of SME-energy policies with other legislation, programmes and initiatives at national and local level

Please describe potential points of contact of the SME topic with legislation, programmes and initiatives different from the ones included in art. 7 EED transposition. Please refer/check widely, also into the implementation of the “Save gas for a safe winter”, Recovery plans etc.