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Report with main findings and conclusions regarding training activities and courses

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Project information

Project Title	Improving Cold Chain Energy Efficiency
Project Acronym	ICCEE
Project Number	847040
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Abstract	<p>The ICCEE (Improving Cold Chain Energy Efficiency) project will facilitate Small and Medium Enterprises (SMEs) in the cold chains of the food and beverage sector to undertake energy efficiency measures (EEMs) after carrying out supply chain energy audits. The focus on the cold chains of the sector is due to the significant energy requirements (refrigerated transport, processing and storage) with large potentials for savings. The implementation of the holistic approach, shifting from the single company perspective to the chain assessment, lead to increased opportunities for EEMs. To enable the update of EEMs, ICCEE will a) implement and apply an analytical energy efficiency tool to support and facilitate decision-making at different company organisational levels and b) launch a capacity building program towards staff and relevant stakeholders and a community dedicated to support a change in energy culture of the sector. The feasibility of EEMs will be evaluated by considering economic, environmental and social impacts encompassing their entire life cycle and the entire supply chain. Non-energy benefits and behavioural aspects will also be addressed and recommendations on financing schemes for SMEs will be assessed. The first part of the trainings will reach 300 companies through 20 national workshops thanks to the collaboration of associations in the consortium.</p> <p>32 companies will be trained for the use of the tool in 4 EU workshops. At a final step, ICCEE will launch e-learning courses, which will be available also beyond the project's lifetime reaching at least additional 64 companies. ICCEE will introduce primary energy savings (118 GWh/year), increase invested capital in sustainable energy (64 million €), and reduce GHG emissions (40,376 tonCO₂/year). Capacity building activities allow to increase stakeholders' knowledge and enhance their energy culture (2000 people). Outcomes from ICCEE will also support policymakers in defining tailored policies for the sector.</p>

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About

The project Improving Cold Chain Energy Efficiency (ICCEE) will accelerate turning energy efficiency opportunities enterprises of the Food and Beverage sector – special focus on small and medium sized (SMEs) but not exclusively - into actual investments and create a clear understanding of the opportunities offered by improving energy efficiency for companies' staff.

The specific objectives of ICCEE are:

- 1) Implement and apply an analytical energy efficiency tool to support and facilitate the decision-making processes of the companies in the supply chains in assessing their current energy performance of the supply chain,
- 2) Identify the energy saving potential of companies and support investments in viable energy efficiency improvement measures,
- 3) Create a capacity building programme and a community dedicated to support the change in the energy culture of organizations improving their energy performance through direct training and the development of an e-module.

ICCEE will make it easier for SMEs in the cold chains of the food and beverage sector to undertake energy efficiency measures (EEMs) after carrying out supply chain energy audits.

Focus on the cold chains was decided due to the significant energy requirements (refrigerated transport, processing and storage) of the sector, with large potential for savings. The cold supply chain is among the most energy-intensive systems within the food and beverage sector whilst there is limited understanding of its large energy efficiency potential and the economic advantages that can be obtained from energy saving measures.

The implementation of a holistic approach, shifting from the single company perspective to the chain assessment, leads to increased opportunities for EEMs.

ICCEE is coordinated by the University of Brescia with 12 partners: IEECP, FIRE (Federazione Italiana per l'uso razionale dell'energia), Adelphi Research Gemeinnützige, ATEE (Association Technique Energie Environnement), Fraunhofer, Riga Technical University, ESCAN, SPES GEIE, ECSLA, Chamber of Korinthia, University of Stuttgart, and Romalimenta.



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Project partners



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Table of Contents

PROJECT INFORMATION	2
ABOUT	3
PROJECT PARTNERS	4
LEGAL NOTICE	5
LIST OF FIGURES	8
LIST OF TABLES	8
PREFACE.....	9
INTRODUCTION	10
1. TRAINING OBJECTIVES	11
2. TRAINING PROGRAMME	11
3. TRAINING MATERIALS AND TOOLS	12
4. TRAINERS	13
5. NATIONAL TRAININGS.....	14
5.1. MARKETING ACTIVITIES	15
5.2. AGENDA AND STRUCTURE OF COURSES	17
5.3. ITALY – SPES/UNIBS - 29 OCTOBER 2020	18
5.4. ITALY – FIRE/UNIBS	20
5.4.1 First training – 27-30 November 2021	20
5.4.2 Second training – 12 March 2021	22
5.5. GERMANY – ADELPHI/FRAUNHOFER	24
5.5.1 First Training – 17-18 February 2021	24
5.5.2 Second training – 17-18 March 2021	28
5.6. SPAIN – FIAB/ESCAN	32
5.6.1 First training - 17 November 2021	32
5.6.2 Second Training - 19 May 2021.....	34
5.7. FRANCE – ANIA/ATEE - 15 JANUARY 2021	36
5.8. LATVIA – RTU	38
5.8.1 First training – 8 April 2021.....	38
5.8.2 Second training - 11 - 12 November 2020.....	40

5.9.	GREECE - CHAMBER OF COMMERCE AND INDUSTRY OF KORINTHIA	42
5.9.1	First training - 31 March 2021.....	42
5.9.2	Second training - 3 April 2021	44
5.9.3	Third Training - 8 April 2021.....	46
5.10.	THE NETHERLANDS - IEECP/FNLI	48
5.10.1	First training - 16-25 March 2021	48
5.10.2	Second training - 20-27 May 2021	50
5.11.	ROMANIA – ROMALIMENTA, - 26 APRIL 2021.....	52
CONCLUSIONS		55
ANNEX A - TRAINING COURSES CONTENTS		57
ANNEX B – DRAFT OF ASSESSING QUESTIONNAIRE		62

List of Figures

FIGURE 1 EXAMPLE OF LINKEDIN POST SENT BY FIRE (ITALY)	16
FIGURE 2 DEDICATED INVITATION SENT BY E-MAIL BY FIAB (SPAIN) TO ITS MEMBERS	16
FIGURE 3 EXAMPLE OF TWO DAYS TRAINING AGENDA	17
FIGURE 4 AGENDA OF FIRST TRAINING ITALY - FEDERALIMENTARE	18
FIGURE 5 AGENDA FIRST TRAINING FIRE	20
FIGURE 6 AGENDA SECOND TRAINING FIRE	22
FIGURE 7 AGENDA FIRST TRAINING ADELPHI - FIRST DAY	24
FIGURE 8 AGENDA FIRST TRAINING ADELPHI - SECOND DAY	26
FIGURE 9 AGENDA SECOND TRAINING ADELPHI - FIRST DAY	28
FIGURE 10 AGENDA SECOND TRAINING ADELPHI - SECOND DAY	30
FIGURE 11 AGENDA FIRST TRAINING ESCAN	32
FIGURE 12 AGENDA SECOND TRAINING ESCAN	34
FIGURE 13 AGENDA FIRST TRAINING ATEE	36
FIGURE 14 AGENDA FIRST TRAINING RTU	38
FIGURE 15 AGENDA SECOND TRAINING RTU	40
FIGURE 16 AGENDA FIRST TRAINING CHAMBER OF COMMERCE AND INDUSTRY OF KORINTHIA	42
FIGURE 17 AGENDA SECOND TRAINING CHAMBER OF COMMERCE AND INDUSTRY OF KORINTHIA	44
FIGURE 18 AGENDA THIRD TRAINING CHAMBER OF COMMERCE AND INDUSTRY OF KORINTHIA	46
FIGURE 19 AGENDA FIRST TRAINING IECP	48
FIGURE 20 AGENDA SECOND TRAINING IECP	50
FIGURE 21 AGENDA TRAINING ROMALIMENTA	52

List of Tables

TABLE 1 NUMBER OF WORKSHOPS AND TARGET AUDIENCE.....	12
TABLE 2 TOPICS OF THE TRAINING.....	13
TABLE 3 TRAININGS CONDUCTED	14

Preface

The aim of ICCEE is to facilitate Small and Medium Enterprises (SMEs) belonging to supply chains in the food and beverage sector to undertake energy efficiency measures after carrying out overall supply chain energy audits. Specifically, these companies belong to different sectors and stages of the production processes (from agriculture, livestock and aquaculture, food processing, packaging, logistic, waste treatment and disposal sectors). One of the main activities of ICCEE is to create a capacity building program and a community dedicated to support the change in the energy culture of the organizations improving their energy performance through various activities.

The capacity building program consists of direct training, workshops and seminars with external experts, the development of an e-learning concept.

Through all these activities ICCEE will allow to increase the stakeholders' awareness and knowledge on the energy and environmental issues leading to changes in habits and behaviour.

This document describes the ICCEE training activities managed through the dedicated Work Package 4 "Capacity building activities implementation" (leader: ESCAN). The objective of WP4 is to design, organize and implement the necessary and appropriate for the corresponding level staff trainings and capacity building programmes to enhance:

- corporate policy towards energy efficiency,
- energy culture (motivations, behaviour change, mitigation of perceived risks and barriers) and
- sustainable supply-chain initiatives.

Introduction

A precondition for ICCEE success is the existence of mutual trust among the project team and the stakeholders. This is based on the know-how and the experience of the project team and on the involvement of key stakeholders. ICCEE partners enjoys the support of SPES member federations (if existing in the country) or other food and beverage or supply chain associations.

The trainings were originally meant to be conducted in the classroom, because of the restrictions due to the Covid-19 pandemic many of the courses were held online using platform like ZOOM or GoTo Webinar.

At the end of each training, a final test was submitted to the participants to evaluate the skills acquired during the training session. Participants who compiled the final test received the certificate of attendance via email, together with documents used by speakers during the webinar.

The first one or two trainings in each Member State are the pilot training for testing how the training works. From the results of the pilot trainings, each member state then standardized and developed the procedures it considered most successful.

1. Training Objectives

The aim of the ICCEE trainings is to provide non energy experts and energy experts with knowledge on food and beverage sector cold supply chains energy efficiency, which can be easily used to gain energy efficiency in their organizations or chains.

Following the development of a pedagogical concept for the training programme, the content of the trainings provides specialized knowledge about energy savings and economic evaluation in the food and beverage supply chain cooling, focused on storages and distribution, but including also the relevant parts of the industry (as raw or final product storage in the own industry).

The complete ICCEE training programme includes three actions: National Workshops, EU workshops and E-learning. This report assesses the outcomes from the National Workshops.

2. Training programme

The National training programme was structured as follows, i.e. the general topics of the training valid for every supply chain and subsector have been:

- Energy outlook in the food and beverage sector
- ISO 50001 – Energy Management System
- Energy Performance Indicators (EnPIs)
- IPMVP - Measurement and Verification Protocol
- Holistic approach
- Supply chain management and industrial symbiosis
- Energy saving opportunities on all the process from raw materials to final customer
- Financial analyses, funding opportunities and LCCA
- NEBs and behavioural aspects of energy efficiency
- Tool's introduction

In addition, each partner had the possibility to add tailored made sections to the training programme for any specific cold chains analysed and focused on the offer of case studies and best practices. At the end of training program, participants responded to a test to demonstrate the knowledge gained and increased awareness of the topics and received a certificate of participation. Each partner has chosen the modality in which to submit the final test to the respective participants.

The courses were held by each partner in their own national language, with one day duration. It was originally scheduled in-class training, but due to COVID-19 pandemic and the restrictions in partner countries it was agreed with the Commission to develop real time training webinars with a similar scope. Thus, no deviation was originated for the project and the other tasks linked to these trainings.

The training programme required a minimum of 5 hours of time in order to be adequately presented and comprehensively worked through, including participant assessment. Segments of the training can be divided and administered at different lengths or intervals as appropriate for individual groups and/or countries.

The following organizations conducted the ICCEE national training workshops in the respective countries listed, with the foreseen targets described in the table:

Country	Responsible	Supported by	Workshops	KPI Target audience
Italy	SPES/GEIE	UNIBS	4 to 8	240
The Netherlands	IECCP	Contact FNLI	2 to 4	120
Germany	ADELPHI	Fraunh./UniStutt	4 to 8	240
Greece	ANEPKO	SPES (SEVT)	3 to 6	180
Spain	ESCAN	SPES (FIAB)	2 to 4	120
Italy	FIRE	UNIBS	2 to 4	120
France	ATEE	SPES (ANIA)	2 to 4	120
Romania	Romalimenta	UNIBS	2 to 4	120
Latvia	RTU		2 to 4	120
Overall			20 to 40	>= 1.200

Table 1 Number of workshops and target audience

3. Training materials and tools

The training material developed by the partners within ICCEE and specific for the National trainings consists of:

- general sections valid for each selected sub-sector on topics related to the supply chain energy efficiency, and

- specific sections tailored to the sub-sectors to facilitate sector specific learnings, providing ways to overcome the main barriers, identifying existing funding opportunities, and addressing other peculiarities to support the implementation of energy efficiency measures.

Each partner of ICCEE project was in charge to prepare a specific part of the training materials in English as shown in table 2. Once the overall training was prepared and passed the quality check, partners translated it in each partner national languages and adapted to the national context. The partners prepared the contents considering their experience and capacities in each field:

	Partner leading contents	Training Hours (*)	Topics
1	SPES/UNIBS	0,5	Energy outlook in the food and beverage sector supply chains
2	FIRE/ECLSA	1	Supply chain main cooling energy consumers and energy saving opportunities
3	ADELPI/UNISTUTGART	0,5	ISO 50001, ENPIs and IPMVP
4	RTU/ C.KORINTHIA	0,5	LCA, LCC
5	ESCAN/ATEE	1	Economic calculation and financing
6	FRAUNHOFER/IEECP	1	NEBs and behavioral aspects of energy efficiency
7	UNIBS/ROMALIMENTA	0,5	Optimization tool introduction (optional)
8	ESCAN	0,5	Final test and quality control test

Table 2 Topics of the training

A more accurate overview of the topics can be found in the annex B.

4. Trainers

Some specific profiles recommended have been involved in the Food and Beverage sector or high experience in supply chain cooling in the industry sector, and might be in the position of: senior manager on business or from industrial company, senior engineer with skills in processes, senior advisor with communication skills, energy senior manager, certified consultants, professionals with academic/research background, economics and financing experts, cooling system sales training experts, etc.

The number of trainers varies from one country to others depending on the profiles and education, but as a principle it should be avoided too many trainers that might confuse people or too low, to make it dynamic enough.

The trainers have been selected from the own ICCEE consortium partner organizations in each country, or from other external when they offer the expertise required. The responsible partners decided in each training, considering the ICCEE and the audience targets the most favourable option.

Additionally, among the overall training team, experts in nonenergy benefits and presentation to decision makers can be involved.

5. National Trainings

In table 3 are shown the trainings conducted by the partners to date.

Country	Responsible	Supported by	Workshops	Overall participants
Italy	SPES/GEIE	UNIBS	1	299
The Netherlands	IEECP	Contact FNLI	2	86
Germany	ADELPHI	Fraunh. /UniStutt	4	199
Greece	ANEPKO	SPES (SEVT)	3	236
Spain	ESCAN	SPES (FIAB)	2	143
Italy	FIRE	UNIBS	2	174
France	ATEE	SPES (ANIA)	1	94
Romania	Romalimenta		1	88
Latvia	RTU		2	170
TOTAL				1.489

Table 3 Trainings conducted

To keep track of all the information relating to the different trainings ESCAN has developed 5 quality check forms which are listed below:

- ICCEE_T4.5_QualityCheck_Form 1- check list prelim: a checklist with the minimum requirements needed for the trainings, as materials ready, premises or systems needed, etc.
- ICCEE_T4.5_QualityCheck_Form 2-trainer CV prelim: a form to include a simplified CV from each trainer, to assure they fulfil the requirements.
- ICCEE_T4.5_QualityCheck_Form 3- SignatureSheet: a table to include the participants and their signature. When webinars, a registration online substitutes this form.
- ICCEE_T4.5_QualityCheck_Form 4-Evaluation: a form to be completed by the attendees to show their acceptance of the training after they have completed it.
- ICCEE_T4.5_QualityCheck_Form 4-format. 01 Template: an Excel file to integrate all data from the previous form
- ICCEE_T4.5_QualityCheck_Form 5-Event report: a report with the summary of each National Training, including agenda, conclusions, images, etc.

Also a pdf file «ICCEE_T4.5_QualityCheck_F0_Instructions» where are listed all the instruction for the correct compilation of the various forms.

In the following chapters are described the main result relating the marketing activities that have been conducted by the partners together with the most salient points that emerged from the analysis of the reports of the courses.

The detailed evaluations of each course taken from the various reports prepared by the partners are shown below.

5.1. Marketing activities

From the analysis of the reports of the different trainings it emerges that the most used tool by the partners to advertise the courses is disseminating the news by its own mailing list, sharing on the social media profiles (Twitter, Facebook, LinkedIn), specific news or announcement in their websites or articles and notes in media partners.

The support of the trade associations, including SPES members and others, with which the partners collaborate, has made it possible to reach in most cases a very wide and sector audience.

In figure 1 is shown an example of LinkedIn post.

Also the e-mail marketing has proved to be widely used by sending dedicated invitations that have allowed the news to arrive in an effective and timely manner. (Figure 2).

Some partners, like Greece and Italy, have taken advantage of participating in third party webinars or conferences to spread the news of the courses.



Figure 1 Example of LinkedIn post sent by FIRE (Italy)

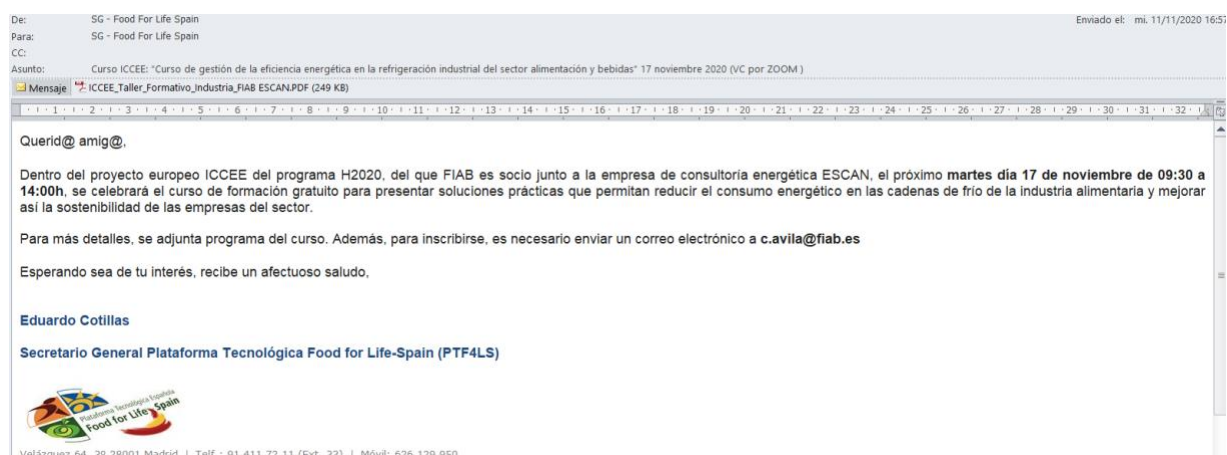


Figure 2 Dedicated invitation sent by e-mail by FIAB (Spain) to its members

5.2. Agenda and structure of courses

Some partners have structured the first training courses, the pilot ones, in a full day and others in two half-days, the latter option to avoid being too demanding for the participants. Both options have shown to be possible and in general with good results, but, the two half-days solution leads to have some participants following just one day (only the first or only the second one), with a reduction of the number of participants completing the whole course compared to the number of participants following each day, thus making this option less effective.

In several editions of the courses external speakers who do not belong to the project partners were included, which provided a greater practical sense and updated information to the attendees. In all trainings there was a special effort in showing case studies and good practices.

Apmācību semināra plāns

11. novembris, 2020

Laiks	Tēmas	Lektors
16:30 - 16:40	Semināra atklāšana	Dagnija Blumberga
16:40 - 17:00	Ievads par saldētu produktu uzglabāšanu, piegādes ķēžu energoefektivitāti un pētniecības projektu ICCEE	Agris Kamenders
17:00 - 17:50	Energoefektivitātes indikatori un energopārvaldības sistēma uzņēmumos	Gatis Žogla
17:50 - 18:00	Pārtraukums	
18:00 - 18:50	Energoefektivitātes pasākumi. Ieviesto pasākumu kvalitātes mērījumu un verifikācijas procedūras	Gatis Žogla
18:50 - 19:00	Konsultācijas un kopsavilkums	Agris Kamenders, Gatis Žogla

12. novembris, 2020

Laiks	Tēmas	Lektors
16:30 - 16:55	Energoefektivitātes pasākumu ekonomiskā analīze	Agris Kamenders
16:55 - 17:45	Energoefektivitātes pasākumu dzīves cikla analīze. Aprēķina rīks uzņēmumiem dzīves cikla (vides snieguma) novērtējumam	Agris Kamenders un Maksims Feofilovs
17:45 - 17:55	Pārtraukums	
17:55 - 18:35	Noslēguma pārbaudījums (tests) un atsauksmes forma	Maksims Feofilovs un Agris Kamenders
18:35 - 19:00	Konsultācijas, kopsavilkums un semināra noslēgums	Agris Kamenders, Gatis Žogla, Maksims Feofilovs



Co-funded by the Horizon 2020 programme of the European Union

Figure 3 Example of two days training agenda

5.3. Italy – SPES/UNIBS - 29 October 2020



Webinar 1 – Progetto Europeo ICCEE

“L'efficienza energetica nella catena del freddo: benefici e prospettive per l'industria agroalimentare”

Giovedì 29 ottobre 2020 | 09:30 – 15:30

Programma

09:30 – 09:45	Introduzione e presentazione del progetto ICCEE – UNIBS, Prof. Simone Zanolini
09:45 – 10:10	Prospettive energetiche nella catena del freddo nel settore alimentare e delle bevande – FEDERALIMENTARE, Dr. Maurizio Notarfonso
10:10 – 11:00	Principali consumatori di energia nella catena del freddo, opportunità di risparmio energetico e best practices – FIRE, Ing. Daniele Forni
11:00 – 12:00	ISO 50001, indicatori di prestazione energetica (ENPIs) e protocollo di misura e verifica (IPMVP) – FIRE, Ing. Valeria Caso
12:00 – 12:30	Pausa
12:30 – 13:30	LCC e LCA – UNIBS, Ing. Beatrice Marchi
13:30 – 14:30	Valutazione economica e schemi di supporto finanziario – FIRE, Ing. Lorenzo Tuzzolo
14:30 – 15:00	Benefici non energetici (NEBs) – UNIBS, Ing. Beatrice Marchi
15:00 – 15:30	Test finale* e questionario di gradimento

La partecipazione al corso è gratuita previa compilazione del modulo di registrazione al seguente

link: <https://register.gotowebinar.com/register/1536449162867494159>

*Sarà rilasciato un attestato di partecipazione a superamento del test finale.

Con il patrocinio morale dell'Ordine dei Tecnologi Alimentari di Campania e Lazio



The ICCEE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 847040.

Figure 4 Agenda of first training Italy - Federalimentare

5.3.1 *Evaluation of results and quality control*

The Training Workshop was attended by 299 people, while 180 completed the quality evaluation survey even after email reminder notice. Mainly, the group of participants consisted in consultants in energy, cold chain engineers from industries, energy managers, food technologies, universities students and food technologists.

The majority of participants declared basic or good knowledge of cold chain supply chain and energy efficiency. Overall audience reported positive feedback about topic covered and the quality of speakers; in addition to this, participants also showed appreciation for time management during the webinar, most of them really welcomed practical examples and best practices shared during the session. Only few people reported they did not find interesting and useful for their jobs what has been covered.

The evaluation of the trainers is quite high: the majority of the audience appreciated trainers' skills and capacities, which were of good quality.

During the session, some participants asked questions in the chat, in particular to know if the material shown by trainers would have been then shared with them. This means that all presentations were worthy and considered very useful.

Due to Covid-19 pandemic, the webinar had to be hold online and not in presence. Nevertheless, the platform chosen was considered user friendly and easy to manage speaker presentations and questions in the chat box from the public.

Summary of key findings:

- 299 attendees, which is a large figure and shows the effort made in marketing the training and the interest of the audience in this training
- General positive feedback on both the topics and trainers
- Interaction during the training by feedback in the system chat, showing a dynamic course

5.4. Italy – FIRE/UNIBS

5.4.1 First training – 27-30 November 2021



Seconda edizione – Progetto Europeo ICCEE

“L’efficienza energetica nella catena del freddo: benefici e prospettive per l’industria agroalimentare”

Venerdì 27 novembre 2020 | 14:00 – 16:30

Lunedì 30 novembre 2020 | 11:00 – 13:30

Programma 27 novembre

14:00 - 14:15	Introduzione e presentazione del progetto ICCEE – Prof. Simone Zanoni, <i>UniBS</i>
14:15 - 14:40	Prospettive energetiche nella catena del freddo nel settore alimentare e delle bevande – Dr. Maurizio Notarfonso, <i>FEDERALIMENTARE</i>
14:40 - 15:30	Principali consumatori di energia nella catena del freddo, opportunità di risparmio energetico e <i>best practices</i> – Ing. Daniele Forni, <i>FIRE</i>
15:30 - 16:30	ISO 50001, indicatori di prestazione energetica (ENPIs) e protocollo di misura e verifica (IPMVP) – Ing. Valeria Caso, <i>FIRE</i>

Programma 30 novembre

11:00 - 12:00	LCC e LCA – ing. Beatrice Marchi, <i>UniBS</i>
12:00 - 13:00	Valutazione economica e schemi di supporto finanziario – Ing. Valeria Caso, <i>FIRE</i>
13:00 - 13:30	Benefici non energetici (NEBs) – ing. Beatrice Marchi, <i>UniBS</i>

La partecipazione al corso è gratuita previa compilazione del modulo di registrazione al seguente link: <https://register.gotowebinar.com/register/1408037200565410319>. Al superamento del test finale, sarà rilasciato un attestato di partecipazione.



Con il patrocinio morale dell'Ordine dei Tecnologi Alimentari di Campania e Lazio.

La partecipazione al corso dà diritto a n. 5 crediti formativi professionali per gli iscritti all'Ordine Nazionale dei Tecnologi Alimentari.



Figure 5 Agenda first training FIRE

Evaluation of results and quality control

The course was attended by 45 people for the first day (27th of November) and 45 for the second day (30th of November), mainly steam-related engineers from industries, also from audits and consultants. We had some differences of participants: on 27/11, 64 subscribers and 45 participants; on 30/11, 71 subscribers and 45 participants that's the reason why the participants who were considered in the analysis of the results are 35, i.e. those who participated in both training days and for which we consider the feedback to be true.

The course was held online on e-learning platform, some questions relating to the evaluation of the course were submitted to the participants using the functionality of the platform itself. Each participant at the end of the online session received the final questionnaire as a

reminder. It is not possible to make the compilation of the questionnaire mandatory so not everyone has completed the questions.

The speakers of the course belong to Italian project partners.

Most of the participants of the course are auditors or consultants. A good number of participants belongs to the cold chain in the industrial sector. We also had an interesting percentage of participants from the university sector.

The origin of the attendees was from organizations of all sizes but small and micro enterprises are the most represented.

The question relating to the general satisfaction of the course was submitted to the participants in the form of an option question giving 4 answer options (1 totally dissatisfied - 4 very satisfied). We assumed that the participants who answered "2" gave a negative opinion while those who gave a rating of "3" and "4" gave a positive opinion.

The results are satisfying, as 77% agree with the satisfaction, which could be improved, but perhaps the two-day formula didn't help to reach a better mark.

Training objective and contents was considered satisfactory in a large extent, with a with the majority that agree, however there were some participants who disagreed. The best mark was given to the "knowledge acquired are useful" item.

The trainers result qualified by nearly all the participants. The participants had the possibility to send questions to the trainers through the chat of the control panel of the e-learning platform. The feedbacks detected are quite positive: most agree with the high quality.

Training materials were considered good by a 62% of participants.

Summary of key findings:

- In two half day trainings it can happen that some attendees are not able to attend the two days, usually due to their responsibilities at work. Nonetheless, information is provided to complete the part not attended via e-learning
- This training was attended mainly by consultants and auditors with knowledge on cold chains, showing that, even when there are other trainings in refrigeration, the ICCEE National trainings are highly demanded by experts in this sector
- Over 75% of the attendees considered the training satisfying while 62% considered training materials good. This could be because they were already expert and this training provides capacity building on several topics but not in-deep.

5.4.2 Second training – 12 March 2021

Programma

- 09:00 – 09:10 → Introduzione e presentazione del progetto ICCEE – UniBS, Prof. Simone Zaroni
- 09:10 – 9:30 → Prospettive energetiche nella catena del freddo nel settore alimentare e delle bevande – FEDERALIMENTARE, Dr. Maurizio Notarfonso
- 9:30 – 10:30 → Principali consumatori di energia nella catena del freddo, opportunità di risparmio energetico e best practices – FIRE, Ing. Daniele Forni
- 10:30 – 11:15 → ISO 50001, indicatori di prestazione energetica (ENPIs) e protocollo di misura e verifica (IPMVP) – FIRE, Ing. Valeria Caso
- 11:15 – 11:30 → Pausa
- 11:30 – 12:15 → LCC e LCA – UniBS, Ing. Beatrice Marchi
- 12:15 – 13:00 → Valutazione economica e schemi di supporto finanziario – FIRE, Ing. Valeria Caso
- 13:00 – 13:40 → Benefici non energetici (NEBs) – UniBS, Ing. Beatrice Marchi
- 13:40 – 14:00 → Big Data, Gemello Digitale, Data Science: caso studio nella catena del freddo – Metron, Ing. Mauro Scarpaccio

Figure 6 Agenda second training FIRE

Evaluation of results and quality control

The Training workshop was attended by 139 people, mainly steam-related engineers from industries, and also steam experts, energy managers and advisors from companies. The origin of the trainees was from organizations of all sizes (Large, SMEs and small). The invitations to participate in the training were sent by FIRE and FEDERALIMENTARE.

The course was held online on the e-learning platform. Each participant at the end of the online session received the final questionnaire as a reminder. It is not possible to make the compilation of the questionnaire mandatory so not everyone has completed the questions.

The speakers of the course belong to Italian project partners.

The observations relating to the course are illustrated below.

The type of organisation form which the participants came from are mainly auditor organization and research sector.

The most of participants belongs to small companies. Also large companies are well represented.

The question relating to the general satisfaction of the course was submitted to the participants in the form of an option question giving 4 answer options (1 totally dissatisfied - 4 very satisfied). We assumed that the participants who answered "2" gave a negative opinion while those who gave a rating of "3" and "4" gave a positive opinion.

Mostly all of the participants were satisfied with the training.

Training objective and contents was considered satisfactory in a large extent, where the majority agree. The best mark was given to the "the course has been satisfactory" item.

The trainers were considered of high quality, with most of the participants that found them "qualified and experienced".

The training material was judged good and excellent from the same percentage of participants as well as the training coordination was weighted good and excellent with an overall weight of nearly 80%. Since the workshop was online, the face-to-face premises are not considered.

The overall score for the training was of 4.2 of 5 (5 is the maximum). The questions were entered in the final exam form that was set up on Google form.

The platform and the organization were judged excellent by most of the participants.

Summary of key findings:

- 139 attendees, which is a large number, showing the interest in this training
- The course was satisfactory for most of the participants and trainers were considered qualified and experienced. The overall score was of 4,2 of 5,0 maximum, which is a high mark and positive feedback for the training.
- The platform and the organization were considered excellent by most participants

5.5. Germany – University of Stuttgart/ADELPHI/Fraunhofer

5.5.1 First Training – 17-18 February 2021

17 February 2021

09:00 Uhr	Registrierung und Begrüßung
09:15 Uhr	Der Nahrungsmittelsektor und Potentiale für Energieeffizienz
09:30 Uhr	Vorstellung des ICCEE-Projekts
09:45 Uhr	Energieeffizienzindikatoren
	<i>Kaffeepause</i>
10:45 Uhr	Energiemanagementsystem ISO 50001
11:15 Uhr	Messung und Verifikation
	<i>Mittagspause</i>
12:30 Uhr	Energiesparmöglichkeiten für den gesamten Prozess vom Rohstoff bis zum Endkunden – Best Practices
	Praxisbeispiel – Einsparpotentiale in Kühlanlagen: Jelena Nikolic, Projektleiterin Klimaschutzoffensive, Handelsverband Deutschland – HDE – e.V.
	Praxisbeispiel – Energiemanagement: Olaf Schulze, Director Energy Management, METRO Properties Holding GmbH
13:30 Uhr	Ausblick: <ul style="list-style-type: none"> • Finanzanalyse • Lebenszyklusanalyse und Evaluation der Lebenszykluskosten • Nichtenergetische Vorteile von Energieeffizienz
13:45 Uhr	Abschluss und Evaluation des Workshops

Figure 7 Agenda first training University of Stuttgart/Adelphi/Fraunhofer - first day

Evaluation of results and quality control

The Training Workshop was attended by 56 people, of which 21 participated in the evaluation. Most of the trainees that participated in the evaluation belong to the group of auditors, consultants and engineers (33%), while 19% state that they do not belong to any of the groups mentioned.

The origin of the trainees is from organizations of all sizes (small, medium and large), almost evenly distributed.

The overall training satisfied 100% of the attendees, with an overall score of 4.3 (of 5 maximum).

Training aims and knowledge was considered satisfactory to a large extent, with a weight of 71% of “totally agree” and 29% “somewhat agree” for the “the course has been satisfactory” item and 76% of “totally agree” and 24% of “somewhat agree” for the “objectives are well defined” item.

The trainers’ skills and capacities were also considered of high quality highlighting their experience and clarity. Unfortunately, one attendee noted that the practical examples could have been more useful.

Training materials were considered “good” by 76% of the attendees, while another 19% even considered them as “excellent”.

The implementation of the online format and the organization of the course were rated as “excellent” by the majority of the participants.

Summary of key findings:

- The training workshop was attended by 56 people and 100% of the participants in the evaluation were satisfied with an overall score of 4.3 of 5.0.
- Trainers’ skills were considered of high quality as well as the training materials that were considered “good” and “excellent” by most of participants.
- The majority of participants rated as “excellent” the implementation of the online format and the organization of the course.

18 February 2021

09:00 Uhr **Registrierung und Begrüßung**

09:15 Uhr Der Nahrungsmittelsektor und Potentiale für Energieeffizienz

09:30 Uhr Vorstellung des ICCEE-Projekts

09:45 Uhr Auffrischung:

- Energieeffizienzindikatoren
- Energiemanagementsystem ISO 50001
- Messung und Verifikation

10:00 Uhr Finanzanalyse

Kaffeepause

11:00 Uhr Lebenszyklusanalyse und Evaluation der Lebenszykluskosten

11:45 Uhr Nichtenergetische Vorteile von Energieeffizienz

Mittagspause

13:00 Uhr Energiesparmöglichkeiten für den gesamten Prozess vom Rohstoff bis zum Endkunden – Best Practices

Praxisbeispiel – Einsparpotentiale in Kühlanlagen: Jelena Nikolic, Projektleiterin Klimaschutzoffensive, Handelsverband Deutschland – HDE – e.V.

Praxisbeispiel – Wirtschaftlichkeitsanalyse: Simon Ingmanns, Wissenschaftlicher Mitarbeiter der NEW-Stiftungsprofessur für Controlling, insbes. In der Energiewirtschaft & Betriebswirtschaftliches Energiemanagement, Fachbereich Wirtschaftswissenschaften, Hochschule Niederrhein

14:00 Uhr Abschluss und Evaluation des Workshops

Figure 8 Agenda first training University of Stuttgart/Adelphi/Fraunhofer - second day

Evaluation of results and quality control

The Training Workshop was attended by 43 people, of which 16 participated in the evaluation. Most of the trainees belong to the group of logistics and storage (25%), while 19% state that they belong to the group of auditors, consultants and engineers. Another 19% does not belong to any of the groups mentioned.

The origin of the trainees was from organizations of all sizes (Small, Medium and Large), almost evenly distributed.

The overall training satisfied 100% of the attendees, with an overall score of 4.5 (of 5 maximum).

Training aims and knowledge was considered satisfactory to a large extent, with a weight of 75% of “totally agree” and 25% “somewhat agree” for both items “the course has been satisfactory” and “objectives are well defined”.

The trainers' skills and capacities were also considered of high quality, highlighting their experience and clarity. Just one attendee noted that the practical examples could have been more useful and the answers more accurate.

Training materials were considered “good” by 75% of the attendees, while another 25% considered them as “excellent”.

The implementation of the online format and the organization of the course were rated as “excellent” by the majority of the participants.

Summary of key findings:

- The training workshop was attended by 43 people and 100% of the participants in the evaluation were satisfied with an overall score of 4.5 of 5.0.
- Trainers' skills were considered of high quality as well as the training materials that were considered “good” and “excellent” by most of participants.
- The majority of participants rated as “excellent” the implementation of the online format and the organization of the course.

5.5.2 Second training – 17-18 March 2021

17 March 2021

09:30 Uhr	Registrierung und Begrüßung
09:45 Uhr	Vorstellung des ICCEE-Projekts
09:55 Uhr	Der Nahrungsmittelsektor und Potentiale für Energieeffizienz
10:05 Uhr	Energiemanagementsystem ISO 50001
<i>Kaffeepause</i>	
11:00 Uhr	Energieeffizienzindikatoren
11:30 Uhr	Messung und Verifikation
<i>Mittagspause</i>	
12:45 Uhr	<p>Praxisbeispiel – Energetische Bewertung von Kälteanlagen im Betrieb: Prof. Dr.-Ing. Martin Becker, Hochschule Biberach</p> <p>Praxisbeispiel – Energiemanagement: Detlev Müller, Bereichsleitung Facility- und Energiemanagement, tegut... gute Lebensmittel GmbH & Co. KG</p> <p>Best Practices – Steigerung der Energieeffizienz in der Kühlkette – Transport und Management</p>
14:00 Uhr	<p>Ausblick:</p> <ul style="list-style-type: none"> • Finanzanalyse • Lebenszyklusanalyse und Evaluation der Lebenszykluskosten • Nichtenergetische Vorteile von Energieeffizienz
14:15 Uhr	Abschluss und Evaluation des Workshops

Figure 9 Agenda second training University of Stuttgart/Adelphi/Fraunhofer - first day

Evaluation of results and quality control

The Training Workshop was attended by 43 people, of which 16 participated in the evaluation. Most of the trainees that participated in the evaluation belong to the group of auditors, consultants and engineers (31%). The second largest group is retail and wholesale with a share of 19%.

The origin of the trainees is from organizations of all sizes (small, medium and large), whereby the share of medium-sized companies is somewhat lower than that of small and large companies.

The overall training satisfied 88% of the attendees, with an overall score of 3.8 (of 5 maximum).

Training aims and knowledge was considered satisfactory to a large extent, with a weight of 63% of “totally agree” and 31% “somewhat agree” for both the “the course has been satisfactory” and the “objectives are well defined” item. Unfortunately, some people somewhat disagreed on the items.

The trainers' skills and capacities were also considered of high quality (**Error! Reference source not found.**), highlighting their experience and clarity. Just, one attendee would rather have been more motivated during the class probably because due to Coved-19 restrictions, the training was implemented online.

Training materials were considered “good” by 69% of the attendees, while another 31% even considered them as “excellent”.

The implementation of the online format and the organization of the course were rated as “excellent” by the majority of the participants.

Summary of key findings:

- The training workshop was attended by 43 people and most of the participants in the evaluation were satisfied with an overall score of 3.8 of 5.0.
- Trainers' skills were considered of high quality as well as the training materials that were considered “good” and “excellent” by most of participants.
- The majority of participants rated as “excellent” the implementation of the online format and the organization of the course.

18 March 2021

Time	Content
09:15 Uhr	Registrierung und Begrüßung
09:30 Uhr	Vorstellung des ICCEE-Projekts
09:40 Uhr	Der Nahrungsmittelsektor und Potentiale für Energieeffizienz
09:50 Uhr	Rückblick: <ul style="list-style-type: none"> • Energieeffizienzindikatoren • Energiemanagementsystem ISO 50001 • Messung und Verifikation
10:00 Uhr	Finanzanalyse
<i>Kaffeepause</i>	
10:45 Uhr	Lebenszyklusanalyse und Evaluation der Lebenszykluskosten
11:30 Uhr	Nichtenergetische Vorteile von Energieeffizienz
<i>Mittagspause</i>	
12:45 Uhr	Best practices – Steigerung der Energieeffizienz in der Kühlkette – Gebäude und Systeme Praxisbeispiel – Einsparpotentiale in Kühlanlagen: Jelena Nikolic, Projektleiterin Klimaschutzoffensive, Handelsverband Deutschland – HDE – e.V. Praxisbeispiel – Wirtschaftlichkeitsanalyse: Simon Ingmanns, Wissenschaftlicher Mitarbeiter der NEW-Stiftungsprofessur für Controlling, Hochschule Niederrhein
13:45 Uhr	Abschluss und Evaluation des Workshops

Figure 10 Agenda second training University of Stuttgart/Adelphi/Fraunhofer - second day

Evaluation of results and quality control

The Training Workshop was attended by 40 people, of which 13 participated in the evaluation. Most of the trainees that participated in the evaluation belong to the group of auditors, consultants and engineers (31%). The groups of Industry (energy or cold chain), policy/public and retail/wholesale account for 15% each

The origin of the trainees is from organizations of all sizes (small, medium and large), with the share of large companies being twice as high as that of small and medium companies. The overall training satisfied 100% of the attendees, with an overall score of 4.5 (of 5 maximum). Training aims and knowledge was considered satisfactory to a large extent, with a weight of 85% of “totally agree” and 15% “somewhat agree” for the “the course has been satisfactory” item and 77% of “totally agree” and 23% of “somewhat agree” for the “objectives are well defined” item.

The trainers’ skills and capacities were also considered of high quality (**Error! Reference source not found.**), highlighting their experience and clarity. The attendees totally agreed to most of the items with some “somewhat agree”.

Training materials were considered “good” by 62% of the attendees, while another 38% even considered them as “excellent”.

The implementation of the online format and the organization of the course were rated as “excellent” by the majority of the participants.

Summary of key findings:

- The training workshop was attended by 40 people and 100% of the participants in the evaluation were satisfied with an overall score of 4.5 of 5.0.
- Trainers’ skills were considered of high quality as well as the training materials that were considered “good” and “excellent” by most of participants.
- The majority of participants rated as “excellent” the implementation of the online format and the organization of the course.

5.6. Spain – FIAB/ESCAN

5.6.1 First training - 17 November 2021

Horario	Título	Ponente
9:30	Bienvenida	FIAB/ESCAN
9:45	Potencial de la eficiencia energética en las cadenas de frío de las industrias de alimentación y bebidas	FIAB
	Sistemas de gestión energética ISO 50001	DNV-GL
	Análisis de ciclo de vida y aspectos medioambientales	Instituto de Sostenibilidad
10:45	Caso 1: Sistemas de frío industrial eficientes	GRUPOTEC
	Caso 2: Incorporación de un sistema de regulación y control de temperatura	AKO
	Caso 3: Motores de alta eficiencia	WEG
11:55	Descanso	
12:15	Industria de bebidas: Análisis y mejoras de aislamiento en PepsiCo	ISOVER Saint Gobain
	Sistemas de autoconsumo fotovoltaico en industrias agroalimentarias	EDF
	Monitorización de la eficiencia e indicadores mediante plataforma online	CO2 Smart Tech
13:35	Análisis económico y financiación de un proyecto industrial sostenible	ESCAN
14:30	Test final y encuesta de calidad	FIAB/ESCAN

Figure 11 Agenda first training ESCAN

Evaluation of results and quality control

The Training Workshop was attended by 84 people, mainly from the groups of cold chain engineers from industries (33%), auditors and consultants (27%), research and related (17%) and heads of industries (12%). The origin of the trainees was from organizations of all sizes (Small, SME and Large), however the largest group came from large organizations. The overall training satisfied to 100% of the attendees. Even though, most participants totally agree, some of them just agree on the knowledge acquired being useful. The overall score for the training was of 4,7 of 5 (5 is the maximum).

Training aims and knowledge was considered adequate in a large extent, with a weight of 99% of “totally agree” for “the course has been satisfactory” item. It is the question with the best mark in this section, only 2 people indicated they “agree” with it.

Related to trainers’ skills and capacities was also considered of high quality, highlighting their experience and knowledge. The lowest rated category in this section was “Classes motivate the learning”, even though over 85% of attendees totally agree with they were motivating.

Training materials were considered by a 72% of excellent, while the rest determined it good enough and 2 people as “just fine”. Again, there was no negative feedback from any attendee.

Trainees considered especially excellent the organization and management and the materials provided for the training.

Premises and coordination had excellent results. Nevertheless, since the workshop was online, the face-to-face premises were changed to direct online training, so it was selected an online platform, which was considered friendly by most attendees. The online platform was ZOOM.

Summary of key findings:

- The Training workshop was attended by 84 people mainly engineers from industries, auditors and consultants, and also research and related and heads of industries. This shows the interest of a variety of stakeholders ZOOM platform was used.
- The training was evaluated by attendees with average 4.7 points of 5.0.
- Trainees considered especially excellent the organization and management and the materials provided for the training.

5.6.2 Second Training - 19 May 2021

Horario	Título	Ponente
9:00	Agrupación de ponentes	FIAB/ESCAN
9:20	Bienvenida	FIAB
9:30	Potencial de la eficiencia energética en las cadenas de frío de las industrias de alimentación y bebidas.	FIAB
9:50	Caso 1: Empresa platos precocinados.	GRUPOTEC/EUROAMBROSIA
	Caso 2: Empresa de bebidas.	GRUNDFOS
	Caso 3: Empresa frutas y verduras.	COFRICO
	Caso 4: Empresa de bebidas. Herramienta de control experto de frío industrial.	ITCL
11:10	Descanso	
11:30	Caso 5: Empresa Azucarera. Generación y aprovechamiento de biogás mediante digestión	GRUPOTEC
	Caso 6: Empresa cárnico. Refrigeradoras eficientes.	CARRIER
	Caso 7: Gran superficie comercial. Aislamientos industriales.	ISOVER
12:50	Rentabilidad y motores de alta eficiencia.	WEG
	Análisis económico y financiación de un proyecto industrial sostenible.	ESCAN
13:30	Conclusiones, test final y encuestas de calidad	ESCAN
14:00	Finalización del taller	FIAB

Figure 12 Agenda second training ESCAN

Evaluation of results and quality control

The Training Workshop was attended by 55 people, mainly from the groups of cold chain engineers from industries (40%), auditors and consultants (25%), head of industries (15%) and retail or wholesale (5%). The origin of the trainees was from organizations of all sizes (Small, SME and Large), however the largest group came from SME organizations.

The overall training satisfied to 100% of the attendees. Even though, most participants totally agree and some of them just agree on the knowledge acquired being useful. The overall score for the training was of 4,2 of 5 (5 is the maximum).

Training aims and knowledge was considered adequate in a large extent, with a weight of 80% of “totally agree” for “the course has been satisfactory” item. It is the question with the best mark in this section, only 10 people indicated they “agree” with it.

Related to trainers' skills and capacities was also considered of high quality, highlighting their experience and knowledge. The lowest rated category in this section was "Classes motivate the learning", even though over 85% of attendees totally agree with they were motivating.

Training materials were considered by a 58% of excellent, while the rest determined it good enough. Again, there was no negative feedback from any attendee.

Trainees considered especially excellent the organization and management and the materials provided for the training.

Premises and coordination had excellent results. Nevertheless, since the workshop was online, the face-to-face premises were changed to direct online training, so it was selected an online platform, which was considered friendly by most attendees. The online platform was ZOOM.

Summary of key findings:

- The overall training satisfied to 100% of the attendees and most participants totally agree or agree on the knowledge acquired being useful. The overall score for the training was of 4.2 of 5.0 (5 is the maximum).
- Training materials were considered by a 58% of excellent, while the remaining determined it good. There is potential for improvement, but it should be considered a success as all feedbacks were positive.
- Trainees considered especially good the organization and management. Platform (ZOOM) and coordination had excellent results.

5.7. France – ANIA/ATEE - 15 January 2021

Quels sont les outils disponibles pour entreprendre des mesures d'efficacité énergétique ?			
Heure	Titre	Société	Intervenant
10h15	Présentation du programme ICCEE	ATEE	Sibylle Brière
10h25	Perspectives énergétiques dans le secteur agroalimentaire	ANIA	Léa Mathieu Figueiredo
10h30	ISO 50 001 – Management de l'Energie et présentation de PROSMEN	ATEE	Jean Marc Piatek
11h00	Indicateurs de Performance Energétique (IPE)	GEOPLC	Théophile Girin & Nicolas PICQ
11h30	IPMVP - Protocole International de Mesure et de Vérification de la Performance Énergétique	Certinergy	Guillaume Soufflet & Mathias Welschbillig
12h00	Analyse du Cycle de Vie et analyse des Coûts du Cycle de Vie	I Care & Consult	Magdalena Czynnek-Delêtre
12h30	Déjeuner		
Quels sont les accompagnements/moyens aux mesures d'efficacité énergétique ?			
Heure	Titre	Société	Intervenant
13h30	Bénéfices non énergétiques et aspects comportementaux de l'efficacité énergétique	ATEE	Sibylle Brière
13h45	Opportunités de financement de la mise en place des mesures d'efficacité énergétique	GREENFLEX	Magalie Rosso
14h45	Présentation du programme PROREFEI	ATEE	Karine Maillard
15h00	Aides de l'ADEME	ADEME	Tristan Hubé
15h30	Conclusion workshop	ATEE	Sibylle Brière

Figure 13 Agenda first training ATEE

Evaluation of results and quality control

The Training Workshop was attended by 94 people. Only 30% have answered to the quality evaluation even after 2 reminder notices. Mainly from the groups of auditor, consultant in energy (37%), cold chain engineers from industries (30%), and heads of industries (10%). The origin of the trainees was from organizations of all sizes (Small, SME and Large), however the largest group came from large and SME organizations (40 et 43% respectively). The overall training satisfied 100% of the attendees. Most participants agree on the knowledge acquired being useful and that objectives were well defined. Only one person indicated that the objectives should have been more defined.

The overall score for the training was of 4.1 of 5 (5 is the maximum).

Related to trainers' skills and capacities was also considered of good quality, highlighting their experience and knowledge. The lowest rated category in the "totally agree" section was "Classes motivate the learning". Indeed, there were not a lot of questions after each presentation. We can explain it by the fact we did the workshop online.

Training materials were judged to be 80% good, while the rest determined it just fine.

Trainees considered especially excellent the materials provided for the training.

Premises and coordination had very good results. Nevertheless, since the workshop was online, the face-to-face premises were changed to direct online training, so it was selected an online platform, which was considered friendly by most attendees. The online platform was Gotomeeting.

Comments and suggestions of attendees

- “The theme was the cold chain I didn't get the impression that the subjects were especially turned towards the cold. But it is obvious that everything we saw can be applied to it. I rather had the feeling that we were dealing with energy efficiency in general. But that didn't worry me, I enjoyed the day. It's just a comment I made to myself.”
- “Last presentation with a lot of acronyms is incomprehensible to me.”
- “Promote more half-day programmes and courses”
- “Just if necessary, better targeting of interlocutors”
- “Given the time allotted, he has been quite well occupied.”
- “Include breaks (10 minutes max.) over half a day”
- “A full day's training is a heavy organizational load. See if this can be adapted to 2 1/2 days.”

Summary of key findings:

- The training workshop was attended by 94 people, a good number, and 100% of the participants in the evaluation were satisfied with an overall score of 4.1 of 5.0.
- Trainers' skills were considered good as well as the training materials that were considered “good” by most of participants.
- Online platform was considered friendly even if the online format didn't motivate the learning in fact there were just few questions at the end of each presentation.

5.8. Latvia – RTU

5.8.1 First training – 8 April 2021

Apmācību semināra plāns

08. februāris, 2021

Laiks	Tēmas	Lektors
16:30 - 16:40	Semināra atklāšana	Dagnija Blumberga
16:40 – 17:00	Ievads par saldētu produktu uzglabāšanu, piegādes ķēžu energoefektivitāti un pētniecības projektu ICCEE	Agris Kamenders
17:00 - 17:50	Energoefektivitātes indikatori un energopārvaldības sistēma uzņēmumos	Gatis Žogla
17:50 - 18:00	Pārtraukums	
18:00 - 18:50	Energoefektivitātes pasākumi. Ieviesto pasākumu kvalitātes mērījumu un verifikācijas procedūras	Gatis Žogla
18:50 - 19:00	Konsultācijas un kopsavilkums	Gatis Žogla

09. februāris, 2021

Laiks	Tēmas	Lektors
16:30 - 16:55	Energoefektivitātes pasākumu ekonomiskā analīze	Agris Kamenders
17:15 - 17:50	Aprēķina rīks uzņēmumiem dzīves cikla (vides snieguma) novērtējumam	Maksims Feofilovs
17:50 - 18:00	Pārtraukums	
18:00 - 18:35	ICCEE praktiskie aprēķina rīki, ietekmes uz vidi un dzīves cikla izmaksu vērtēšanai	Maksims Feofilovs
18:35 – 19:15	Noslēguma pārbaudījums (tests) un atsauksmes forma	Maksims Feofilovs

Figure 14 Agenda first training RTU

Evaluation of results and quality control

The total number of participants registered for the seminar was 86, as shown in quality check document form 1 “check list”. The maximum number of attendees in day 1 reached 55. In day 2 number of attendees reached 51.

The final test and the evaluation of the workshop was performed by 27 people, mainly by represents of industry/head and other (52%).

The origin of the trainees was from organizations of all sizes (Small, SME and Large), however there were more representatives of Small organizations (48%).

All of the attendees were satisfied with the overall training.

Most of the attendees completely agreed the training aims and content was considered adequate in a large extent.

Most of attendees also reported that Trainers' skills and capacities are of high quality, highlighting their experience and knowledge. According to opinion of the most attendees, trainers' answers were accurate; however, part of the attendees indicated that they think that live classes should have been more motivating for the learning.

Most of the attendees agree that training materials are good or even excellent.

Premises and coordination had excellent results. Again, most of attendees agree that place and equipment and organization of the course is good or even excellent.

In spite of some disagreement with the course in the previous answers of few attendees, overall, the training score is 4.4 of maximum 5.

Summary of key findings:

- The training workshop was attended by 86 people, a good number, and 100% of the participants in the evaluation were satisfied with an overall score of 4.4 of 5.0.
- Trainers' skills were considered of high quality (their answers were accurate) as well as the training materials that were considered "good" and "excellent" by most of participants.
- Coordination and organization of the course was "good" and "excellent" for the majority of the participants.

5.8.2 Second training - 11 - 12 November 2020

Apmācību semināra plāns

11. novembris, 2020

Laiks	Tēmas	Lektors
16:30 - 16:40	Semināra atklāšana	Dagnija Blumberga
16:40 - 17:00	Ievads par saldētu produktu uzglabāšanu, piegādes ķēžu energoefektivitāti un pētniecības projektu ICCEE	Agris Kamenders
17:00 - 17:50	Energoefektivitātes indikatori un energopārvaldības sistēma uzņēmumos	Gatis Žogla
17:50 - 18:00	Pārtraukums	
18:00 - 18:50	Energoefektivitātes pasākumi. Ieviesto pasākumu kvalitātes mērījumu un verifikācijas procedūras	Gatis Žogla
18:50 - 19:00	Konsultācijas un kopsavilkums	Agris Kamenders, Gatis Žogla

12. novembris, 2020

Laiks	Tēmas	Lektors
16:30 - 16:55	Energoefektivitātes pasākumu ekonomiskā analīze	Agris Kamenders
16:55 - 17:45	Energoefektivitātes pasākumu dzīves cikla analīze. Aprēķina rīks uzņēmumiem dzīves cikla (vides snieguma) novērtējumam	Agris Kamenders un Maksims Feofilovs
17:45 - 17:55	Pārtraukums	
17:55 - 18:35	Noslēguma pārbaudījums (tests) un atsauksmes forma	Maksims Feofilovs un Agris Kamenders
18:35 - 19:00	Konsultācijas, kopsavilkums un semināra noslēgums	Agris Kamenders, Gatis Žogla, Maksims Feofilovs



Co-funded by the Horizon 2020 programme of the European Union

Figure 15 Agenda second training RTU

Evaluation of results and quality control

The total number of participants registered for the seminar was 142, as shown in the quality check document form 1 "check list". The maximum number of attendees in day 1 reached 108. In day 2 number of attendees reached 99.

The final tests and the evaluations were made as online form. The final test and the evaluation forms were filled-in by 91 attendees. The chart highlights a higher share of attendees from universities and research field, followed by auditors, energy consultants and engineers.

The sizes of the background organization of each attendee was homogeneous, however the higher share was for SMEs.

Overall the training satisfied to 99% of the attendees. Most of the attendees completely agreed the training aims and content was considered adequate in a large extent.

Trainers' skills and capacities were also evaluated as of high quality, highlighting their experience and knowledge. According to the opinion of the most attendees, trainers' answers were accurate; however, some attendees indicated that the time of the seminar could be better organized.

Most of the attendees (93%) agreed that training materials was good or even excellent.

Premises and coordination had excellent results. Again, most of attendees agree that place and equipment and organization of the course is good or even excellent.

Despite of some disagreement with the course in the previous answers of few attendees, overall the training score is 4.4 of maximum 5.

Summary of key findings:

- The training workshop was attended by 142 people, a good number, and 99% of the participants in the evaluation were satisfied with an overall score of 4.4 of 5.0.
- Trainers' skills were considered of high quality (their answers were accurate) as well as the training materials that were considered "good" and "excellent" by most of participants.
- Coordination and organization of the course was "good" and "excellent" for the majority of the participants.

5.9. Greece - Chamber of Commerce and Industry of Korinthia

5.9.1 First training - 31 March 2021








WEBINAR

«Ενεργειακή Απόδοση στην Ψυχρή Εφοδιαστική Αλυσίδα του Κλάδου Τροφίμων και Ποτών»

Πρόγραμμα
Τετάρτη, 31 Μαρτίου 2021: 15:00-20:00

15:00	Είσοδος συμμετεχόντων στην Πλατφόρμα
15:00-15:20	Χαιρετισμοί Π. Πατσάκης, Πρόεδρος Επιμελητηρίου Κορινθίας Β. Παπαδημητρίου, Γενική Διευθύντρια ΣΕΒΤ
15:20-15:30	Το ευρωπαϊκό έργο ICCEE Λάσκα Πένυ
15:30-16:00	Ενεργειακή απόδοση στον τομέα των τροφίμων και ποτών Γιώργος Παντελίδης
16:00-16:30	Δεύτερη ενεργειακή απόδοση Γιώργος Παντελίδης
16:30-17:00	Σύστημα Διαχείρισης Ενέργειας βασισμένο στο ISO50001 - Μέτρηση και Επαλήθευση Γιώργος Παντελίδης
17:30-17:45	Διάλειμμα
17:45-18:15	Ευκαιρίες εξοικονόμησης ενέργειας και βέλτιστες πρακτικές Γιώργος Παντελίδης
18:15-18:45	Οικονομικές αναλύσεις και ευκαιρίες χρηματοδότησης Γιώργος Παντελίδης
18:45-19:15	Μη ενεργειακά οφέλη (NEBs) και συμπεριφορές Γιώργος Παντελίδης
19:15-20:00	Πρακτική άσκηση – Τελικό test

Figure 16 Agenda first training Chamber of Commerce and Industry of Korinthia

Evaluation of results and quality control

The Training Workshop was attended by 111 people, mainly steam-related engineers from industries, also from audits and consultants. The origin of the trainees was from

organizations of all sizes (Small, SME and Large), however there were more Small organizations.

The overall training satisfied to 98% of the attendees and we get an overall score of 4 (of 5 maximum).

Training aims and knowledge was considered adequate in a large extent; with a weight of 97% of total agree for “the course has been satisfactory” item. It is the question with the best mark in this section.

Related to trainers’ skills and capacities was also considered of high quality, highlighting their experience and knowledge. According to attendees, trainers’ answers were completely accurate, item with a weight of 96% of agree.

Training materials were considered by a 90% of excellent, while the rest determined it good enough. Trainees considered especially excellent the venues-facilities-equipment, organization and management and the materials provided.

Is spite of some disagreement with the course, its overall is pretty good, 4 up to 5 as we mentioned at the beginning.

Summary of key findings:

- The training workshop was attended by 111 people, a good number, and 98% of the participants in the evaluation were satisfied with an overall score of 4.0 of 5.0.
- Trainers’ skills were considered of high quality (their answers were accurate for 96% of participants) as well as the training materials that were considered “excellent” by a 90% of participants and “good enough” by the others.
- Trainees considered “excellent” organization and management of the training.

5.9.2 Second training - 3 April 2021



WEBINAR

«Ενεργειακή Απόδοση στην Ψυχρή Εφοδιαστική Αλυσίδα του Κλάδου Τροφίμων και Ποτών»

Πρόγραμμα

Σάββατο, 3 Απριλίου 2021: 10:00-15:00

10:00	Είσοδος συμμετεχόντων στην Πλατφόρμα
10:00-10:20	Χαιρετισμοί Π. Πιτσάκης, Πρόεδρος Επιμελητηρίου Κορινθίας Β. Παπαδημητρίου, Γενική Διευθύντρια ΣΕΒΤ
10:20-10:30	Το ευρωπαϊκό έργο ICCEE Λάσκα Πένυ
10:30-11:00	Ενεργειακή απόδοση στον τομέα των τροφίμων και ποτών Γιώργος Παντελίδης
11:00-11:30	Δείκτες ενεργειακής απόδοσης Γιώργος Παντελίδης
11:30-12:00	Σύστημα Διαχείρισης Ενέργειας βασισμένο στο ISO50001 - Μέτρηση και Επαλήθευση Γιώργος Παντελίδης
12:30-12:45	Διάλειμμα
12:45-13:15	Ευκαιρίες εξοικονόμησης ενέργειας και βέλτιστες πρακτικές Γιώργος Παντελίδης
13:15-13:45	Οικονομικές αναλύσεις και ευκαιρίες χρηματοδότησης Γιώργος Παντελίδης
13:45-14:15	Μη ενεργειακά οφέλη (NEBs) και συμπεριφορές Γιώργος Παντελίδης
14:15-15:00	Πρακτική άσκηση – Τελικό test



The ICCEE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 847040.

Figure 17 Agenda second training Chamber of Commerce and Industry of Korinthia

Evaluation of results and quality control

The Training Workshop was attended by 78 people, mainly steam-related engineers from industries, also from audits and consultants. The origin of the trainees was from organizations of all sizes (Small, SME and Large), however there were more Small organizations.

The overall training satisfied to 100% of the attendees. And we get an overall score of 4.5 (of 5 maximum).

Training aims and knowledge was considered adequate in a large extent; with a weight of 90% of total agree for “the course has been satisfactory” item. It is the question with the best mark in this section.

Related to trainers’ skills and capacities was also considered of high quality, highlighting their experience and knowledge. According to attendees, trainers’ answers were completely accurate, item with a weight of 95% of agree.

Training materials were considered by an almost 90% of excellent or very good, while the rest determined it good enough. Trainees considered especially excellent the venues-facilities-equipment, organization and management and the materials provided.

Despite of a tiny disagreement with the course, its overall is pretty good, 4.5 up to 5 as we mentioned at the beginning.

Summary of key findings:

- The training workshop was attended by 78 people all of them were satisfied with an overall score of 4.5 of 5.0.
- Trainers’ skills were considered of high quality (their answers were accurate for 95% of participants) as well as the training materials that were considered “excellent” and “good” by a 90% of participants and “good enough” by the others.
- Trainees considered “excellent” organization and management of the training.

5.9.3 Third Training - 8 April 2021



WEBINAR

«Ενεργειακή Απόδοση στην Ψυχρή Εφοδιαστική Αλυσίδα του Κλάδου Τροφίμων και Ποτών»

Πρόγραμμα

Πέμπτη, 8 Απριλίου 2021: 13:00-18:00

12:50-13:00	Είσοδος συμμετεχόντων στην Πλατφόρμα
13:00-13:20	Χαιρετισμοί Π. Πιτσάκης, Πρόεδρος Επιμελητηρίου Κορινθίας Β. Παπαδημητρίου, Γενική Διευθύντρια ΣΕΒΤ
13:20-13:30	Το ευρωπαϊκό έργο ICCEE Λάσκα Πένυ
13:30-14:00	Ενεργειακή απόδοση στον τομέα των τροφίμων και ποτών Γιώργος Παντελίδης
14:00-14:30	Δείκτες ενεργειακής απόδοσης Γιώργος Παντελίδης
14:30-15:00	Σύστημα Διαχείρισης Ενέργειας βασισμένο στο ISO50001 - Μέτρηση και Επαλήθευση Γιώργος Παντελίδης
15:30-15:45	Διάλειμμα
15:45-16:15	Ευκαιρίες εξοικονόμησης ενέργειας και βέλτιστες πρακτικές Γιώργος Παντελίδης
16:15-16:45	Οικονομικές αναλύσεις και ευκαιρίες χρηματοδότησης Γιώργος Παντελίδης
16:45-17:15	Μη ενεργειακά οφέλη (NEBs) και συμπεριφορές Γιώργος Παντελίδης
17:15-18:00	Πρακτική άσκηση – Τελικό test



The ICCEE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 847040.

Figure 18 Agenda third training Chamber of Commerce and Industry of Korinthia

Evaluation of results and quality control

The Training Workshop was attended by 49 people, mainly steam-related engineers from industries, also from audits and consultants. The origin of the trainees was from organizations of all sizes (Small, SME and Large), however there were more Small organizations.

The overall training satisfied to 98% of the attendees. And we get an overall score of 4 (of 5 maximum).

Training aims and knowledge was considered adequate in a large extent; with a weight of 95% of total agree for “the course has been satisfactory” item. It is the question with the best mark in this section.

Related to trainers’ skills and capacities was also considered of high quality, highlighting their experience and knowledge. According to attendees, trainers’ answers were completely accurate, item with a weight of 90% of agree.

Training materials were considered by a 90% of excellent or very good, while the rest determined it good enough. Trainees considered especially excellent the venues-facilities-equipment, organization and management and the materials provided.

Despite of a small disagreement with the course, its overall is pretty good, 4 up to 5 as we mentioned at the beginning.

Summary of key findings:

- The training workshop was attended by 49 people all of them were satisfied with an overall score of 4.0 of 5.0.
- Trainers’ skills were considered of high quality (their answers were accurate for 90% of participants) as well as the training materials that were considered “excellent” and “good” by a 90% of participants and “good enough” by the others.
- Trainees considered “excellent” organization and management of the training.

5.10. The Netherlands - IEECP/FNLI

5.10.1 First training - 16-25 March 2021

Tijd	Dagdeel 1 – 16 March 2021
9:00	Opening / begroeting / ICCEE project
9:15	Energie-efficiëntie en vooruitzichten in de voedings- en drankensector
9:45	Best practices voor energiebesparing
10:15	Pauze
10:30	Energieprestatie-indicatoren
11:00	Niet-energetische voordelen van energie-efficiëntie
11:30	Afronding – vooruitblik volgende bijeenkomst - test
11:45	Einde

Tijd	Dagdeel 2 – 25 March 2021
9:00	Opening / begroeting / terugblik vorige bijeenkomst
9:15	Energiemanagementsysteem ISO 50001
9:45	Financiële analyse en ondersteunende financiële regelingen
10:15	Pauze
10:30	Levenscycluskosten en levenscyclusanalyse
11:30	Afronding – test – aanvullende mogelijkheden voor e-learning in ICCEE project
11:45	Einde

Figure 19 Agenda first training IEECP

Evaluation of results and quality control

In total, 85 experts registered to the trainings that were held online due to the continued impact of the CoVid-19 pandemic. In order to ensure high participation, online training was split into two runs of 2.5 hours each. The turnover rate of the registered experts was sufficiently high where 67 experts have attended the first session. This compares with a total of 45 participants who have attended the second session of the training. More than half of the participants are working in the cold chain and/or related sectors. More than one-fifth of all participants were represented by the academia. Public sector attendance was about 7%. Majority of the participants came from small and medium enterprises. A total of 36 certificates have been awarded to the participants at the end of the training. The questionnaire for evaluation of the training was filled by 13 participants that yield an average score of 4.1 (out of 5). Nearly all participants were satisfied with the training (93%); also

participants highlighted that the training objectives were well defined and the knowledge shared was useful. Especially trainers' inputs and how they managed the trainings were found highly satisfactory. Materials that were developed and used during the training were also found helpful and participants gave a high score to their quality.

Summary of key findings:

- The training workshop was attended by 67 people during the first day and 45 people during the second one all of them were satisfied with an overall score of 4.1 of 5.0.
- Trainees considered that the training objectives were well defined and the majority of them was satisfied.
- Trainers' inputs and their management of the lessons were considered highly satisfactory as well as the training materials that were found helpful.

5.10.2 Second training - 20-27 May 2021

Tijd	Dagdeel 1 – 20 May 2021
9:00	Opening / begroeting / ICCEE project
9:15	Energie-efficiëntie en vooruitzichten in de voedings- en drankensector
9:45	Best practices voor energiebesparing
10:15	Pauze
10:30	Energieprestatie-indicatoren
11:00	Financiële analyse en ondersteunende financiële regelingen
11:30	Afronding – vooruitblik volgende bijeenkomst - test
11:45	Einde

Tijd	Dagdeel 2 – 27 May 2021
9:00	Opening / begroeting / terugblik vorige bijeenkomst
9:15	Energiemanagementsysteem ISO 50001
9:45	Niet-energetische voordelen van energie-efficiëntie
10:15	Pauze
10:30	Levenscycluskosten en levenscyclusanalyse
11:30	Afronding – test – aanvullende mogelijkheden voor e-learning in ICCEE project
11:45	Einde

Figure 20 Agenda second training IEECP

Evaluation of results and quality control

In total, 45 experts registered to the trainings that were held online due to the continued impact of the CoVid-19 pandemic. Total number of registered experts was less than the first round of trainings (85). Since during the first round of training, splitting the online training into two equal 2.5 hour sessions was found useful, the same style was also followed in the second round. The turnover rate of the registered experts was sufficiently high where 35 experts have attended the first session. This compares with a total of 25 participants who have attended the second session of the training. Nearly half of the participants came from auditing consultancy and engineering sectors. This is much higher than the sector's participation in the first round of the training at only 7%. By comparison, cold chain and related sector's participation was much less in this second round at 14% (compared to 57%) though logistics and storage sector participation was at 14%. About 30% of all participants were represented by the academia. There were no participants from the public sector in the

second round of trainings. Majority of the participants came from small and medium enterprises but large enterprise participation was higher at 29% compared to the first training round (14%). A total of 16 certificates have been awarded to the participants at the end of the training. The questionnaire for evaluation of the training was filled by 7 participants that yield an average score of 3.8 (out of 5). This score compares well with that of the first round of training at 4.1. All participants were satisfied with the training; also participants highlighted that the training objectives were well defined and the knowledge shared was useful. Especially trainers' inputs and how they managed the trainings were found highly satisfactory. Materials that were developed and used during the training were found good by the participants.

Summary of key findings:

- The training workshop was attended by 35 people during the first day and 25 people during the second one all of them were satisfied with an overall score of 3.8 of 5.0.
- Trainees considered that the training objectives were well defined and all of them were satisfied.
- Trainers' inputs and their management of the lessons were considered highly satisfactory as well as the training materials that were found good.

5.11. Romania – Romalimenta, - 26 April 2021

Agenda

Curs de instruire

26 aprilie 2021

Ora	Titlul	Numele lectorului
11.00	Prezentarea proiectului ICCEE	Paula Călianu
11.15	Perspective energetice în sectorul agroalimentar	Paula Călianu
11.40	ISO 50001- Sistemul de Management Energetic	Carmen Gavrilescu
12.10	Indicatori de Performanță Energetică (EnPIs)	Silvia Constantin
12.40	IPMVP- Protocol internațional de măsurare și verificare a performanței energetice	Petru-Dorel Crina
13.10	Evaluarea Ciclului de Viață (LCA) și Costul Ciclului de Viață (LCC)	Carmen Gavrilescu
14.00	Oportunități de economisire a energiei pe tot procesul, de la materii prime la clientul final– Best practices	Marin Olteanu
14.45	Oportunități de finanțare a punerii în aplicare a măsurilor de eficiență energetică	Carmen Gavrilescu
15.15	Beneficiile non-energetice (NEB)	Mihaela Geicu-Cristea
15.40	Utilizarea platformei e-learning ESCAN training Courses	Paula Călianu și Mihaela Geicu-Cristea
16.00	Concluzii atelier	Paula Călianu

Figure 21 Agenda training Romalimenta

Evaluation of results and quality control

Most of those who participated in this training course work in organizations such as university or research (32%), industry/energy or cold chain (26%), respectively industry/head and others (14%). Another part of those who attended this course work in organizations such as auditor, consultant, engineer (4%), logistics and storage (1%), retail or wholesale (2%), respectively investor (6%).

The results obtained revealed that 15% of the participants in this course are part of organizations whose activity profile was considered Others in the training evaluation questionnaire. Regarding the size of the organization from which the course attendees come, the results obtained indicated that 53% of the course participants work in a large organization (with over 250 employees), while 31% of the participants work in a small organization (respectively 1-50 employees) and 16% work in a medium-sized organization (between 50 and 250 employees).

All the participants answered affirmatively, so the degree of satisfaction is 100%. They appreciated the fact that the information presented was interesting and very useful for the field of agri-food chain, with a wide applicability among economic operators.

The evaluation of the objectives and content of the course consisted in the appreciation by the participants:

- In general, the course has been satisfactory (84 participants fully agreed and 4 partially agreed with this statement)
- Objectives are well defined (all 88 participants fully agreed with this statement)
- The knowledge and skills acquired are useful and I can use them in my work (all 88 attendees fully agreed with this statement)

Trainers' evaluation consisted in the appreciation by the participants:

- Qualified and experienced (86 participants fully agreed and 2 partially agreed with this statement)
- Adequately organized the time (all 88 participants fully agreed with this statement)
- Set up the topics clearly (all 88 participants fully agreed with this statement)
- Classes motivate the learning (all 88 participants fully agreed with this statement)
- Answers are accurate (86 participants fully agreed and 2 partially agreed with this statement)
- Useful and understandable practical examples (all 88 participants fully agreed with this statement)

The quality of the materials used in this course was unanimously appreciated as excellent. The participants in this training course showed a special interest in the topics presented.

The evaluation of the organization of the course was appreciated by the attendees:

- Organization of the course (87 of the participants gave the grade excellent, and 1 participant gave the grade well)
- Place and equipment were evaluated unanimously with the excellent grade.

Summary of key findings:

- The training workshop was attended by 88 people and unanimously they expressed a positive level of satisfaction (100%).
- All the participants considered the material as excellent, and the objectives of the training are fully reached.
- Most of the participants come from large companies

Conclusions

At the time of the preparation of this report, the number of attendees to the ICCEE national trainings was close to 1.500, which compared to the original target of 1.200 indicates that the interest created by the project Team in this topic was in line with the needs of the research community and the market. A reason for this success were also the marketing developed by partners, both through direct actions (emails and phone calls) and indirect ones (media partners, social networks, project website, announcement in Newsletter, etc.).

Related to the quality of the trainings, a specific quality process was followed to obtain feedback before, during and after the trainings. One remarkable outcome was that, in general, all courses received very satisfactory scores from the attendees, with a great majority of national trainings having an average over 4 points (from maximum 5) in the overall mark for the training received.

More in detail, the team of trainers and the quality of the material distributed was highly appreciated by the participants according to their feedback, with very few deviations. Furthermore, the organization of the trainings was also outstanding.

A controversial point was the structuring of the course in two days or in a single day, considering the 5 hours duration as comments received were contradictory. Some partners standardized the formula in two days as initially this was the most promising, but sometimes they found difficult to have the final test completed or in keeping the same participants for the two days.

A short assessing questionnaire has been prepared in order to obtain information on the effective implementation of energy efficiency measures in companies that have followed the courses and real investments in energy efficiency. The draft questionnaire is available in Annex B. Each national manager will take care of the translation and sending of the questionnaire to the respective participants.

Summary of key findings for the overall training:

- The general feedback provided by the attendees for the ICCEE National trainings was good or very good, which indicates that the trainings were successful and fulfilled the training aims in number of attendees, materials scope and quality, level of the speakers, platform used or trainings management.
- The audience of the training courses covered the aims of ICCEE, namely heads and engineers from industries, auditors and consultants, research and academia, energy

managers and energy related experts, wholesale staff, food technologists, public and policy sector.

- When comparing one-day trainings with 2 half-day training, the conclusion is that one-day training keeps the attendees to complete the overall contents, thus it is in principle more favourable for trainings with a duration of 4-6 hours. Longer trainings might vary.
- In training webinars, it is more difficult to obtain feedback from all attendees compared to face to face. Even considering this fact, there was a high feedback rate in the ICCEE training courses, allowing the assessment of each individual course.
- Marketing actions (direct and indirect) focused to the action are needed to gain the interest and reach the target audience, particularly in trainings with a very specific scope as ICCEE.

ANNEX A - Training Courses Contents

Energy efficiency and outlook in food and beverage sector, in particular in cold supply chain – SPES/UNIBS

This part of the training covers the following topics:

- Definition of cold chain and main features (e.g. severe and variable operating conditions, trade-off refrigeration, food quality, energy consumptions).
- Regulations.
- Energy consumption outlook in the food and beverage sector.
- Environmental impact (direct and indirect emissions).
- Quality degradation.
- How to measure energy efficiency.
- Introduction to NEBs.
- Energy savings opportunities:
 - Advanced technologies (such as, system design, devices to monitor and control operations, inverter and electronic expansion valves for modulating capacity, smart devices, IoT, ...) and renewables.
 - Maintenance practices (e.g., review of the insulation and coolant distribution system, cleaning the condensers, ...).
 - Operation management and supply chain coordination (such as, assessment of the optimal cooling requirements supported by real time monitoring and control of the relevant parameters throughout the chain, and reduction of the cooling load through production planning and control).

Energy Performance Indicator (EnPI) - ATEE/UNISTUTGARD

This part of the training covers the following topics:

Introduction to EnPis

- How to choose the right indicators: examples at different steps of the cold chain.
- Some examples along the cold chain.
- Processing.
- Energy consumption per produced item.
- Transport.
- Fuel consumption per cargo weight (l/kg) or (kWh/kg).

- Fuel consumption per pallet-km.
- Distribution centre.
- Energy consumption per volume (kWh/m³).
- Energy consumption per pallet.
- Retail.
- Energy consumption per surface (kWh/m²).
- Energy consumption per refrigeration unit.
- How to measure the EnPIs: focus on the external parameters, such as the impact of outdoor temperatures or measuring time period (daily/ weekly/ monthl).
- Monitoring of the EnPIs: graphical representation (diagrams, tables, etc.).
- Interpretation/ comparison benchmarking of EnPIs.
- Provision of some sources and links for further reading, such as ISO standards.
- Multiple choice questionnaire about EnPis.

ENERGY MANAGEMENT SYSTEM ISO 50001 - ADELPHI/UNISTUTGARD

This part of the training covers the following topics:

- What is an Energy management system?
- Political background, legislation, compulsoriness,
- Goal of Energy Management Systems,
- Distinction with other management systems (environment, EMAS or energy audits (UNI EN 16247)).
- Trial run - Can an energy management system pay off for us?
- Structure of an EMS.
- Concept of continuous improvement through - Plan do check act – PDCA.
- Advantages of EMS.
- Disadvantages of EMS.
- Certification of the energy management system.
- Typical application / examples within the cold chain.

Measurement and Verification and IPMVP– FIRE

This part of the training covers the following topics:

- What's M&V.
- Scheme of avoided energy consumptions.
- International Standards and Guidelines.
- Selection of boundaries.
- Selection of the approach.
- Uncertainty.

Energy savings opportunities – FIRE/ECSLA

This part of the training covers the following topics

- Technologies and best practices.
- Achievable Savings.
- Discussion among attendees on applicability, appetibility and savings evaluation (guide and support with excel shift).

Financial Analysis - ESCAN

This part of the training covers the topics described below.

For the assessment of potential sustainable energy measures in cold supply chains with regard to their technical effectiveness, environmental effects and, at the same time, their viability, an economic analysis is necessary to determine the benefits at the commercial level. Economic and financial calculations are a necessary tool to define an advantageous decision for a customer or user.

Through a specific sustainable measure introduced in a Word document and solved by using an Excel file (both to be prepared by Escan), ESCAN will show the steps that must be followed to assess the economic viability of an Energy efficiency project in cold supply chain. More in detail, the following shall be included:

1. What are the main costs and savings that should be included in the economic calculations?
2. Definition and calculation of the Pay-back, IRR and NPV.
3. Graphical presentation of cash flows for its Life Cycle Cost.
4. CO2 reduction calculation.

A part of the lesson dedicated by each partner to show the key financing opportunities for sustainable energy in cold supply chains in their respective country.

Supporting Schemes and funding opportunities – LOCAL PARTNER for each MS

This part of the training covers the following topics.

- Scheme of national supporting schemes for energy (and resource) efficiency, renewables (e.g. White certificates, tax deductions, etc.),
- National supporting schemes applicable for energy (and resource) efficiency in cold supply chain.
- Regional or local funding (when existing),
- EU funds (when existing),

Life Cycle Cost (LCC) and Life Cycle Assessment (LCA) – RTU/ C. KORINTHIA

This part of the training covers the following topics:

- Life Cycle Thinking perspective.
- What is and why using the Life Cycle Costing?
- LCC approach: main concepts.
- LCC modelling: methods and tools.
- What is and why using Life Cycle Assessment?
- LCA methodology according to ISO14040-44.
- LCA modelling: basics.
- One exemplary case study using LCA & LCC within the cold chain.

NON-ENERGY BENEFITS (NEBs) OF ENERGY EFFICIENCY – FRAUNHOFER/IEECP

This part of the training covers the following topics:

- Value-Cost-Risk analysis.
- Explain non-energy benefits.
- Determine non-energy benefits of sample EEM.
- Categorize them in strategic terms (i.e. analyse their contribution to risk reduction, value proposition increase and cost reduction).

- Explain how to select the EEMs that best contribute to operational excellence, energy consumption reduction and competitive advantage.
- Analysis of benefits contribution to:
 - Risk reduction
 - Value proposition increase
 - Cost reduction

○

ANNEX B – Draft of assessing questionnaire

Name of the organization (optional)	
Country	
Type of organization <i>[choose one]</i>	<input type="checkbox"/> Company <input type="checkbox"/> Association <input type="checkbox"/> Other (please specify): _____
<i>[if company]</i> Size of company	<input type="checkbox"/> Micro (<10 employees) <input type="checkbox"/> Small (< 50 employees) <input type="checkbox"/> Medium (< 250 employees) <input type="checkbox"/> Large
<i>[if association]</i> Structure of members	_____ % (Micro-, small-, medium-sized companies) _____ % (Large-sized companies)
Website	
<i>[choose several if needed]</i> (Mainly) active in the following sectors	<input type="checkbox"/> Beverages <input type="checkbox"/> Dairy products <input type="checkbox"/> Fish <input type="checkbox"/> Fruits & vegetables <input type="checkbox"/> Meat <input type="checkbox"/> HORECA <input type="checkbox"/> Others
<i>[choose one]</i> (Mainly) active in the following areas	<input type="checkbox"/> Production & Processing <input type="checkbox"/> Storage & Logistics <input type="checkbox"/> Wholesale & retail

1. The ICCEE cold chain training event that you attended has:

- started or supported project/feasibility studies in energy efficiency measures in your company? [yes/no]
- started or supported investment decisions in new energy efficiency measures in your company? [yes/no]
- gave inputs to understand and further consider the non-energy benefits [yes/no]
- gave inputs to consider the interactions with several parts of the cold chain [yes/no]
- gave inputs to consider more energy efficiency in the decision-making process [yes/no]
- gave inputs to consider the potential of energy management systems in accordance to ISO 50001 [yes/no]
- gave inputs on how to monitor the energy performance [yes/no]
- else, please specify ...

2. Which category of energy efficiency measures your organization has considered?
[multiple answers possible]

- thermal insulation
- refrigeration system upgrade
- monitoring system
- renewable energy
- lights replacement
- supply chain integration
- other, please specify ...

3. How many MWh/year electrical savings you expect to obtain with these measures by 2025: [range]

- 0-10 MWh/year;
- 10-100 MWh/year;
- 100-1,000 MWh/year
- > 1,000 MWh/year

4. How many MWh/year thermal savings you expect to obtain with these measures by 2025: [range]

- 0-10 MWh/year;
- 10-100 MWh/year;
- 100-1,000 MWh/year
- > 1,000 MWh/year

5. How many MWh/year you expect to produce with electric RES with these measures by 2025: [range]

- 0-10 MWh/year;
- 10-100 MWh/year;
- 100-1,000 MWh/year
- > 1,000 MWh/year

6. How many MWh/year you expect to produce with thermal RES with these measures by 2025: [range]

- 0-10 MWh/year;
- 10-100 MWh/year;
- 100-1,000 MWh/year
- > 1,000 MWh/year

7. What would be the investment (€) triggered by 2025 in energy efficiency measures (excluded renewable energy sources)? [range]

- 0-10 k€;
- 11-100 k€;
- 101-500 k€;
- 501 k€ - 1 M€;

- 1-5 M€;
- 5-10 M€;
- >10 M€

8. What would be the overall investment (€) triggered by 2025 in renewable energy sources? [range]

- 0-10 k€;
- 11-100 k€;
- 101-500 k€;
- 501 k€ - 1 M€;
- 1-5 M€;
- 5-10 M€;
- >10 M€