Energy Transition Audits towards Decarbonization

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Table of contents

Document History

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Table of figures

Table of tables

List of Acronyms

Acronym	Meaning
AB	Advisory board
DAP	Decarbonization Action Plan
ETA	Energy Transition Audit
EA	Energy Auditor
ECTS	European Credit Transfer and Accumulation System
EM	Energy Manager
EQF	European Qualification Framework
E&T	Education and Training
ECTS	European Credit Transfer and accumulation System
LO	Learning Outcome
LU	Learning Unit
WP	Work Package

EXECUTIVE SUMMARY

This report has been developed through the implementation of the EnTRAINER project, funded by the Environment and Climate Action (LIFE) program under Grant Agreement No 101076424.

The EnTRAINER project aims to introduce a paradigm shift from conventional energy audits to a new, holistic and complete Energy Transition Audits (ETA) methodology. With this novel approach, the main focus is to provide a multi-benefit scheme and a comprehensive action plan towards full decarbonization of the audited sites. The holistic methodology of EnTRAINER includes training elements in the form of two accredited courses for energy auditors and energy experts and one course for company staff. It also includes a sophisticated web portal, with four digital tools freely offered to energy professionals and a training platform and knowledge hub that will allow continuous interaction and knowledge sharing between participants.

Regarding accredited training courses, this document aims to define both programs in "**Energy Transition Audits Course for Energy Professionals**" and "**Energy Transition Audits Course for Energy Auditors**". The report outlines the Education and Training (E&T) programs by describing the whole design and implementation process. Also, the designed learning units (LU) are described to correlate them with the project's objectives and targeted learning outcomes. Following the context and course description, the accreditation and certification procedures are tailored to each partner country.

In the first part of each training program, the training methodology is described, including the relation between the European Qualification Framework (EQF) Level and European Credit Transfer and Accumulation System (ECTS) Credits, LUs, outcomes and program content. On the other hand, an evaluation questionnaire is included to identify the usefulness and applicability of the presented materials, the relevance of the content, and directions for improving and optimising the course materials.

The second part of each training program focuses on the learning unit's content specifications and highlights the main topics that the trainers in each country will address.

Afterwards, a specialised handbook will be developed for the program's needs, covering all thematic units, the necessary theoretical background, working examples, tutorials, etc. The handbook will be developed in English, translated into all consortium languages (Greek, Romanian, Spanish and Italian), and it will be available on the web portal.

This deliverable version will be considered for the first edition of the courses. However, if improvements or special needs are detected, this could be updated for the courses' second edition and until the project's end.

Purpose of this report and project context

This report is dedicated to the design, development, implementation and evaluation of the Education and Training (E&T) program, corresponding to WP5 of the EnTRAINER project, i.e., Training hubs for capacity building.

The WP5 addresses an essential aspect of the proposed holistic Energy Transition Audits (ETAs) approach. It focuses on providing the necessary skills and knowledge to the stakeholders participating in the implementation of the new methodology. Additionally, this dimension aims to upskill current and aspiring energy professionals, who may also pursue careers as energy auditors, raise awareness among company staff members and effectively communicate the importance of sustainability plans. To this end, the project will create three comprehensive educational and training courses in the form of:

- One accredited training course for energy professionals.
- One accredited training course for energy auditors.
- One short training course for company staff, aimed especially at the top decision-makers.

In particular, this report focuses on the first two accredited training courses under the name: “Energy Transition Audit Course for Energy Professionals” and “Energy Transition Audit Course for Energy Auditors”.

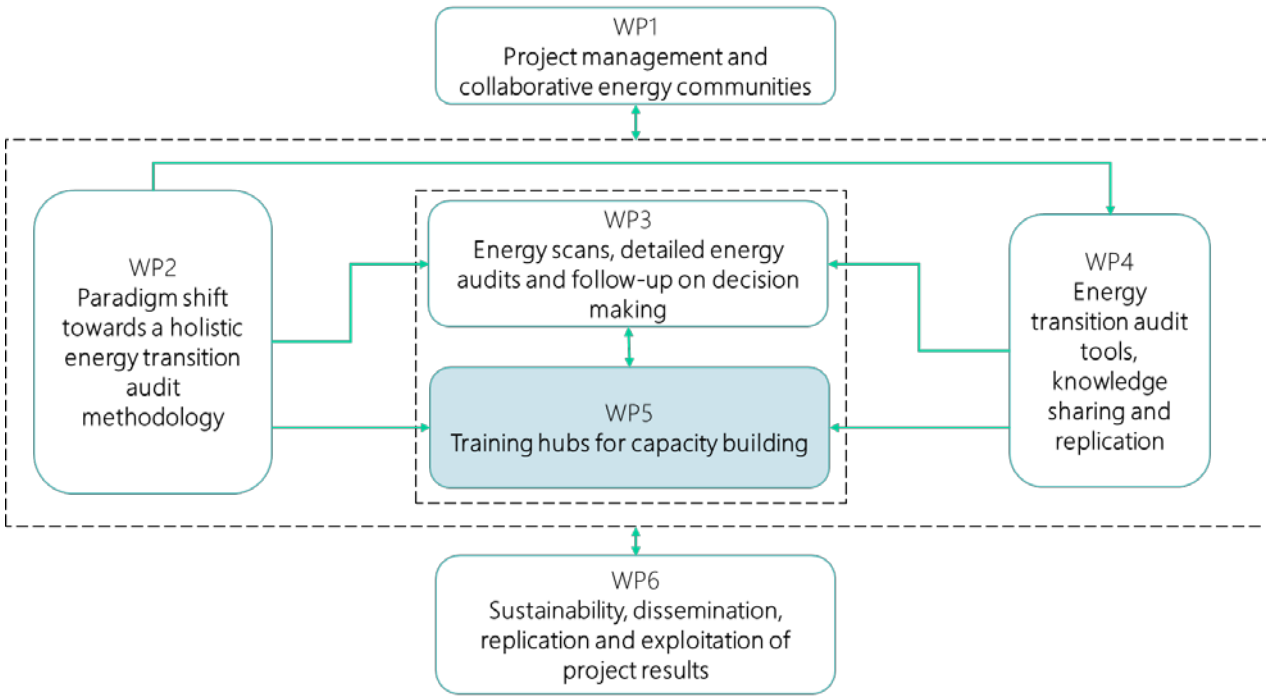

Figure 1 EnTRAINER project Work Packages and their interrelation

As shown in *Figure 1*, the E&T programs will be designed and developed taking into consideration the input received from WP2, WP3 and WP4, with the purpose of maximising all the knowledge generated in the project so that it can be passed on to future energy professionals. WP2 will develop the energy transition audit concept and the step-by-step proposed adapted methodology, which will be used in WP5 to provide future energy professionals with a more holistic and comprehensive methodology than the conventional one. On the other hand, the outputs and lessons learned from the audits carried out in WP3 will be of great help in enhancing the content of the course and adjusting it better to the current needs. In the knowledge-sharing platform created within WP4, approaches and lessons learnt will be shared effectively and will be added to the training courses in successive versions. Finally, the digital support tools to be developed in WP4 to facilitate the auditors' practical work will be included and explained during the training course.

The outputs of this report and overall, of the WP5, will be used as input to other project activities. Specifically:

- It will support auditors conducting ETAs during WP3 and those who want to replicate ETAs afterwards.
- It will also complement and support the new energy audit culture that the project aims to create through the WP4 knowledge-sharing hub platform to later facilitate the replication of this new audit methodology by energy auditors, energy experts/managers and stakeholders.
- It will support the improvement of the tools developed in WP4 through testing conducted during the training courses and feedback collected from the practical users of the tools.

1. TRAINING COURSE PROGRAM ON ENERGY TRANSITION AUDITS FOR ENERGY PROFESSIONALS

1.1. Introduction

1.1.1. Brief description of the course

This E&T program will provide the necessary skills to build an innovative energy audit culture among current and future energy professionals, to establish the holistic EnTRAINER approach through the new concept of Energy Transition Audits (ETAs) and a comprehensive action plan to achieve the full decarbonization of industrial companies. It also analyses the energy efficiency measures, digital tools and financial instruments currently available to quantify and implement the most promising energy-saving opportunities accurately.

The training program will cover both technical and behavioural aspects. Concerning the first area, conventional energy audits will be complemented with new energy management techniques, instruments and solutions, focusing on leading energy-intensive industries towards short, medium and long-term decarbonization. This way, professionals will embrace a new multi-benefit scheme that can be presented as a realistic and attractive action plan to be put into practice. Regarding the second area, the aim is to trigger a behavioural change in these industries at all levels, i.e., organisational, administrative and technical staff, including key decision makers, by raising awareness of sustainable energy consumption.

Furthermore, the course will be designed considering the importance of practical experience through specific case studies of energy efficiency and decarbonization projects, with the help of digital tools and ICT features. A mix of face-to-face and distant learning methods will be available, ensuring that the necessary theoretical background is effectively delivered as well. Moreover, it will also include self-working material for self-study, and the participants will be encouraged to exchange ideas and interact with each other on the online platform. This provides a multidisciplinary environment for learning through experience and practicality.

1.1.2. Focus groups

The core objective of the project is to enhance the abilities of individuals involved in designing and implementing energy efficiency and decarbonization measures to decrease greenhouse gas emissions through energy audits, so the course is mainly targeted to current and future energy professionals who will complement their professional background with energy transition skills and decarbonization strategies for the industry. Focus groups include:

- Holders of a level-5 EQF vocation training degree in the fields of energy, industry or environment.
- Engineering students or graduates with an energy, industrial or technical background.
- Energy experts and professionals or other qualified individuals such as energy auditors, consultants, and energy managers.
- Personnel of industrial companies.

1.1.3. EQF level expectations

As for the recognition, the E&T program will be certified by partner Universities (or external accreditors that certify courses that the university will introduce) through their lifelong-learning programs with 5 European Credit Transfer and Accumulation System (ECTSs) of EQF level 6. Therefore, the E&T program will be designed based on the desired learning outcomes associated with Level 6 of the EQF, which are:

- Advanced knowledge of one of the fields of energy efficiency, energy transition and decarbonization involving a critical understanding of theories and principles.
- Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in the field of energy audits and decarbonization.
- Manage complex technical or professional activities or projects, take responsibility for decision-making in unpredictable work or study contexts and take responsibility for managing the professional development of individuals and groups.

1.2. Training Methodology

1.2.1. Goal of the E&T program

The EnTRAINER E&T program is designed to offer a comprehensive and holistic approach to trainees, equipping them with the necessary skills to meet the new demands for energy efficiency improvement and decarbonization of the industry. This will be done mainly by introducing them to a new energy audit methodology which will embrace the multi-benefit scheme and the decarbonization action plans that are considered part of an ETA paradigm shift.

It recognises the importance of providing quality training to current and future energy professionals so that they can identify and propose a wide variety of effective energy efficiency and decarbonizations measures and solutions to reduce the impact of industries on the environment and thereby addressing the climate crisis.

EnTRAINER will offer two editions of the E&T program with at least 30 trainees per edition and per country. Thus, a total of four participating countries will result in at least 240 trained professionals.

1.2.2. Learning objectives of the E&T program

This E&T program has been developed according to the needs that have been identified in the field of industrial energy efficiency audits, and it is aligned with the program that was developed during its predecessor SMEmPower Efficiency project as part of a holistic strategy of capacity building in energy efficiency and decarbonization for industries. In this way, previous activities were carried out to identify the current situation and understand the problems and opportunities, to identify current practices, socio-economic and policy barriers, legislative barriers, available certification schemes and training methodologies, potential best practices, needs and financing mechanisms for energy efficiency in the industry.

Consequently, the objectives of the course presented in this E&T program have been defined to guarantee complete training adapted to the needs of the current energy sector so that attendees acquire sufficient technical and economic background to develop in their area of work, always considering environmental protection.

The general learning objectives expected from the course are listed below:

1. Understand the environmental impact of the industrial sector and the potential of energy transition audits to generate economic, environmental, and organisational benefits.
2. Understand the obligations and opportunities of industrial companies under current legal frameworks relating to energy efficiency, energy transition and decarbonization.
3. Create knowledge that leads to a qualitative update of current methodologies for energy audits thanks to the energy transition audit concept.
4. Overcome the barriers that prevent the decarbonization of industry, as well as most of the measures proposed in conventional energy audits, from being implemented.
5. Conduct multi-benefit analysis to rank energy efficiency and decarbonization measures and assist managers' decision-making.
6. Understand how the collective approach and short, medium and long term decarbonization plans can increase the effectiveness of the audit.
7. Acquire resources to involve companies in the implementation of ETAs.
8. Know the methodologies and general standards for conventional energy audits.
9. Know the basics of energy consumption measurement and the necessary equipment.
10. Build the necessary basis for an energy analysis after a preliminary in-house energy evaluation and data review.
11. Learn about different energy efficiency measures related to building thermal and electrical processes, and equipment.
12. Learn about different decarbonization measures related to self-production with renewable energy sources, high-efficiency co-generation or waste heat recovery.

13. Know how to improve an energy contract and tariff periods to avoid various possible penalties and supplementary costs based on the energy database.
14. Understand how demand management and changes in staff behaviour can increase energy efficiency.
15. Know the several types of digital tools available for energy and CO_2 emissions management.
16. Understand how the tools developed by EnTRAINER project can help assess energy savings and identify energy efficiency and decarbonization opportunities.
17. Understand the fundamentals of economic and financial analysis of energy projects.
18. Distinguish between different options for financing energy projects and be aware of the different existing financing schemes.
19. Understand the energy performance contracts (EPC).
20. Comprehend all the knowledge taught through real case studies and practical exercises.

1.2.3. Methodology and criteria to define Learning Units

The learning units (LUs) will be defined considering the needs of the energy market and energy-intensive industries and feedback from other project activities.

A learning unit is a component of a qualification, consisting of a detailed set of knowledge, skills and competence that can be evaluated, assessed, and certified. Learning Units are segments of the learning program that are designed to provide specific and measurable learning outcomes. They represent a unit of a distinct topic within a broader curriculum and will be used in the EnTRAINER E&T program to facilitate the assessment, recognition and transferability of LOs (see section 2.4).

Following the ECTS recommendation, this report must define at least the following aspects:

- The title of the learning unit.
- The EQF level of qualification.
- The ECTS points associated with it.
- Learning outcomes contained in it.
- The procedures and criteria for its assessment.

As far as the learning units are concerned, these are expected to deliver a thorough and coherent learning experience based on the following guidelines:

- Learning units are independent from each other, completed and assessed individually.
- Learning units include the necessary learning outcomes to cover the established objectives, designed to be achieved in a specific timeframe.
- Learning outcomes are designed to be measurable.

According to the above, the learning objectives expected from this E&T program (listed in *section 2.2*) have been redefined and transformed into the following learning units:

- **LU1: European and national policies and legislation for energy efficiency, energy transition and decarbonization.**
- **LU2: Cutting-edge energy efficiency and decarbonization solutions as measures for Energy Transition Audits.**
- **LU3: Energy Transition Audits (ETA) and Decarbonization Action Plans.**
- **LU4: Tools for monitoring and managing energy and related CO_2 emissions.**
- **LU5: Financing energy efficiency and decarbonization measures, tools and evaluation.**
- **LU6: Team project - Applying an ETA to a case study**

Finally, the weight assigned to each Learning Unit has been distributed according to the workload expected to be invested in each of them as is explained in sections 2.5 and 2.6, taking into account the hours dedicated to:

- Lectures: including teaching, tutorials and reading of the theoretical lectures.
- Self-study: study hours without direct supervision or attendance in class, which include the resolution of working examples or exercises as well as the preparation of the theoretical assessment.
- Practice: hours dedicated to the practical learning activities of the programme. This will be addressed through the delivery of a team project applying the knowledge acquired.

The following sections elaborate in more detail on the aspects of this methodology defined by the corresponding ECTS.

1.2.4. Learning Outcomes

Learning units enable progressive achievement through the transfer and accumulation of learning outcomes defined in knowledge, skills, and competence terms. For each learning unit, learning outcomes have been defined to describe to attendees what is expected from them after completion of the unit.

Learning outcomes must describe in observable and measurable terms what a learner is able to do or demonstrate as a result of completing a learning experience. Therefore, they must be specific, measurable, achievable, realistic, time-bound, and in accordance with the requirements of EQF level 6 specified in *section 1.4*. The learning outcomes will be assessed through the practical assessment exercises of each learning unit.

The overall outcome after completion of the course could be summarized as the trainee's acquired capability to effectively apply the knowledge and tools provided in this E&T program. This outcome could be the combination of several specific outcomes acquired at the end of each LU, which are listed below:

LEARNING UNIT 1: European and national policies and legislation for energy efficiency, energy transition and decarbonization
• Attendees will be able to identify and interpret the regulatory frameworks concerning energy efficiency, energy transition and decarbonization at national and European levels. • Attendees will be able to recognize the environmental impact of industry and the possible actions of industrial companies within the framework of energy policies.
LEARNING UNIT 2: Cutting-edge energy efficiency and decarbonization solutions as measures for Energy Transition Audits
• Attendees will be able to identify and evaluate the effectiveness and suitability of cutting-edge energy efficiency and decarbonization measures based on specific contextual requirements. • Attendees will be able to assess the potential of decarbonization solutions through renewable energy integration.
LEARNING UNIT 3: Energy Transition Audits and Decarbonization Action Plans
• Attendees will gain a comprehensive understanding of the concept of energy transition, including the need for decarbonization and the drivers behind it. • Attendees will acquire the necessary basic competencies to perform Energy Transition Audits. • Attendees will be able to interpret and analyse energy and emissions data from industries. • Attendees will learn how to formulate effective decarbonization action plans based on ETA findings. • Attendees will be able to conduct the design of a Decarbonization Action Plan. • Attendees will develop the capacity to engage companies in energy transition audits and decarbonization efforts.
LEARNING UNIT 4: Tools for monitoring and managing energy and related CO_2 emissions
• Attendees will be able to handle digital tools to facilitate the energy analysis process of energy transition audits. • Attendees will be able to interpret the results from digital tools to identify opportunities for energy efficiency and decarbonization.
LEARNING UNIT 5: Financing Energy Efficiency measures, tools and evaluation
• Attendees will be able to assess the economic feasibility of an energy efficiency and decarbonization investment project. • Attendees will be able to identify the different forms of available funding to make the investment in energy efficiency and decarbonization of the company more profitable. • Attendees will be able to formulate an Energy Performance Contract (EPC).
LEARNING UNIT 6: Team project - Applying an ETA to a case study
• Attendees will be able to effectively apply the knowledge and tools of the E&T program to a case study.

Table 1 Learning outcomes for each LU of course on ETAs for energy professionals.

1.2.5. Relation between EQF Level and ECTS Credits in the course

This E&T program is implemented under the European Qualification Framework (EQF), based on common learning outcomes of Level 6 described in *section 1.4*. On the other hand, one credit of the ECTS is equivalent to 25 - 30 hours of training workload, so the 5 ECTS of the program correspond to 125 - 150 hours of workload.

Apart from the hours devoted to the lectures, the program includes practical activities, in consonance with the practical approach of the delivery of the training to bring students closer to a real-world context. In addition, it incorporates self-study hours, which include the resolution of working examples, exercises, multiple choice questions, etc. All these resources are directed towards providing contemporary and advanced training material, which will be available indefinitely after the end of the project to all interested people.

The implementation of the EQF needs qualifications to be described in terms of learning outcomes (LOs) and LUs. LUs are often used as the foundation for allocating ECTS credits and qualifications and provide a structured framework for organizing the accreditation. The process should adhere to existing national, regional, sectoral, or institutional guidelines to ensure consistency and compliance with established standards. The following aspects express the criteria followed for conceding ECTS for each course:

- The importance of learning outcomes of each learning unit.
- The level of difficulty of each learning unit, and the effort necessary to acquire the demanded knowledge, skills and competence.
- The workload for the participant in each learning unit.
- The overall length of each learning unit.

The suggested weighting and allocation of ECTS credits to each learning unit of the E&T program, expressed as relative percentage and integer value, is as follows:

Learning Unit	Description	ECTS weighting factor (%)	Expected workload
LU1	European and policies and legislation for energy efficiency, energy transition and decarbonization	0,5 ECTS (10%)	15 hours
LU2	Cutting-edge energy efficiency and decarbonization solutions as measures for Energy Transition Audits.	1 ECTS (20%)	30 hours
LU3	Energy Transition Audits and Decarbonization Action Plans.	1 ECTS (20%)	30 hours
LU4	Tools for monitoring and managing energy and related CO_2 emissions.	1 ECTS (20%)	30 hours
LU5	Financing energy efficiency and decarbonization measures, tools and evaluation.	0,5 ECTS (10%)	15 hours
LU6	Team project - Applying an ETA to a case study	1 ECTS (20%)	30 hours

Table 2 Weighting of ECTS of each LU of course on ETAs for energy professionals.

1.2.6. Training Methods

Courses must be imparted in a way that effectively conveys the main goal of the program to trainees. The aim is to raise awareness about the importance of decarbonization so that they can develop proper techniques and use new and updated tools to implement in their work as energy professionals.

To this end, the E&T program of EnTRAINER project will use a mix of face-to-face and distant learning methods or purely distant learning if necessary. Each partner is free to choose their preferred method, considering the needs of the participants and the members imparting the course.

A combination of the following learning materials will be prepared accordingly:

- **Lectures and tutorials.** Either through face-to-face, distance or combined educational material, they provide the necessary information for current or future professionals to update their knowledge and skills. The delivery of the theoretical content will be efficient, structured and well organized, to ensure that learners grasp the fundamental principles and frameworks of each learning unit.
- **Working examples or exercises such as multiple-choice questions**. This type of self-evaluation helps to develop decision-making skills, allowing trainees to assess their progress and identify areas for improvement.
- **Case study and practical activities**. They provide opportunities for experimental learning, where trainees can directly experience and apply knowledge in a real-world context by bridging the gap between theory and practice. They enable participants to develop and refine specific skills; technical skills, problem-solving ability and critical thinking are some of the aspects enhanced with the provided examples. These activities may be associated with the delivery of a project presenting different analyses and conclusions related to energy audits. In addition, digital tools will also be used to carry out different analyses and find solutions. Finally, they allow a better assimilation of the theoretical content and a better understanding of its practical application.
- **Interaction between participants**. Active participation encourages learners to share ideas and views, leading to a more enriching experience. Therefore, a group project will be proposed where knowledge can be exchanged. In addition, online platforms should be available where there is space for discussion and the expression of views with all participants.

To highlight the European character of the course, the learning units' structure will be common to all partner countries. Nonetheless, each of the four countries will adapt the content to national legislation, specifications, plans and requirements. In consideration of the geographical, social and economic differences, national context will be included without affecting the common learning outcomes nor the learning methodology.

The courses will be held on online platforms. Firstly, on the EnTRAINER project training and knowledge hub platform, which will incorporate the use of ICT tools to facilitate the learning process,

exchange useful information and training material with an appropriate quality, allow the interaction between instructors and trainees, conduct practical exercises, create databases and provide feedback. In addition, through this platform, learners will be able to interact with other experts and professionals in the sector.

All this material will also be available on each partner University platform. They will choose the training platforms offered by their Life-Long Learning Programs (LLP) or equivalent educational institutions.

Moreover, a specialized handbook containing all LUs will be developed and translated into all consortium languages. It will be accessible from the EnTRAINER project web-portal and available indefinitely after the end of the project to all interested professionals. In this regard, the material should be as advanced as possible to remain useful after the end of the project.

Finally, two editions of the course will be delivered, gathering feedback from the first edition to improve the second edition as explained in section *2.9 Continuous improvement.*

1.2.7. Assessment Methods

The evaluation of the acquired knowledge according to the expected learning outcomes will be assessed by both an evaluation procedure at the end of lectures (theoretical knowledge) and the evaluation and presentation of a project report (practical learning). Course certification awarded with 5 ECTS credits will only be provided to trainees passing both evaluations obtaining at least 50% of the maximum grade in total.

The distribution of the assessment shall be as indicated in the following table.

	Assessment method	Assessment weighting
Theoretical knowledge	Set of multiple-choice questions One test per learning unit	40%
Practical learning	Team project	60%

Table 3 Course assessment of course on ETAs for energy professionals.

The assessment of the theoretical part will ensure that the learning objectives of each learning unit have been achieved while the practical part will assess the expected learning outcomes.

For the development of the team project, trainees will be provided with a case study of an industry and its energy and emission data. During the project, they will be required to solve simple problems related to energy and CO_2 analysis and the economic viability of an energy investment project; interpret and analyse provided consumption data; investigate different energy efficiency and decarbonization options; identify possible sources of financing; perform multi-benefit analyses; and use some digital tools to facilitate the analysis.

1.2.8. Prerequisites

Prerequisites are any prior knowledge, skills or understanding that the learner is required to have before attending the E&T program. As established in *1.3 Focus groups,* the course is aimed at current and future energy professionals with an energy background. Therefore, based on the content of the learning units, the preferred prerequisite for a trainee to meet before undertaking the E&T program is holding at least a level 5 EQF – Vocation training degree or university degree related to either energy or engineering. However, the training program will be open to other qualified individuals such as auditors, consultants, managers; current students or anyone who wants to gain further qualifications and could be a future employee in the industrial sector.

There are no specific mandatory pre-requirements, but *Section 3* lists some recommended prerequisites for a better understanding of each learning unit.

1.2.9. Continuous improvement

One of the EnTRAINER project's main objectives is to develop contemporary and advanced training material that will be available to all interested professionals after the end of the project. For this purpose, the offered training courses will be sufficiently tested and refined during the project implementation, and they will be adapted to the current needs in terms of energy audits.

In order to continuously improve the E&T program during the project's life, the courses and their content will be subject to updating, according to the continuous feedback that will be gathered from the implementation of the different project activities such as audits or the information exchange platform, as well as course feedback provided by the attendees themselves. At the end of each course edition, the contents of the training course and the handbook will be reviewed and updated.

A feedback questionnaire is proposed for the collection of information from participants. This questionnaire will be composed of simple questions to be rated from 1 to 5 in order to obtain a quantitative assessment. Additionally, there will provide the option to submit detailed comments, suggestions and further qualitative assessment.

The questionnaire will be filled in by the trainees at the end of the training course in the form of an online questionnaire (presented in Appendix A). The issues on which the participants' opinion is requested are:

- E&T program content and enhanced competencies (objectives, topic, relevance and usefulness of the information provided by the program etc.).
- Suitability of the information provided in each LU.
- Program materials, quality of delivery and teaching techniques (clearness of the materials, up to date the used references, teaching techniques, level, teaching ability, possibility of interaction, quality of used infrastructures, etc.).
- Other insights and improvements suggested by the participants.

The main objectives pursued by the implementation of these questionnaires are to get proper feedback for improving the courses and for optimizing the course materials to achieve a high degree of usefulness, relevance and applicability of the presented information.

1.3. Learning Units' Content specifications

1.3.1. Learning Unit 1: European and national policies and legislation for energy efficiency, energy transition and decarbonization.

Overall Learning Objectives
✓ Understand the environmental impact of the industrial sector and the potential of energy transition audits to generate economic, environmental and organizational benefits. ✓ Understand the obligations and opportunities of industrial companies under current legal frameworks relating to energy efficiency, energy transition and decarbonization.
Content
• Environmental impact of the industrial sector in Europe and how decarbonization can address this issue. • Introduction to energy efficiency, energy transition and decarbonization concepts and their multi-benefits. • EU's state of affairs regarding energy efficiency, energy transition and decarbonization and EU's climate and energy targets for the following years. • European policies on energy efficiency, energy transition and decarbonization. Other international legislation and policies related and/or are interconnected with energy efficiency and energy transition. • National legislation on energy efficiency, energy transition and decarbonization and corresponding targets. • National status of the energy efficiency energy transition and decarbonization in the industrial sector. • Support Schemes or any other national instruments supported by the public authorities or other organizations. • Potential of energy-intensive companies in the energy transition. Barriers and possible solutions.
Learning Outcomes
➢ Attendees will be able to identify and interpret the regulatory frameworks concerning energy efficiency, energy transition and decarbonization at national and European level. ➢ Attendees will be able to recognize the environmental impact of industry and the possible actions of industrial companies within the framework of energy policies.
Desirable prerequisites
Be familiar with European and national policies and legislation.
Assessment Method

The learning objectives of this learning unit will be assessed using a multiple-choice test at the end of the lecture.			
ETCS Credits	**Lecture Hours**	**Self-Study Hours**	**Total Hours**
0,5 ECTS	3	12	**15**

1.3.2. Learning Unit 2: Cutting-edge energy efficiency and decarbonization solutions as measures for Energy Transition Audits

Overall Learning Objectives

- ✓ Learn about different energy efficiency measures related to building, thermal and electrical processes, and equipment.
- ✓ Learn about different decarbonization measures related to self-production with renewable energy sources, co-generation or waste heat recovery.
- ✓ Know how to improve an energy contract and tariff periods in order to avoid various possible penalties and supplementary costs based on the energy database.
- ✓ Understand how demand management and changes in staff behaviours can increase energy efficiency.

Content description

- Introduction to energy basics: types of energy (primary, final), CO_2 associated emissions, measurement units, etc; from the point of view of medium and large industries.
- Energy efficiency measures in an industry and buildings:
  - Identify and describe building energy efficiency related aspects: HVAC systems, lighting, thermal insulation, window glazing, air sealing, etc.
  - Electricity bill optimization through the adjustment of contracted power and tariff periods.
  - Improvements in the production process focused on the most cross-cutting components in the energy-intensive industries such as air compressors, boilers, furnaces, electric motors, pumps, heat exchangers, cooling units, etc.
  - Improvements to the electrical installation: reactive/capacitive power factor correction, phase balancing, LV/MV electrical panels retrofit, harmonic filtration, transformer improvements, etc.
  - Waste Heat recovery possibilities.
  - Energy Management Systems.
- Self-production with renewable energy sources and high-efficiency co-generation.
- Solutions based on energy demand management, behavioural changes and organizational culture: adjustment of production schemes, study of staff behaviours, involvement of all company staff, alarms system, etc.
- Exemplification of measures with the Best Practices from EnTRAINER countries.

Learning Outcomes

- ➢ Attendees will be able to identify and evaluate the effectiveness and suitability of cutting-edge energy efficiency and decarbonization measures based on specific contextual requirements.

➢ Attendees will be able to assess the potential of decarbonization solutions through renewable energy integration.
Desirable prerequisites
Be familiar with industrial equipment and processes. Recognition and distribution of minimum bibliography for self- study (technical catalogue for energy efficiency equipment and technologies and other documents related to energy efficiency solutions).
Assessment Method
The learning objectives of this learning unit will be assessed by means of a multiple-choice test at the end of the lecture.

ETCS Credits	Lecture Hours	Self-Study Hours	Total Hours
1 ECTS	8	22	**30**

1.3.3. Learning Unit 3: Energy Transition Audits and Decarbonization Action Plans

Overall Learning Objectives

- ✓ Create knowledge that leads to a qualitative update of current methodologies for energy audits thanks to the ETA concept.
- ✓ Overcome the barriers that prevent the decarbonization of industry as well as most of the measures proposed in conventional energy audits from being implemented.
- ✓ Learn the principles and techniques of energy transition auditing, including energy consumption analysis, identification of inefficiencies, and assessment of potential for energy efficiency and decarbonization actions.
- ✓ Conduct multi-benefit analyses to rank energy efficiency and decarbonization measures and assist managers' decision making.
- ✓ Understand how the collective approach and short, medium and long term decarbonization plans can increase the effectiveness of the audit.
- ✓ Acquire resources to involve companies in the implementation of ETAs.
- ✓ Build the necessary basis for an energy analysis after a preliminary in-house energy evaluation and data review in order to be able to initiate decarbonization strategies.

Content description

- EnTRAINER ETA goals and scope. What does an ETA add to a conventional audit?
- Conventional energy audits in the industrial sector and related standards (EN16247 & ISO50001) as a starting point for ETA.
- Methodology for carrying out ETAs:
  - How to conduct an ETA
  - Collective approach
  - Decarbonization Action Plans
  - Multi-benefit analysis
  - Decarbonization roadmap

- Energy and production data collection and basic energy analysis.
- Measuring and data collection equipment for audits.
- Industry sector Benchmarking.
- Guidelines for engaging companies in ETA implementation.

Learning Outcomes

- ➢ Attendees will gain a comprehensive understanding of the concept of energy transition, including the need for decarbonization and the drivers behind it.
- ➢ Attendees will acquire the necessary basic competencies to perform Energy Transition Audits.
- ➢ Attendees will be able to interpret and analyse energy and emissions data from industries.
- ➢ Attendees will learn how to formulate effective decarbonization action plans based on ETA findings.
- ➢ Attendees will be able to conduct the design of a Decarbonization Action Plan.
- ➢ Attendees will develop the capacity to engage companies in energy transition audits and decarbonization efforts.

Desirable prerequisites

Have basic knowledge of energy efficiency principles and practices.

Assessment Method

The learning objectives of this learning unit will be assessed by means of a multiple-choice test at the end of the lecture.

ETCS Credits	Lecture Hours	Self-Study Hours	Total Hours
1 ECTS	8	22	**30**

1.3.4. Learning Unit 4: Tools for Monitoring and Managing Energy and related CO_2 emissions

Overall Learning Objectives

- ✓ Know the different types of digital tools available for energy and CO_2 emissions management.
- ✓ Understand how the tools developed by EnTRAINER project can help assess energy savings and identify energy efficiency and decarbonization opportunities.

Content description

- What kind of tools are available for energy management and associated CO_2 monitoring and measurement (EMSs and others) and what is its main function. Overview of some national tools with examples.
- EnTRAINER tools and integration in the ETA:
  - CUSUM tool (Monitoring & Targeting + Measurement & Verification)
  - Heat loss calculator
  - Online energy audit estimator
  - On-site auditor
- How to identify EE and RES opportunities using the M&T and M&V tools.

- How to evaluate energy savings after implementing EE and RES.

Learning Outcomes

- ➢ Attendees will be able to handle digital tools to facilitate the energy analysis process of energy transition audits.
- ➢ Attendees will be able to interpret the results from digital tools to identify opportunities for energy efficiency and decarbonization.

Desirable prerequisites

Have basic knowledge of energy and CO_2 emission measurements and be proficient with digital tools.

Assessment Method

The learning objectives of this learning unit will be assessed by means of a multiple-choice test at the end of the lecture.

ETCS Credits	Lecture Hours	Self-Study Hours	Total Hours
1 ECTS	8	22	**30**

1.3.5. Learning Unit 5: Financing Energy Efficiency and decarbonization measures, tools and evaluation

Overall Learning Objectives

- ✓ Understand the fundamentals of economic and financial analysis of energy and decarbonization projects.
- ✓ Distinguish between different options for financing energy projects and be aware of the different existing financing schemes.
- ✓ Understand the energy performance contracts (EPC).

Content description

- How to implement energy efficiency and decarbonization measures from a financial and the multi-benefit approach perspective.
- Basic elements of economic analysis
- Financial evaluation of an energy efficiency and decarbonization investment project:
  - Financial indicators
  - How to perform a Cost Benefit Analysis – CBA
  - How to perform a Life Cycle Assessment – LCA
- How to analyze the opportunity of accessing financial schemes for energy efficiency. Pros and cons of the different possible financing alternatives.
- Existing and foreseen funding schemes – opportunities and lessons learned.
- How to implement an energy performance contract (EPC). Working example.

Learning Outcomes

- ➢ Attendees will be able to assess the economic feasibility of an energy efficiency and decarbonization investment project.

➢ Attendees will be able to identify the different forms of available funding to make the investment in energy efficiency and decarbonization of the company more profitable. ➢ Attendees will be able to formulate an Energy Performance Contract (EPC).
Desirable prerequisites
Have a basic understanding of economics and finance.
Assessment Method
The learning objectives of this didactic unit will be assessed by means of a multiple-choice test at the end of the lecture.

ETCS Credits	Lecture Hours	Self-Study Hours	Total Hours
0,5 ECTS	3	12	**15**

1.3.6. Learning Unit 6: Team project - Applying an ETA to a case study

Overall Learning Objectives
✓ Comprehend all the knowledge taught through actual case studies and practical exercises.
Content description
A case study of an industry company will be presented to the team with all the context and information necessary to simulate the data collection and on-site visit of an audit. The team will need to analyse the data and information provided to conduct the novel approaches and analyses that ETAs are intended to achieve, in addition to the conventional ones. In addition, they will be provided with a report template with the minimum contents to be submitted, among them: • Interpretation of data using the digital tools provided by the EnTRAINER project to understand the company's consumption habits and environmental impact in order to study what actions can reduce this impact. • An analysis and justification of the most suitable energy efficiency measures identified as well as their decarbonization potential through the integration of renewable sources. • To present a list with a prioritisation of actions to be implemented based on a multi-benefit analysis. • A simple assessment of the economic viability of the proposed measures. • Draft of a decarbonization plan for the company.
Learning Outcomes
➢ Attendees will be able to effectively apply the knowledge and tools of the E&T program to a case study.
Desirable prerequisites
Have completed the previous learning units.
Assessment Method

A report will be delivered by the team reflecting all the analyses and conclusions reached during the group working on the project. It will be scored from 1 to 10 based on predefined criteria and all team members will obtain the same mark.	
ETCS Credits	**Total Practice Hours**
1 ECTS	**30**

2. TRAINING COURSE PROGRAM ON ENERGY TRANSITION AUDITS FOR ENERGY AUDITORS.

2.1. Introduction

2.1.1. Brief description of the course

This E&T program will provide the necessary skills to build an innovative energy audit culture among current energy auditors, to establish the holistic EnTRAINER approach through the new concept of Energy Transition Audits (ETAs) and a comprehensive action plan to achieve the full decarbonization of industrial companies. It also provides an analysis of the energy efficiency measures, digital tools and financial instruments currently available to accurately quantify and implement the most promising energy saving opportunities.

The training program will cover both technical and behavioural aspects. Concerning the first area, conventional energy audits will be complemented with new energy management techniques, instruments and solutions, focusing on leading energy-intensive industries towards short, medium and long term decarbonization. This way, professionals will embrace a new multi-benefit scheme that can be presented as a realistic and attractive action plan to be put in practice. Regarding the second area, the aim is to trigger a behavioural change in these industries at all levels, i.e., organizational, administrative and technical staff, including key decision makers, by raising awareness in sustainable energy consumption.

Furthermore, the course will be designed considering the importance of practical experience through specific case studies of energy efficiency and decarbonization project, with the help of digital tools and ICT features. A mix of face-to-face and distant learning methods will be available, ensuring that the necessary theoretical background is effectively delivered as well. Moreover, it will also include self-working material for self-study, and the participants will be encouraged to exchange ideas and interact with each other on the online platform. This provides a multidisciplinary environment for learning through experience and practicality.

2.1.2. Focus groups

The core objective of the project is to enhance the scope of the energy audits and provide novel energy transition services to their clients, so the course is mainly targeted to energy auditors who will complement their background with new auditing strategies as well as energy transition and decarbonization plans for the industry.

Auditors will always have the preference to enrol in the course, but if there are any remaining places they could also be taken by:

- Future energy auditors

- Holder of a level-5 EQF vocation training degree in the fields of energy, industry or environment
- Engineering students or graduates with an energy, industrial or technical background
- Energy experts and professionals or other qualified individuals such as energy consultants or energy managers
- Personnel of industrial companies

2.1.3. EQF level expectations

As for the recognition, the E&T program will be certified by partner Universities (or external accreditors that certify courses that university will introduce) through their lifelong-learning departments with 2 European Credit Transfer and Accumulation System (ECTSs) of EQF level 6. Therefore, the E&T program will be designed based on the desired learning outcomes associated with Level 6 of the EQF, which are:

- Advanced knowledge of one of the fields of energy efficiency, energy transition and decarbonization involving a critical understanding of theories and principles.
- Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in the field of energy audits and decarbonization.
- Manage complex technical or professional activities or projects, take responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups.

2.2. Training Methodology

2.2.1. Goal of the E&T program

The EnTRAINER E&T program is designed to offer a comprehensive and holistic approach to trainees, equipping them with the necessary skills to meet the new demands for energy efficiency improvement and decarbonization of the industry. This will be done mainly by introducing them to a new energy audit methodology which will embrace the multi-benefit scheme and the decarbonization action plans that are considered as part of an ETA paradigm shift.

It recognizes the importance of providing quality training to current and future energy auditors so that they can identify and propose a wide variety of effective energy efficiency and decarbonizations measures and solutions to reduce the impact of industries on the environment and thereby addressing the climate crisis.

EnTRAINER will offer two editions of the E&T program with at least 30 trainees per edition and per country. Thus, a total of four participating countries will result in at least 240 trained professionals.

2.2.2. Learning objectives of the E&T program

This E&T program has been developed according to the needs that have been identified in the field of industrial energy efficiency audits and it is aligned with the program that was developed during its predecessor SMEmPower Efficiency project, as part of a holistic strategy of capacity building in energy efficiency and decarbonization for industries. In this way, previous activities were carried out to identify the current situation and understand the problems and opportunities, to identify current practices, socio-economic and policy barriers, legislative barriers, available certification schemes and training methodologies, potential best practices, needs and financing mechanisms for energy efficiency in industry.

Consequently, the objectives of the course presented in this E&T program have been defined to guarantee a complete training adapted to the needs of the current energy sector, so that attendees acquire sufficient technical and economic background to develop in their area of work, always considering the environmental protection.

The general learning objectives expected from the course are listed below:

1. Create knowledge that leads to a qualitative update of current methodologies for energy audits thanks to the energy transition audit concept.
2. Overcome the barriers that prevent the decarbonization of industry as well as most of the measures proposed in conventional energy audits from being implemented.
3. Conduct multi-benefit analysis to rank energy efficiency and decarbonization measures and assist managers' decision making.
4. Understand how the collective approach and short, medium and long term decarbonization plans can increase the effectiveness of the audit.
5. Acquire resources to involve companies in the implementation of ETAs.
6. Expand its resources portfolio with the latest technologies and strategies to increase energy efficiency and the decarbonization of industry.
7. Know several types of digital tools available for energy and CO_2 emissions management.
8. Understand how the tools developed by EnTRAINER project can help assess energy savings and identify energy efficiency and decarbonization opportunities.
9. Comprehend all the knowledge taught through real case studies and practical exercises.

2.2.3. Methodology and criteria to define Learning Units

The learning units will be defined considering the needs of the energy market and energy-intensive industries and feedback from other project activities.

A learning unit is a component of a qualification, consisting of a detailed set of knowledge, skills and competence that can be evaluated, addressed, and certified. Learning Units are segments of the learning program that is designed to provide a specific and measurable learning outcome. They

represent a unit of a distinct topic within a broader curriculum and will be used in the EnTRAINER E&T program to facilitate the assessment, recognition and transferability of LOs (see section 2.4).

Following the ECTS recommendation, this report must define at least the following aspects:

- The title of the learning unit.
- The EQF level of qualification.
- The ECTS points associated with it.
- Learning outcomes contained in it.
- The procedures and criteria for its assessment.

As far as the learning units are concerned, these are expected to deliver a thorough and coherent learning experience, based on the following guidelines:

- Learning units are independent from each other, completed and assessed individually.
- Learning units include the necessary learning outcomes to cover the established objectives, designed to be achieved in a specific timeframe.
- Learning outcomes are designed to be measurable.

According to the above, the learning objectives expected from this E&T program (listed in *section 2.2*), have been redefined and transformed into the following learning units:

- **LU1: Energy Transition Audits (ETA)**
- **LU2: Decarbonization Action Plans.**
- **LU3: Tools for monitoring and managing energy and related CO_2 emissions.**
- **LU4: Project - Applying an ETA to a case study**

Finally, the weight assigned to each Learning Unit has been distributed according to the workload expected to be invested in each of them as is explained in sections 2.5 and 2.6, taking into account the hours dedicated to:

- Lectures: including teaching, tutorials and reading of the theoretical lectures.
- Self-study: study hours without direct supervision or attendance in class, which include the resolution of working examples or exercises as well as the preparation of the theoretical assessment.
- Practice: hours dedicated to the practical learning activities of the programme. This will be addressed through the delivery of a project, applying the knowledge acquired.

The following sections elaborate in more detail on the aspects of this methodology defined by the corresponding ECTS.

2.2.4. Learning Outcomes

Learning units enable progressive achievement through transfer and accumulation of learning outcomes defined in knowledge, skills, and competence terms. For each learning unit, learning outcomes have been defined to describe to attendees what is expected from them after completion of the unit.

Learning outcomes must describe in observable and measurable terms what a learner is able to do or demonstrate as a result of completing a learning experience. Therefore, they must be specific, measurable, achievable, realistic and time-bound and in accordance with the requirements of EQF level 6 specified in *section 1.4*. The learning outcomes will be assessed through the practical assessment exercises of each learning unit.

The overall outcome after completion of the course could be summarized as the trainee's acquired capability to effectively apply the knowledge and tools provided in this E&T program. This outcome could be the combination of several specific outcomes acquired at the end of each LU, which are listed below:

LEARNING UNIT 1: Energy Transition Audits
• Attendees will acquire the necessary basic competencies to perform Energy Transition Audits. • Attendees will develop the capacity to engage companies in energy transition audits and decarbonization efforts.
LEARNING UNIT 2: Decarbonization Action Plans
• Attendees will be able to conduct the design of a Decarbonization Road Map based on ETA findings.
LEARNING UNIT 3: Tools for monitoring and managing energy and related CO_2 emissions
• Attendees will be able to handle digital tools to facilitate the energy analysis process of energy transition audits. • Attendees will be able to interpret the results from digital tools to identify opportunities for energy efficiency and decarbonization.
LEARNING UNIT 4: Project - Applying an ETA to a case study
• Attendees will be able to effectively apply the knowledge and tools of the E&T program to a case study.

Table 4 Learning outcomes for each LU of course on ETAs for energy auditors.

2.2.5. Relation between EQF Level and ECTS Credits in the course

This E&T program is implemented under EQF, based on common learning outcomes of Level 6 described in *section 1.4*. On the other hand, one credit of the ECTS is equivalent to 25 - 30 hours of workload, so the 2 ECTS of the program correspond to a maximum of 60 hours of workload.

Apart from the hours devoted to the lectures, the program includes practical activities, in consonance with the practical approach of the delivery of the training to bring attendees closer to a real-world context. In addition, it incorporates self-study hours, which include the resolution of working examples, exercises, multiple choice questions, etc. All these resources are directed towards providing contemporary and advanced training material, which will be available indefinitely after the end of the project to all interested people.

The implementation of the EQF needs qualifications to be described in terms of LOs and LUs. LUs are often used as the foundation for allocating ECTS credits and qualifications and provide a structured framework for organizing the accreditation. The process should adhere to existing national, regional, sectoral, or institutional guidelines to ensure consistency and compliance with established standards. The following aspects express the criteria followed for conceding ECTS for each course:

- The importance of learning outcomes of each learning unit.
- The level of difficulty of each learning unit, and the effort necessary to acquire the demanded knowledge, skills and competence.
- The work workload given for the participant in each learning unit.
- The overall length of each learning unit.

The suggested weighting and allocation of ECTS credits to each learning unit of the E&T program, expressed as relative percentage and integer value, is as follows:

Learning Unit	Description	ECTS weighting factor (%)	Expected workload
LU1	Energy Transition Audits	0,5 ECTS (25%)	15 hours
LU2	Decarbonization Action Plans	0,5 ECTS (25%)	15 hours
LU3	Tools for monitoring and managing energy and related CO2 emissions.	0,5 ECTS (25%)	15 hours
LU4	Project - Applying an ETA to a case study	0,5 ECTS (25%)	15 hours

Table 5 Weighting of ECTS of each LU of course on ETAs for energy auditors.

2.2.6. Training Methods

Courses must be imparted in a way that effectively conveys the main goal of the program to trainees. The aim is to raise awareness about the importance of decarbonization so that they can develop proper techniques and use new and updated tools to implement in their work as energy auditors.

To this end, the E&T program of EnTRAINER project will use a mix of face-to-face and distant learning methods or purely distant learning if necessary. Each partner is free to choose their preferred method, considering the needs of the participants and the members imparting the course.

A combination of the following learning materials will be prepared accordingly:

- **Lectures and tutorials.** Either through face-to-face, distance or combined educational material, they provide the necessary information for current or future professionals to update their knowledge and skills. The delivery of the theoretical content will be efficient, structured and well organized, to ensure that learners grasp the fundamental principles and frameworks of each learning unit.

- **Working examples or exercises such as multiple-choice questions**. This type of self-evaluation helps to develop decision-making skills, allowing trainees to assess their progress and identify areas for improvement.
- **Case study and practical activities**. They provide opportunities for experiential learning, where trainees can directly experience and apply knowledge in a real-world context by bridging the gap between theory and practice. They enable participants to develop and refine specific skills; technical skills, problem-solving ability and critical thinking are some of the aspects enhanced with the provided examples. These activities may be associated with the delivery of a project presenting different analyses and conclusions related to energy audits which can be developed individually or in teams. In addition, digital tools will also be used to carry out different analyses and find solutions. Finally, they allow a better assimilation of the theoretical content and a better understanding of its practical application.
- **Interaction between participants**. Active participation encourages learners to share ideas and views, leading to a more enriching experience. Online platforms will be available to leave a space for discussion and the expression of views with all participants.

To highlight the European character of the course, the learning units' structure will be common to all partner countries. Nonetheless, each of the four countries will adapt the content to national legislation, specifications, plans and requirements. In consideration of the geographical, social and economic differences, national context will be included without affecting the common learning outcomes nor the learning methodology.

The courses will be held on online platforms. Firstly, on the EnTRAINER project training and knowledge hub platform, which will incorporate the use of ICT tools to facilitate the learning process, exchange useful information and training material with an appropriate quality, allow the interaction between instructors and trainees, conduct practical exercises, create databases and provide feedback. In addition, through this platform, learners will be able to interact with other experts and professionals in the sector.

All this material will also be available on each partner University platform. They will choose the training platforms offered by their Life-Long Learning Programs (LLP) or equivalent educational institutions.

Moreover, a specialised handbook containing all LUs will be developed and translated into all consortium languages. It will be accessible from the EnTRAINER project web portal and available indefinitely after the end of the project to all interested auditors. In this regard, the material should be as advanced as possible to remain useful after the end of the project.

Finally, two editions of the course will be delivered, gathering feedback from the first edition in order to improve the second edition as explained in section *2.9 Continuous improvement.*

2.2.7. Assessment Methods

The evaluation of the acquired knowledge according to the expected learning outcomes will be assessed by both an evaluation procedure at the end of lectures (theoretical knowledge) and the evaluation and presentation of a project report (practical learning). Course certification awarded with 2 ECTS credits will only be provided to trainees passing both evaluations obtaining at least 50% of the maximum grade in total.

The distribution of the assessment shall be as indicated in the following table.

	Assessment method	Assessment weighting
Theoretical knowledge	Set of multiple-choice questions One test per learning unit	40%
Practical learning	Project	60%

Table 6 Course assessment of course on ETAs for energy auditors.

The assessment of the theoretical part will ensure that the learning objectives of each learning unit have been achieved while the practical part will test the expected learning outcomes.

For the development of the project, attendees will be provided with a case study of an industry and its energy and emission data. During the project, they will be required to interpret the data and solve simple problems related to energy and CO_2 analysis with the support of some digital tools; investigate different energy efficiency and decarbonization options; perform a multi-benefit analysis to present the results, etc. This project may be developed as a group or individually, depending on the circumstances.

2.2.8. Prerequisites

Prerequisites are any prior knowledge, skills or understanding that the learner is required to have before attending the E&T program. As established in *1.3 Focus groups,* the course is aimed at current and future energy auditors. Therefore, based on the content of the learning units, the preferable prerequisite for a trainee to meet before undertaking the E&T program is set as have some experience as an auditor or at least holding a level 5 EQF – Vocation training degree or university degree related to either energy or engineering.

There are no specific mandatory pre-requirements, but *Section 3* lists some recommended prerequisites for a better understanding of each learning unit.

2.2.9. Continuous improvement

One of the EnTRAINER project's main objectives is to develop contemporary and advanced training material that will be available after the end of the project to all interested professionals. For this purpose, the offered training course will be sufficiently tested and refined during the project implementation, and they will be adapted to the current needs in terms of energy audits.

In order to continuously improve the E&T program during the project's life, the courses and their content will be subject to updating according to the continuous feedback that will be gathered from the implementation of the different project activities such as audits or the information exchange platform, as well as course feedback provided by the attendees themselves. At the end of each course edition, the contents of the training course and the handbook will be reviewed and updated.

A feedback questionnaire is proposed for the collection of information from participants. This questionnaire will be composed of simple questions to be rated from 1 to 5 to obtain a quantitative assessment. Additionally, there will be provide the option to submit detailed comments, suggestions and further qualitative assessment.

The questionnaire will be filled in by the trainees at the end of the training course in the form of an online questionnaire (presented in Appendix B). The issues on which the participants' opinion is requested are:

- E&T program content and enhanced competencies (objectives, topic, relevance and usefulness of the information provided by the program etc.).
- Suitability of the information provided in each LU.
- Program materials, quality of delivery and teaching techniques (clearness of the materials, up to date of the used references, teaching techniques, level, teaching ability, possibility of interaction, quality of used infrastructures, etc.).
- Other insights and improvements suggested by the participants.

The main objectives pursued by the implementation of these questionnaire is to get proper feedback for improving the courses and for optimizing the course materials to achieve a high degree of usefulness, relevance and applicability of the presented information.

2.3. Learning Units' Content specifications

2.3.1. Learning Unit 1: Energy Transition Audits

Overall Learning Objectives
✓ Create knowledge that leads to a qualitative update of current methodologies for energy audits according to the energy transition audit concept. ✓ Identify and overcome the barriers that prevent the decarbonization of industry as well as most of the measures proposed in conventional energy audits from being implemented. ✓ Conduct multi-benefit analysis to rank energy efficiency and decarbonization measures and assist managers' decision making. ✓ Acquire resources to involve companies in the implementation of Energy Transition Audits (ETAs).
Content description
• Impact of the industrial sector in the environment and how Energy Transition Audits (ETAs) can address this issue.

• EnTRAINER Energy Transition Audit goals and scope. What an ETA adds to a conventional audit.
• Methodology for carrying out ETAs including:
  • How to conduct an ETA: workflow, activities and tasks, input data, ETA report.
  • Collective approach
  • Multi-benefit analysis
• Guidelines for engaging companies in ETA implementation.

Learning Outcomes
➢ Attendees will acquire the necessary basic competencies to perform ETAs. ➢ Attendees will develop the capacity to engage companies in energy transition audits and decarbonization efforts.
Desirable prerequisites
Be familiar with conventional energy audits and industrial equipment and processes. Have basic knowledge of energy efficiency principles and practices.
Assessment Method
The learning objectives of this learning unit will be assessed by means of a multiple-choice test at the end of the lecture.

ETCS Credits	Lecture Hours	Self-Study Hours	Total Hours
0,5 ECTS	5	10	**15**

2.3.2. Learning Unit 2: Decarbonization Action Plans

Overall Learning Objectives
✓ Understand how the collective approach and short, medium and long term decarbonization plans can increase the effectiveness of the audit. ✓ Expand its resources portfolio with the latest technologies and strategies to increase energy efficiency and the decarbonization of industry.
Content description
• European and national goals and legislation on energy transition and decarbonization. • Insights into evaluating CO_2 emissions. • Steps for designing a decarbonization action plan. • Decarbonization roadmap and implementation. • Annex including a list of decarbonization and energy efficiency measures for the industry.
Learning Outcomes
➢ Attendees will be able to design of a Decarbonization Action Plan based on ETA findings.
Desirable prerequisites
Have a basic understanding of European energy transition and decarbonization policies. Recognition and distribution of minimum bibliography for self- study (technical catalogue for energy efficiency equipment and technologies and other documents related to energy efficiency solutions).

Assessment Method			
The learning objectives of this learning unit will be assessed by means of a multiple-choice test at the end of the lecture.			
ETCS Credits	**Lecture Hours**	**Self-Study Hours**	**Total Hours**
0,5 ECTS	5	10	**15**

2.3.3. Learning Unit 3: Tools for Monitoring and Managing Energy and related CO_2 emissions

Overall Learning Objectives

- ✓ Know the different types of digital tools available for energy and CO_2 emissions management.
- ✓ Understand how the tools developed by EnTRAINER project can help assess energy savings and identify energy efficiency and decarbonization opportunities.

Content description

- What kind of tools are available for energy management and associated CO_2 monitoring and measurement (EMSs and others) and what is its main function. Overview of some national tools with examples.
- EnTRAINER tools and integration in the ETA:
  - CUSOM tool (Monitoring & Targeting + Measurement & Verification)
  - Heat loss calculator
  - Online energy audit estimator
  - On-site auditor
- How to identify EE and RES opportunities using the M&T and M&V tools.
- How to evaluate energy savings after implementing EE and RES.

Learning Outcomes

- ➢ Attendees will be able to handle digital tools to facilitate the energy analysis process of energy transition audits.
- ➢ Attendees will be able to interpret the results from digital tools to identify opportunities for energy efficiency and decarbonization.

Desirable prerequisites

Have basic knowledge of energy and CO_2 emission measurements and be proficient with digital tools.

Assessment Method			
The learning objectives of this learning unit will be assessed by means of a multiple-choice test at the end of the lecture.			
ETCS Credits	**Lecture Hours**	**Self-Study Hours**	**Total Hours**
0,5 ECTS	5	10	**15**

2.3.4. Learning Unit 4: Project - Applying an ETA to a case study

Overall Learning Objectives	
✓ Comprehend all the knowledge taught through real case studies and practical exercises.	
Content description	
A case study of an industry company will be presented to the trainees with all the context and information necessary to simulate the data collection and on-site visit of an audit. The learner will need to analyse the data and information provided in order to conduct the novel approaches and analyses that ETAs are intended to achieve, in addition to the conventional ones. In addition, it will be provided with a report template with the minimum contents to be submitted, among them: • Interpretation of data using the digital tools provided by the EnTRAINER project to understand the company's consumption habits and environmental impact in order to study what actions can reduce this impact. • An analysis and justification of the most suitable energy efficiency measures identified as well as their decarbonization potential through the integration of renewable sources. • To present a list with a prioritisation of actions to be implemented based on a multi-benefit analysis. • A simple assessment of the economic viability of the proposed measures. • Draft of a decarbonization action plan for the company.	
Learning Outcomes	
➢ Attendees will be able to effectively apply the knowledge and tools of the E&T program to a case study.	
Desirable prerequisites	
Have completed the previous learning units.	
Assessment Method	
A report will be delivered by the learner reflecting all the analyses and conclusions reached during the project development. This will be scored from 1 to 10 based on predefined criteria.	
ETCS Credits	**Total Practice Hours**
0,5 ECTS	**15**

3. Accreditation procedures in each country

3.1 Spain

In Spain, the EnTRAINER's Energy Efficiency training program will be provided by Universitat Politècnica de València (UPV) through its Life-Long Learning Program (LLP), which is called PoliformaT. The proposed program will be accredited by the Life-Long Learning Committee (LLC) of the UPV. This Committee is responsible for guaranteeing the educational standards of the proposed courses, from an administrative and scientific point of view. The main stages of the accreditation process are:

1) Preparation of the new course documentation by the promotor.
2) The course documentation is evaluated by the Scientific Committee at the Institute for Energy Engineering for its first approval.
3) New course application is submitted electronically to the LLC by means of a dedicated platform. This involves the following information:
    a. Basic Data:
        i. Course title
        ii. Dates
        iii. Detailed program of the course
        iv. Course objectives
        v. Access requirements and previous required knowledge (what kind of experience and expertise the professionals applying to the course should have to be able to follow it correctly)
        vi. Course methodology and ECTs credits
        vii. Targeted trainees
        viii. Key words
    b. Responsible Personnel:
        i. Director and Course entity promoting the course
        ii. Coordinator
        iii. Secretariat
    c. Certification Method
    d. Teaching Method
    e. Evaluation and Assessment Method
    f. Instructors Information and CVs
    g. Economic and Financial Analysis
    h. Sustainable Model
4) Once the course documentation and the course application form are submitted via the electronic platform, LLC studies its approval or rejection. LLC may also require additional modifications based on the experts' analysis and recommendations.
5) In case it is rejected, additional documentation and information is normally required by the LLC. In this case, the professor promoting the course may consider initiate the process again once the recommended modifications are implemented.

6) Once the course is approved by the LLC, Long-Life Learning Secretariat requests detailed information of the above subjects in order to register the course within the Long-Life Learning Platform (PoliformaT).

7) Then, instructors upload the course information and relevant course materials in the LongLife Learning Platform (PoliformaT), as well as the training tasks. Training tasks refer to the activities that need to be accomplished by the professionals taking the course and will be evaluated by the instructors (ex. Course project, exams, etc.).

8) Finalized the first edition of the course, Scientific Committee of the Institute for Energy engineering and the LLC re-evaluate the performance and success of the course and provides a series of useful comments for the next edition.

Finally, course is advertised by means of the University communication channels to Professional Engineers and Architects Associations, other professional associations of interest and society, in general.

3.2 Greece

In Greece the courses and their certification will be delivered by two universities: the Aristotle University of Thessaloniki (AUTH) and the University of Western Macedonia (UOWM). As both are public institutions their administration and operations are similar.
The Center for Training and Lifelong Learning (KEDIVIM) is the structure that ensures the interdisciplinary cooperation in the development of training programs, the implementation of lifelong learning program s covering a wide range of topics as well as university level program s covering special education and training needs, Massive Open Online Courses (MOOCs), conferences, workshops, summer schools, foreign language learning / deepening in adult education, etc. They can come from central actions of the State (Structural Funds and Cohesion Fund, Lifelong Learning) or of the European Union, from initiatives of Deans / Schools / Departments / faculty members, from collaborations between the Foundation and public and/or private bodies and/or Scientific Associations / Chambers, etc.

- **Accreditation at Aristotle University of Thessaloniki (AUTH)**

The accreditation of the EnTRAINER project courses will be granted by KEDIVIM AUTH, which is the Center for Lifelong Learning in the Aristotle University of Thessaloniki. The process and the requirements for accrediting new training courses within the Long–Life Learning Program (LLP) is managed by state Law, guaranteeing the high educational standards and the quality of the offered training courses, from a scientific and educational point of view.

The main stages of the accreditation process are the following:

1) Proposal submission. The proposal for a new training course is submitted to KEDIVIM electronically and should contain:

    a. All details regarding the proposed training course, such as:

i. Course title and thematic field, target audience, requirements and formal qualifications for participation.
ii. Course duration, training methodology (live, remote, mixed), monitoring and evaluation procedures.
iii. Course learning objectives and outcomes.
iv. Detailed description of the training modules and their duration, assessment process, ECTS allocation.

b. Qualifications for trainers, full CVs of proposed trainers for all LUs and modules.
c. Indicative budget for the course to be used if later a fee would be imposed.
d. Analytic form for the ECTS allocation.

2) Proposal evaluation. The KEDIVIM receives, checks the proposal and forwards it to the KEDIVIM Council. The Council sends the proposal to two external evaluators, members of teaching staff from Greek and foreign universities.

3) Proposal approval. Following the evaluation results, the KEDIVIM Council, based on the evaluation comments, can accept, ask for revision or reject the course proposal. In case of acceptance, the course proposal is submitted to the Rectoral Council of AUTH for the final and official acceptance.

4) Teaching material submission. A folder containing all the detailed training material and the implementation timetable should be submitted during the final stage, before the final and official acceptance of the course to be included in the KEDIVIM training program with the allocated ECTS.

❖ **Accreditation at University of Western Macedonia (UOWM)**

The Center for Training and Lifelong Learning (KEDIVIM) of UOWM The process for accrediting new courses within the Long-Life Learning Program (LLP) is managed by the Center for Training and Lifelong Learning Committee (LLC). The whole procedure consists of the two distinct parts:

a. The submission of a proposal for approval is specific structure and includes:
i. Program title.
ii. Thematic field.
iii. Information of the Scientific and Academic Officer.
iv. Target group.
v. Required formal qualifications and conditions of participation.
vi. Total duration.
vii. Method of implementation (live, remote, mixed) and trainee monitoring and evaluation procedures.
viii. Purpose.
ix. Educational goals (cognitive skills, psychomotor skills, behaviours).
x. Teaching modules and their duration.
xi. How to evaluate the trainees.
xii. Type of certificate issued, credit units.
xiii. Qualifications and qualifications of trainers.
xiv. Cost of participation (time and method of payment fees).

xv. Contact details.
xvi. Collaborating bodies (if any) and draft relevant contract.

The Academic Officers submit their proposal for approval to the KEDIVIM Council, for self-funded programs the first ten days of September, November, January, March and June and for the rest immediately with their announcement. The decision of the Council of Center is sent to the Rector's Office for approval Council.

b. Approval, Implementation and Evaluation of the programs
This is carried out by the Council of the Center after evaluation. The evaluation criteria are:
i. The completeness of the submitted proposal based on the submission process.
ii. The scientific relevance of Academic Supervisors.
iii. The educational completeness of the curriculum plans.
iv. The correspondence of the submitted proposal with the mission and prestige of the University, and
v. The viability of the program.

The Council may request clarifications in a proposal if it deems that the above criteria are not met. During the evaluation procedure the Council also has the ability to turn to experts for final configuration of its judgment. The decision of the Council is sent to the Rector's Council for approval and after its approval it is notified to the Research Committee for further management. Once a program is approved, the Scientific and the Academic Supervisor must ensure the terms of application of the program, as described in the approved proposal. All approved programs are made public at the official site of the Centre.

The Center for Training and Lifelong Learning (KEDIVIM) of UOWM is obliged to announce the intention to implement the Curriculum Lifelong Learning within a period of thirty to sixty days before the start of the course. This announcement must be made on the website of Center and optionally with any other appropriate means and mentions at least the details of the specific Lifelong Learning Curriculum and its thematic units.

3.3 Romania

In Romania, the EnTRAINER training course will be provided by The Technical University of Cluj-Napoca in close collaboration with SERVELECT and with the support of the Energy Efficiency Directorate – Ministry of Energy together with the professional association called Romanian Society of Energy Auditors and Managers, through the Life-Long Learning Department (DECIDFR) of the University. Upon completion of the post-graduate training and professional development programs, the organizing institution issues a certificate attesting to the professional competences specific to the program.

Order no. 4.750/2019 approves the Framework Methodology for the organization and operation of postgraduate training and continuous professional development programs, and order no. 5.370/2012 approves the model of the professional skills attestation certificate and the descriptive supplement. Some aspects related to the organization and certification of post-

graduate training and continuous professional development programs, taken from the legislation in force mentioned above, will be presented below:

a. Postgraduate programs are level 6 programs, according to the National Authority for Qualifications (ANC), unless another qualification level is expressly stated.
b. Postgraduate programs can be organized both in Romanian and in the language of national minorities or in a widely spoken language.
c. Postgraduate training and continuing professional development programs can be organized by accredited higher education institutions, which have accredited at least bachelor's and master's degree programs in the respective scientific field.
d. Postgraduate training and continuing professional development programs can be organized with a fee or with funding from other sources.

In Romania, accredited higher education institutions organizing postgraduate programs have the following obligations:

i. To transmit to the National Authority for Qualifications the information regarding the organized postgraduate programs, for registration in the National Register of postgraduate programs (RNPP), which is part of the National Register of Higher Education Qualifications (RNCIS).
ii. To request from the Ministry of National Education (MEN) the necessary forms for certificates of attestation of competences and for certificates of graduation/diplomas of postgraduate studies. MEN will approve the necessary forms based on the information uploaded to the RNPP, managed and sent to the MEN by the ANC.

Based on this framework methodology, higher education institutions, through the long-life learning departments, develop their own methodologies for organizing, registering, and reporting postgraduate study programs, which are approved by the university senate, within 90 days of publication of this framework methodology in the Official Monitor of Romania, Part I.
Within Technical University of Cluj-Napoca, the main certification steps for a new post-graduate training and professional development program through DECIDFR are the following:

1) Approval of the Life-Long Learning Department of UTC.
2) Approval of the Academic Council for Education of UTC.
3) Approval of the University Senate as a Life-Long E&T program provided by UTC.
4) E&T program approval and accreditation by the Ministry of Education.

The organization of postgraduate programs is approved by the university senate and the approval file mainly includes the following elements:

a. the objectives of the professional training program expressed in the professional skills and learning outcomes to be acquired by each person following the program.
b. the duration of preparation for achieving the proposed objectives.
c. the minimum and maximum number of participants for a training cycle or series.
d. the qualification of persons with theoretical and practical training attributions, without discrimination based on age, sex, race, ethnic origin, political or religious affiliation.
e. training program.
f. the means and methods by which the transmission and assimilation of knowledge and the training of practical skills necessary for the respective occupation are ensured.

g. the endowments, equipment and materials necessary for the training.
h. the evaluation procedure in accordance with the specific objectives of the professional training program.
i. the opinion of the quality assurance department of the accredited higher education institution.

The principles for quality assurance within postgraduate programs of permanent education are the following:

i. quality assurance is the responsibility of the university as an integral part of the internal management of postgraduate programs of permanent education for the education and professional training of adults.
ii. quality assurance will emphasize the effects and results of learning in correlation with the requirements of the labour market.

The minimum duration of postgraduate permanent education programs is quantified in transferable study credits, as follows:

i. transferable study credit can be allocated for 25 hours of teaching activity and of individual training, of which 10 - 12 hours of learning activity.
ii. the duration of a postgraduate program, aimed at acquiring the skills related to an entire occupational standard for education and training of level 6 - the National Authority for Qualifications, cannot be less than 15 transferable study credits, respectively 180 teaching hours.

The curricula of the postgraduate programs must contain lecture hours, seminars and practical/laboratory/design activities.

The graduation exam of the permanent education postgraduate study program represents a set of theoretical and/or practical tests that verify the acquisition of the learning outcomes/competencies specific to the professional training program, in compliance with the quality assurance criteria. The graduation exam is held in front of an examination committee, and representatives of the labour market/beneficiaries of professional training programs can attend the exam.

3.4 Italy

In Italy, the partner in charge for the training course is UniverCities. UniverCities will deliver the training course aiming to include the participation of national and local associations/ institutions working within the energy efficiency sector. Selected trainers will deliver the learning units, bringing in this way extra value to the training course and providing the opportunities of more links and networking to the attendants.
Not being a university or an accredited body, the certification and accreditation process in Italy will be done in conjunction with the one by the UPV partner in Spain, benefitting from the interchangeability of the ECTS among EU countries. According to this, the training course will be accredited by the Long-life Learning Committee (LLC) that manages the process for accrediting new courses within the Long-Life Learning Program (LLP). Briefly the process for the accreditation consists in:

1) Electronic submission to the LLC of the training program and materials with all the details.
2) The LLC will start the approval procedure which might require some adjustment for the final approval.
3) Once approved by the LLC, the Long-Life Learning Secretariat requests detailed information to register the course within the Long-Life Learning Platform (PoliformaT).
4) Information and relevant course materials are uploaded in the Long-Life Learning Platform (PoliformaT), as well as the training tasks to be accomplished by the participants.
5) Once delivered the first edition of the course, the Scientific Committee of the Institute for Energy engineering and the LLC re-evaluate the performance and success of the course and provide suggestions for the following editions.

Attendees interested in having the 5 ECTS will receive them upon request to UNIVERCITIES that will liaise with UPV to get the final certification.
In addition to this certification, another one will be available for participants, delivered by UniverCities in conjunction with UPV on behalf of EnTRAINER project. The certification will specify the training topics, the workload, and the evaluation for the attendee.

4. Concluding remarks

This report addresses the accredited E&T programs of the ENTRAINER training hubs for capacity building as part of its Work Package 5, which are the programs for the "Energy Transition Audit course for Energy Professionals" and "Energy Transition Audit course for Energy Auditors". This project aims to introduce a paradigm shift through decarbonization of energy-intensive industries performing Energy Transition Audits. In order to educate current and future energy professionals in this new holistic methodology, it also creates a training program, whose design, implementation and evaluation is defined in the presented report.

The course will be implemented in the four partner countries (Greece, Italy, Romania and Spain) with a common curriculum. The EnTRAINER training program will be delivered either face-to-face or through a distant learning platform and will provide learning and assessment materials and a specialized handbook covering all learning units.

The theoretical part of the course will be assessed through a multiple-choice test of each learning unit and the practical part which will consist of team project in which all the expected learning outcomes are put into practice.

It is targeted to energy auditors, current and future energy experts and professionals and aims to update their skills and complete their academic education and professional background, but it is open to all interested qualified individuals with an energy background.

The main topics are aligned with their learning units, listed below:

- European and national policies and legislation for energy efficiency, energy transition and decarbonization.
- Cutting-edge energy efficiency and decarbonization solutions as measures for Energy Transition Audits.
- Energy Transition Audits and Decarbonization Action Plans.
- Tools for monitoring and managing energy and related CO_2 emissions.
- Financing energy efficiency measures, tools and evaluation.

This report also includes the accreditation and certification of the courses regarding the specifications of each country, as well as the EQF level assigned and the assessment methods.

The courses will be subject to continuous improvement from the first to the second edition, so the material is subject to change based on the input received from the trainees of the first edition and from the rest of the activities conducted in the project.

More information about the EnTRAINER project can be found at https://entrainer-project.eu/.

Appendix A. Feedback Questionnaire for the course on Energy Transition Audits for energy professionals.

General information	
Profession / Student	
Field of activity	
Level of studies	○ High School ○ Vocational Training ○ Bachelor's degree ○ Master ○ PhD ○ Other
Country	
You found out about this training through:	○ The project team ○ Internet: *indicate the source* ○ Elsewhere: *indicate the source*

Please indicate your assessment against each question on a scale of: 1=poor/low; 2=satisfactory; 3=good; 4=very good; 5=excellent/significantly	1	2	3	4	5
Program content and enhanced competencies					
How clearly were the training objectives stated?	○	○	○	○	○
How well did the training meet the stated objectives?	○	○	○	○	○
Do you find the project proposed in the practical training useful to better assimilate learning and get closer to the real world?	○	○	○	○	○
How do you rate the value of this training course to you and your business/company?	○	○	○	○	○
Did the training address the challenges and needs of your industry or sector?	○	○	○	○	○
Rate your improved competencies in the decarbonization field	○	○	○	○	○
How well did the information cover the main topic of each learning unit?					
LU1: European and national policies and legislation for energy efficiency, energy transition and decarbonization.	○	○	○	○	○
LU2: Cutting-edge energy efficiency and decarbonization solutions as measures for Energy Transition Audits.	○	○	○	○	○
	○	○	○	○	○
LU3: Energy Transition Audits and Decarbonization Action Plans.	○	○	○	○	○
LU4: Tools for monitoring and managing energy and related CO_2 emissions.	○	○	○	○	○
LU5: Financing energy efficiency and decarbonization measures, tools and evaluation.	○	○	○	○	○
LU6: Team project - Applying an ETA to a case study	○	○	○	○	○
Course materials, quality of delivery and teaching techniques					
How clear were the materials used during the training?	○	○	○	○	○
How do you rate the teaching techniques and methods used?	○	○	○	○	○
How well did the lecturers present the materials?	○	○	○	○	○
How would you rate the resources offered to answer your questions?	○	○	○	○	○
What is your overall assessment of the technical side of the presentation? If delivered face-to-face (location, room, visual presentation of materials, etc.) or virtual (digital platform, audio quality, video quality, etc.)	○	○	○	○	○
What is your overall assessment regarding the program registration procedures and requirements?	○	○	○	○	○
Overall assessment of the training course	○	○	○	○	○
Additional comments					
Please let us know the most valuable things you gained from participating in the course and the aspects that you think could be improved.					

Appendix B. Feedback Questionnaire for the course on Energy Transition Audits for Energy Auditors

General information	
Profession	
Level of studies	○ High School ○ Vocational Training ○ Bachelor's degree ○ Master ○ PhD ○ Other
Country	
You found out about this training through:	○ The project team ○ Internet: *indicate the source* ○ Elsewhere: *indicate the source*

Please indicate your assessment against each question on a scale of: 1=poor/low; 2=satisfactory; 3=good; 4=very good; 5=excellent/significantly	1	2	3	4	5
Program content and enhanced competencies					
How clearly were the training objectives stated?	○	○	○	○	○
How well did the training meet the stated objectives?	○	○	○	○	○
Do you find the project proposed in the practical training useful to better assimilate learning and get closer to the real world?	○	○	○	○	○
How do you rate the value of this training course to you and your business/company?	○	○	○	○	○
Did the training address the challenges and needs of your industry or sector?	○	○	○	○	○
Rate your improved competencies in the decarbonization field	○	○	○	○	○
How well did the information cover the main topic of each learning unit?					
LU1: Energy Transition Audits	○	○	○	○	○
LU2: Decarbonization Action Plans	○	○	○	○	○
LU3: Tools for monitoring and managing energy and related CO2 emissions.	○	○	○	○	○
LU4: Project - Applying an ETA to a case study	○	○	○	○	○
Course materials, quality of delivery and teaching techniques					
How clear were the materials used during the training?	○	○	○	○	○
How do you rate the teaching techniques and methods used?	○	○	○	○	○
How well did the lecturers present the materials?	○	○	○	○	○
How would you rate the resources offered to answer your questions?	○	○	○	○	○
What is your overall assessment of the technical side of the presentation? If delivered face-to-face (location, room, visual presentation of materials, etc.) or virtual (digital platform, audio quality, video quality, etc.)	○	○	○	○	○
What is your overall assessment regarding the program registration procedures and requirements?	○	○	○	○	○
Overall assessment of the training course	○	○	○	○	○
Additional comments					
Please let us know the most valuable things you gained from participating in the course and the aspects that you think could be improved.					

EnTRAINER references

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