Smart Diaspora 2025

November. 4-7, 2025, Cluj-Napoca



The novel ETA methodology
The path from the conventional energy audits to decarbonization

Professor Eng. Denisa ȘTEȚ
Technical University of Cluj-Napoca (UTC), Romania
Denisa.Stet@ethm.utcluj.ro

Co-funded by the European Union

Quality of information disclaimer: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Relevant Drivers for DECARBONIZATION



- CLIMATE CHANGE MITIGATION
- ACHIEVING SUSTAINABLE DEVELOPMENT
- POPULATION HEALTH AND AIR QUALITY
- TECHNOLOGICAL INNOVATION AND ECONOMIC OPPORTUNITIES
- ENERGY SECURITY AND RESILIENCE

2030

CO_2 reduction with 55%

2050

Climate neutrality in terms of CO_2 emissions

Co-funded by the European Union

Quality of information disclaimer: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

EnTRAINER

Energy Transition Audits towards Decarbonization



Co-funded by the European Union

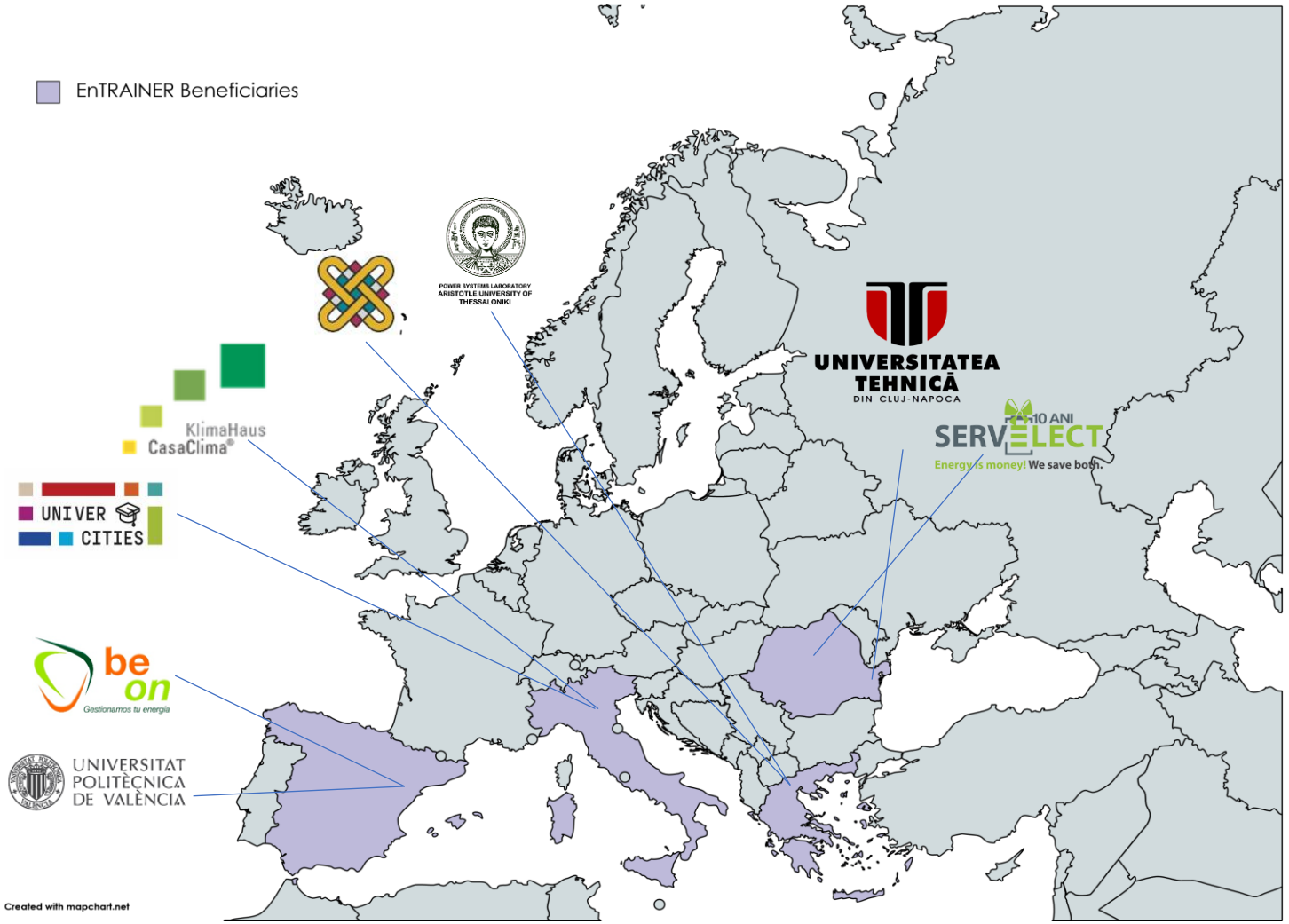
Quality of information disclaimer: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

EnTRAINER

Project Number: ***101076424***

Starting Day: ***01/12/2022***

Duration in months: ***36***



@EnTrainer_Project

@EnTRAINER_EU

@EnTRAINER_Project

https://entrainer-project.eu

Co-funded by the European Union

Quality of information disclaimer: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

❑ CONCEPT

The main idea of the EnTRAINER project is

to go beyond the conventional energy audits

introducing a paradigm shift towards full decarbonization, focusing on medium-term investment plans and qualified energy savings.

Tool for this will be the Energy Transition Audit Methodology

Implemented in the following steps!

1. **Preliminary energy scans** for the implementation of the ETAs
2. **Implementation of the ETAs** in companies in each partner country
3. Delivery of **training courses** for energy auditors, energy professionals and company staff
4. Design of **digital tools**
5. Best practices will be disseminated through the **knowledge sharing hub** to involve more participants

Project findings

ENERGY TRANSITION AUDIT METHODOLOGY

- ✓ A paradigm shift from conventional energy audits to a new holistic approach
- ✓ A multi-benefit scheme and a complete action plan towards full decarbonization of the audited sites
- ✓ Collective approach



EDUCATIONAL & TRAINING PROGRAMS

- ✓ Course on Energy Transition Audits for Energy Professionals
- ✓ Energy Transition Auditors Course for Energy Auditors
- ✓ In house trainings

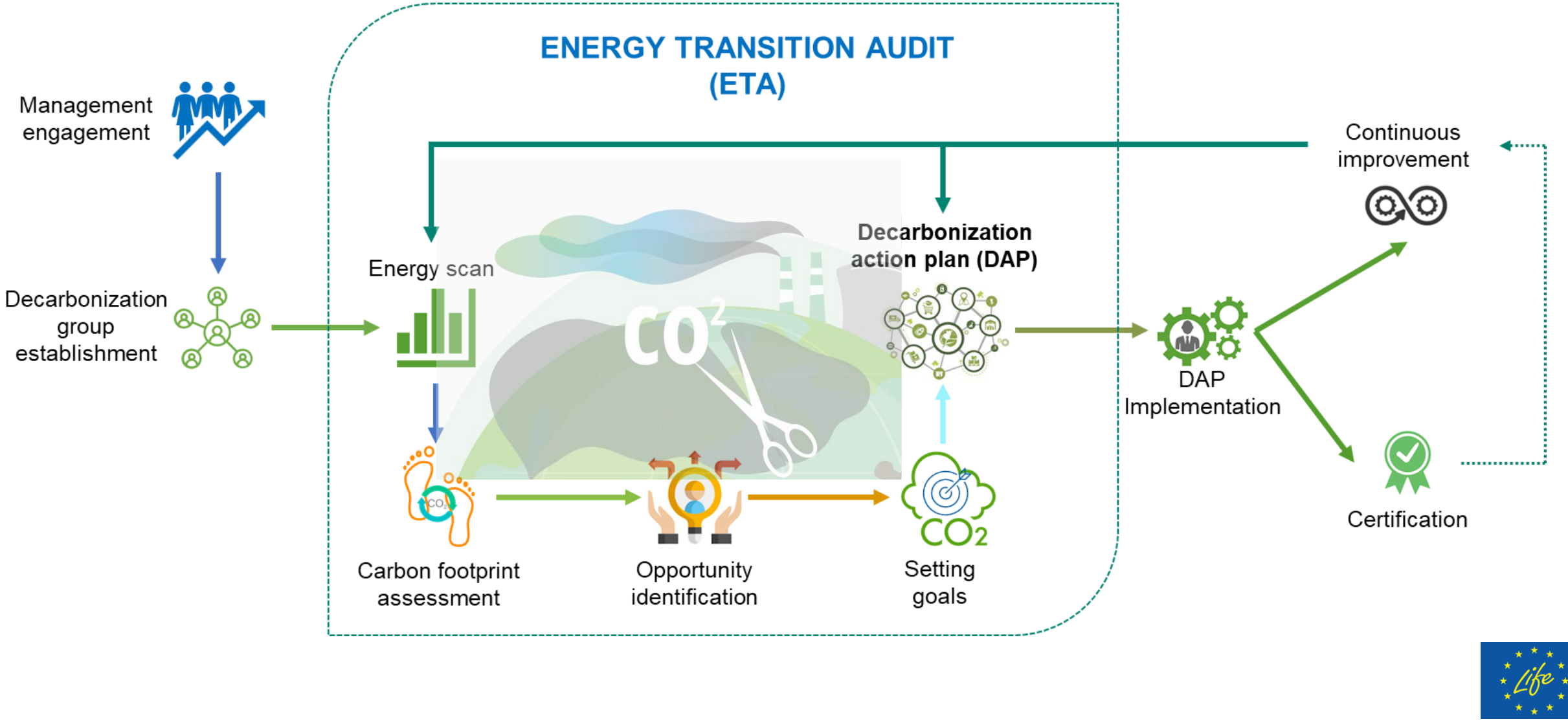
ONLINE TOOLS

- ✓ Cusum
- ✓ Heat Loss Calculator
- ✓ Energy Audit Estimator
- ✓ On-site Auditor

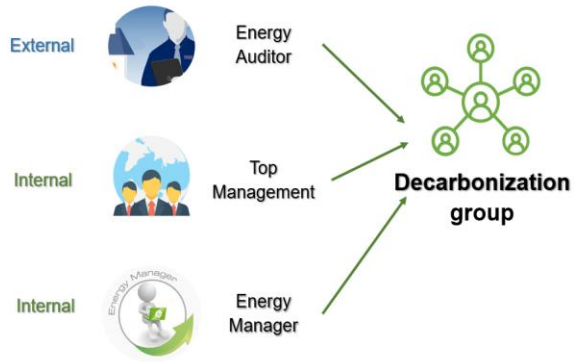




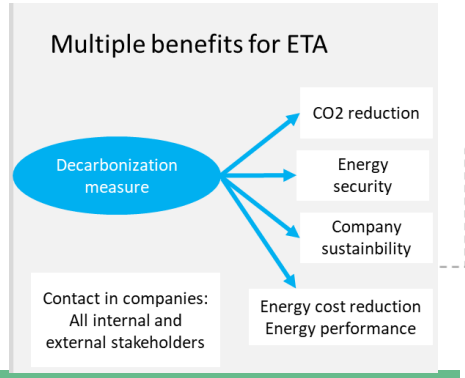
ONLINE PLATFORM AND KNOWLEDGE SHAREING HUB


ENERGY TRANSITION AUDIT
(ETA)
Management engagement
Decarbonization group establishment
Energy scan
Carbon footprint assessment
Opportunity identification
Setting goals
Decarbonization action plan (DAP)
DAP Implementation
Continuous improvement
Certification

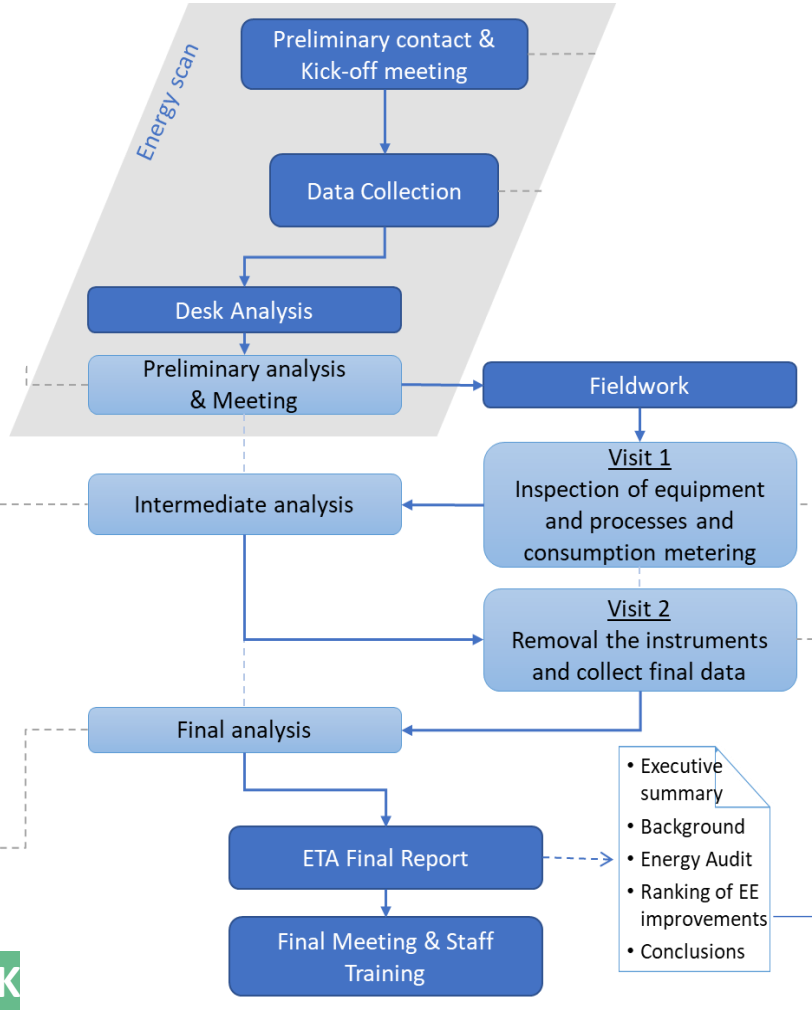
Paradigm shift towards a holistic energy transition audit methodology



COLLECTIVE APPROACH



MULTIPLE BENEFITS FRAMEWORK



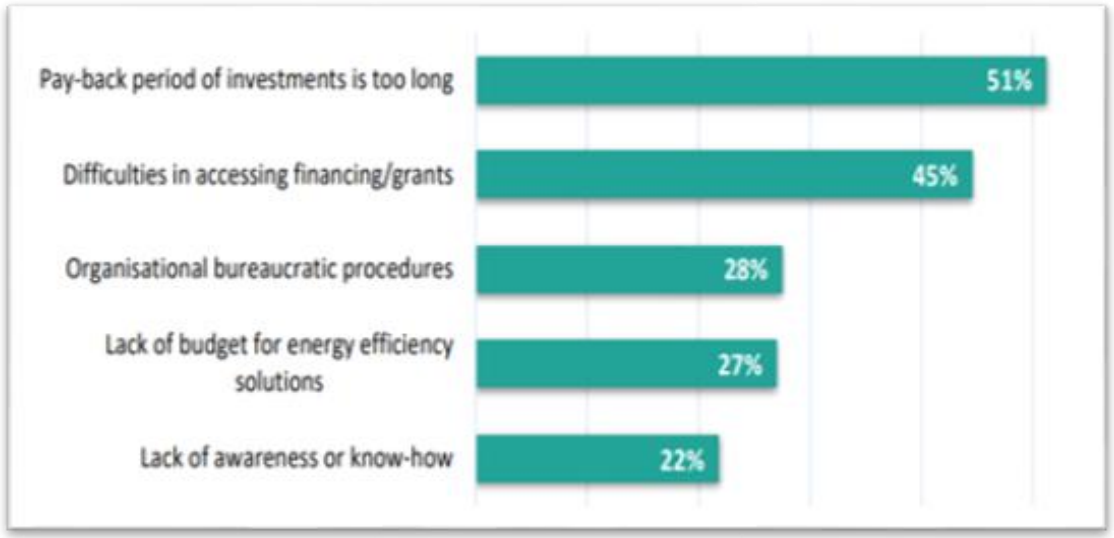


DECARBONIZATION ACTION PLAN

Educational & Training Courses

2019 - 2022

SMEmPower Efficiency project conducted an applied research to determine the **main needs existing inside the SME's** and identifying the level of energy efficiency awareness among SMEs.



2022 - 2025

EnTRAINER project developed novel integrated Education & Training (E&T) programs based on **lifelong-learning concept:** ***Solutions and Actions for Companies' Decarbonization*** **and** ***Energy Transition Audits for energy auditors***

Skills and knowledge:

- ✓ decarbonization strategies
- ✓ technical and economic evaluation criteria
- ✓ available energy efficiency measures
- ✓ digital tools
- ✓ financial instruments

Educational & Training Courses



Program postuniversitar de formare și dezvoltare profesională continuă

AUDITURI PENTRU TRANZIȚIE ENERGETICĂ
Ediția II

Se va desfășura **ONLINE** în perioada **13 noiembrie - 15 decembrie 2024**

TEMATICI ABORDATE:

1. Auditul pentru tranziția energetică;
2. Plan de acțiune pentru decarbonizare;
3. Instrumente pentru monitorizarea și gestionarea energiei și a emisiilor de CO2;
4. Aplicare practică a auditului pentru tranziție energetică. Studiu de caz.

PARTICIPAREA ESTE GRATUITĂ
Formularul de preînscriere este disponibil la:
https://decidfr.utcluj.ro/preform/2105

Pentru detalii suplimentare ne puteti contacta la adresa de e-mail:
entrec.center@ethm.utcluj.ro

Dedicat auditorilor și managerilor energetici

Co-funded by the European Union



EnTRAINER

PROGRAM POSTUNIVERSITAR DE PERFECȚIONARE

SOLUȚII ȘI ACȚIUNI PENTRU DECARBONIZAREA COMPANIILOR
Ediția II

se va desfășura **ONLINE** în perioada **30 octombrie - 15 decembrie 2024**

TEMATICI ABORDATE:

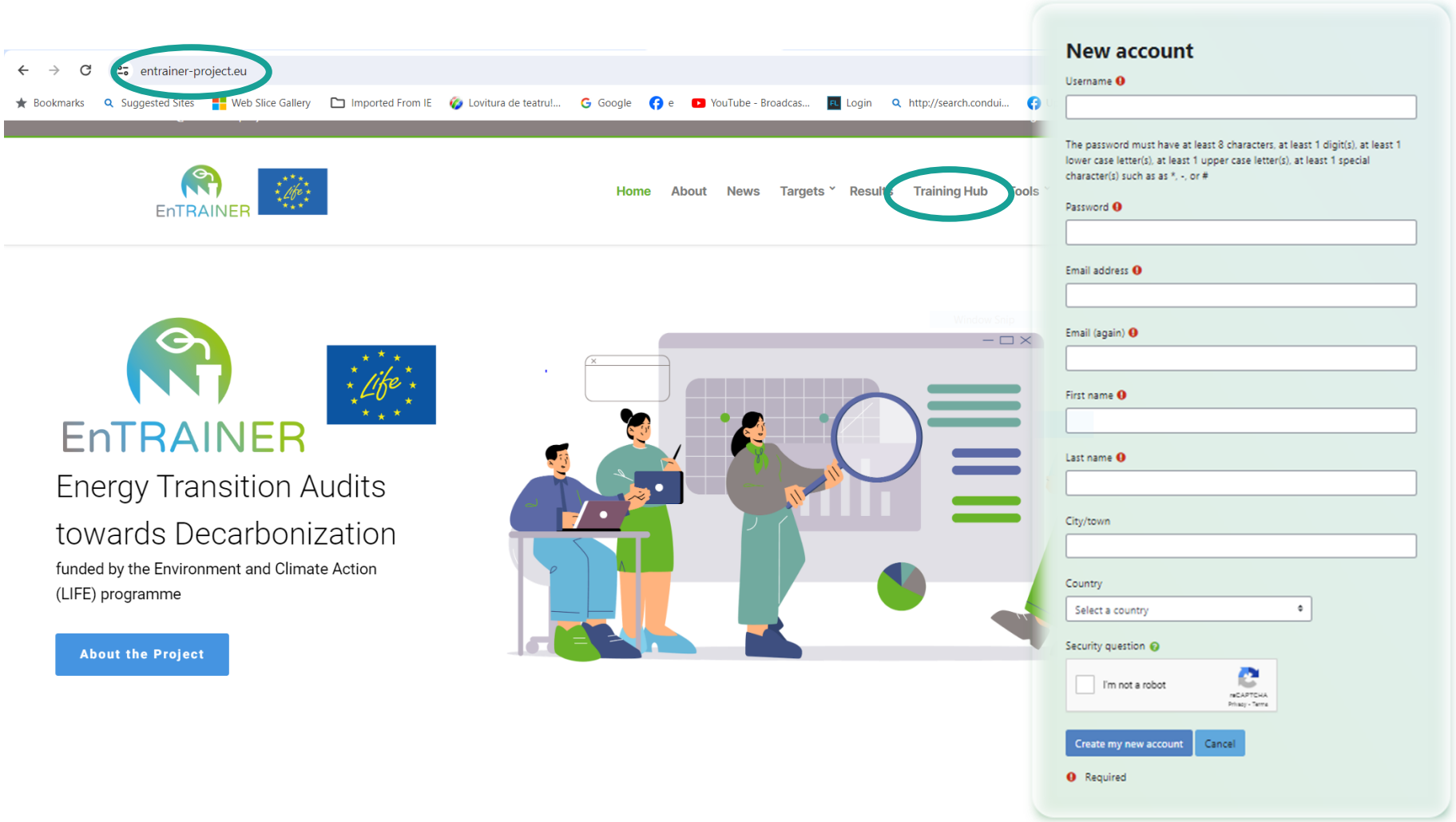
Modul 1: Context european și național privind eficiența energetică, tranziția energetică și decarbonizarea;
Modul 2: Soluții inovative în materie de eficiență energetică și decarbonizare;
Modul 3: Audit pentru tranziție energetică și plan de acțiuni pentru decarbonizare;
Modul 4: Instrumente de monitorizare și gestionare a energiei și a emisiilor de CO2 asociate;
Modul 5: Finanțarea măsurilor de eficiență energetică și decarbonizare. Instrumente și modalități de evaluare;
Modul 6: Aplicare practică a auditului pentru tranziție energetică. Studiu de caz.

PARTICIPAREA ESTE GRATUITĂ, IAR PREÎNSCRIEREA SE FACE ONLINE:
https://decidfr.utcluj.ro/cursuri/2111

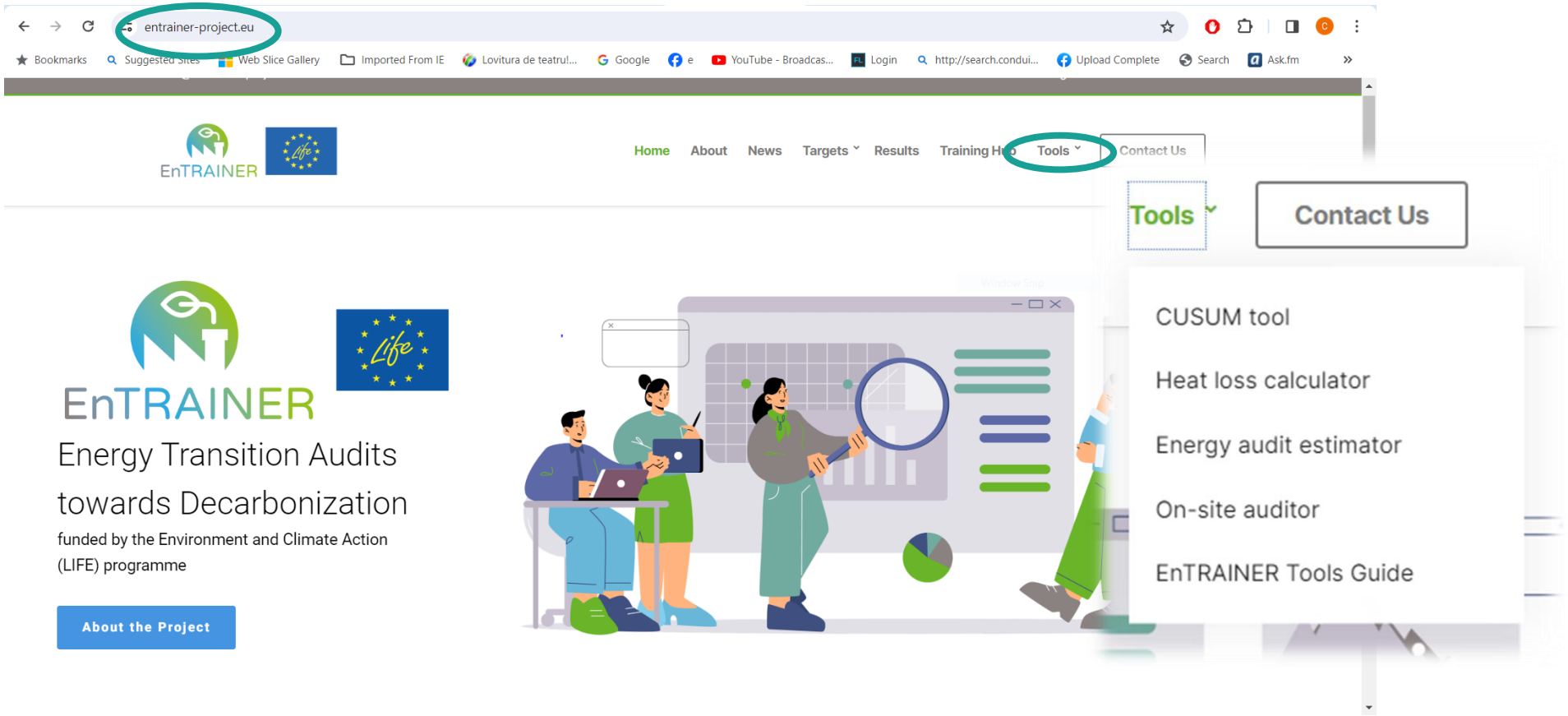
Pentru detalii suplimentare ne puteti contacta la adresa de e-mail:
entrec.center@ethm.utcluj.ro

Co-funded by the European Union

Knowledge sharing Hub



Online tools for ETA



1. EnTRAINER's findings
2. Partners and networks to be addressed
3. EnTRAINER as system adaptable to market needs
4. A proactive Consortium and identification of stable funding sources

- For whom are we creating value?
- Who are our most important customers?
- What partners and network should we approach?

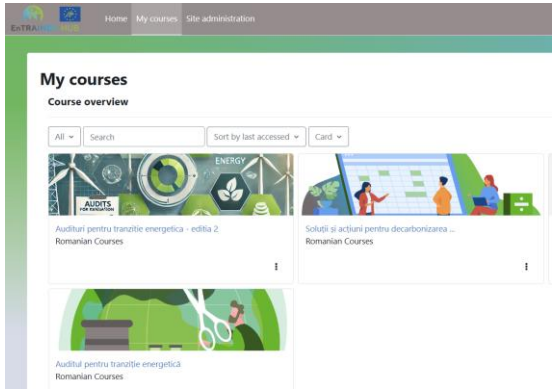


SUSTAINABILITY AND REPLICATION ACTIONS



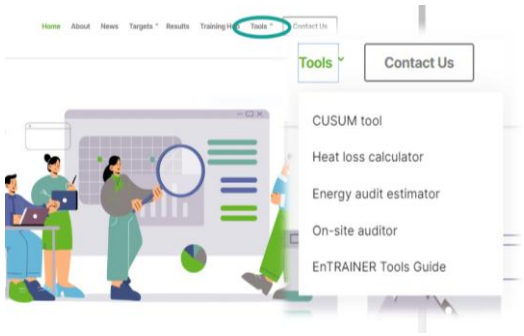
ETA Methodology

- Used commercially for audits and decarbonization plans
- Shared openly through templates and tools
- Integrated into research and teaching activities



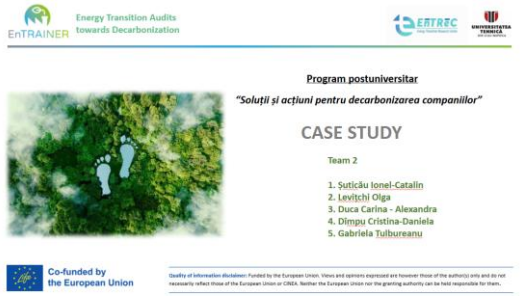
Educational toolkits & knowledge hub

- Offered as paid or accredited courses
- Accessible learning materials and webinars
- Embedded in academic curricula and online education.



Digital tools & dashboards

- Integrated into professional software and services
- Applied in technical validation and student projects
- Demonstrators for demo sites & living labs



Case studies & policy briefs

- Benchmark data for research
- Companies/portfolio assurances & sector playbooks
- Shared as policy guidance and replication manual

Source: D.6.4/ 2. Exploitation strategy/ Table 2. Exploitation pathways

Result	Main Users	Example Actions
ETA Methodology	SERVELECT, BEON, CASACLIMA	Energy transition audits & decarbonization roadmaps
	AUTH, UPV, UTC, UOWM	MSc modules, lab work, research cases
	USEEFF	Municipal projects & policy support
Training Programs	AUTH, UPV, UTC, UOWM	Accredited courses & professional training
	CASACLIMA	Internal and association trainings
	BEON	Promote courses to partners & clients
Digital Tools	CASACLIMA	Embed tools into own software
	SERVELECT, BEON	Use tools in audits & reports
	UPV, UTC, UOWM	Teaching, exercises, projects
Knowledge Hub & Platform	AUTH, UPV, UTC, UOWM	Shared learning and training platform
	SERVELECT, CASACLIMA	Internal & external webinars, best-practice sharing
	USEEFF	Cooperation and replication channel

Source: D.6.4/ *2.Exploitation strategy*

Capacity building plan for EnTRAINER project partners



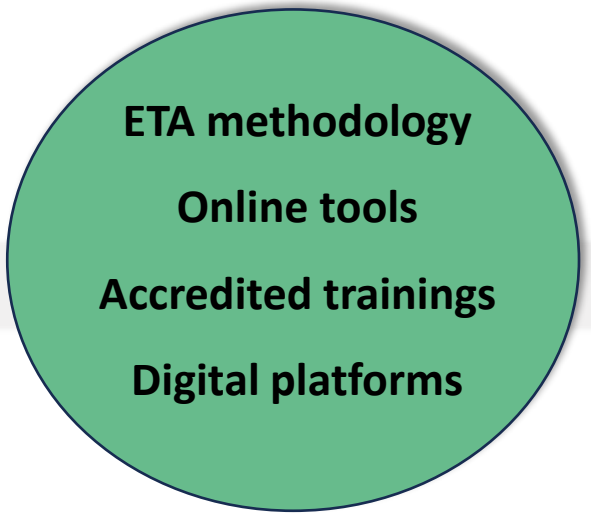


AUTH, UOWM, UPV, UTC	SERVELECT	CASACLIMA	BEON	USEEFF
➢ Update curricula ➢ Laboratory kits ➢ Joint papers ➢ Trainings for stuff and students ➢ Consultancy, training & licensing ➢ Connect with industry	➢ Strengthen internal ETA expertise ➢ Expand ETA & DAP audit portfolio ➢ Share experience ➢ Expand to new markets ➢ R&D and consultancy services	➢ Train architects, engineers & public staff ➢ Create new energy-efficiency certification schemes ➢ Extend certification to public/industrial buildings ➢ Fees from training & certification.	➢ Upskill staff with ETAs ➢ Develop digital dashboards & advisory tools ➢ Publish white papers and benchmarking reports ➢ Advisory, digital tools & shared-savings models	➢ Train municipality and urban planners ➢ Build municipal consultancy services using EnTRAINER tools ➢ Link academia, service firms & technical service providers ➢ Training and certification revenues.

Source: D.6.4/ *3.1.Capacity building plan for EnTRAINER project partners*

Conclusion

Research



Practical change

- **Removing barriers to project uptake**
- **Enabling policy execution and industrial digitalization**
- **Promoting the EnTRAINER approach at scale**

EnTRAINER

Thank you!

Denisa ȘTEȚ
Denisa.Stet@ethm.utcluj.ro
Technical University of Cluj-Napoca, Energy Transition Research Center

FOLLOW US ON

@EnTrainer_Project

@EnTRAINER_EU

@EnTRAINER_Project

entrainer-project.eu

EnTRAINER Partners

POWER SYSTEMS LABORATORY
ARISTOTLE UNIVERSITY OF THESSALONIKI

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Instituto Ingeniería Energética

SERVELECT
Energy is money! We save both.

KlimaHaus CasaClima®

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

be on
Gestionamos tu energía

UNIVER CITIES