innoveas
The power of energy audits

D.4.1 Training webinars

WP4

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Technical References

Project Acronym	Innoveas
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[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

Document history

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Project Summary

The INNOVEAS project is an initiative promoted by 10 partners from 6 EU countries, to build and deliver a capacity building programme, aiming at addressing the major non-technical barriers that most often hamper the adoption the energy auditing practice, in particular among those actors, such as SMEs where such audits are not required by law.

The ultimate goal is to consolidate a structured, permanent and expandable offer to help develop continuous self-sustainable services to raise awareness and build capacity in the field of energy auditing and related energy saving measures in SMEs.

The project therefore aims at designing and deploying staff trainings and capacity building programmes to enhance corporate policy towards energy efficiency, energy culture (motivations, behaviour change, mitigation of perceived risks and barriers) and sustainable supply-chain initiatives. It therefore intends to:

- Advanced analysis of behavioural barriers to energy audits, to identify and analyse the enabling conditions and non-technical barriers hindering the adoption of energy auditing practice;
- Delivery of self-sustainable capacity building programmes, in order to systematise awareness raising procedures to overcome the psychological and organisational barriers to energy audits in SMEs, deliver a training offer to SMEs and formulate a capacity building programme targeting stakeholders such as intermediaries, policy makers and financing institutes;
- Create an institutional structure to sustain the project's objectives and results and lay the basis for the creation and consolidation of a pan-European network of enablers likely to support in the coming years the growth and expansion of the training offer on energy efficiency for European business.

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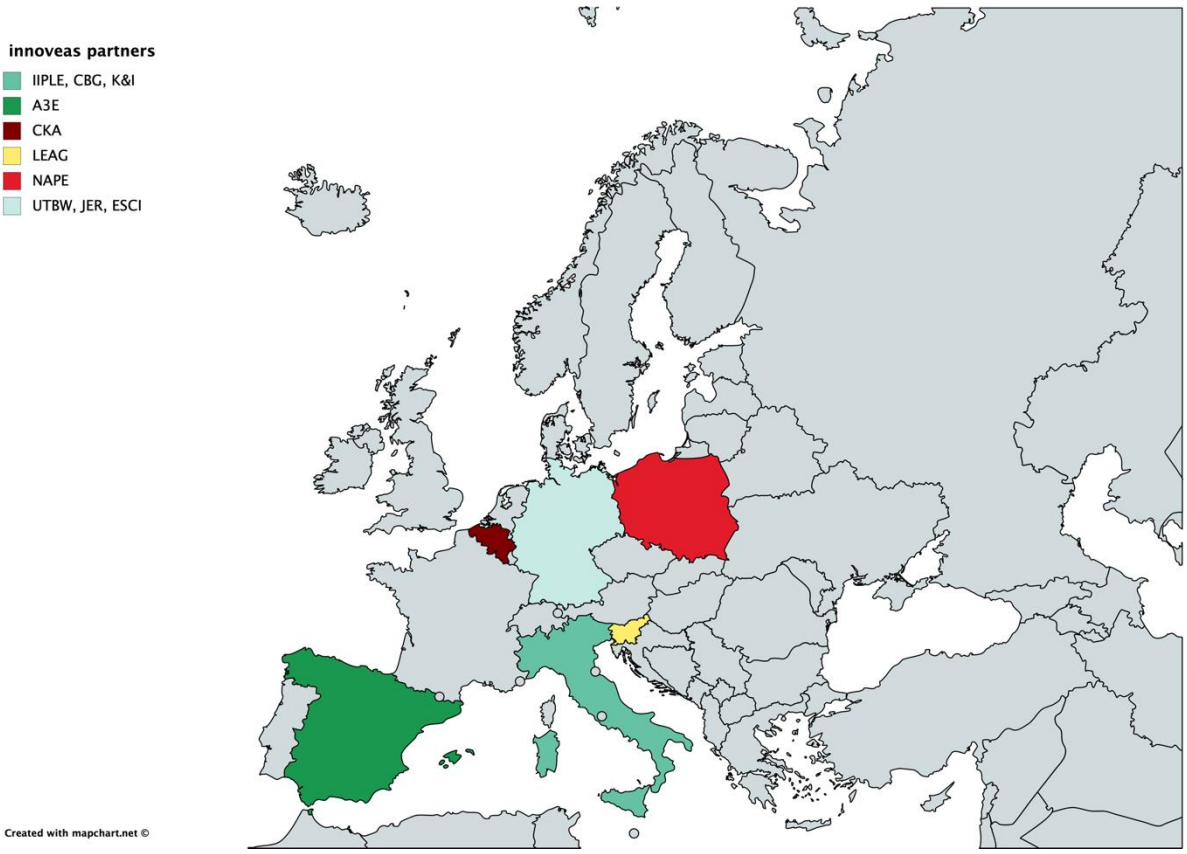
Partners



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1. Introduction

This deliverable refers to Work package 4, which directly follows the research phase (WP1-3) of INNOVEAS. While the previous WPs have defined the framework of the training programme based on the scientific findings, WP 4 is dedicated to the operational implementation of the training programme. The modules of the complete training programme were described in D3.2. In the present deliverable the first modules are specified and their implementation is described. In particular, the introductory training courses in the form of instructional videos (Task 4.1.1.) as part of the Web-based modules are examined in more detail here.

2. Web-based modules

T4.1 Implementation of the training products
The training modules identified in WP3 (see D3.2) and targeting different profiles in SMEs will be implemented consecutively and in three different modalities: online, hybrid (online and classes) for companies' members and directly in-company.

Task 4.1.1, web-based modules, is the first entry-point to the training phase: these tools have the aim of introducing the main topics of the training, catching the interest of SMEs to whom the training is addressed, finding potential participants to the following phases of the capacity building process. The specific objective is to provide basic information to enterprises in order to create a sense of curiosity and awareness on the advantages of energy audits. The videos illustrate advantages, possibilities, results and show some best practices. In this sense the videos have to be used to start approaching SMEs to be involved in the ongoing capacity building programme. All the videos are already published and available at the INNOVEAS Training Platform (*as hereafter described*). The other components of the training programme (Task 4.1) are still in the planning phase and will follow the exploitation and use of the same web-based modules.

Six INNOVEAS partners are involved in this activity as in table 1: IIPLE, CBG, UTBW, A3E, NAPE and LEAG. In detail, the videos deal specifically with:

- **Introduction to the energy audit process in the country:**

This first video (for each country) introduces and presents what an energy audit is and its strategic role in understanding how a company consumes energy and what the possibilities to improve energy performances are. This video is also relevant to draw a line between the concept of energy transition and EU strategy towards a decarbonised economy.
After a short introduction on the general context of energy savings in industries, the content of the video should reply to these questions:

a. What is an energy audit?
b. What are the steps and procedures?
c. What information it produces?
d. What involvement is required to the company?

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e. What follows the audit?
The video should also list and analyse the main regulations and norms at European, national or regional level.

- **Analysis of the national/regional incentives for the energy audit:**

In this video, incentives (subsides, financial incentives, etc.) should be introduced and explained for each country. It's also important to describe the procedure to access incentives, so to underline that is not so impossible to obtain it.

- **Regional/national peculiarities related to the process of energy efficiency:**

Considering that the training activities of the capacity building programme will be addressed to SMEs operating in a specific area, it is important to investigate and present the regional peculiarities (local policies, regulations, incentives that have implications on energy audits and more generally on the promotion of energy efficiency).

- **Presentation of best practices and case studies in the economic sectors addressed by the project:**

These videos are fundamental to show positive examples of energy audits or concrete experiences with the energy efficiency measures. In these videos, the partners have interviewed directly the entrepreneurs or the energy auditors who can directly testify and describe their experiences and the procedures followed.

The videos are published on the platform https://innoveas.eu/trainings/.

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See the screenshot below:

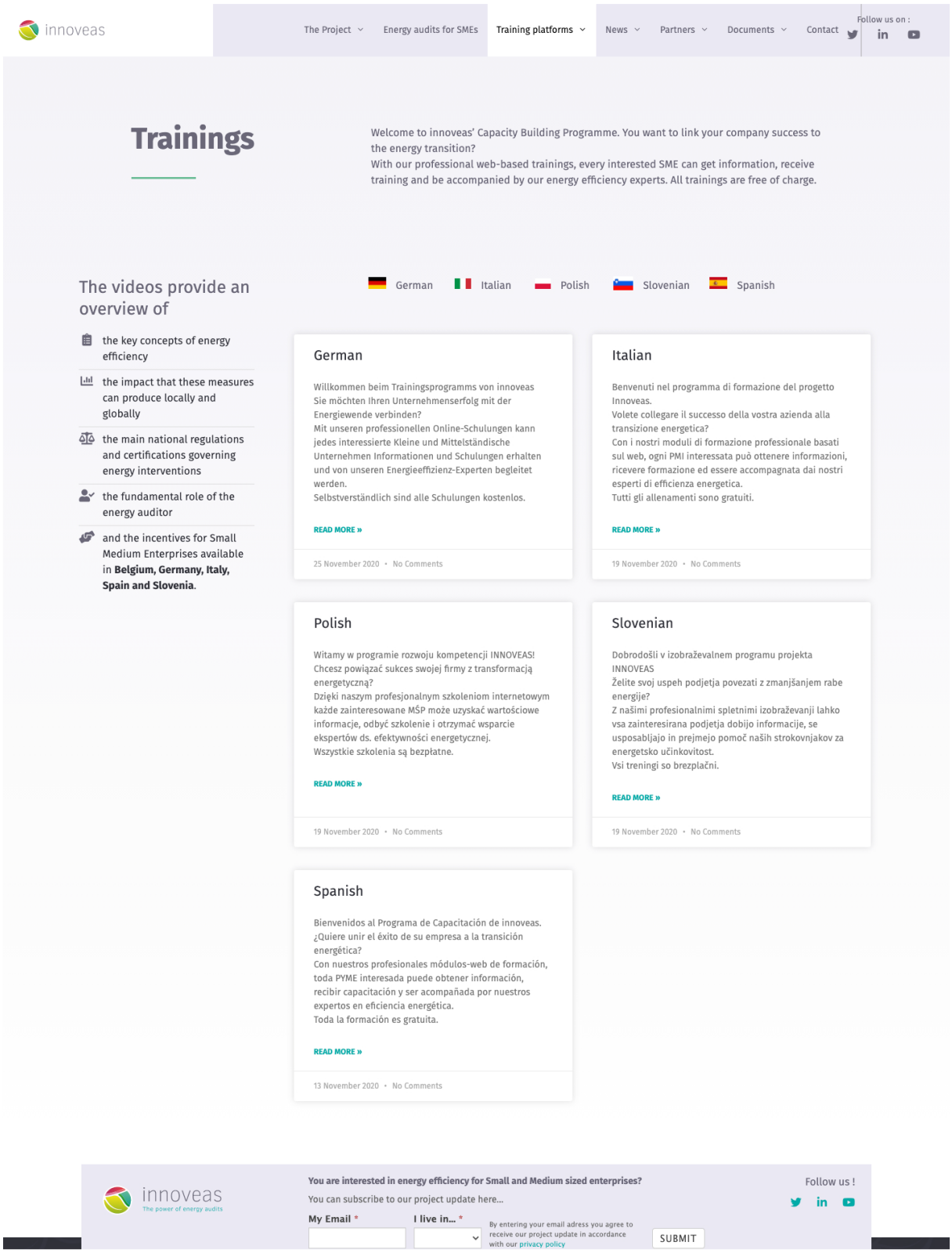

Figure 1: Screenshot of the INNOVEAS Training Platform

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From the landing page of the Training Platform the user will enter the specific country section where all the country videos are displayed following the flow of information conceived.

The table below summarizes the videos and topics addressed by each one of the partners.

Table 1: Innoveas Capacitiy Building Implementation: Web based modules

Lead Beneficiary	Topic	Video
IIPLE and CBG	Energy Audits in Emilia Romagna and Lombardia, Italy	Video 1: Introduction & Norms
		Video 2: Italian incentives for SMEs
		Video 3: Policies and tools to support SMEs in Emilia Romagna
		Video 4: Peculiarities in Lombardy
	Best Practice in Emilia Romagna, Italy	Video 5: Best practice (construction sector in Emilia Romagna)
		Video 6: Best practice (construction sector in Emilia Romagna)
	Best Practice in Lombardia, Italy	Video 7: Best practice (construction sector in Lombardia)
		Video 8: Best practice (chemistry sector in Lombardia)
UTBW	Energy Audits in Germany, focus on Baden-Württemberg	Video 1: Introduction & Norms
		Video 2: Incentives and regional peculiarities
	Best Practice in Germany, specifically Baden-Württemberg	Video 3: Best practice (construction sector)
		Video 4: Best practice (food sector)
		Video 5: Best practice (chemistry sector)
A3E	Energy Audits in Spain	Video 1: Introduction & Norms
		Video 2: Incentives and regional peculiarities
	Best Practice in Spain	Video 3: Best practice (food sector)
		Video 4: Best practice (construction sector)
		Video 5: Best practice (chemistry sector)

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NAPE	Energy Audits in Poland	Video 1: Introduction & Norms
		Video 2: Energy Management Systems
		Video 3: Programme Energia Plus
	Best Practice in Poland	Video 4: White Certificate scheme
		Video 5: Best practice (food sector)
		Video 6: Best practice (chemistry sector)
LEAG	Energy Audits in Slovenia	Video 1: Introduction & Norms
		Video 2: Incentives - Subsidies: Eco fund
		Video 3: Local peculiarities
	Best Practice in Slovenia	Video 4: Best practice (construction sector)
		Video 5: Best practice (food sector)

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3. Description of the videos

3.1. Spain

3.1.1. Video 1 – Introduction to energy audits

The purpose of the training videos is to provide basic information to enterprises in order to create a sense of curiosity and awareness on the advantages of energy audits, so therefore start approaching SMEs to be involved in the Capacity building programme.
The purpose of this first video is to introduce and present what an energy audit is, to understand how a company consumes energy and which are the possibilities to improve energy performances.

The video starts with an Introduction of energy auditing as a crucial tool in improving the energy efficiency of SME operations. Then it structures the rest of the video in 3 parts:
- Exposure of the energy consumption of industry in Spain
- The legal framework that supports energy efficiency policies.
- In addition, explanation of the procedure for energy audits and the benefits they bring to SMEs in Spain.

3.1.2. Video 2 – Incentives to energy audits and energy efficiency measures for SMEs

The purpose of the training videos is to provide basic information to enterprises in order to create a sense of curiosity and awareness on the advantages of energy audits, so therefore start approaching SMEs to be involved in the Capacity building programme.
The purpose of the second video is to inform about supporting policies and incentives (both at national and regional level) to promote energy transition of business companies.

The first part of the video is a summary of the first video. The video is then structured into a first part of incentives at the national level, and a second part on incentives at regional level. Then, two specific examples of initiatives and aids in regions of Spain are shown. After these examples the video describes the incentives in the rest of the regions.

3.1.3. Video 3 – Best Practices in the food industry

The purpose of the training video is to provide basic information to enterprises in order to create a sense of curiosity and awareness on the advantages of energy audits, so therefore start approaching SMEs to be involved in the Capacity building programme.
The purpose of third video is to illustrate advantages, possibilities and results from best practices in the food industry.

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The video makes a first description of the activity and facilities of the food company.
The SME and the energy auditor explain how and when they decided to carry out the energy audit.
They detail the energy efficiency measures implemented, the difficulties encountered and the benefits obtained.
Finally, they comment on the advice they would give to other SMEs.

3.1.4. Video 4 – Best Practices in the construction industry

The purpose of the training videos is to provide basic information to enterprises in order to create a sense of curiosity and awareness on the advantages of energy audits, so therefore start approaching SMEs to be involved in the Capacity building programme.
The purpose of fourth video is to illustrate advantages, possibilities and results from best practices in the construction industry.

The video presents a first description of the activity and facilities of the construction company.
The company and the energy auditor tell when and why they decided to carry out the energy audit.
They detail the energy efficiency measures implemented, the difficulties encountered and the benefits obtained.
Finally, they comment on the advice they would give to other SMEs.

3.1.5. Video 5 – Best Practices in the chemistry industry

The purpose of the training videos is to provide basic information to enterprises in order to create a sense of curiosity and awareness on the advantages of energy audits, so therefore start approaching SMEs to be involved in the Capacity building programme.
The purpose of the fifth video is to illustrate advantages, possibilities and results from best practices in the Chemistry industry.

The video makes a first description of the activity and facilities of the chemical company.
The director and the environmental technician explain when and why they decided to start implementing an environmental management system.
They detail the energy efficiency measures implemented, the difficulties encountered and the benefits obtained.
Finally, they comment on the advice they would give to other SMEs.

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3.2. Slovenia

3.2.1. Video 1 – Basic information on energy audits

The first titled energy audits – basic information focuses on introducing the viewer with energy audit and key steps in conducting the audit in small and medium enterprises. It presents why it is important to address the subject of energy efficiency in the project and how to approach the process of energy auditing of the company. It also highlights the benefits for both company and the environment, and also mentions subsidies, and points out, that SMEs in Slovenia are able to get financial help for implementation of energy audit and other energy efficient measures. Video 1 addresses the basic concepts and how small and medium-sized enterprises can reduce their expenditure by increasing energy efficiency, improve their products and activities and consolidate their market position, thus making an important contribution to reducing environmental impact and nature conservation. The main purpose of the video is to intrigue a listener (preferable SME owner or manager), and try to ignite a wish to act and also show that there are ways and options for improvement of energy efficiency and costs in the SMEs.

Key steps and procedures of an energy audit are explained in a clear and coherent way. Video shows the importance of a strong collaboration between the auditor and key actors of the company as the quality of the result depends on the common effort. Energy audit is represented as the first step towards energy efficiency improvement and environmental protection of the company.

3.2.2. Video 2 – Subsidies: Eco fund

Making an energy audit and investing in energy efficiency represent a major financial burden for most small and medium-sized enterprises. As increasing energy efficiency and reducing emissions is one of the key challenges of modern times, it is essential that these types of measures are also financially supported. In Slovenia, the Eco Fund plays a leading role in the field of allocating subsidies for energy efficiency measures. Fund's main purpose is to promote development in the field of environmental protection. It is the only specialized institution in Slovenia that provides financial supports for environmental projects. Eco fund is a public fund which represents specialized financial institution that deals with subsidizing measures in the field of energy efficiency and environmental protection, such as facade renovations, window and door renovations, thermal insulation of roofs, replacements of heating systems, construction of solar power plants and optimization of the production processes. The financial assistance is offered mainly through subsidies and soft loans from revolving funds.

Because of the crucial role of the Eco fund and their decision to offer subsidies to companies as well, the second video is an interview with a representative of Eco fund. During the interview viewer can obtain information about what kind of subsidies are available for small and medium sized enterprises, how do they apply for a subsidy, what is the amount of the

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subsidy for the energy audit, why should a company conduct an energy audit and why is important for them to pay attention to energy efficiency. Key programs, basic information on the possibilities for obtaining subsidies, as well as specific instructions regarding the application are presented. Eco Fund's subsidies have had a positive effect on tax revenues, diminishing of grey economy, new green jobs, sustainable development of the construction planning and business, as well as on the development of the use of strategic resources.

With the help of the video, LEAG hopes to raise awareness about possible financial aids for investments in energy efficiency in SMEs, try to dismiss opinion about complicated procedures for obtaining a subsidy and thus encourage companies to apply for subsidies for implementation for energy audit and measures.

3.2.3. Video 3 - Local peculiarities

Slovenia has set itself ambitious targets. Concrete measures will be taken to secure a 36% decrease in greenhouse gas emissions by 2030 relative to 2020. Another target for 2030 is to increase energy efficiency by at least 35% and increase the share of renewable energy to at least 27%. LEAG believes that it is important for SMEs in Slovenia to know and understand key aspect and goals regarding energy efficiency and environment.

Therefore, in the third video titled "Local peculiarities" the aim is to inform the viewer about the current situation regarding energy efficiency targets, goals and plans in Slovenia. The video consists of two parts. In the first part, we look at the operation of the low-carbon sector of the Ministry of Infrastructure as the policy maker in the fields of energy consumption and climate change. Representative of the Ministry of Infrastructure Mr. Uroš Habjan presented his work in the office for low carbon society, why it is important to approach the preparation of the energy audit, Slovenia's mid-term environmental goals and what can companies expect in the near future.

The second part of the film presents the Slovenian Institute for Quality and Metrology. Their representative, Mrs. Blanka Kaker, presents the challenges in energy sector in Slovenia, and basic overview of the ISO 50001 standard, that also presents a great option for first step toward higher energy efficiency in SMEs. What does this standard represent, what is the acquisition process, as well as the costs of implementation. ISO 50001 is presented as a standard that provides framework of requirements for organizations to develop a policy for more efficient use of energy.

With the video LEAG hopes to inform the viewer about situation in Slovenia and its main goals regarding energy efficiency. The video also presents certificate ISO50001 that is next to energy audit an important option for SMEs to start their transition towards higher energy efficiency and lower impact on the environment.

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3.2.4. Video 4 - Examples of good practice in the construction sector

It is extremely important for SMEs to obtain information through the eyes of their peers, fellow entrepreneur or person who is dealing with similar views and challenges. That is why LEAG has interviewed the director of SME Gorenjske elektrarne, to share his experience regarding energy efficient measures in company.

The forth short video presents an example of good practice in the construction sector. The Gorenjske elektrarne (power plants of Gorenjska) company shows us its experience, operation and advice. The director of the company presents how they take care of efficient energy use within the company, why they decided to obtain the ISO 50001 certificate and if they recommend other SMEs to obtain the certificate. He also presents what companies can and should do, why they should improve their energy efficiency, and also if it is beneficial for companies to invest in energy efficient measures.

A positive example of headquarters building energy renovation is presented. For heat production of their headquarters building they use a heat pump that harnesses river energy. With the use of a heat pump they have significantly reduced the use of fossil fuels. Additionally, they installed the thermostatic mixing valves, so the temperature in the building can be regulated and the offices are warm just during the day when the employees are at work. They insulated the attic and installed a solar power plant on the roof, which primarily produces electricity for the needs of the building, the surpluses are transmitted to the power grid. Through these measures they have made significant contribution to reducing energy consumption, the energy consumption was reduced by more than 40% and fossil fuels consumption was reduced by more than 5 times.

3.2.5. Video 5 - Examples of good practice in the food sector

In the first 3 videos LEAG mainly talked with experts and policy makers, that have a different point of view and are most often not familiar with everyday challenges, issues and way of thinking in SMEs. Therefore, this video aims to present experiences and concrete actions, described directly by the persons that have got benefits from them. LEAG have interviewed two companies that are operating in food sector in Slovenia.

Video shows two positive examples in the field of food sector. First one is Pivka Hatchery, where they hatch poultry. Leader of the hatchery shares a story when they visited a similar facility abroad and found out that their heating expenses were too high. This gave them a boost to improve their own facilities. They sought for the help of external experts regarding energy efficient measure. They replaced the existing energy source, which was liquefied petroleum gas, with a cheaper one, woodchips. They built a new boiler room with hot water storage tank and storage for woodchips. With the investment they started to use renewable energy source and reduced the cost of heating the building as well as the cost of heating the hot water for washing the technological equipment.

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Second positive example is restaurant, and bakery Ančka, where they are expanding their property, which will be completely renovated in an energy efficient way. In the upper part of the guesthouse they are building 11 hotel rooms. Within the upgrade of the rooms, they will insulate the entire building envelope, a heat pump and solar power plant will be installed. They present a company that is aware of what they need to do in order to be competitive on the market.

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3.3. Italy

3.3.1. Video 1 - An introduction to energy audit for small and medium-sized enterprises

This video, developed by IIPLE within the scope of the European project called INNOVEAS, is the first module of a training package aimed at Italian SMEs. The goal is to convey information about energy efficiency measures, to increase the number of energy audits carried out within companies.

The introductory video describes the challenge that the world is now tackling, and the role of construction sector in the strategy designed by the European Community. The concepts of energy transition and of reduction of C02 emissions are depicted and put in the context of global change. This information is naturally linked with what can be done and how the reduction of energy consumption could be part of this strategy. The communication strategy adopts a young boy as an actor. This idea recalls the responsibility we all have towards future generations and the commitment to act now to fight climate change.

The expert explains the different steps to start the energy transition, from the analysis of the specific context to the effective adoption of energy efficiency measures. One of the fundamental phases of this process is at first to carry up an energy audit. It's known that many thinks that the energy audit is a general report which doesn't really fit with the specific context of the SME. The video tries to innovate the idea and promote energy audits as a fundamental step to define the starting point and what can be done to improve. The expert describes what an energy audit is, how to perform it and what kind of benefits it can produce. The method to perform an energy audit is clearly defined by EU technical rules like EN16247 and the audit must be tailored according to the specific situation. Benefits are presented in a holistic way. These can be directly related to the reduction on energy bills and indirectly related to green marketing and corporate social responsibility and reputation. Since the latter is less known by SME's, some issues are introduced in order to increase the interest.

The effort of a company engaged in energy transition can be also evaluated by voluntary certification methods like ISO 50001, EMAS and ISO 14001 for which the energy audit is essential. The adoption of a certification is a strong way to be recognized by the market and to increase competitiveness in calls for tender. Energy transition is a crucial part of the innovation process that can drive a SME to be a leading player of the renovated market.

The video ends with a call for action and a strong invitation to be part and actors of the fight to climate changes.

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2.3.2 Video 2 –Italian incentives for SMEs

The purpose is to understand why Italian SMEs don't perform Energy Audits. Often, the reason is a lack of economic resources to undertake this type of investments.

In Italy there are many subsidies and supports for companies aimed precisely at increasing the number of companies that carried out energy audits or adopted energy efficiency measures in the company.

This video provides an overview of the incentives available in Italy and in the various Regions for Small Medium Enterprises and summarizes the opportunities currently available.

The video shows the main barriers to carry out energy audits and 8 measures to help company financing some initiatives. They are divided into national and regional incentives and into incentives about energy audits or for measures / investments for energy efficiency.

2.3.3 Video 3 - Audit and energy efficiency - Policies and tools to support SMEs in Emilia Romagna

This training video produced by IIPLE concerns the goals of CO_2 reduction, as established by the European Community, and their transposition at regional level in Emilia Romagna.

The video's aim is to present the policies and concrete opportunity that are available in Emilia Romagna region and that can help SMEs to innovate their business towards sustainability and energy transition.

In 2017 the Region has developed its Green Economy Strategy, which comprises also economic incentives to support transports, industries, trainings and research.

Its operative tool is the three-year implementation plan, which includes a constant evaluation and monitoring activity to estimate the impact of the strategy adopted. The data presented show the primary energy used in the Region and the evolution of renewables with the predominance of photovoltaic systems, easier to be installed and managed. Another relevant topic discussed is the electric system and the need to adapt the cities to these new sustainable approaches. The concept of smart grid and how "to close the energy cycle" is briefly presented. The challenge is to increase the use of renewables and manage the balance of energy production and energy consumptions, trying to develop energy communities to locally use the energy produced.

An important witness and actor of this effort is the representative of the Regional office for research, innovation, energy and sustainable economy, who describes the tools used to create a green economy: incentives to sustain SMEs, design and planning of intervention, training and dissemination of information to the public. Moreover, he stresses the importance of

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energy audit procedure to assess the effective use of energy inside companies. The future of SMEs should be reduction of energy consumption and the replacement of fossil raw materials with renewable sources.

An example of good practice are the energy and environmental projects of the National Confederation of Craft Trades and Small- and Medium-Sized Enterprises of Bologna: since 2009, this organisation has created the Energy Efficiency Club, whose members are SMEs which are supported in the transition toward a green and circular economy by the Confederation. It offers to entrepreneurs the guide of experts and professionals, and demonstrates what the possibilities for companies are towards energy efficiency.

2.3.4 Video 4 – Peculiarities in Lombardy

The video aims to highlight the peculiarities in Lombardy on energy efficiency in SMEs and the advantages derived from energy audits.

To give a comprehensive view, different stakeholders have been interviewed: an energy auditor, a policy maker and representatives from an SME intermediary and a technological cluster.

2.3.5 Video 5 - Construction companies and green economy in Emilia Romagna

The video “Construction companies and green economy”, produced by IIPLE, describes the good practices of energy efficiency adopted in the construction sector of Emilia Romagna. The role of SMEs in this sector, is absolutely relevant in guaranteeing an efficient use of energy during the construction and the whole life cycle of the building.

Prefabricated wooden houses are presented as an example of energy friendly and sustainable technology. Such kind of buildings are perceived by the market as green, sustainable and they are thus the occasion to present the work of a firm of the building sector that has invested in that direction.

A building engineer presents what are the advantages of such buildings looking both to the question of resources and waste and also to the performances expected during the building life.

First of all, the wood requires a low amount of incorporated energy, which means that production and transport of this material don’t require a high amount of energy. Moreover, wooden buildings are perceived by experts and non-technical users as environmental-friendly. The interviewed company is expert in prefabricated wooden buildings and, during the interview, illustrates the virtuous characteristics of these buildings and the energy saving possibilities they offer.

The virtuous example described is a Co-housing complex, entirely composed by wooden prefabricated and located in the city of Bologna. Both the construction company and the users

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of these buildings are interviewed to understand the benefits of this solution: lightness of the building, speed in assembling the building, low consumption of incorporated energy, low consumptions of energy during the life of the building.

The point of view of the inhabitants shows how the awareness about energy efficiency and sustainability has increased in the last years and how is important for the market to adapt, to meet such demands. Investing in green and energy efficient solutions is a real opportunity for the SMEs involved in the building sector to open new economic scenarios.

2.3.6 Video 6 - Construction companies towards the green economy: best practices in Emilia Romagna

This training video produced by IIPLE, presents a best practice of the Emilia Romagna region: Appennino Construction Cooperative (CEA). CEA is a virtuous example for SMEs, as a reality concerned with aspects of green and circular economy, disposal of construction waste and adoption of energy efficient measures.

This cooperative, founded in 1982 in Bologna, is a good example of how a traditional company of the building sector has innovated its procedures towards sustainability and energy transition and how the investments done have help them to grow their business also acting outside Italy.

The message driven by the video is that the change is possible, and that a continuous improvement is done by little steps. The evolution of the construction cooperative is presented to show that a committed approach can lead to concrete success.

This cooperative is still constantly updating its knowledge and technologies, also through the cooperation with research centres and the University of Bologna.

CEA has recognized the importance of the green reputation of companies on the market. Therefore, they installed a large photovoltaic plant on the roofs of their warehouses to both produce renewable electricity and to underline their care for environmental and energy efficiency topics. Together they have started by increasing the energy performance of their office buildings by installing heat pumps and increasing thermal insulation.

They have invested in Certifications like ISO 50001 and EMAS, which augment the green reputation of the company and help them to win public calls for tender both in Italy and in other EU countries.

Following a holistic approach, in addition to energy aspects, they have invested in building waste reuse. Materials coming from demolition are directly recycled with their own machinery and employed again on the construction field. They also have several projects linked with efficient use of water and its storage, not only in Europe but also in developing countries.

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This cooperative represents a large set of construction companies of the region and its example aims to convince other companies to start their own evolution towards sustainability and energy transition.

2.3.7 Video 7 – Best Practice in food and construction in Lombardy

The video aims to show best practices in two companies (respectively from food and construction industry) located in Bergamo regarding energy efficiency measures.
Two companies located in the province of Bergamo, operating in the food and construction sector, show their path of energy efficiency.

2.3.8 Video 8 – Best Practice in chemical industry in Lombardy

The video aims to show best practices in two companies (from chemicals industry) located in Bergamo regarding energy efficiency measures.

Two companies located in the province of Bergamo, operating in the chemical sector, show their path of energy efficiency.

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3.4. Poland

3.4.1. Video 1 - What is Energy efficiency and how to proceed with an audit in SME

The first video explains what is the energy efficiency and how to measure it and what the energy audit is and steps to conduct an audit in SME.

In order to successfully implement energy-saving projects in an enterprise, it is worth to first find out what energy efficiency is, how we can measure it and how to manage energy consumption.

The video also includes results of research among SME's concerning the energy efficiency awareness. The video explains what the energy audit is and shows the necessary step to conduct audit in SMEs.

3.4.2. Video 2 - Energy management system – ISO 50001 and ESCO formula

The second video explains how to introduce EMS in SMEs and how to implement it according to ISO regulations; to explain how ESCOs formula works and how it can be used in SMEs.

This video contains an introduction of EMS and the steps that are necessary to conclude in order to receive ISO50001 certification.

It shows positive outcomes of introducing EMS in SME as a part of day-to-day work of a company, including monetary benefits. Second part of the video explain the ESCO model of financing – how ESCO works, parties that need to be involved and the procedure. Also, it includes the benefits of involving ESCOs in investments planned i.e. identified in EMS, in SMEs

3.4.3. Video 3 - Programme „Energia Plus"

The purpose of the third video is to introduce the national support programme „Energia Plus" run by National Fund for Environmental Protection and Water Management.
Target audience: All enterprises including SME's

Video contains a presentation of ENERGIA PLUS programme – what are the conditions, rules and requirements to use the fund provided in the programme. The presenter also explains the benefits for SME's and changes that has been done in the programme in order to encourage SME's to use it.

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3.4.4. Video 4 - White Certificate scheme

The fourth video explains and introduces the national support scheme “White Certificates”

The video contains the explanation of what are the White Certificates and how the entrepreneur can obtain them. Detailed procedure on requirements, documentation and necessary steps is explained.
It also describes the monetary incentives that are included in the scheme and how those can be obtained by SME.

3.4.5. Video 5 - Heat pumps in food processing

The purpose of the fifth video is to explain how the heat pump works and how it can be used in food processing sector.

The video contains a technical explanation on how the heat pump works.
Further on, it shows examples of how it can be used in food processing sector in two ways:
1. In company producing fries – heat pump is used in drying process,
2. In company producing beer – heat pump is used in cleaning process.

The video shows monetary benefits and also assurance that food process safety won’t be endangered by installing any measures supporting energy efficiency.

3.4.6. Video 6 - Cogeneration, photovoltaics and other solutions in chemicals manufacturing SMEs

The video shows how to reduce the energy costs of a production plant by the use of waste heat, optimization of equipment operation, replacement of existing energy sources with others.
All presented solutions were based on a real study cases from an SME.

The video contains several solutions that can be used in chemical manufacturing company. Al measures were chosen based on an audit and those are:

1. Cogeneration – what it is and how can it be used in production system and what kind of parameters from energy audit suggest to install cogeneration.
2. Photovoltaics – what are benefits from this solution and how to assess and calculate on a basis of energy audit whether the solution is good for the company
3. Technological process optimizations

- the first is the replacement of electric heaters with heat from a boiler combusting production waste - ethanol. Video explains when it is useful (on a basis of energy audit) and how to proceed with such solution
- the second one is optimization of power demand for a boiler with a gas-oil burner. Video explains when it is useful (on a basis of energy audit) and how to proceed with such solution

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3.5. Germany

3.5.1. Video 1 – Advantages and benefits of an energy audit for SMEs

The aim of the first video is to raise awareness and motivation for the implementation of an energy audit and to implement energy efficiency measures.

It deals with global warming requires action by all societal players. SMEs can also contribute to climate protection by implementing an energy audit. The implementation of an energy audit is briefly explained and the benefits for SMEs are highlighted. An SME can implement the audit with the auditor in a few steps and save energy and costs through the measures derived. It is also worthwhile for SMEs to carry out an energy audit.

3.5.2. Video 2 – Special features and support for EAs in Germany and Baden-Württemberg

The aim of the second video is the demonstration of initiatives and networks as well as funding opportunities to support small and medium-sized companies in the implementation of energy audits and energy management systems.

In Germany and Baden-Württemberg, several incentive systems on the part of the federal and state governments do exist. They are focusing on the support of successfully implementing energy efficiency in small and medium-sized companies. In the second video the most important incentives are mentioned and briefly described.

The “Energy Efficiency and Climate Protection Network Initiative” focuses on providing information, consulting services and incentives that help strengthen the personal responsibility of the participants. The “SME Initiative Energy system transformation and climate protection” supports German SMEs with numerous practical tools. In addition, there is a cross-sector network, called “Initiative Climate Protection Companies", which supports companies in their efforts to protect the climate with the help of model examples. Furthermore, there is a “climate alliance” in Baden-Württemberg, where companies can join the alliance and enter into a partnership with the state.

This video also shows supporting programs, both for investment promotion and for consulting support. First, an overview of current support programs is given and in the following, two particularly relevant and current programs, "Energy Consulting for SMEs" and "Climate Protection Offensive for SMEs" are briefly explained.

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3.5.3. Video 3 – Best practice energy management in the field of construction, stone and earth

The objective of the third video is to raise awareness and motivation for the implementation of an energy audit and to implement energy efficiency measures

The example of Merkle GmbH & Co. KG shows that an energy audit can also be successfully implemented in a medium-sized company. The Merkle GmbH & Co. KG operates a quarry and extracts aggregates for building materials from the material. The process is energy intensive. At various stations in the quarry, such as pre-sorting and crushing, measures to increase yield and energy efficiency are demonstrated. Further processing steps have been optimised in order to reduce energy consumption. Energy monitoring, which was installed to control the improvement process, plays a key role in this.
The function is shown in the third video. The energy generation, which is guaranteed by several block-type thermal power stations, was optimised beyond the normal level by means of a self-developed residual heat utilisation system. Furthermore, the video shows that even by improving the degree of utilisation, the relative energy consumption of the material obtained can be indirectly reduced. The plants set up for this purpose are shown and their function described, so that the viewer can understand how the company is continuously improving and reducing energy consumption by optimising processes.

3.5.4. Video 4 – Best practice: Energy management in the field of food production

The aim of the fourth video is to raise awareness and motivation for the implementation of an energy audit and to implement energy efficiency measures

The example of Ensinger Mineral-Heilquellen GmbH shows that an energy audit can also be successfully implemented in a medium-sized company in the food industry. The development of environmental and energy management over 20 years is shown. EMAS, ISO 14001 and ISO 50001 were introduced as systems. The energy monitoring serves to identify potential for improvement in the field of energy. Many measures were derived from this. First step Energy saving in various areas. Second step Installation of a large photovoltaic (PV) system on the production building. Acquisition of electric forklifts that are operated with green electricity. Conversion of the entire electricity consumption to green electricity. Finally, in order to achieve climate-neutral production at the site, unavoidable emissions are compensated for with Gold Standard projects.

3.5.5. Video 5 – Best practice: Energy management in the field of chemistry production

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The fifth video aims to raise awareness and motivation for the implementation of an energy audit and to implement energy efficiency measures

The example of Zeller+Gmelin GmbH, shows how a medium-sized company in the chemical industry carried out an energy audit, implemented an energy management system and successfully implemented measures to improve energy efficiency.

The company has an integrated management system. Since 2019 the management system ISO 50001:2018 was introduced, which was embedded in the systems DIN EN 9001 and DIN EN ISO 14001.

The management system with continuous energy monitoring has led to the implementation of numerous projects in the field of energy efficiency.
Through new compressors that communicate intelligently with each other, a resource-efficient dosing system etc., huge energy savings have already been achieved. Photovoltaic systems and a targeted heat recovery system are also used here.

Furthermore, there is a solar-powered passenger elevator, which feeds electricity back into the power grid during the downward movement. The company also uses green electricity to help improve its carbon footprint. The company has been climate-neutral since 2020. The purchase of climate certificates (Gold Standard) supports climate protection projects in emerging countries.

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4. Summary and next steps within Task 4.1

The videos are meant as an introduction for companies to deal with the topic of energy audits. They give the opportunity to learn what an energy audit is, how an energy audit is conducted and what advantages it brings.

Target group of the videos are above all small and medium-size enterprises in different sectors, since these often do not have the time and financial resources to deal with the topic of energy audits. This is also confirmed by the results from D.3.1.
For SMEs the topic of energy audits is often still unknown or at least under-represented among other strategic goals. But, also, other actors such as consultants or political actors can use these videos to approach their target groups or as a chance to promote their activities or to learn themselves, if the topic is new to them.

The introductory video (Video 1) is meant to raise the interest of companies and to contribute to the basic understanding of energy audits. The subsequent video will show which supports are available for companies in the respective countries or regions. These can be initiatives, networks, subsidies or other incentive systems. The video should encourage companies to deal with the topic and encourage them to be supported in their approach. This video will also briefly introduce the regional/national peculiarities related to the process of energy efficiency, by taking into consideration that the training activities of the capacity building programme will be addressed to SMEs operating in a specific geographical area.

The best practice examples show how front running small and medium-sized companies have addressed the issue of energy efficiency and energy audits and therefore underline the messages from previous videos. Through the advantages mentioned there, companies should be further encouraged that an energy audit can also be profitable for example for financial or ethical reasons.

Before the implementation of the in-situ trainings (in Task 4.1.) fixed short lessons should then be complemented by a cycle of **webinars**, in which companies' representatives may interact with the project experts.
Each partner (IIPLE, CBG, UTBW, A3E, NAPE and LEAG) will produce at least one webinar, introducing the basic contents of the in-situ training.

The In-situ trainings for groups of companies are following in T4.1.2. The In-situ trainings will have a duration of 16 hours per edition and will provide in depth knowledge of energy audit (added value, existing incentives, procedures).

SMEs trainings will then be completed in Task 4.1.3 through the so called "In-company training", addressed to a restricted and selected number of participants. In-company trainings will be organised on demand, and will be carried out by consultants from intermediary organisations and energy auditors. This type of training will include all the content of T4.1.2, but it will be better targeted on the specificity of the single company, considering its sector and size.

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From the in-situ for groups of company modules, each responsible partner will edit and publish one **video** to recap the main features emerged during the implementation of the different lessons. The videos will be published on the INNOVEAS website and YouTube channel, as a reference for participants who could not attend the course or who wanted to review some of the elements, to recall the contents. It is also planned to publish other online formats that have been conducted virtually and have been recorded, if the content seems to be interesting to a broader public (for example as with the “Sustainable Places conference” or some of the transdisciplinary workshops).

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