



Evaluation of iBRoad2EPC training



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EXECUTIVE SUMMARY

The objective of the iBRoad2EPC project is to create an energy consultation tool tailored for building owners and issued by energy experts. It provides an initial renovation strategy aimed at making a building climate-neutral regarding an extended temporal horizon. The long-term perspective inherent in this approach is based on individual renovation steps that are interconnected and build on one another, enabling the proactive preparation of building components and the consideration of future renovation obligations. iBRoad2EPC is structured to meet the building owner's objective of having a long term strategy for the renovation of their property.

The report depicts the existing situation of EPC expert trainings in depth, to identify gaps, needs and possibilities to merge them with the iBRoad2EPC training. For this purpose, interviews with the pilot country partners (from Bulgaria, Greece, Poland, Portugal, Romania, and Spain) were conducted to analyse the currently available expert trainings, both mandatory and voluntary ones. The analysis focused on the boundary conditions under which the trainings are provided as well as the trainings' content and the defined criteria for trainees and lecturers. To be able to adapt the iBRoad2EPC training to national specifications it was decided to develop the training as a stand-alone modular training. The country specific adaptations that were made to the training material are described in the report on the iBRoad2EPC training toolkit.

In a preparatory phase preceding the actual training, a training toolkit was created consisting of a training presentation, a handbook, and a checklist as well as a template for the on-site visit. The training materials and boundary conditions were presented to the iBRoad2EPC pilot country project partners in a train-the-trainer seminar.

Over 200 energy experts have been trained to issue an iBRoad2EPC in the six pilot countries. The training sessions were conducted by the national project partners. Most sessions were conducted as stand-alone trainings independently from regular EPC trainings because the institutions offering the iBRoad2EPC training do not offer EPC training or decided to offer it as a complementary module on top of the EPC training. The training sessions were conducted from early summer to autumn 2023.

Ninety-five (95) of the trained energy experts actively participated in the subsequent training evaluation process. The evaluation comprised questions about the conduction of the training, the trainings content, and several open questions on improvement suggestions, however only the the part about the training itself is covered within this report. The results of the open questions will be included in an upcoming report. 100% of the experts rated the organisation of the training and the presenter as "good" or "very good". 98% of the experts rated the content of the training as "good" or "very good". The basic concept of iBRoad2EPC and the iBRoad2EPC Assistant were largely rated positively. When differentiating between the individual training materials, the slides-presentation and the demonstration of the iBRoad2EPC Assistant were the best rated. The templates for the on-site visit were rated slightly lower. The presentations of the additional modules for energy demand and investment costs were also rated slightly lower as did those linked to the externally developed tools for indoor environmental quality (IEQ) and smart the readiness indicator (SRI). It is noteworthy that the more experienced energy experts - those who had previously issued more than 10 EPCs - provided feedback that was more specific and comprehensive. Based on the results, the training material or iBRoad2EPC modules will be reworked to improve explanations, provide more background information, and ease handling and understanding.

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ABBREVIATIONS

BRP	Building Renovation Passport
EPC	Energy Performance Certificate
IEQ	Indoor Environmental Quality
MEPS	Minimum Energy Performance Standards
NAC	National Advisory Committee
SRI	Smart Readiness Indicator

INTRODUCTION

The building sector accounts for approximately 40 % of total energy consumption and 36 % of CO₂ emissions in the European Union. Currently, almost 75 % of the European building stock is not energy efficient, while the building renovation rate is very low .

Deep building renovation has the potential to lead to significant energy savings, lower CO₂ emissions and contribute to the energy and climate objectives, at national and European level.

The iBRoad2EPC project is intended to contribute to raising this potential. To this end, it aims to widely spread the idea of long-term renovation strategies (as introduced in Building Renovation Passports (BRP)) integrated into EPCs, and to provide building owners with pragmatic assistance.

The iBRoad2EPC project, funded by the Horizon 2020 European programme, represents the next step in energy performance assessment schemes and certification practices, promoting and showcasing the integration of BRP elements into Energy Performance Certificates (EPC) schemes. Building on the results of the iBRoad project (2017-2020) which developed, tested, and delivered a model for the Building Renovation Passport supporting single-family homeowners with personalised advice to facilitate stepwise deep renovation, iBRoad2EPC aims to bridge the Building Renovation Passport with the EPC, and expand, improve, and broaden their format and joint scope to consider additional features and become applicable also to multi-family and public buildings. The aim is to improve reliability, usefulness, and effectiveness, thereby establishing the next generation of EPCs that will support Europe's decarbonisation ambitions while improving conditions for building occupants. This is done by clustering the project's activities around four main pillars:

1. assess the needs, potential and practicability of merging the EPC with the Building Renovation Passport;
2. adapt the iBRoad concept to become part of EPCs;
3. test and evaluate the applicability of iBRoad2EPC in six pilot countries (Bulgaria, Greece, Poland, Portugal, Romania, and Spain), including training for issuers and EPC issuers and
4. facilitate the adoption and exploitation of the iBRoad2EPC model across Europe.

Implementing authorities in the six countries are directly involved in the process of conceptualisation, development, and testing of iBRoad2EPC to become an integral part of existing relevant schemes. Targeted communication, dissemination and exploitation activities at national and European level support further acceptance and uptake. The project leverages existing knowledge from other projects to expand EPC features and contributes back policy proposals as well as training and capacity building modules.

This report builds on the results of the conceptualisation of iBRoad2EPC, the design and software implementation of the iBRoad2EPC Assistant tool, as well as on the development of relevant training material to be combined with EPC training. It summarises and evaluates the relevant training activities in the pilot countries.

OBJECTIVES OF THIS REPORT

The iBRoad2EPC project proposes a specific approach for introducing BRP elements into existing EPC schemes in six partner countries (Bulgaria, Greece, Poland, Portugal, Romania, and Spain) and preparing the relevant markets for its uptake. Part of this is the definition of training requirements, the development of relevant training material and the actual training of energy experts to be able to issue the combined EPC/BRP approach, after which the concept will be field tested. The experts' training aims to provide energy experts with deep understanding of the approach, methodology and issuance procedure as well as on the added value of iBRoad2EPC for their customers. It not only serves as background for the field test but also gathers experience for the later integration of iBRoad2EPC training in the national training of EPC issuers. This will allow systematic consideration of staged renovation in EPC issuance and energy consulting products.

An evaluation of the expert trainings is conducted to collect the experiences gained during the training and to give the participants an opportunity for feedback. This report is structured in five main parts. It starts with an overview of iBRoad2EPC, followed by an analysis of training requirements and then an overview of the trainings' organisation. The fourth part presents the analysis of the survey results and the fifth presents lessons learnt derived from the evaluation.

Objectives of this report

- Overview of iBRoad2EPC
- Analyses of training requirements
- Organisation of the experts' training
- Evaluation of the iBRoad2EPC energy experts' feedback
- Lessons learnt

OVERVIEW OF IBROAD2EPC

iBRoad2EPC is an energy consultation tool for building owners, issued by building professionals. It outlines an initial renovation strategy on how a building can become climate neutral in the long term. The strategy can include a full renovation in one step, but also a renovation in several steps. The long-term perspective means that the individual renovation steps build on each other, with building component connections and even future renovation obligations being considered and, where necessary, prepared in advance. iBRoad2EPC is designed to answer the core questions of building owners regarding the long-term renovation strategy for their buildings.

	Explanation	Example
what?	Description of measures	Insulation of the roof installation of the new heat generator installation of a ventilation system
when?	Likely time span to implement measures	before 2030 before 2040 before 2050
how?	technical specifications in line with LTRS, NBRP, NECP	roof: 24 cm polystyrene heating: heat pump with COP > 3,5 ventilation: 85 per cent heat recovery
what to beware of?	foreseeable obligations	MEPS: by definition, it is one of the worst performing buildings and will need to be renovated by 2033
what to pay attention to?	notes to prevent lock-in situations	if you insulate the roof make sure that the overhang is sufficient for the wall insulation foreseen in a later stage

Figure 1: iBRoad2EPC answers the core questions of building owners regarding the long-term renovation strategy for their buildings.

iBRoad2EPC follows a modular approach that enables adaptation to the different requirements in implementing Member States. A basic module comprises the general renovation plan and related advice. Processing is largely automated to allow issuance at low cost, so that the basic module can be implemented as a complement to national EPC schemes and even as a mandatory part of EPCs. Thereon, implementing Member States may choose to broaden the scope of their schemes by including any of the following additional iBRoad2EPC modules: energy demand, energy consumption, investment costs, smart readiness, indoor environmental quality, or measured energy performance. Through the additional modules, iBRoad2EPC covers all topics relevant for a building renovation passport (BRP) in the sense of the EPBD.

iBRoad2EPC provides the following added value for building owners:

- Better renovation recommendations in EPCs through the integration of BRP elements
- Outline of an individual long-term renovation strategy considering
 - step-by-step renovations that gradually lead to a meaningful whole
 - avoidance of mistakes through early preparation of later renovation measures
 - alignment with overarching national building targets, future requirements, and obligations (e.g., ban of fossil fuel boilers, minimum energy performance standards (MEPS)) to prepare the building and fulfil all legal requirements.

Figure 2 and Figure 3 show the online output forms (overview page and detailed page, respectively) of the iBRoad2EPC basic module and what information they provide. The overview page presents the whole renovation strategy at one glance. Building components that have been renovated to a target-proof state turn green. When the whole building is green in the target year it means the building will have achieved the

national climate goals of the respective Member State. For every renovation step there is a subpage explaining in detail what, when, and how to renovate, what to beware of, and what to pay attention to.



Figure 2: Overview page of the iBRoad2EPC online output form.

The screenshot displays the 'RENOVATION STRATEGY' page in the iBRoad2EPC software. The interface includes a header with the company name 'iBRoad2EPC', contact information for 'Energy consultant Max Mustermann', and the date '18. August 2022'. The main content area is titled 'Step 1 Soon' and contains three columns of information:

- Measure 1: External wall insulation**
 - Description of the measure:** The external wall is insulated with a "Exterior Insulation Finishing System (EIFS)". EIFS is a lightweight synthetic wall cladding that includes foam plastic insulation and thin synthetic coatings.
 - Specification of the measure:** 15 cm of insulation ($U = 0,2 \text{ W}/(\text{m}^2\text{K})$)
 - Icon:** A green house icon with a square window.
- Measure 2: Replacement of the windows**
 - Description of the measure:** Replacement of all windows that are older than 10 years.
 - Specification of the measure:** Triple glazing, highly efficient windows ($UW = 0,8 \text{ W}/(\text{m}^2\text{K})$).
 - Icon:** A green window icon.
- MEPS/Regulations and Note/Recommendation**
 - MEPS/Regulations:** By 1 January 2024, every newly installed heating system is to be based on 65 percent renewable energy.
 - Note/Recommendation:** When the outer wall is being insulated, please prepare a low thermal bridge connection to a later pitched roof insulation. Existing panels at the eaves should be opened so that the insulation can be laid up to the upper edge of the rafters. At the verge, the insulation should be laid up to the upper edge of the gable wall. For this, the roof overhang must usually be extended. When the outer wall is being insulated the control settings of the existing heat generator should be adapted to the reduced heat load. Your installer should check whether the flow temperatures and the flow rate of the heating circuit pump can be reduced.
 - Additional Note:** When the outer walls are being insulated, please prepare for a later installation of a ventilation system by installing the outside wall openings for fresh and exhaust air shafts for the ventilation system in the wall insulation layer. Facade integrated ventilation units for single or multiple rooms are most easily installed in the same step as the wall insulation.
 - Final Note:** If you plan to install a heat pump in the future, please carry out preparation measures to lower the flow temperature of the heating systems (ideally below 55°C or less). This will raise the efficiency of the heat pump significantly. The flow temperature can be lowered by carrying out a hydraulic balance, exchanging single radiators and insulating single building components. An energy auditor can identify the components and radiators that provide the maximum improvements.

Callouts from the left side of the image provide additional context:

- Name of the measure same as in the overview for easy orientation** (points to the measure title)
- Description of the measures What should be renovated?** (points to the description text)
- Specification of the measures How should it be renovated?** (points to the specification text)
- Icon same as in the overview for easy orientation** (points to the house icon)

Callouts from the top of the image provide further details:

- Step that is described in this page** (points to the 'Step 1 Soon' dropdown)
- One box per measure A renovation step can comprise several measures** (points to the Measure 1 box)
- Future Requirements Information about content and timing** (points to the MEPS/Regulations section)
- Preparation for later renovation steps reach deep renovation and avoid lock-in** (points to the Note/Recommendation section)

Figure 3: Page 2 of the iBRoad2EPC output form presents detailed information for every single renovation step.

The iBRoad2EPC is created with an online tool called the iBRoad2EPC Assistant. The main objectives of this tool are:

- create the iBRoad2EPC in a uniform design;
- output the iBRoad2EPC in an online version;
- clear and intuitive user guidance;
- facilitate issuers in assigning renovation measures at specific points in time;
- automatic pre-selection of
 - time steps
 - specifications of renovation measures that are aligned with national targets
 - recommendation texts to prepare for later renovation measures;
- easy overwriting of all default texts by the issuer;
- easy expandability with additional modules.

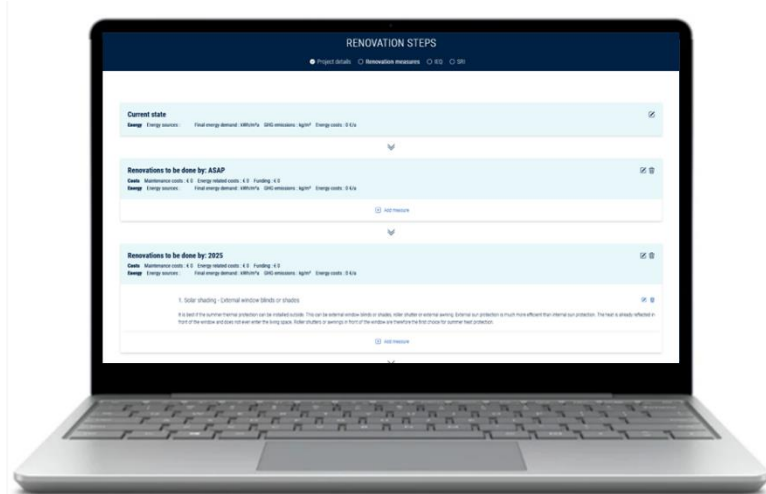


Figure 4: The iBRoad2EPC Assistant is an online tool to process and issue the iBRoad2EPC.

iBRoad2EPC adds an extra page to the EPC which contains a link to the individual online document.

The iBRoad2EPC concept, implementation and embedding in the framework conditions of the pilot countries are described in detail in the following reports: “Conceptualising iBRoad2EPC: can EPCs be upgraded to include building renovation passport elements?”, “technical report on the definition of the proposed concept, content and methodology of iBRoad2EPC”, and “iBRoad2EPC initial national guidelines”.

ANALYSIS OF TRAINING REQUIREMENTS

As part of the screening which took place in the report “Conceptualising iBRoad2EPC: can EPCs be upgraded to include building renovation passport elements?”, an overall overview of the situation regarding available EPC expert training in pilot countries was presented. Building upon that, the present report investigates the existing situation of EPC trainings in depth, to identify gaps, needs and possibilities to merge them with iBRoad2EPC training. For this purpose, interviews with the pilot country partners were conducted to analyse the currently available expert trainings, both mandatory and voluntary ones. The analysis focused on the boundary conditions under which the trainings are provided as well as the trainings’ contents and the defined criteria for trainees and lecturers. The country specific training conditions, that were derived from the interviews, are displayed in Table 1.

The results supported the development of the iBRoad2EPC training toolkit and built the basis for the concept of merging the EPC and iBRoad2EPC trainings in the pilot countries.

EPC trainings are neither officially scheduled nor publicly supervised in most partner countries. In fact, the training schedule and topics are defined by various entities like Technical Universities, semi-public training institutions and private training institutions that, in some cases, provide the EPC training by themselves. This leads to the training topics differing per country and in some countries per type of EPC issuer. In some countries, e.g., Greece, EPC training has no longer been mandatory after a change in legislation; as a result, many training institutions do no longer organise EPC training.

The broad range of answers clearly showed that the iBRoad2EPC training material and organisation needed to be as flexible as possible to be able to adapt to the different contexts.

Table 1: Overview of boundary conditions of EPC expert training available in pilot countries.

	Bulgaria	Greece	Poland	Portugal	Romania	Spain
Training availability	Training is available; Training entities need to provide at least one training per year but did not do that in the past eight years	Training is available; used to be mandatory, is now voluntary	Training is available	Official training available	Training is available and mandatory.	Training is available; several voluntary training options from public authorities and professional associations.
Topics	Theoretical and practical part, content differs for Level 1 and Level 2 training, 31 topics for Level 1, 21 topics for Level 2	Mainly building envelope, electromechanical systems, EPC examples and software demonstration	Legislation, assessment of the current building state, check for use of renewable energies, calculation method	Six common topics for all trainees, two specific topics each for Class I (residential) and Class II (commercial/service) trainees	Theoretical and practical part, main topics: legislation and technical regulations, calculation method, renewable energies	Individually designed by training entity, focus on the practical use of certification programmes
Content responsibility	Technical universities	Private training providers	Private companies or auditors association	ADENE; private training institution. ADENE is allowed to offer evaluation and certification	Professional associations and technical universities	Training entity
Training provision	Technical universities	Private training providers	Private companies or auditors association	ADENE ; private training institution	Professional associations and technical universities	Training entity
Training extent	expert level 1 - 115 h expert level 2 - 80 h	12 h - 60 h	30 h - 50 h	Cat. I: 56 h Cat. II: 36 h	80 h - 100 h	6 h - 40 h
Examination	Yes	No	Often internal exam to test auditors' knowledge	Yes	Yes	No
Training cost	Depends on university and training session focus	Approx. 250 €.	Often free of charge	Cat. I: 950 € net + 200 € net for the exam Cat. II: 850 € net + 250 € net for the exam	Approx. 1000 € + approx. 150 € for continuous development courses	20 € - 50 € for training by professionals' association; 100 € - 200 € for training by private entity

	Bulgaria	Greece	Poland	Portugal	Romania	Spain
Eligibility criteria and quality management for qualified experts	University or professional degree in a building-related technical realm, professional experience required Quality management: voluntary, sustainable energy development, agency provides information regularly.	University or professional degree in engineering Quality management: three classes of EPC issuers distinguished by GFA of building; auditors stay updated voluntarily	University or professional degree and official registration. Quality management: voluntary	Four criteria on education, membership in a public association, working experience and examination. Quality management: voluntary trainings in case of changed legislation	Five criteria on education, health, criminal record, professional training working experience. Quality management: Regular application for extension of right to practice needed.	Academic or professional grade in building sector Quality management: None
Requirements on and training of lecturers	No official requirements- Universities choose the trainers.	Trainers need to be Energy Inspectors with a lot of experience.	No official requirements	Internal trainers from ADENE and external trainers provided by public authorities. All need i.e. to be qualified experts .	Lecturers need to be certified energy auditors at least.	Training for trainers from public entity
Official regulations on training design	Yes; fixed curriculum.	No.	No	No training requisites for private training entities.	No	None
Country specifics	No EPC training for the last 8 years; Lack of certified Auditors; Private training entities must not certify Auditors	Official training ended in 2016; Lack in quality of EPCs and knowledge of Energy Inspectors	No official training; List of authorized EPC issuers hosted by public authorities; Unofficial list hosted by the Association of Energy Auditors	ADENE is semi-official training entity; iBRoad2EPC training will take place amongst the complementary training modules for already certified EPC issuers.		Training provided to VERDE auditors by GBCE trainers; Combination with EPC training possible but time-consuming

ORGANISATION OF IBROAD2EPC TRAINING

Development of the training toolkit

The iBRoad2EPC training toolkit was developed based on the concept defined and software developed in earlier tasks of the project. The objective of the training toolkit is to prepare a complete set of information to be used for the training and guidance of energy experts to enable them to carry out the complete issuance of an iBRoad2EPC for existing buildings. It comprises the training material to introduce the iBRoad2EPC training to the training institutions' curricula.

The toolkit explains what iBRoad2EPC is and which added value it provides to building owners. It guides energy experts through the steps of issuing the iBRoad2EPC pointing out what to consider during the on-site visit, how to develop a long-term strategy for a building, how to use the iBRoad2EPC Assistant and how iBRoad2EPC is coupled with the EPC. The toolkit also contains supportive material that experts may use when issuing an iBRoad2EPC.

In specific, the training toolkit includes the following elements:

- Handbook for energy auditors
The handbook is the basis for all the content of the training. It contains a compilation of the objectives, procedures and instructions relevant to the issuance of an iBRoad2EPC. The target group is energy professionals. The handbook avoids detailed background reports and presents the information in a concise and clear manner. For further background information, the handbook refers to the relevant reports of the iBRoad2EPC project. It provides guidance and advice on how to issue the iBRoad2EPC in general, what principles to respect, how to define the renovation steps in collaboration with the building users, and assess indoor environmental quality, measured energy consumption and smart readiness. The handbook explains the basic processes and concrete steps. More specifically, the handbook is structured in the following chapters:
 - Overview of iBRoad2EPC
 - Target groups of iBRoad2EPC
 - Added value of iBRoad2EPC
 - Five steps to issue the iBRoad2EPC
 - Checklist for the on-site visit
 - The iBRoad2EPC Assistant
 - Additional functionalities of iBRoad2EPC
 - Tabs to facilitate navigating through the document
 - Handing over the iBRoad2EPC to the building owner
 - Further information on iBRoad2EPC
- Presentation for the auditors' training
The presentation is prepared for the concrete use during the trainings. It shows the use of the tools and the implementation procedures and explains them step-by-step. Concretely, the presentation covers the following topics:
 - What is iBRoad2EPC?
 - Five Steps to issue the iBRoad2EPC
 - iBRoad2EPC Assistant
 - Additional Functionalities of iBRoad2EPC
- Template for the on-site visit
A blank template to support the energy experts during the on-site visit. With the help of the template experts can guide buildings owners and decision-makers to contribute in defining their individual solutions for a target-oriented renovation plan.

- Checklist for the on-site visit
A checklist to support the energy experts during the on-site visit. It contains important questions to clarify together with building owners.

The complete training toolkit is part of the report “iBRoad2EPC training toolkit”.



Figure 5: The training material consists of a presentation, a handbook, a template and a checklist for the on-site visit.

Train-the-trainer seminar

Country partners received a train-the-trainer seminar prior to the expert training. The aim of the seminar was to present the training material and explain how to use the software developed. This included the use of integrated external software to calculate Indoor Environmental Quality (IEQ) and the Smart Readiness Indicator (SRI), as well as references to the respective handbooks for these tools. The participating trainers were guided through the handbook and the training presentation and were introduced to the use of the template for the on-site visit.

In addition to explaining the content of iBRoad2EPC, the procedure for integrating iBRoad2EPC into existing EPC training courses was discussed. The participating trainers were given advice on how to conduct the training sessions and templates on how to address the energy experts expected to attend the training.

Preparation of training

Following the 'train the trainer' seminar, the country partners organised the expert training courses in their respective countries. Preparations included recruiting experts to participate. The recruitment process was carried out via national energy auditor networks, social media, internal networks and via official technical chambers of engineers and/or architects.

The training material was adapted to the needs of each country, including translation into local languages. In addition, country-specific background information was included in the presentation to illustrate the political context and possible solutions to problems using iBRoad2EPC.

Actual training implementation

The iBRoad2EPC training was conducted by the pilot country partners. They all have deep knowledge on buildings and energy due to their experience in this realm. In addition to that, ADENE is regularly hosting EPC trainings themselves. Five country partners held the training online, one partner offered a hybrid session that allowed physical presence. The number of participants varied between 10 and 92. There were 202 experts trained in total. The trainings lasted between two and six hours, on average 4 hours. All country partners included sessions where participants tested the iBRoad2EPC Assistant hands-on and were assisted in case of questions. In Annex 2, all six training agendas are shown. Annex 2 shows details of the experts' qualification and experience for each partner country. Key information about the training implementation is summarised in Table 2.

Table 2: Cornerstones of the iBRoad2EPC expert training implementation

	Bulgaria	Greece	Poland	Portugal	Romania	Spain
Training date(s)	14.06.2023 12.10.2023	07.07.2023 16.07.2023	20.07.2023	07.06.2023 16.06.2023	28.07.2023	06.2023
Training institute	EnEffect	INZEB	KAPE	ADENE	INCD URBAN- INCERC	GBCe/Cíclica
Training format	hybrid	online	online	online	online	online
Number of participants	20	66	10	20	92	15
Training duration	3 h	4,5 h	2 h	4 h	6 h	4 h
Number of answered evaluation questionnaires	11	31	5	5	28	14

Survey among participants of the training

The energy experts who participated in the trainings were asked to fill in a questionnaire. The questionnaires were translated by the country partners. The questionnaire consisted of 65 questions, divided into the following parts:

- Training
- Training material
 - iBRoad2EPC presentation
 - iBRoad2EPC handbook
 - iBRoad2EPC checklist
 - iBRoad2EPC template
- iBRoad2EPC Assistant
- Content of the iBRoad2EPC training
- Further questions

The full questionnaire is included in Annex 4 to this report. The questions were predominantly asked as closed questions to enable a clear evaluation. Free comments were nevertheless possible in many cases, so that as many aspects and opinions as possible could be considered.

TRAINING EVALUATION

This chapter presents the collective results of the experts’ evaluation of the iBRoad2EPC training from the six pilot countries. The detailed results for the individual partner countries can be found in Annex 3 - Evaluation results per country.

Overall, 202 energy experts from six countries attended the iBRoad2EPC training. 47 % of them (95) participated in the training evaluation (see Figure 6). The majority had a university degree. Also, various fields of engineering were represented with a tendency to architects and civil engineers (see Figure 7). The majority (60%) of participants had already issued more than 50 EPCs at the date of the evaluation and therefore are considered very experienced. But there was also a considerable percentage of less experienced EPC issuers: approx. 30% had issued less than 10 EPCs.

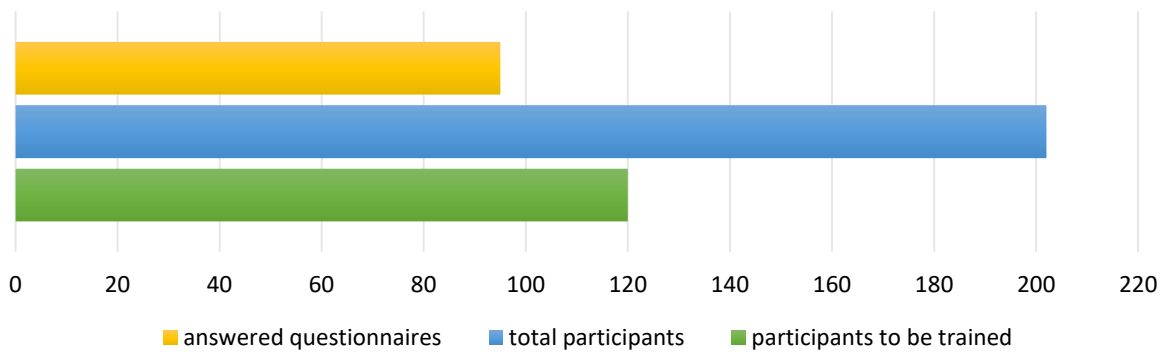


Figure 6: Number of trained experts in total and number of answered questionnaires in comparison to the proposed number.

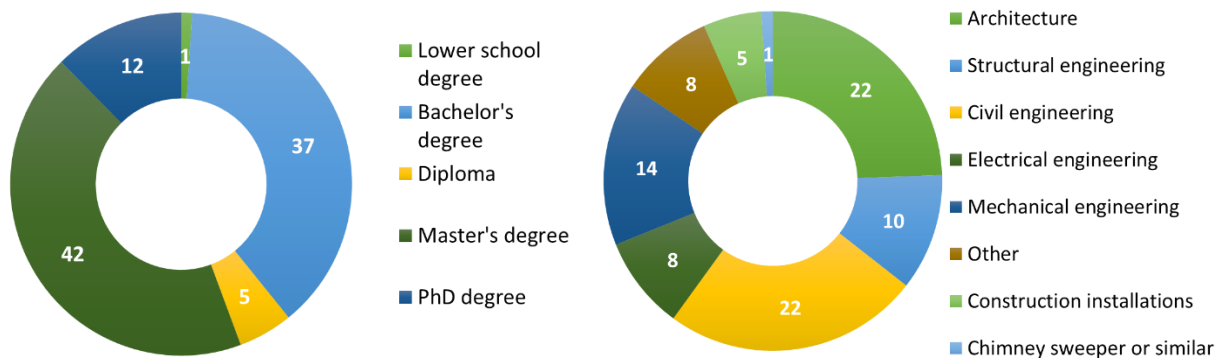


Figure 7: Highest educational degree and field of education of all participants. n=95

Most energy experts (99 %) rated the iBRoad2EPC training positively. This applies to all countries and the training content itself as well as the actual organisation and presentation of the training sessions (see Figure 8).

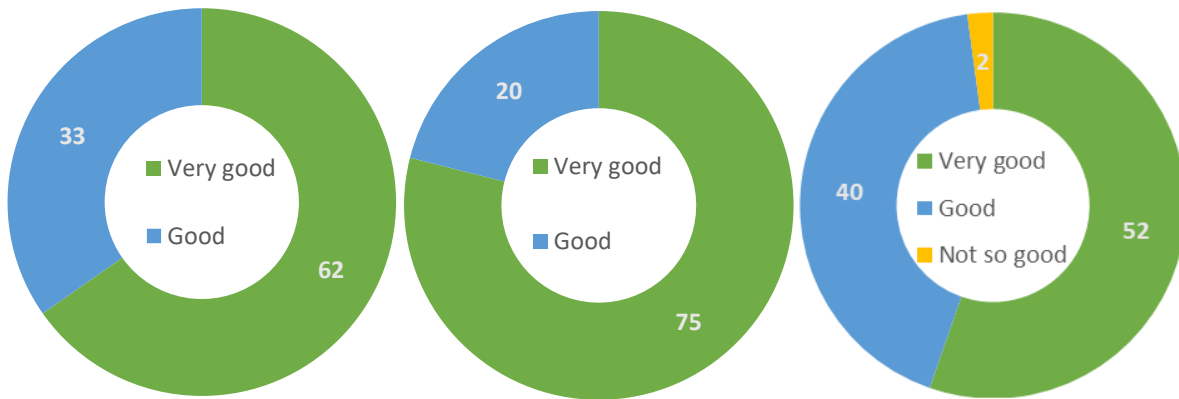


Figure 8: From left to right: Cumulated answers on the questions: “How would you rate the organisation of the training in general?”, “How would you rate the capacity of the training presenters?” and “How would you rate the content of the training?”. n=95

The most well received part of the training was the part about the concept of iBRoad2EPC (58 likes) followed by the introduction of the iBRoad2EPC Assistant (38 likes). The parts about the energy and cost modules (18 likes), the IEQ (22 likes), the SRI (22 likes) and the iBRoad2EPC handbook (21 likes) received comparable amounts of likes (see Figure 9). However, the handbook was not distributed to the experts in all pilot countries before the training. This resulted in a lower number of ratings for this. Here, however, it is difficult to distinguish whether the experts' assessment refers only to the training or also to the content imparted. In principle, the content will also be assessed in a separate report following the evaluation of the field test. However, the training cannot always be evaluated completely independently.

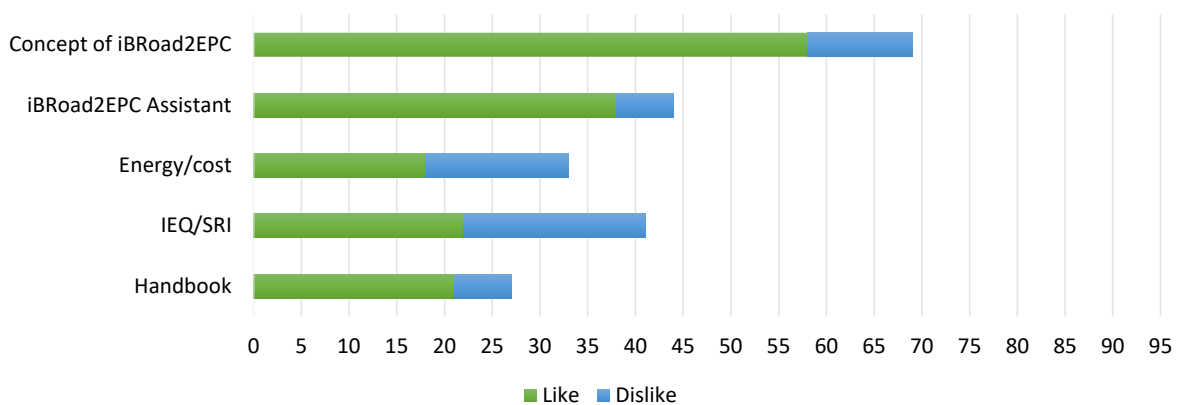


Figure 9: Total distribution of answers on the liked and disliked parts of the iBRoad2EPC training. n=95

The iBRoad2EPC training material was in the most cases rated good by the experts. This is in line with and substantiates the overall good rating of the training. The presentation was rated slightly better than the handbook. E.g. on the proposition of “easy to understand” 94 % of the experts voted “completely agree” or “agree” regarding the presentation whereas 84 % did so for the handbook. There is a tendency towards “completely agreeing” on the statements about the presentation (see Figure 10) whereas experts voted more often with “tend to agree” for the propositions about the handbook (see Figure 11). Regarding the handbook there was a substantial percentage (between 14% and 27%) that did not know how to evaluate it. From the free text answers, it became obvious that this was mainly because they did not read it or did not read it carefully before they filled in the questionnaire. In comparison to this, between 1% and 14% answered with “I do not know” when asked for their opinion about the propositions (“easy to understand, high quality of information, concise, interesting information” and so on) on the iBRoad2EPC presentation. Approx. 40 % of the participants said that the presentation was complicated but another 40 % said it was not. Also, approx. 25 % of the participants said that the handbook is complicated, against approx. 50 % who said it is not (see Figure 10 and Figure 11).

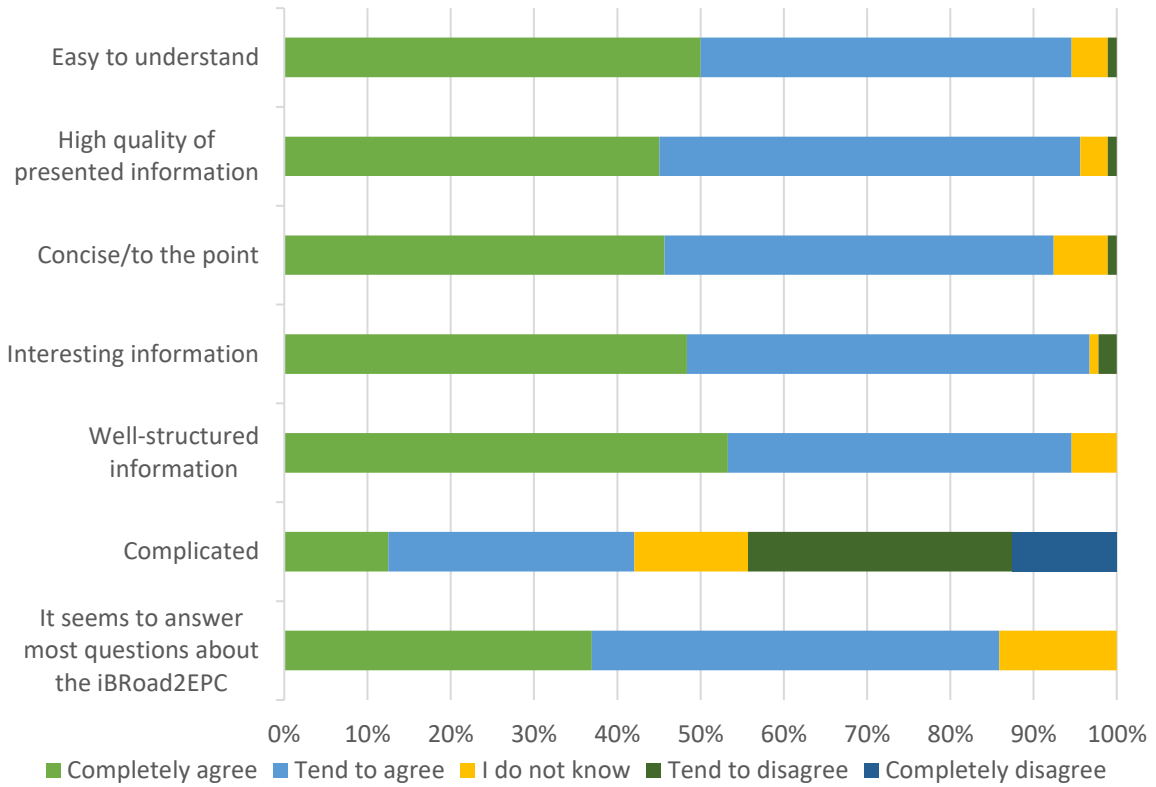


Figure 10: Relative distribution of the cumulated answers on the question: "What do you think about the iBRoad2EPC presentation?". n=95

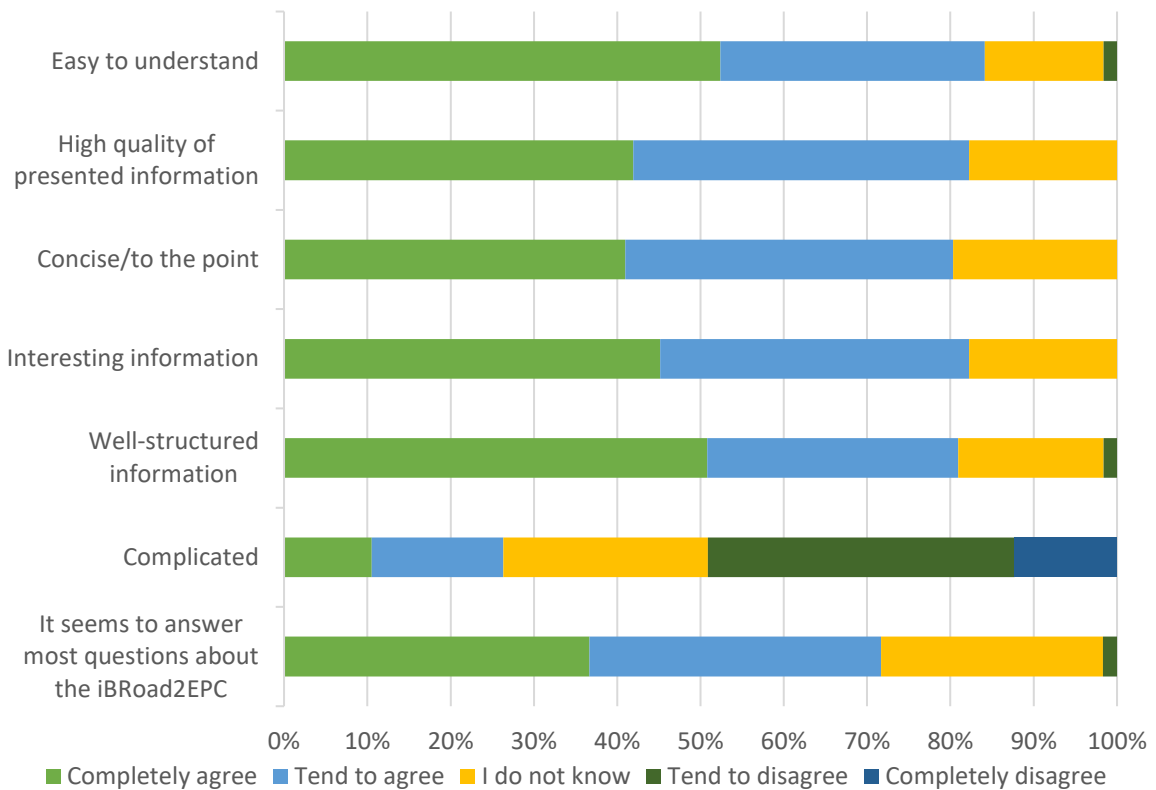


Figure 11: Relative distribution of the cumulated answers on the question: "What do you think about the iBRoad2EPC handbook?". n=95

Approx. 75% of the participants said they understood the on-site visit checklist and blank template for the on-site visit (rating “good” or “very good”). However, there were 29 participants (30 %) that had issues understanding them. 36 participants (38 %) said they understood the checklist well (rating “very good”) and 12 (13 %) answered that they did not quite understand it (rating “not so good” or “poorly”) (see Figure 12).

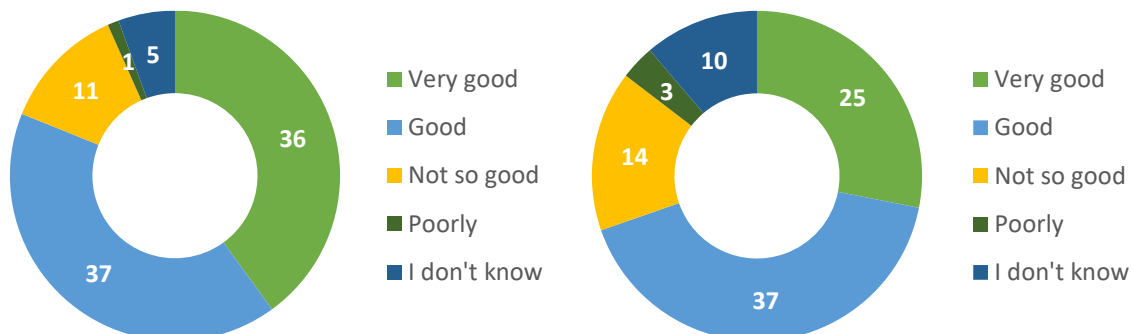


Figure 12: From left to right: Cumulated answers on the questions: "Did you understand the iBRoad2EPC on-site visit checklist?" and "Did you understand the blank template for the iBRoad2EPC on-site visit?". n=95

The results of the evaluation questionnaires also give some interesting insights about the participants in relation to their EPC issuing experience (see Figure 13, Figure 14, Figure 15). The least experienced EPC issuers (with less than 10 issued EPCs) gave the most positive answers; 18 completely or tended to agree that the iBRoad2EPC presentation was easy to understand. 12 did so for the iBRoad2EPC handbook. Four people from this group answered that they are not sure about their understanding of the presentation and handbook.

The presentation was voted complicated (“tend to agree” or “completely agree”) by 11 people from the less experienced group. 25 participants from the more experienced group said that the presentation was complicated. 7 from the less experienced group however, said they would tend to agree or completely disagree that the presentation was complicated, whereas 32 from the more experienced group said that.

The handbook was voted complicated by 12 out of the 95 people in total. Eight of them had issued more than 10 EPCs. In contrast, 27 said that the handbook was not complicated. 20 of them had issued more than 10 EPCs.

The on-site visit checklist was understood well (rating “good” and “very good”) by 64 people. 39 of them had issued more than 50 EPCs. 12 said they understood it less well (rating “not so good” or “poorly”). 9 of those negative ratings are situated in the group of the most experienced EPC issuers.

In relation to the blank template for the on-site visit, 55 participants rated their understanding “good” or “very good”. The majority, 41 people, had issued more than 10 EPCs at the date of the evaluation. Two (2) people in total said they understood the blank template poorly, one from the group of less experienced issuers and one from the most experienced group/ In total 15 (with 11 from the most experienced group) said they did not understand it well (rating “not so good”).

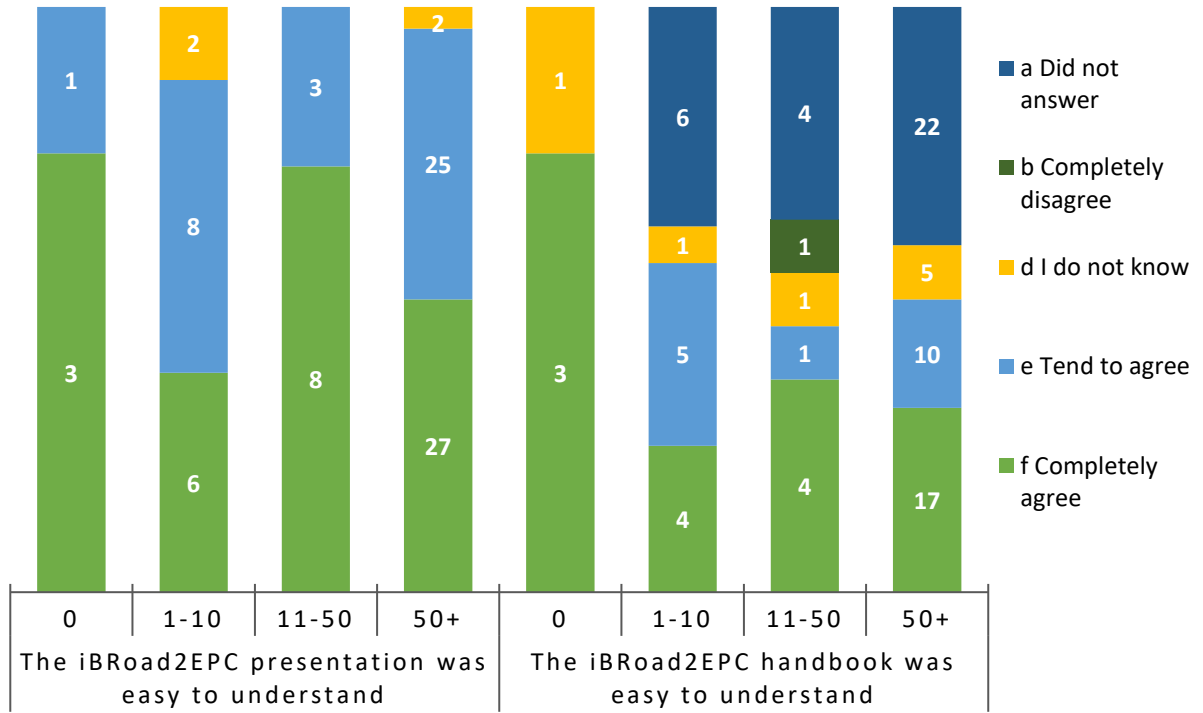


Figure 13: Relative distribution of the cumulated answers on the questions about the understanding of the iBRoad2EPC presentation and handbook. n=95

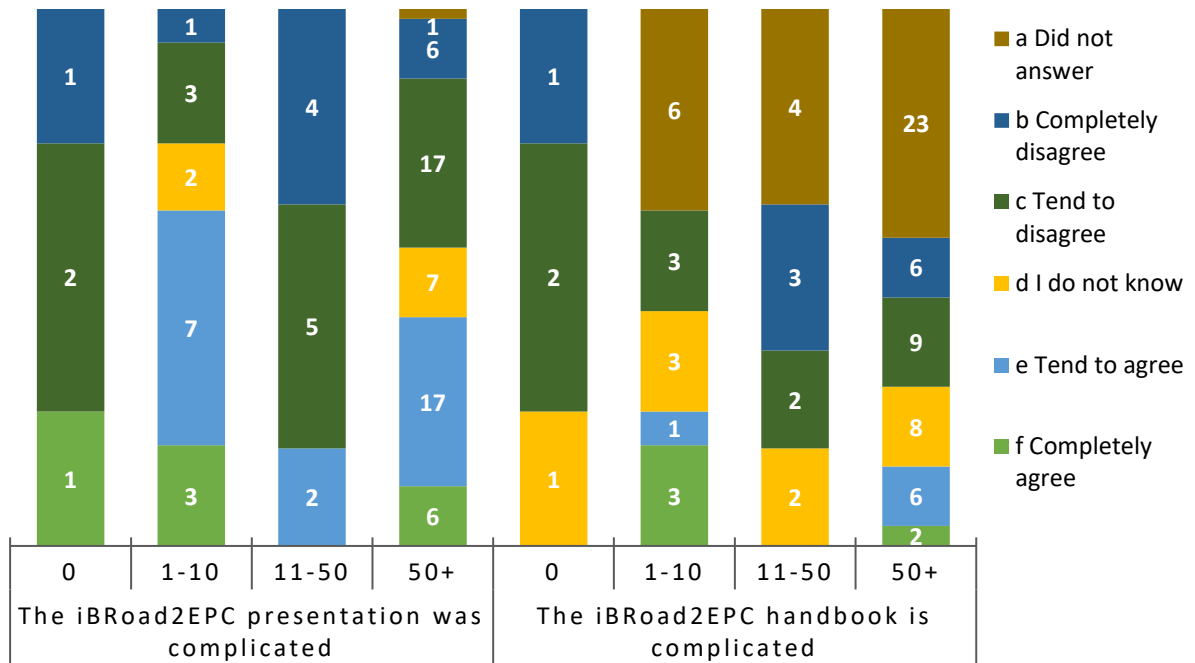


Figure 14: Relative distribution of the cumulated answers on the questions about the complexity of the iBRoad2EPC presentation and handbook. n=95

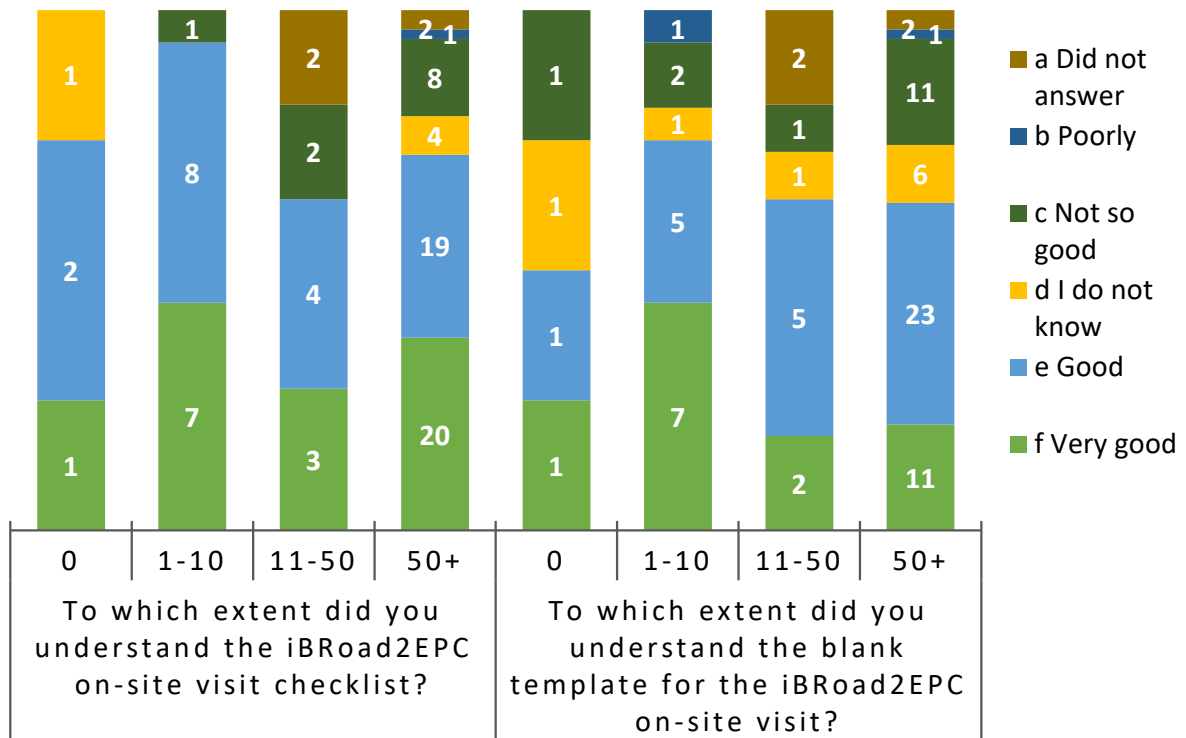


Figure 15: Relative distribution of the cumulated answers on the questions about the understanding of the iBRoad2EPC on-site visit checklist and blank template. n=95

It must be noted that the Greek participants did neither receive nor evaluated the handbook, which leads to a possible gap of 31 answers for the handbook.

Finally, participants were asked to suggest improvements necessary in order to enable the merge of the iBRoad2EPC training with EPC training in their countries. Their clustered suggestions are displayed in Figure 16. A wish for more examples or even a case study approach was mentioned more than once. Also, there are several suggestions to simplify the training in terms of volume and complexity of the training material. Although these are only individual opinions of a few experts and are not representative, they provide valuable indications of the areas that need to be considered when implementing iBRoad2EPC in a Member State.

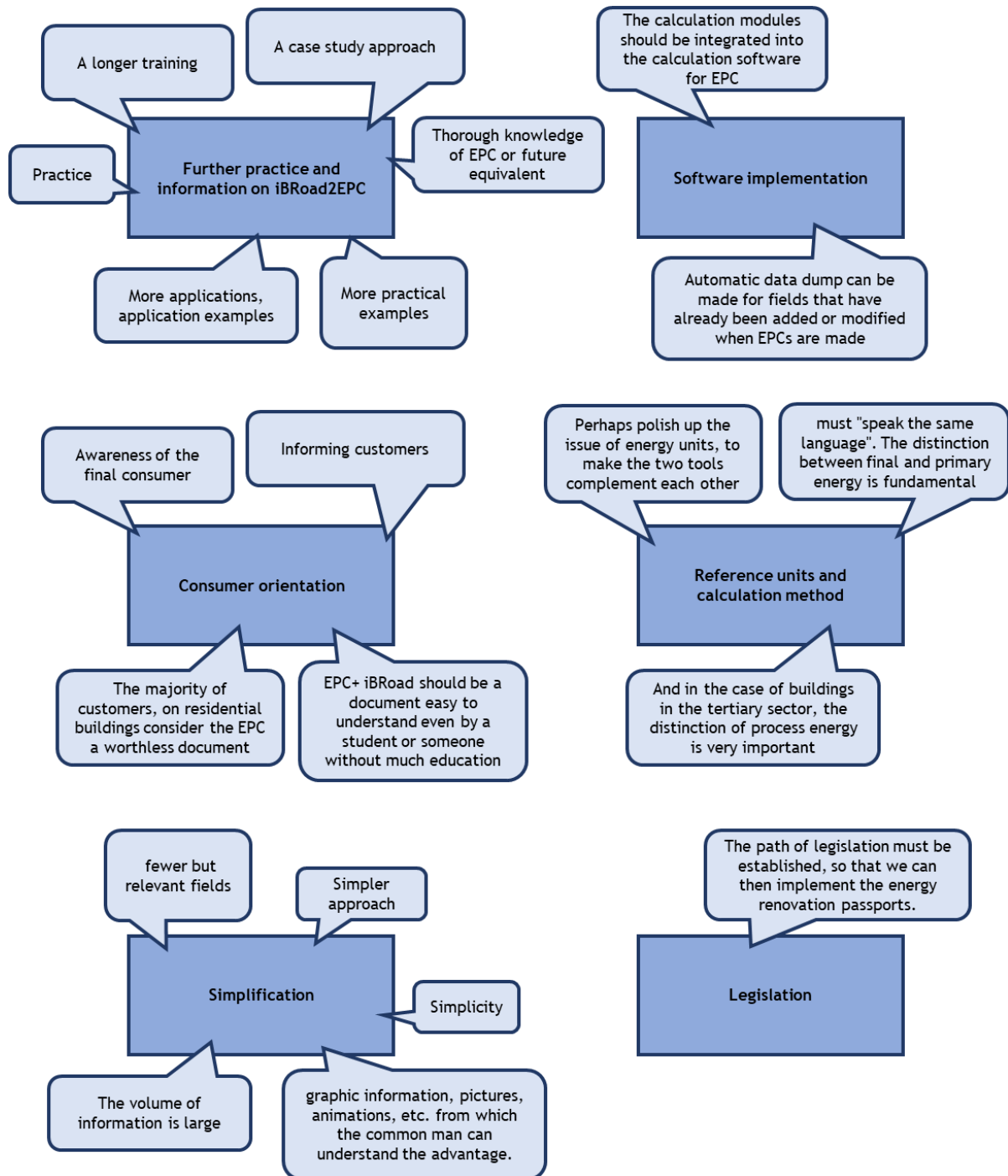


Figure 16: clustered feedback from the energy experts on the possible merge of iBRoad2EPC training with EPC training.

Lessons learnt

Overall, the training material and training was voted as being good and easy to understand by the participants of the iBRoad2EPC experts' training. 99 % of the participants provided positive answers regarding their satisfaction with the training itself, its content and organisation.

80 % of the participants provided positive answers regarding their understanding of the training content and the training material, whereas 8 % provided negative answers on this. 13 % were not sure or did not answer. In total, 83 % of the participants rated the iBRoad2EPC training positively and only 7 % negatively, while 11 % were unsure or did not answer. This overwhelmingly positive feedback is largely due to the professional country partners who organised and conducted the training sessions. Their experiences and feedback will

also be considered to improve the iBRoad2EPC training. However, the positive feedback can also be seen as a broad endorsement of the training materials and content presented. The participants' constructive criticism and suggestions will be taken into account in the further development of the iBRoad2EPC training programme. In addition to the training topics, they also provide information on areas of action outside the training that are important for the introduction of the iBRoad2EPC system.

The evaluation results will support the further implementation of iBRoad2EPC training. This applies in particular to the targeted expert groups, implementation in training institutions, and embedding in existing (EPC or other) training curricula. Table 3 summarises what future improvements are considered following the experts' evaluation of the iBRoad2EPC training (chapter Training evaluation and Annex 3). This comprises improvements to the training material, the iBRoad2EPC tool itself, as well as improvements and recommendation in relation to the training organisation and possible linkage to existing EPC training. The left column summarises the results on a specific topic, the right column then presents need for action derived from the results in the left column. Not all single topics lead to clear action or simple solutions, e.g., when experts rate certain training material less understandable than others. In these cases, the training material or iBRoad2EPC modules will be reworked to improve explanations, provide more background information, and ease handling and understanding. Although it is not easy to separate the actual training from the training content, the changes presented here relate primarily to the training. Changes to the content and procedure of the iBRoad2EPC method are primarily addressed in the evaluation of the field test in a separate report.

Table 3: Evaluation results for the iBRoad2EPC training and training materials and planned adaptations derived accordingly

Evaluation results	Adaptations
99 % of experts satisfied with the iBRoad2EPC training	No changes are foreseen in the general approach of the iBRoad2EPC training
76 % satisfied with the iBRoad2EPC Assistant	No changes to the iBRoad2EPC Assistant are foreseen with regard to the expert training. The software is constantly being developed.
On average 80% of the experts rated the handbook positively	No need for major adaptations. The handbook will be reviewed regarding the simplicity of explanations.
11% positive evaluations for the training presentation about the cost module	Both modules were kept very simple and depend to a large degree on individual supportive material and possible software solutions in the implementing countries. Therefore, the feedback is considered to be mostly content-related and less related to the training. However, the presentation of both modules will be checked and reworked if required focussing on easy presentation and explanation.
11% positive evaluations for the training presentation about the energy demand module	
14% positive evaluations for the training presentation about the SRI module	Reference has been made to the original manuals for the SRI and IEQ. These have been retained unchanged. To simplify the training, the original manuals will be included in the training toolkit as documents and not just as URLs. Only the procedure for importing the SRI
14% positive evaluations for the training presentation about the IEQ module	

	and IEQ results is described in the iBRoad2EPC training. It is described in detail and will not be changed.
On average 93% of the experts rated the presentation positively	No need for major adaptations. The presentation will be reviewed regarding the simplicity of explanations.
73% of the experts understood the checklist for the on-site visit good or very good	No changes are foreseen to the checklist
62% of the experts understood the blank template for the on-site visit good or very good	The template for the on-site visit will be reworked focussing on more intuitive use.
100% of the experts rated the organisation of the training as "good" or "very good".	None
100% of the experts rated the presenter of the training as "good" or "very good".	None
98% of the experts rated the content of the training as "good" or "very good".	None
80% of the experts rated the duration of the training as "just right". There is no significant correlation to the actual duration.	None
86% of the experts see potential in the integration of iBRoad2EPC training into regular EPC training.	The integration of iBRoad2EPC training into the regular EPC training of the pilot countries requires many different preconditions. The legal framework for iBRoad2EPC needs to clarify its position in relation to the existing EPC, the training institutes need a perspective for the actual long-term introduction of iBRoad2EPC, the energy experts will only be interested in iBRoad2EPC training if there is corresponding information and incentives for building owners. These issues will be discussed with the National Advisory Committees.

In the questionnaires, the experts were asked to enter suggestions for improvement as free text. Thirteen suggestions were made by the participants (out of 95 questionnaires answered) for improving the training or the training material. The suggestions always reflect the opinion of an individual expert and cannot be generalised. Nevertheless, they provide valuable suggestions and ideas. Experts' suggestions are presented in the left column of Table 4 without allocation to individual partner countries. Then, the right column includes relevant potential adaptations to the training and training material, even though they may not always be considered and implemented as part of the project. This is particularly the case where suggestions do not lead to simple solutions, require substantial resources for adaptation, do not meet the project's objectives, or are not considered representative. The project consortium will decide which adaptations should be implemented. Some of the experts' suggestions do not refer to the training or training materials but rather to the content or concept of iBRoad2EPC. These suggestions will be treated as part of the upcoming evaluation of the field test and are not considered in the context of the present report.

Table 4: Suggestions from energy experts for the improvement of the iBRoad2EPC training and training materials and potential adaptations derived accordingly - part 1

Suggestions (all cited as originally provided in in the evaluation)	Adaptations
Question: What did you not like about the training?	
lack of depth, application, test cases	Advice for future trainers on integrating model buildings
the cost module is very underdeveloped and confusing as it stands.	This comment is more related to the content of iBRoad2EPC than the training. We will consider it in the evaluation of the field test.
Do you have any suggestions for improving the iBRoad2EPC handbook? Please write free text.	
Examples of several types of buildings are missing	The handbook has been deliberately kept to a very short length in order to present all the relevant content without overloading the reader. Example calculations would make the handbook more confusing. Instead, it is being considered to integrate example buildings into the iBRoad2EPC Assistant.
Question: Do you have any suggestions for the online tool "iBRoad2EPC Assistant"?	
better organisation of the list with renovations measures	The design of the list depends on the internet browser used to open the iBRoad2EPC Assistant. We will consider how the user experience can be improved.
better translation	We will consider this together with the pilot country where the comment was made.
better translation / more explanation for the blank boxes	We will consider this together with the pilot country where the comment was made.
there should be an option in the application for not insulated buildings, walls etc.; no such option was given in the presentation	This comment is more related to the content of iBRoad2EPC than the training. We will consider it in the evaluation of the field test.
a presentation of a real building example using the application should be given	We will consider if a sample building in the iBRoad2EPC Assistant can provide better understanding.
I would suggest that the tool should make the work easier. For example, that it automatically extracts the values of the energy certification, and that the improvement options vary the result of the certification and not have to redo the certification and re-dump the data.	The suggested improvements are foreseen for the second stage of the iBRoad2EPC Assistant. The API interface will allow automated data exchange between EPC software and iBRoad2EPC. This could not be part of the training because national software providers are required to implement parts of the interface in their products which is not possible at this stage of the project.

As I mentioned earlier, the cost module is very poorly developed. As it is, it does not provide relevant information and also gives rise to confusion between the terms it mentions. In my view it needs more development.	This comment is more related to the content of iBRoad2EPC than the training. We will consider it in the evaluation of the field test.
From the beginning I have been shocked by the deadlines for intervention: 2050 is very, very, very far away and the need for action is great: I believe that these deadlines should be shortened	This is an integral part of iBRoad2EPC ´s long-term perspective derived from climate targets. Experts are encouraged to achieve the goals in a shorter period and do not have to use the full time span.

The more advanced energy experts (those with more than 10 EPCs in their portfolio) provided more balanced and reflected feedback with more both very positive and very negative votes. The group of experts with 11-50 EPCs in their portfolio have given more negative feedback than the other experts.

Based on the lessons learnt during training and the related feedback received, combined with the expected results of field testing, some improvements will be made during the re-assessment of the iBRoad2EPC. This will include an improved iBRoad2EPC on-site visit blank template, and some minor enhancements to the handbook or training slides. A more comprehensible link to existing explanations on the use of the IEQ and SRI modules may be made available. Other issues, including those in relation to the energy and cost module will be investigated after the field test and related evaluation results have been assessed.

In conclusion, merging the iBRoad2EPC training with the EPC training is a challenge at this stage of the project. All country partners decided to offer the iBRoad2EPC training as a complementary module to the EPC training (where available) after assessing the possibility of merging the trainings. The assessment included consultation with the Nation Advisory Committees, but also with other private training institutions and professional chambers of engineers, architects, etc. Some project partners, e.g. INZEB and ADENE, used their large networks or social media accounts to reach out to possible partners who might be interested in merging the trainings. However, there was no interest from other training institutions to integrate the iBRoad2EPC training into their regular EPC training at this stage. In Bulgaria, the structure of the EPC training is defined by law, so it was not possible to integrate the iBRoad2EPC training into the regular EPC training for the time being. In addition, there are currently no EPC training courses in Bulgaria, although the law requires them to be held regularly. The integration of iBRoad2EPC training into the regular EPC training depends on various preconditions. The legal framework for iBRoad2EPC needs to clarify its position in relation to the existing EPC, the training institutes need a perspective for the actual long-term introduction of iBRoad2EPC, the energy experts will only ask for iBRoad2EPC training if there is corresponding information and incentives for building owners. These issues will be discussed with the National Advisory Committees in order to achieve integration in regular EPC curricula.

ANNEX 1 - COVER LETTER

Dear Country partner,

You can use this letter and the attached information to inform energy experts about the iBRoad2EPC project and the training and field test, or as part of your relevant tendering procedure. Feel free to use this document and information as a template, adjust, translate or insert it into your own layout.

Dear candidates,

[company name] is involved in the European Horizon 2020 project iBRoad2EPC and we are looking for energy experts to take part in an experimental training and field test, thereby contributing to the development of the next generation of Energy Performance Certificates.

iBRoad2EPC is combining the Energy Performance Certificate with elements from Building Renovation Roadmaps. This allows issuing target-related renovation recommendations quickly and cost-effectively. The results of the training and field test can contribute to improving the quality of EPCs in [country name] and throughout Europe. The project builds on the previous project iBRoad [\[hyperlink\]](#), which developed a building renovation roadmap and a digital building logbook.

We hope this brief introduction has piqued your interest.

For more details, please contact us before [date] via [phone number] or email [email address].

Kind regards,

[Signature]

<p>Objectives of iBRoad2EPC</p>	<p>The Horizon 2020 iBRoad2EPC project represents the next step in energy performance assessment schemes and certification practices, promoting and showcasing the integration of Building Renovation Passport elements into EPC schemes. It thereby aims to stimulate the use of next generation EPCs as a central tool to promote deep and, where necessary, stepwise renovation of the EU building stock and achieve a highly efficient and decarbonised building stock by 2050.</p> <p>iBRoad2EPC build up on the results of the iBRoad project (2017-2020) which developed, tested and delivered a model for the Building Renovation Passport supporting single-family home-owners with personalised advice to facilitate stepwise deep renovation. iBRoad2EPC aims to bridge the Building Renovation Passport with the EPC, and expand, improve and broaden their format and joint scope to consider additional features and become applicable also to multi-family and public buildings.</p> <p>This will be achieved by upgrading EPC schemes with the integration of customised recommendations for deep (stepwise) renovation, and by offering a ready-to-use framework (including software, training, and surrounding policy instruments) for its adoption across Europe</p> <p>The aim of iBRoad2EPC is to bring existing EPCs closer to an individual building decarbonisation roadmap and introduce a focus on the long-term objective of decarbonisation by:</p> <ul style="list-style-type: none"> • Including improvement measures in a specific sequence to avoid lock-in effects • Ensuring that every measure implemented is part of a comprehensive renovation strategy • Complying with future regulatory and financial requirements, e.g., mandatory Minimum Energy Performance Standards (MEPS), mortgage portfolio standards or the EU taxonomy regulation • Presenting the recommendations in a way that can easily be understood by the end-user and consider the user's needs. <p>In addition, the project will enhance the information provided in the EPC by introducing the onsite visit as a mandatory element and incorporating features covering complementary dimensions, such as comfort and indoor environmental quality, the smart dimension of buildings, and others.</p> <p>The aim is to improve reliability, usefulness and effectiveness, thereby establishing the next generation of EPCs that will support Europe's decarbonisation ambitions while improving conditions for building occupants.</p>
<p>Objectives of the iBRoad2EPC training</p>	<p>The iBRoad2EPC training is designed to become an integral part of the official EPC training provided or envisaged in the country. It aims to enhance existing or upcoming training schemes by:</p> <ul style="list-style-type: none"> • preparing the energy experts for the obligatory onsite visit,

	<ul style="list-style-type: none"> • making energy experts familiar with the long term and step wise renovation and target oriented approach, • guiding energy experts in the use and issue of improved, reliable, tailor-made and future proof recommendations that are consistent with long term targets and MEPS of the respective country • introducing energy experts in the methodology for combining EPCs with the evaluation of other indicators, such as the Smart Readiness Indicator and the Indoor Environmental Quality of the buildings. <p>At the end of the training, participants should be able to issue a combined EPC and iBRoad2EPC according to the level of qualification already acquired through the national training scheme.</p> <p>After the training, all participants are expected to evaluate the training material and procedure based on an evaluation questionnaire.</p>
<p>Objectives of the iBRoad2EPC field test</p>	<p>iBRoad2EPC is designed to become an integral part of the EPC. The iBRoad2EPC field test is designed to test the iBRoad2EPC methodology and tool in practical use. Therefore, the iBRoad2EPC issuing procedure is intended as an extension/enhancement of the current EPC issuing methodology. Each one of the selected and iBRoad2EPC trained energy auditors/experts is assigned to test the iBRoad2EPC methodology through a mandatory onsite visit and to issue the iBRoad2EPC for real buildings (multi-family or public) parallel to issuing the relevant EPC. Energy experts will thereby also provide suitable long term and target oriented recommendations and additional information (e.g., SRI, IEQ) to building owners. After completion of the field test, participants´ (energy experts and building owners) experience is collected via an evaluation questionnaire in order to implement or propose optimisations. The field test opens the doors to an official launch of the iBRoad2EPC or relevant tools at specific country contexts.</p> <p>Each energy expert is expected to test iBRoad2EPC at approx. X buildings selected by or in consultation with the iBRoad2EPC pilot country leader.</p>
<p>Prerequisites that must be met by the energy experts:</p>	<p>Prerequisites:</p> <p>Recognised qualification (background, experience, exam) for issuing EPCs as defined by the national context and for the specific building typologies to be tested (registered in a respective certification system (if present))</p> <p>Completed attendance of relevant (national) training on issuing EPCs (even if voluntary)</p> <p>At least 7 EPCs completed</p> <p>No notification or sanction related to EPC quality on their records</p> <p>Considered an advantage:</p> <p>Additional work experience as energy experts or in related fields</p> <p>Knowledge of English</p> <p>Good network</p>

Tasks by the energy experts:	<p>Willingness to take part in the experimental project iBRoad2EPC which envisages to enhance current EPC schemes</p> <p>Attend the relevant training in the period from March to April 2023</p> <p>Attend the field test from April to November 2023, i.e., complete a combined EPC/iBRoad2EPC site visit to examine X number of Y type of buildings and issue both EPC and iBRoad2EPC for each of these buildings</p> <p>Take part in the relevant evaluation process (questionnaires) concerning the iBRoad2EPC concept, methodology and tools, the training and the field test</p> <p>Agree with the publication of field-test-results and evaluation results (anonymised)</p>
Selection procedure	To be filled in by each pilot country partner
Benefits for the energy experts:	<p>The energy experts participate in an experimental European research project, thereby contributing to enhancing relevant national and EU policy and schemes. They will be in the privileged position to gain a forerunner understanding of and experience with the national and EU policy developments, as well as the principles of long term and step wise renovation, long term targets and MEPS and therefore will come to be one step ahead of their peers. Experts who take part at the field test receive a standard compensation fee.</p>
Specification for the building type:	<p>As a total in six iBRoad2EPC pilot countries, approx. 58 case buildings (36 public, 22 residential) will be tested. In [country] we have to test [number and type of buildings]. The test includes a mandatory on-site visit for assessment and issuing both an EPC and the iBRoad2EPC. The buildings will be selected by [please explain procedure according to your proposed approach]. Building owners must:</p> <p>Require an EPC</p> <p>Allow the EPC certifier/energy auditor to examine the present state of their building during and around the onsite visit and supply them with required information about their building</p> <p>Allow the EPC certifier/energy auditor to test and explain the iBRoad2EPC parallel to issuing the EPC</p> <p>Consent and take part in the evaluation: Report the experiences with the iBRoad2EPC in a questionnaire</p> <p>Sign a GDPR consent agreement</p> <p>Agree with the publication of field-test-results (anonymised): Building owners agree that the iBRoad2EPC issued for their building, basic information and photographs of their building are published anonymously within the context of the iBRoad2EPC reports and dissemination process</p>
Time schedule	<p>The training for the field test will take place from March to April 2023. The testing will take place during April to November 2023.</p> <p>After the test, an evaluation takes place. You and the building owners will be asked about your experiences, suggestions for improvement, etc.</p>

ANNEX 2 – TRAINING IMPLEMENTATION

This annex describes the framework conditions for and the actual organisation of the expert trainings in each partner country. Thus, it provides more detailed information complementing chapter ‘Training Evaluation’. The results are based on interviews with the country partners and on statements made by the survey participants.

Bulgaria

The energy experts’ trainings for iBRoad2EPC in Bulgaria have been conducted on 14th June and 12th October 2023 by the Foundation Centre for Energy Efficiency EnEffect. The training was held online. A total 20 participants were trained for approximately three hours. The potential participants were contacted in multiple ways: per telephone call and e-mail but also during EPC auditors’ trainings and during the annual meeting of the Association of Bulgarian Energy Agencies ABEA. Eleven of the participants answered the evaluation questionnaire. The following evaluation is based on the answered questionnaires.

All participants hold a master’s degree, two of them own a PhD (see Figure 17). As for the field of education, there were six mechanical and three electrical engineers along with three civil engineers. (see Figure 18).

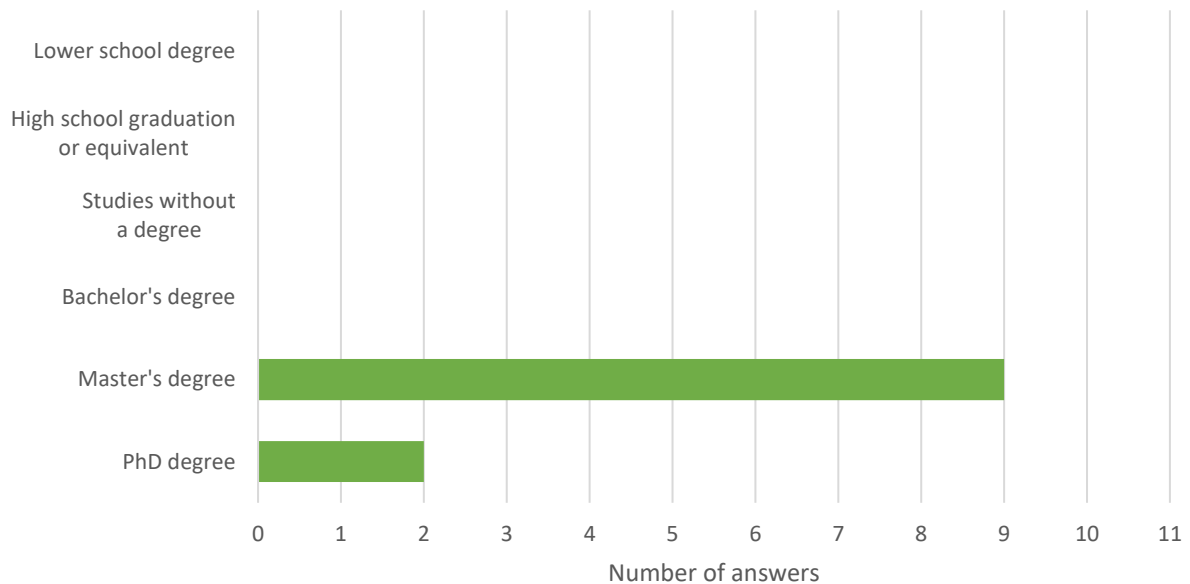


Figure 17: Highest educational qualification of the Bulgarian participants. n=11

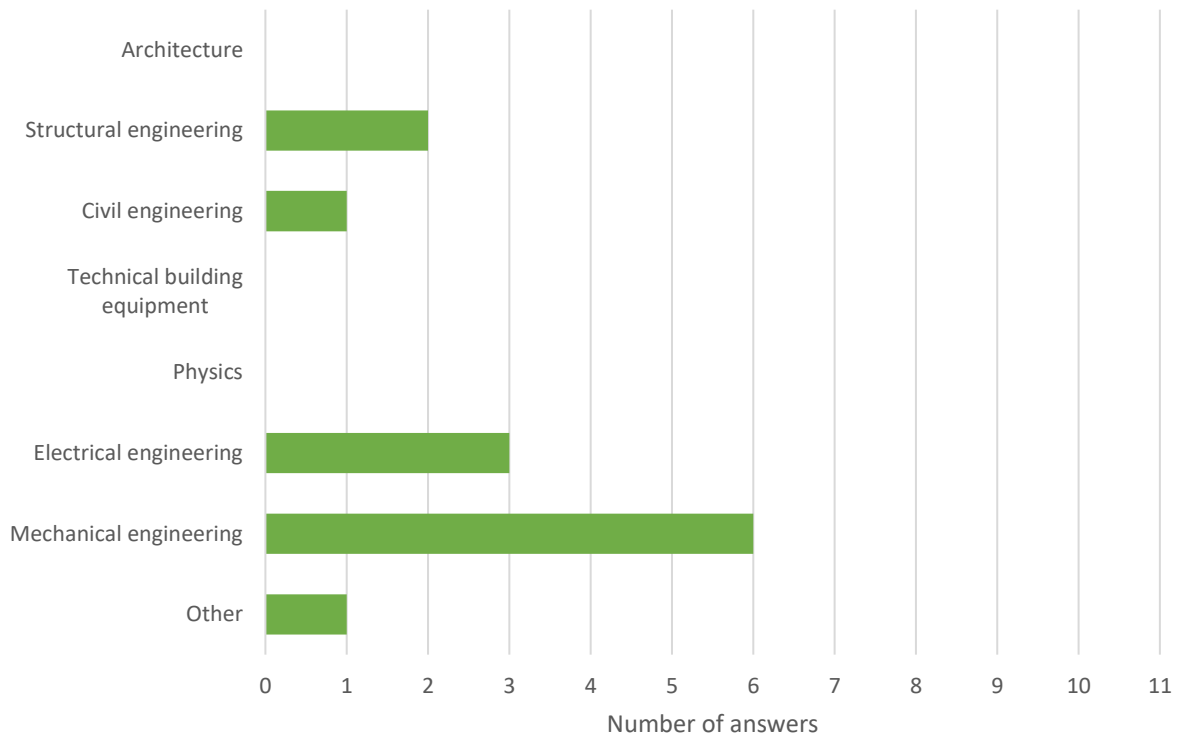


Figure 18: Educational fields of the Bulgarian participants. n=11

Most participants are very experienced, with six of them been issuing EPC’s for more than three years (see Figure 19) but there were also three participants that had less than six months of EPC issuing experience. Aside from that, four participants had already issued more than 10 EPCs at the date of the training (see Figure 20) in comparison to five which said they had issued less than 10 EPCs. Three of the participants had previously developed a long-term renovation strategy for a building.

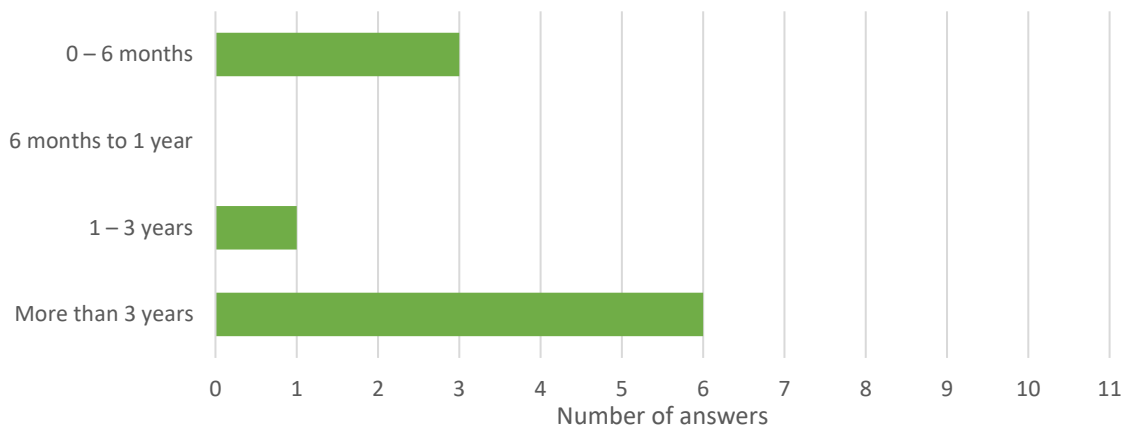


Figure 19: EPC issuing experience of the Bulgarian participants. n=11

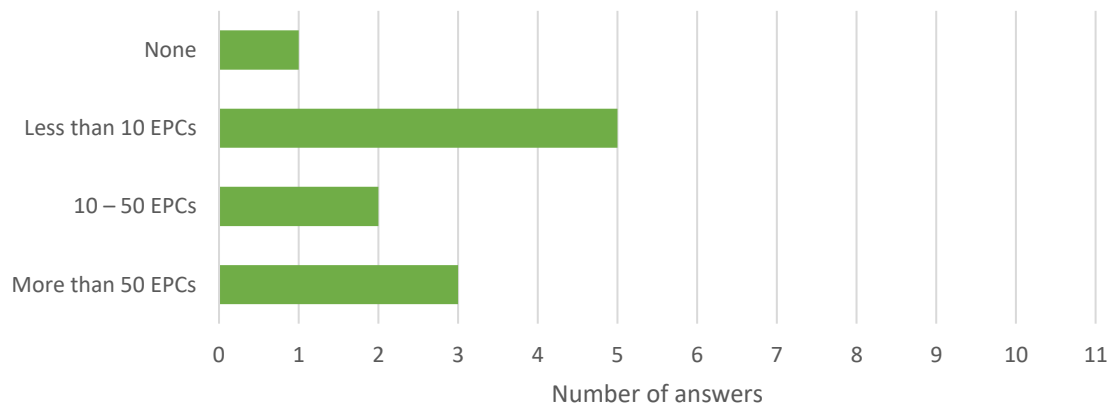


Figure 20: Number EPC's that the Bulgarian participants had issued at the date of the training. n=11

The training has been held in Bulgarian and all the training material has been translated. The training agenda consisted of five parts. The complete agenda is shown in Figure 21. The main part of the training contained steps to issue an iBRoad2EPC and hands-on practice with the Assistant and lasted about two hours.

13:00-13:15	What is iBRoad2EPC?
13:15-14:00	Five steps to issue the iBRoad2EPC
14:00-15:00	iBRoad2EPC Assistant introduction and practice
15:00-15:30	Additional functionalities of iBRoad2EPC
15:30-15:45	Questions and answers

Figure 21: Agenda of the iBRoad2EPC training in Bulgaria.

Greece

The energy experts' training for the iBRoad2EPC in Greece has been conducted in two separate sessions, on June 7th and 16th 2023, by INZEB. Furthermore, a live demonstration session on the iBRoad2EPC Assistant was also provided to interested experts which had attended either of the two previously mentioned session, to further enhance their learning experience. The independent online trainings, with a total 66 participants, lasted approximately four and a half hours each. The energy experts have been addressed via INZEB's media channels via an open call. During the first date, 21 class C experts who are experienced EPC issuers for buildings of all uses were trained. The second date was attended by 45 participants of all expert classes. 31 of the participants answered the evaluation questionnaire. The following evaluation is based on the answered questionnaires.

16 participants hold a bachelor's degree and 14 a Master's Degree. One participant holds a PhD Degree (see Figure 22). As for the field of education, one third of the participants has a background in Civil Engineering, six originate from Architecture, seven from Mechanical Engineering and four from other fields of engineering (see Figure 23).

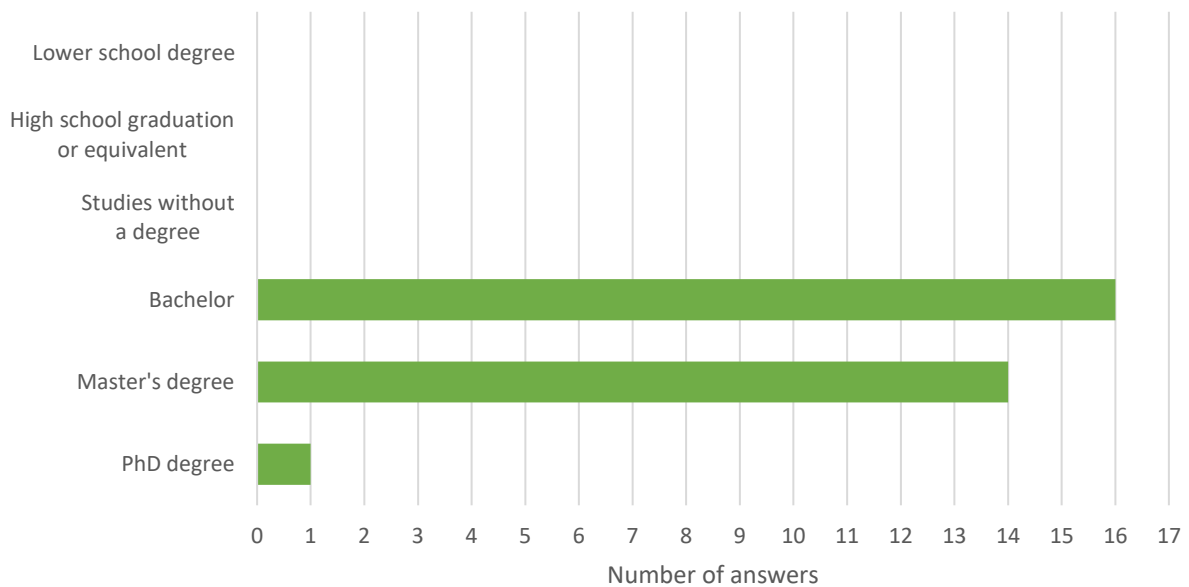


Figure 22: Highest educational qualification of the Greek participants. $n=31$

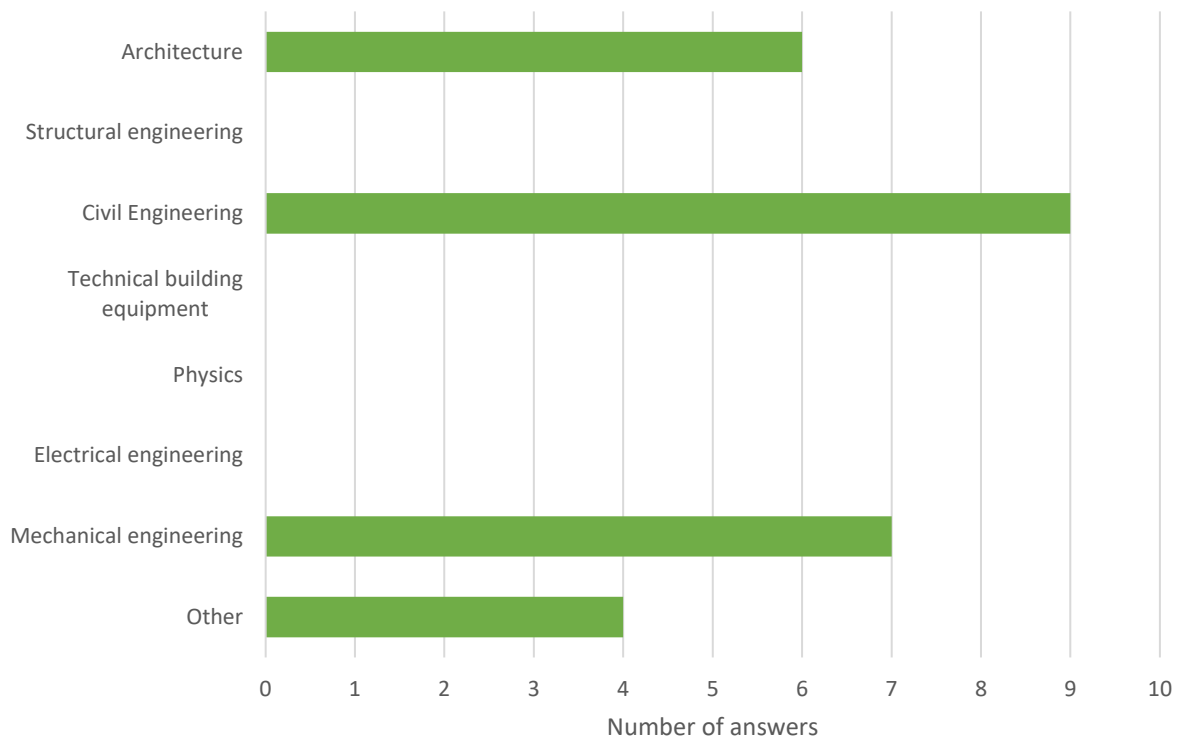


Figure 23: Educational fields of the Greek participants. n=31

Most participants are very experienced, 27 of them have been issuing EPC’s for more than three years (see Figure 24). Aside from those, 22 participants had already issued more than 50 EPCs at the date of the training (see Figure 25). Six of the participants had previously developed a long-term renovation strategy for residential as well as public buildings.

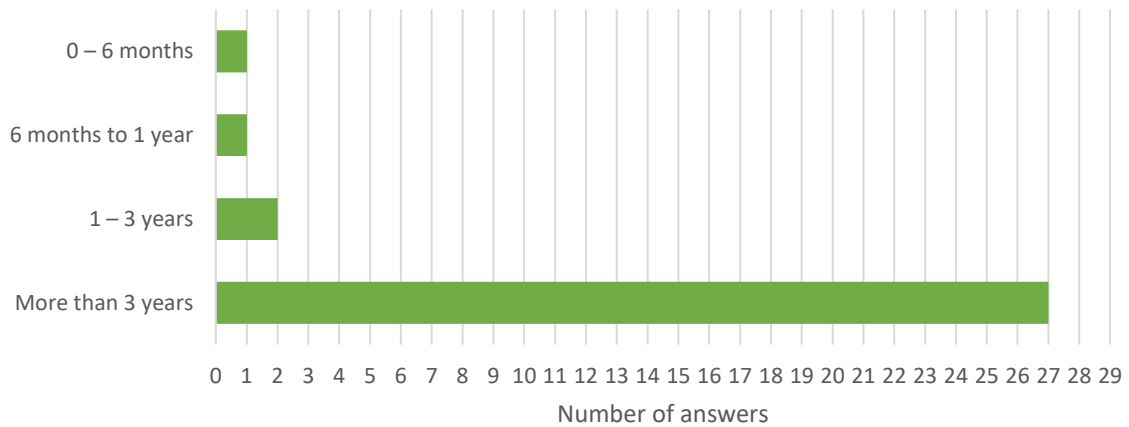


Figure 24: EPC issuing experience of the Greek participants. n=31

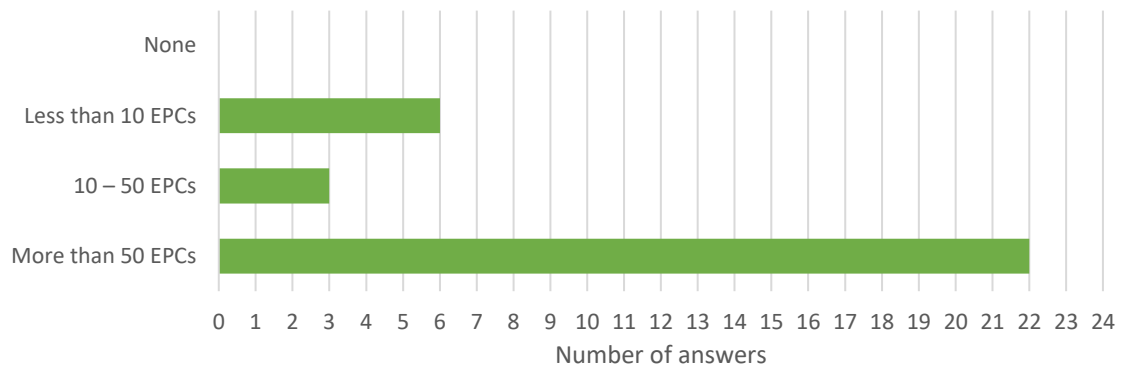


Figure 25: Number of EPC's that the Greek participants had issued at the date of the training. $n=31$

The training was held in Greek and only the training evaluation questionnaire was translated. The handbook, on-site visit checklist and on-site visit template haven't been translated. For the training in Greece, the experts were not provided with the iBRoad2EPC handbook in advance of the training. The training agenda contained six parts, which are: general introduction, iBRoad2EPC introduction and steps, iBRoad2EPC assistant, iBRoad2EPC additional functions (IEQ, SRI), practice and field test introduction. The complete agenda is shown in Figure 26. The main part of the training contained the iBRoad2EPC introduction, steps and Assistant and took about two hours. One and a half hours have been scheduled for the exercising on a case study and the field test introduction. For the case study, an existing EPC was uploaded into the Assistant and all steps have been demonstrated using this example. Information on the field test and the buildings to be tested were shared with all participants and the time-planning was explained. At the end of the training, the participants received a certificate as proof of attendance.

14:00-14:10	Welcome & objective of the iBRoad2EPC training program
14:10-14:30	The revision of the Directive on the Energy Performance of Buildings (ERBO)
14:30-14:40	What is iBRoad2EPC
14:40-15:00	The 5 steps to conduct iBRoad2EPC
15:00-15:15	Questions
15:15-15:30	Break
15:30-16:00	Introducing iBRoad2EPC Assistant
16:00-16:30	Additional iBRoad2EPC functions
16:30-16:45	Questions
16:45-17:00	Break
17:00-18:00	Practical exercises for the iBRoad2EPC
18:00-18:30	Field test in 10 buildings in Greece
18:30	Completion of the training

Figure 26: Agenda of the iBRoad2EPC training in Greece.

Poland

The energy experts' training for the iBRoad2EPC in Poland has been conducted on 20th July 2023 by the National Energy Conservation Agency KAPE. The potential participants were contacted via KAPE's energy transition department to cooperating auditors. The online training, with in total 10 participants, lasted approximately two hours. KAPE offered additional physical support for the less experienced auditors for questions about the EPC software. Five of the participants answered the evaluation questionnaire. The following evaluation is based on the answered questionnaires.

All participants have a bachelor's degree (see Figure 27). As for the field of education, they were all civil engineers (see Figure 28).

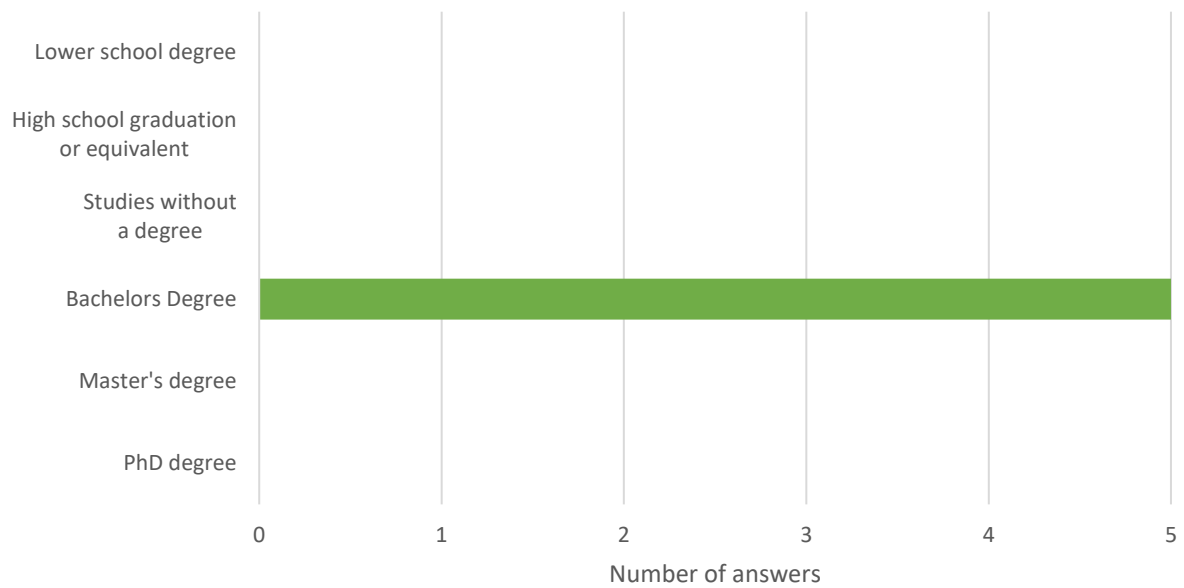


Figure 27: Highest educational qualification of the Polish participants. n=5

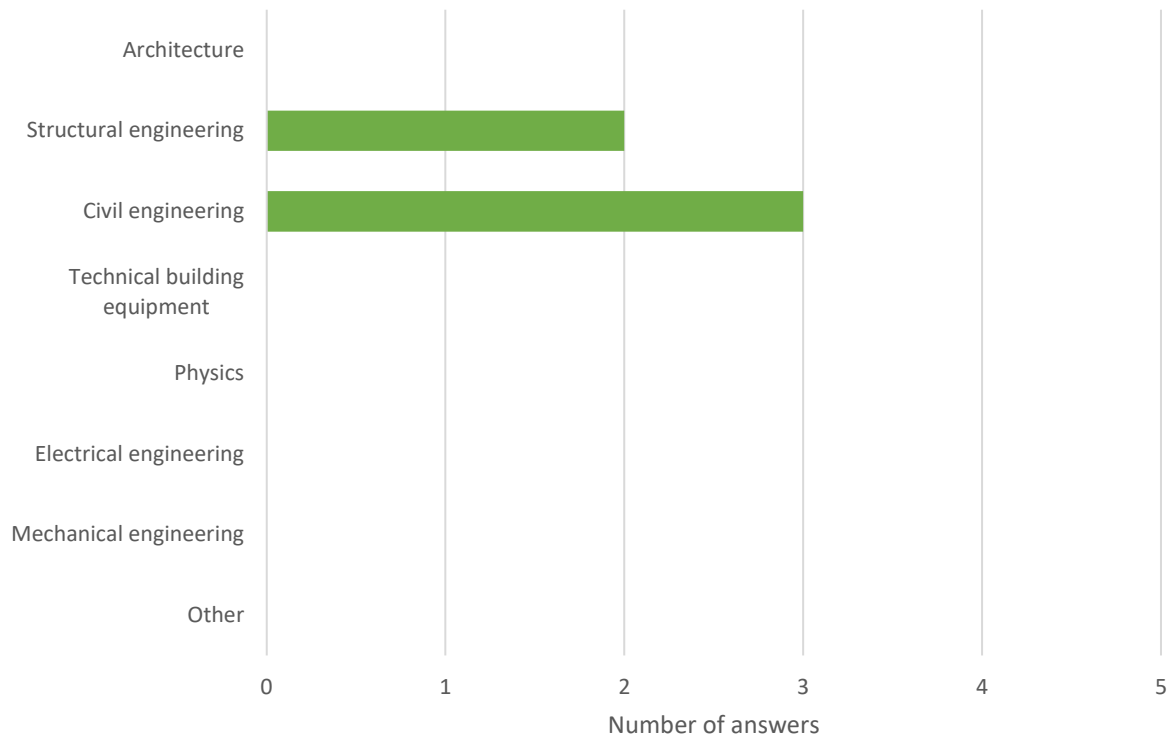


Figure 28: Educational fields of the Polish participants. n=5

The participants that answered the questionnaire had little experience in issuing EPCs, four of them had issued less than ten EPCs during less than six months (see Figure 29 and Figure 30). Three of them had previously developed a long-term renovation strategy for a building. All participants met the requirements for the training attendance.

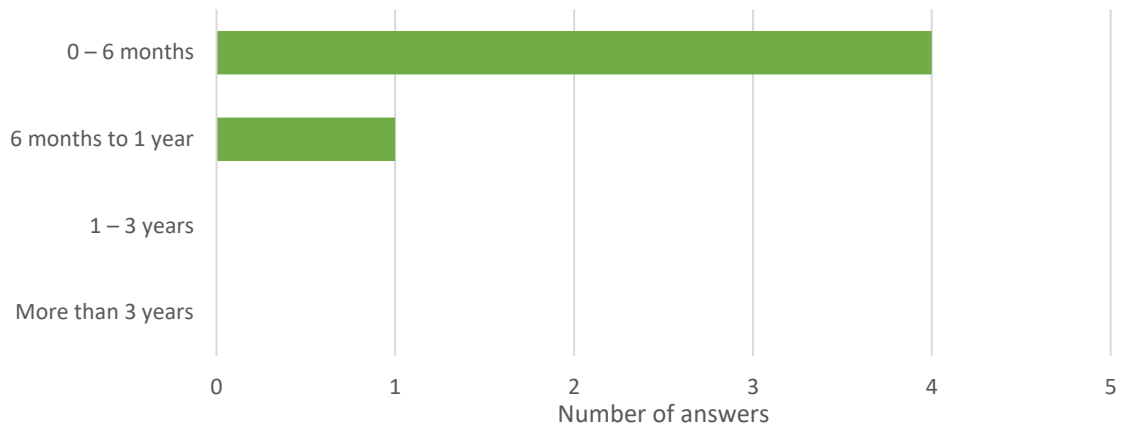


Figure 29: EPC issuing experience of the Polish participants. n=5

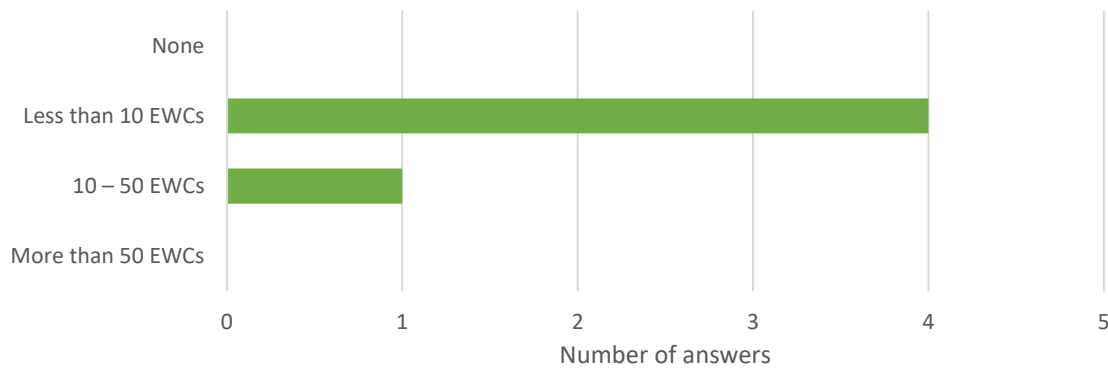


Figure 30: Number EPC's that the Polish participants had issued at the date of the training. n=5

The training has been held in Polish and all training material has been translated. The training agenda consisted of six parts, which included: introduction, iBRoad2EPC steps, iBRoad2EPC additional functions (IEQ, SRI), iBRoad2EPC assistant, questions, and summary. The complete agenda is shown in Figure 31. The main part of the training contained the iBRoad2EPC Assistant demo tour that lasted about one hour.

16:00-16:10	Short introduction to the iBRoad2EPC project
16:10-16:20	Steps for issuing an iBRoad2EPC
16:20-16:25	iBRoad2EPC on-site visit template
16:25-16:30	iBRoad2EPC handbook
16:35-16:45	SRI and IEQ modules
16:45-17:45	iBRoad2EPC Assistant demo tour
17:45-17:55	Questions
17:55-18:05	Wrap-up

Figure 31: Agenda of the iBRoad2EPC training in Poland.

Portugal

The energy experts' training for the iBRoad2EPC in Portugal has been conducted on June 7th and 16th 2023 by the Portuguese national Energy Agency ADENE. The potential participants were contacted via the ADENE network per telephone and e-mail but also during the EPC auditors training which will be connected to the official EPC training. Auditors that participated in iBRoad were also contacted. The online training, with a total 20 participants, lasted approximately four hours. 13 attendees were certified EPC issuers. Five of the participants answered the evaluation questionnaire. The following evaluation is based on the answered questionnaires.

All participants have a bachelor's degree, four also a Master's Degree and one participant is a PhD Candidate (see Figure 32). As for the field of education, two participants have a background in Civil Engineering, two in Architecture, one in Mechanical Engineering and one in Electrical Engineering (see Figure 33).

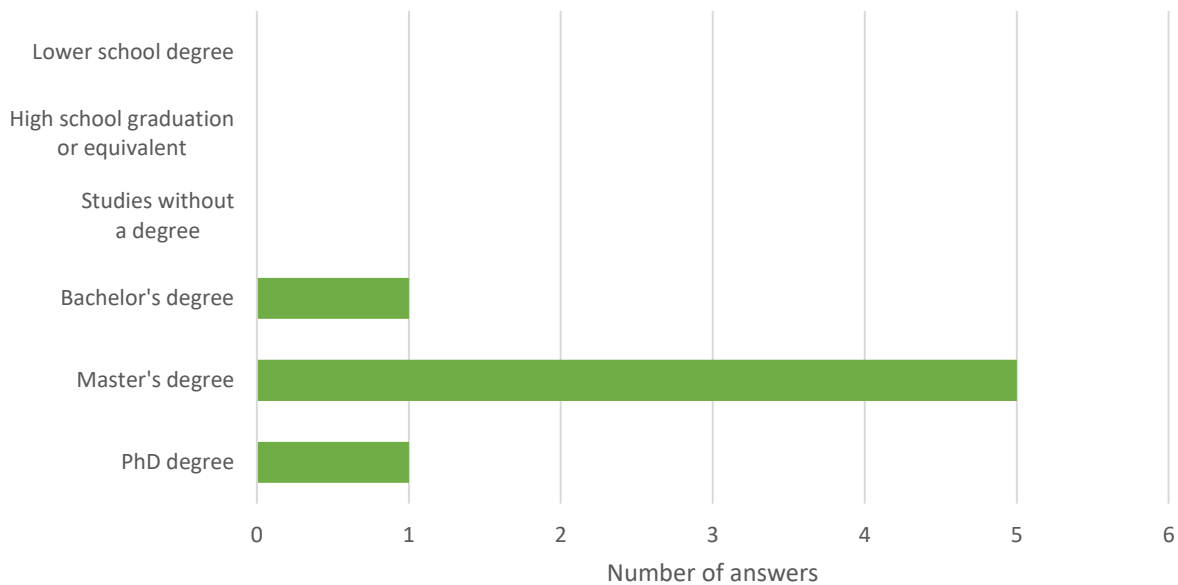


Figure 32: Highest educational qualification of the Portuguese participants. n=5

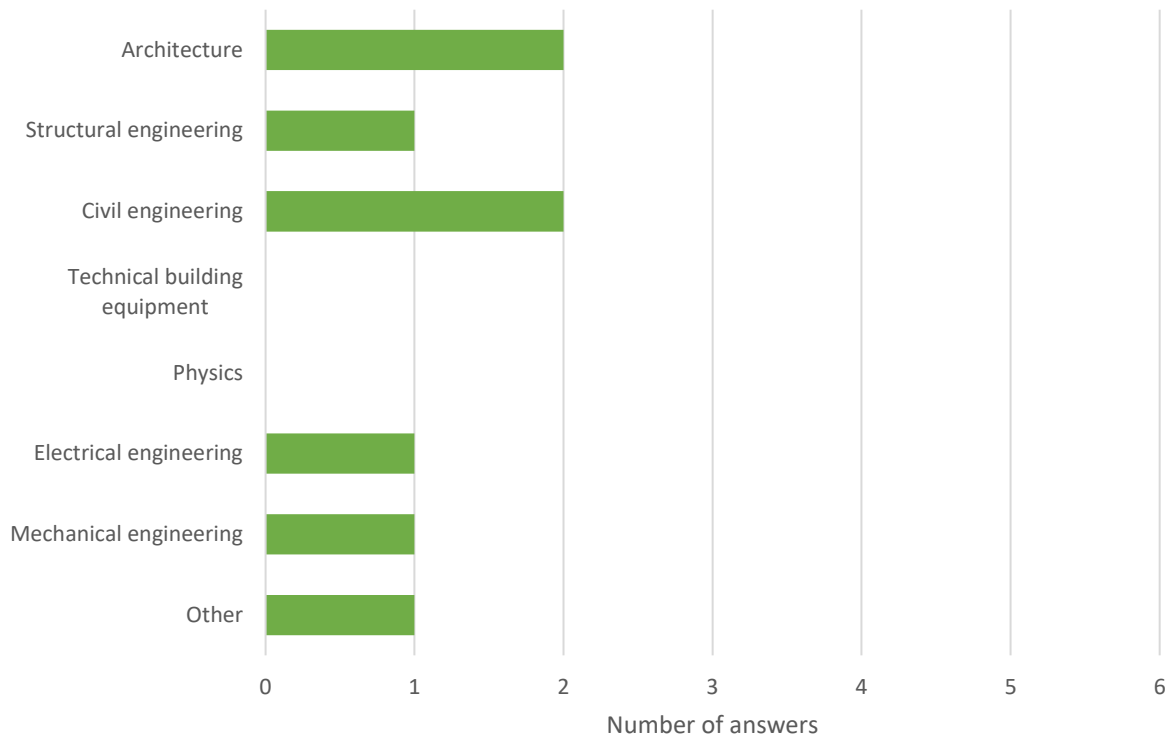


Figure 33: Educational fields of the Portuguese participants. n=5

Most participants were very experienced, four of them have been issuing EPC’s for more than three years (see Figure 34). Aside from that, three participants had already issued more than 50 EPCs at the date of the training (see Figure 35). One participant had previously developed a long-term renovation strategy for a building.

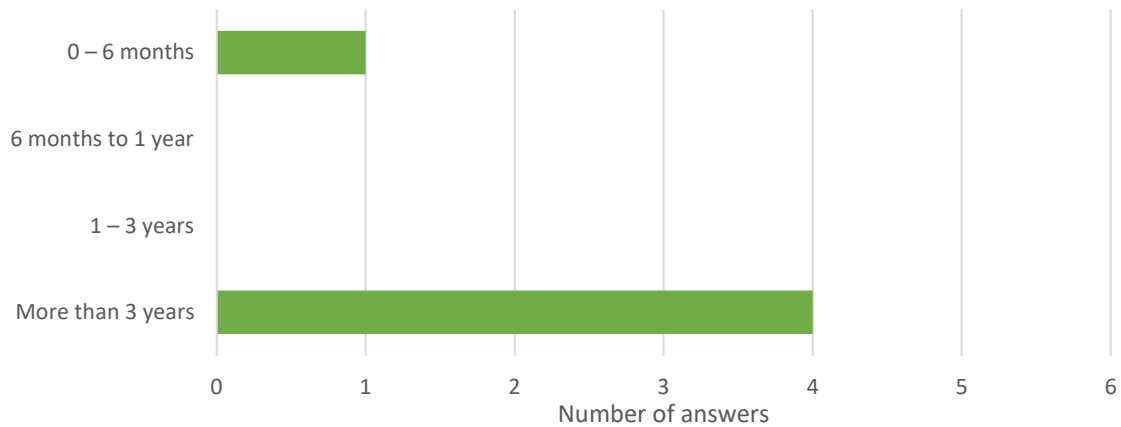


Figure 34: EPC issuing experience of the Portuguese participants. n=5

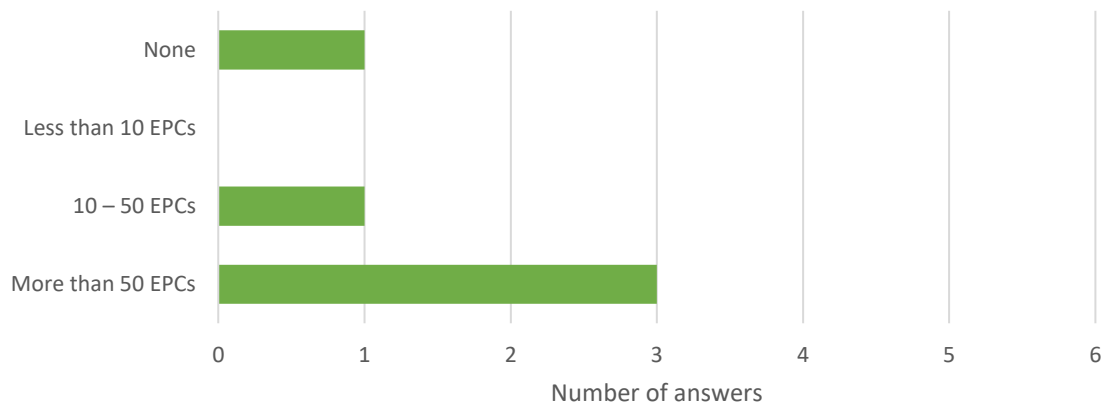


Figure 35: Number EPC's that the Portuguese participants had issued at the date of the training. n=5

The training has been held in Portuguese and only minor parts of the handbook, on-site visit checklist and on-site visit template have been translated. The training agenda consisted of seven parts, which are: general and iBRoad2EPC introduction, steps to issue an iBRoad2EPC, training material, a Quiz, additional features of iBRoad2EPC, iBRoad2EPC assistant, and finally next steps/wrap up. The complete agenda is shown in Figure 36. The main part of the training contained the iBRoad2EPC Assistant tour, and the IEQ/SRI modules. Both lasted about an hour. The participants received a certificate after the training.

14:00-14:15	Welcome
14:15-14:45	General introduction, directives, what is iBRoad2EPC?
14:45-15:05	Steps to prepare a building renovation passport/iBRoad2EPC Assistant
15:05-15:15	Training material
15:15-15:30	Quiz/Discussion
15:30-16:00	IEQ – Background from the X-tendo project and exploring the xcl-tool
16:00-16:30	SRI module – Overall methodology and exploring the xcl-tool/SRI2MARKET project
16:30-16:45	coffee break
16:45-17:30	Walking tour of the iBRoad2EPC Assistant
17:30-18:00	Discussion, training material, next steps, questionnaire, wrap up

Figure 36: Agenda of the iBRoad2EPC training in Portugal.

Romania

The energy experts' training for the iBRoad2EPC in Romania has been conducted on 28th July 2023 by the National Institute for Research and Development in Construction, Urbanism and Sustainable Territorial Development INCD URBAN-INCERC and lasted six hours. Potential participants were contacted directly as the iBRoad2EPC training took place in combination with an official EPC training but also via social media and e-mail. 28 of the 64 participants answered the evaluation questionnaire. The following evaluation is based on the answered questionnaires.

15 participants hold a bachelor's degree and 7 a Master's degree. Five participants hold a PhD degree (see Figure 37). As for the field of education, 13 participants have a background in Engineering or Architecture, and there were also three electrical engineers. Also, Romania was the only country with a chimney sweeper and other skilled craftsman (i.e. "construction installations") answering the questionnaire (see Figure 38).

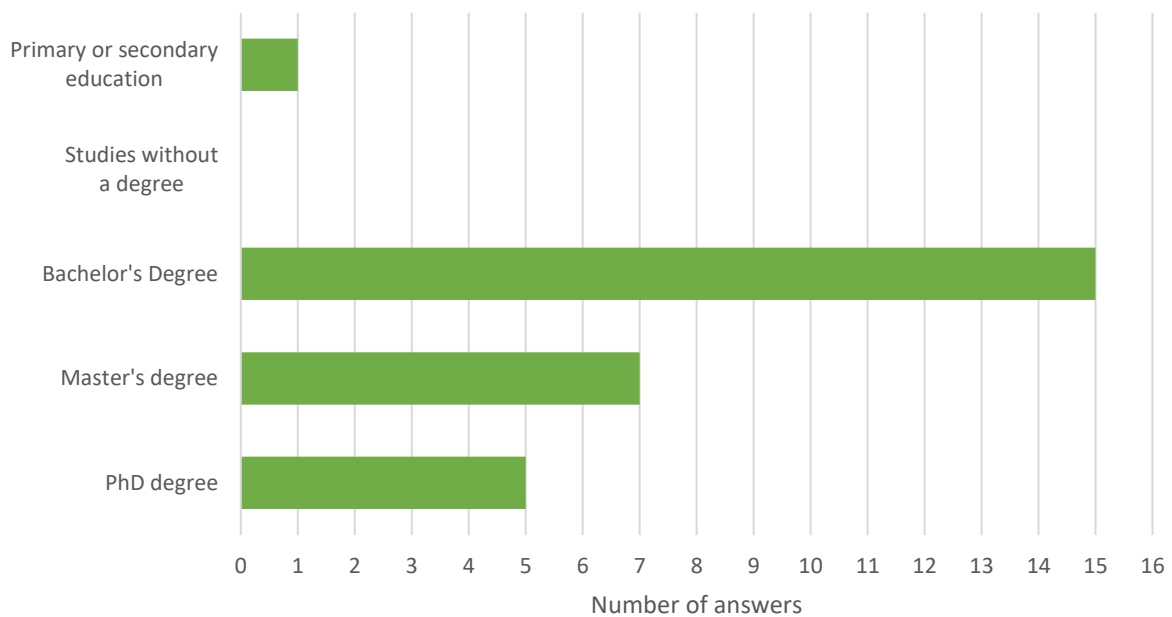


Figure 37: Highest educational qualification of the Romanian participants. n=28

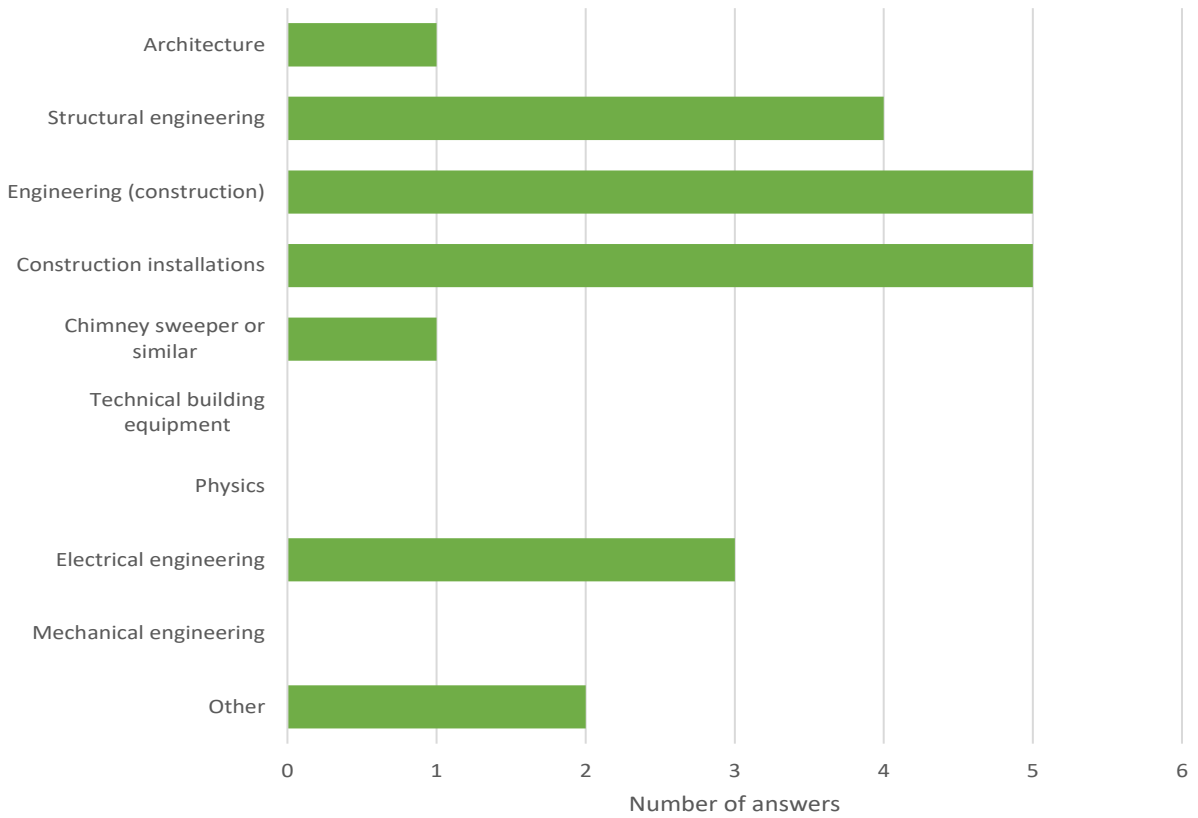


Figure 38: Educational fields of the Romanian participants. n=28

Most participants were very experienced, 25 have been issuing EPC’s for more than three years (see Figure 39). Aside from that, 24 participants had already issued more than 50 EPCs at the date of the training and there was only one participant who had not issued an EPC by then (see Figure 40). Furthermore, four of the participants had previously developed a long-term renovation strategy for a building.

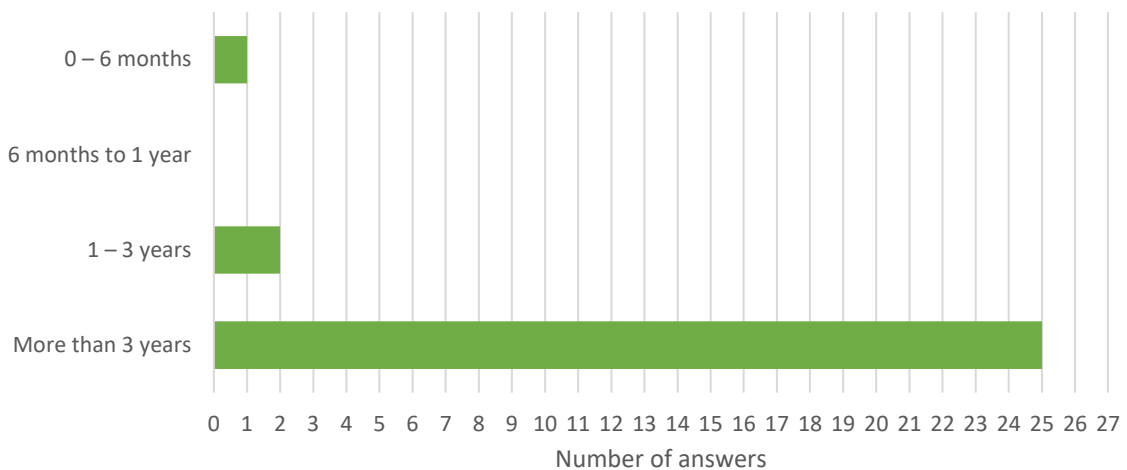


Figure 39: EPC issuing experience of the Romanian participants. n=28

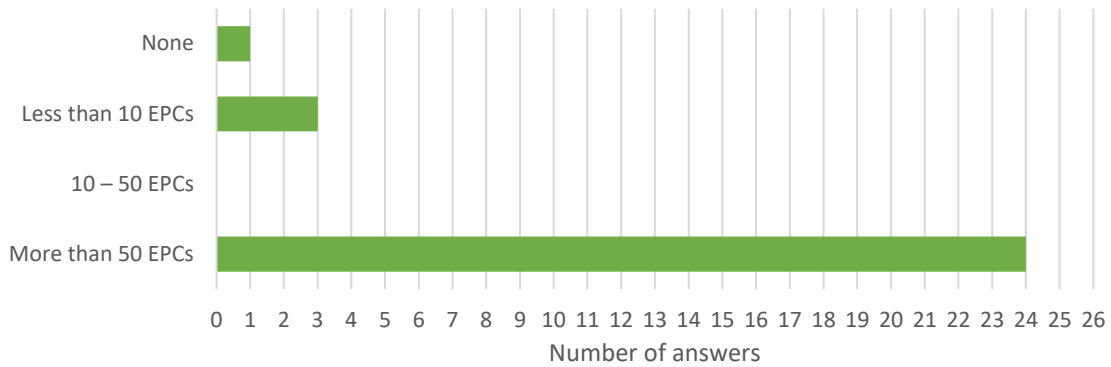


Figure 40: Number of EPC's that the Romanian participants had issued at the date of the training. n=28

The training took place in Romanian and the training evaluation questionnaire, handbook and presentation had been translated. The training agenda consisted of six parts, which were: general introduction, iBRoad2EPC presentation, iBRoad2EPC additional functions (IEQ, SRI), usage of the iBRoad2EPC Assistant and introduction of the field test introduction. The complete agenda is shown in Figure 41. The main part of the training contained the iBRoad2EPC introduction and practice within the Assistant and lasted about one and two hours, respectively. The participants received a certificate after the training.

11:00-10:10	Welcoming and course presentation
11:10-12:20	Presentation - iBRoad2EPC
	- What is iBRoad2EPC?
	- Five steps to issue an iBRoad2EPC
	- iBRoad2EPC Assistant
	- Additional features of iBRoad2EPC
12:20-12:30	Questions and answers
12:30-13:00	Break
13:00-13:30	Indoor Environmental Quality (IEQ) module
13:30-13:40	Questions and answers
13:40-14:10	Smart Readiness Indicator (SRI) module
14:10-14:20	Questions and answers
14:20-14:40	Break
14:40-16:40	Workshop – using iBRoad2EPC in practice
16:40-17:00	Conclusions and next steps for iBRoad2EPC testing

Figure 41: Agenda of the iBRoad2EPC training in Romania.

Spain

The energy experts' training for the iBRoad2EPC in Spain has been conducted in June 2023 by GBCe. The online training with a total 15 participants, 71 % of which were certified EPC issuers, lasted approximately four hours. At first, professionals that are accredited to certify buildings with the Spanish VERDE tool have been contacted directly by e-mail. In an extended call GBCe and Cíclica contacted other EPC auditors from the Ensache 21 organisation. The contacted persons have coincidentally been asked if they want to participate in the field test. 14 of the participants answered the evaluation questionnaire. The following evaluation is based on the answered questionnaires.

In Spain, one third of the participants holds a University Diploma, 47 % a Master's Degree and 20 % a PhD Degree (see Figure 42). As for the field of education, 17 % of the participants had a background in Civil Engineering, 76 % originated from Architecture, six % from Mechanical Engineering (see Figure 43).

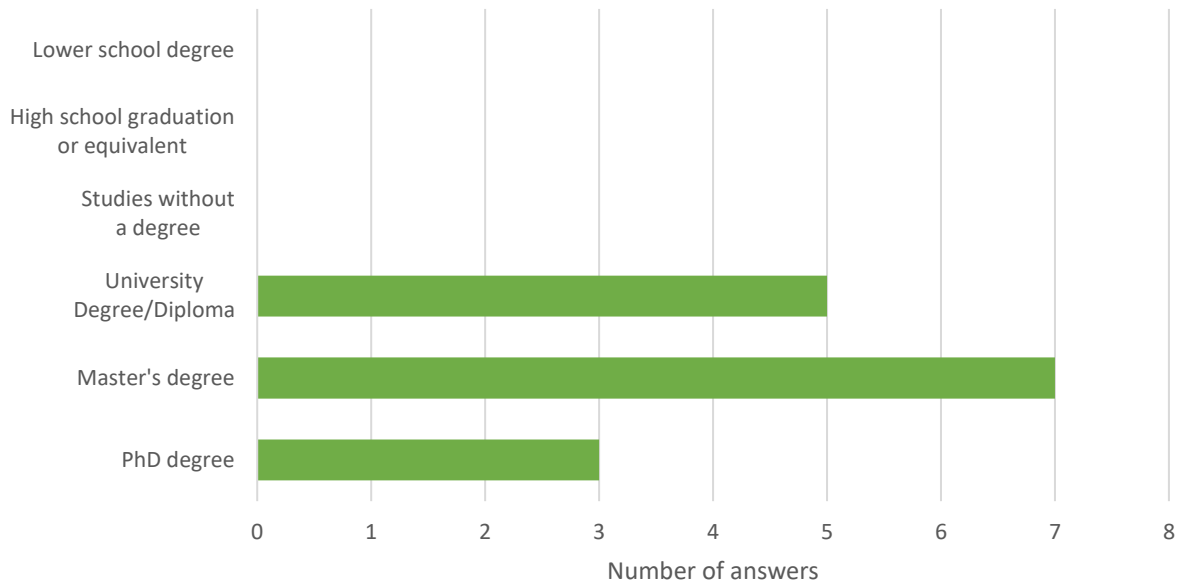


Figure 42: Highest educational qualification of the participants from Spain. n=14

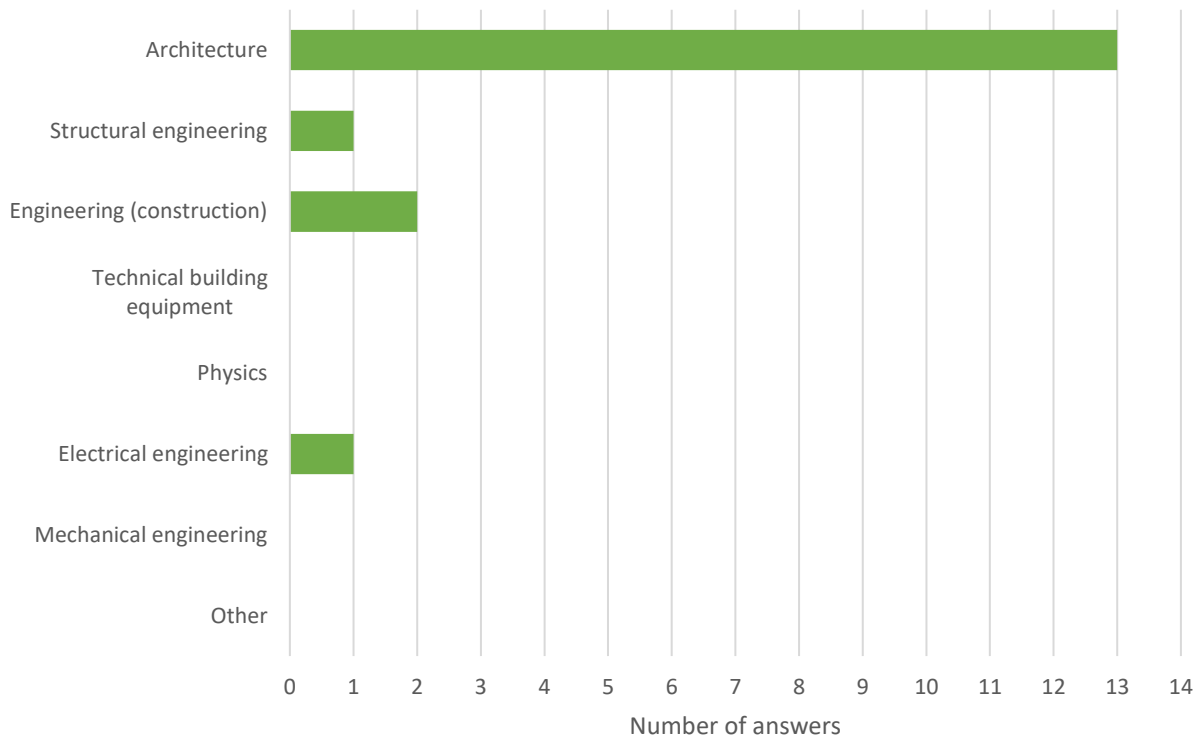


Figure 43: Educational fields of the participants from Spain. n=14

Most participants were very experienced, 10 of them have been issuing EPC’s for more than three years. Aside from that, six of the participants had already issued more than 50 EPCs at the date of the training. Four answered that they had issued 10 to 50 EPCs. Two participants hadn’t issued EPCs at all at this time (see Figure 44 and Figure 45). Three of the participants had previously developed a long-term renovation strategy for a building.

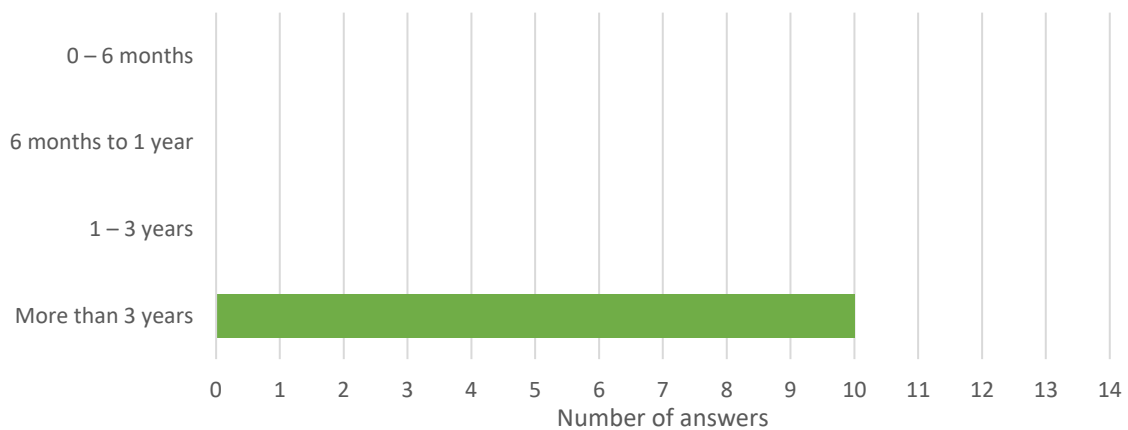


Figure 44: EPC issuing experience of the participants from Spain. n=14

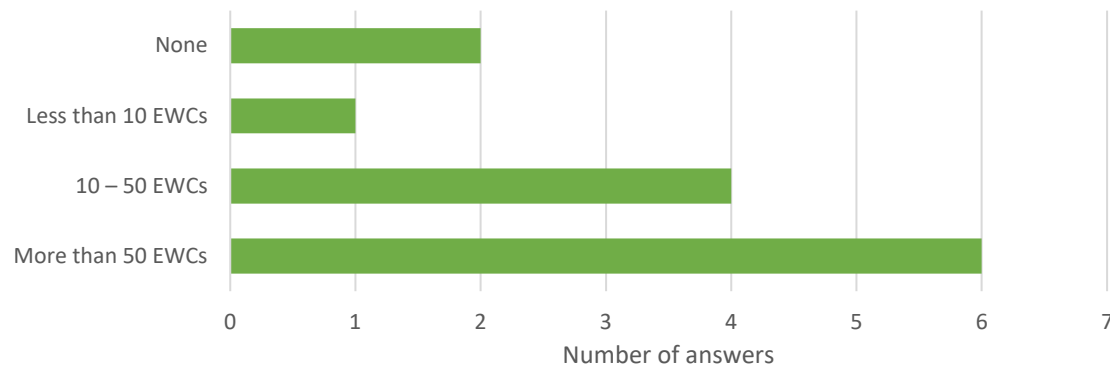


Figure 45: Number of EPC's that the participants from Spain had issued at the date of the training. $n=14$

The training has been held in Spanish. All training material as well as the training questionnaire had been translated to Spanish. The training agenda contained a theoretical part, which was covered by the original ifeu presentation translated into Spanish and a practical part where the participants have been taught how to use the iBRoad2EPC Assistant with a case study. Afterwards they had the chance to try it themselves. The complete agenda is shown in Figure 46. The participants didn't receive a certificate after the training.

10:00-10:10	Waiting for participants
10:10-10:20	iBRoad2EPC Project presentation
10:20-11:30	iBRoad2EPC Assistant presentation
11:30-11:45	Questions
11:45-12:15	Break
12:15-12:30	Practical exercise presentation
12:30-13:30	Practical exercise
13:30-14:00	Questions, comments, conclusions

Figure 46: Agenda of the iBRoad2EPC training in Spain

ANNEX 3 – EVALUATION RESULTS PER COUNTRY

This annex includes the detailed evaluation results of the training per country. The evaluation includes both the training organisation and the training material. The content and methodology of iBRoad2EPC are not evaluated in this report, even though experts were asked to give their opinion also on these matters. The results on the latter will be analysed and included in a separate upcoming report on the results of the field test. The present results are based on a survey among the energy experts.

Bulgaria

In Bulgaria, 11 out of the 20 participants answered the survey questions about the iBRoad2EPC training. Seven of them had already participated in one or two other trainings from EnEffekt and rated those training sessions solely very good.

As mentioned in Annex 2, the training in Bulgaria was conducted in an online format. All eleven participants said that this training format was just right. They also rated the overall organisation, presentation, and content of the training solely good or very good (see Figure 47 to Figure 49). The participants were also asked what they (dis-)liked about the trainings content. The presentation of the iBRoad2EPC concept (7 participants) and the IEQ/SRI module (6 participants) was the most liked part (see Figure 50). On the other hand, there were a few dislikes. Two participants said they did not like the part about the energy and cost module as well as the presentation of the handbook (see Figure 51).

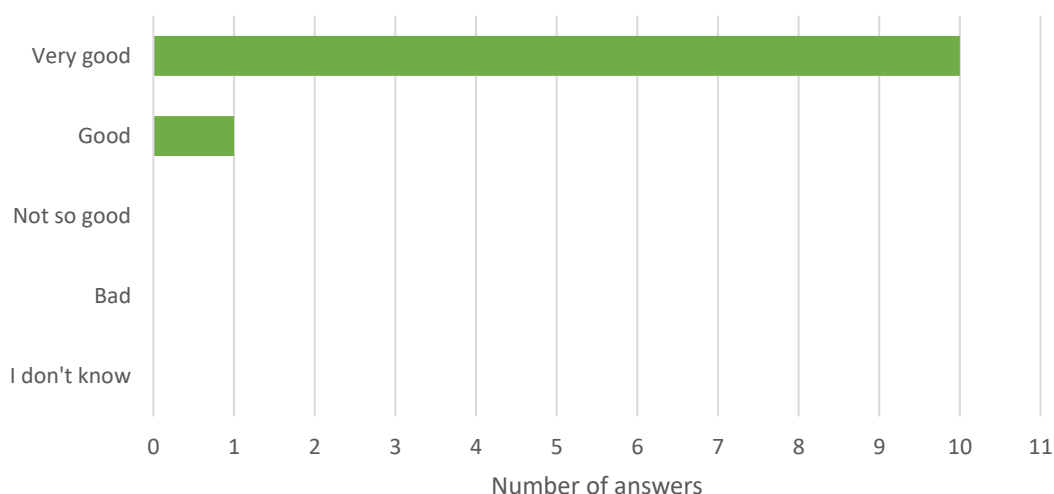


Figure 47: Rating of the Bulgarian trainings' organisation in general. n=11

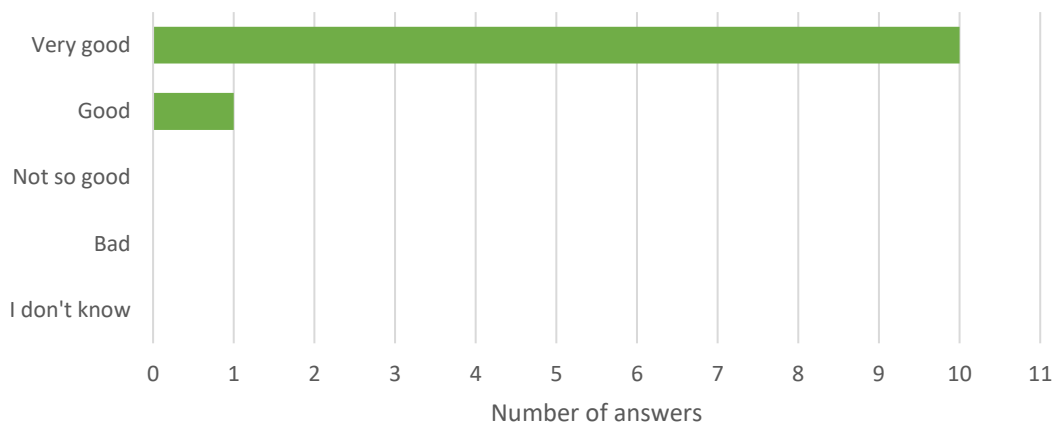


Figure 48: Rating of the Bulgarian presenters' capacity. n=11

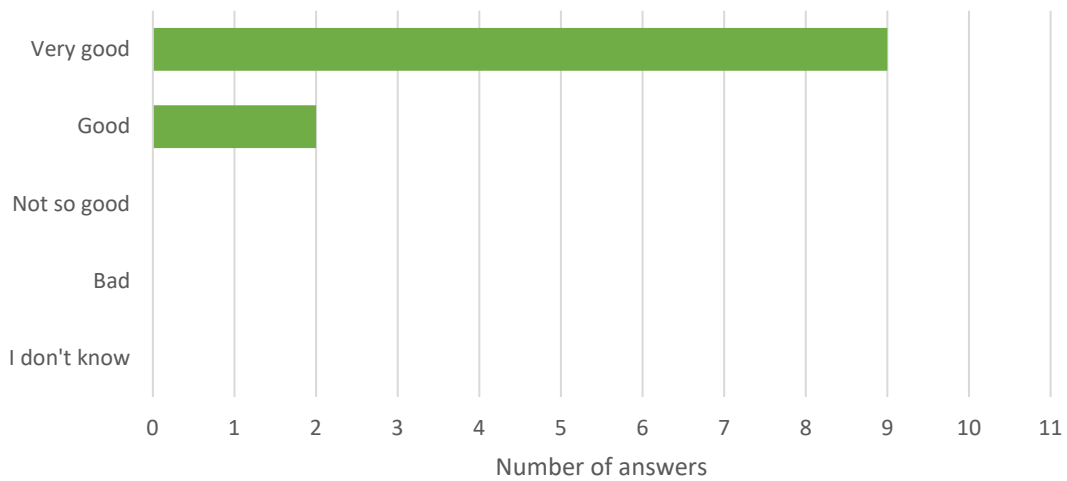


Figure 49: Rating of the Bulgarian trainings' content. n=11

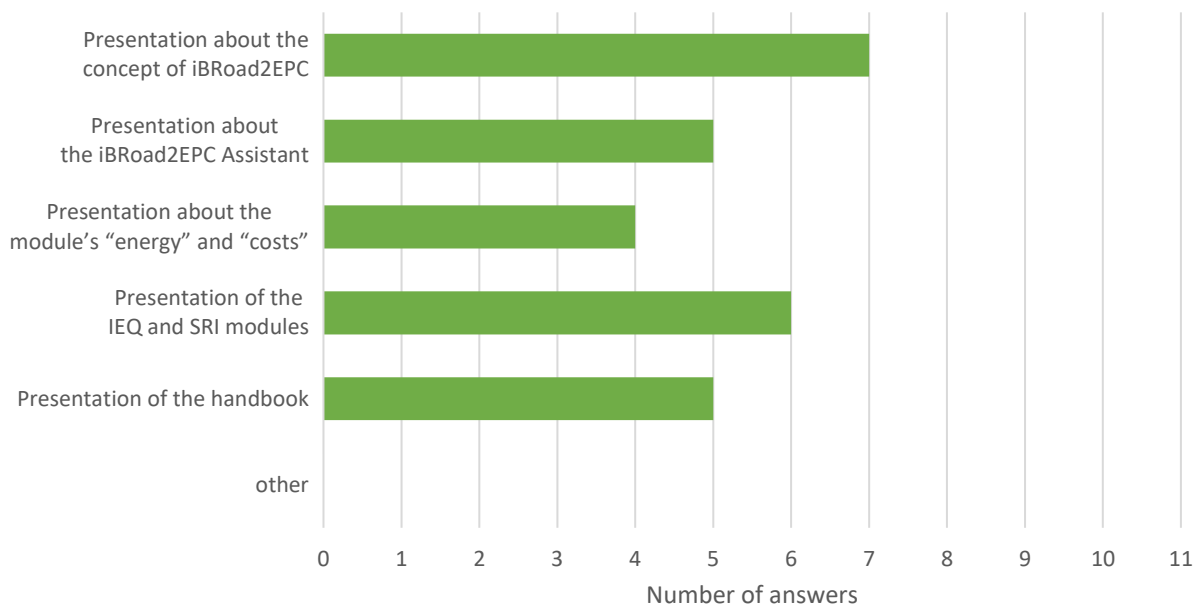


Figure 50: Answers to the question: What did you like about the training? in Bulgaria. n=11

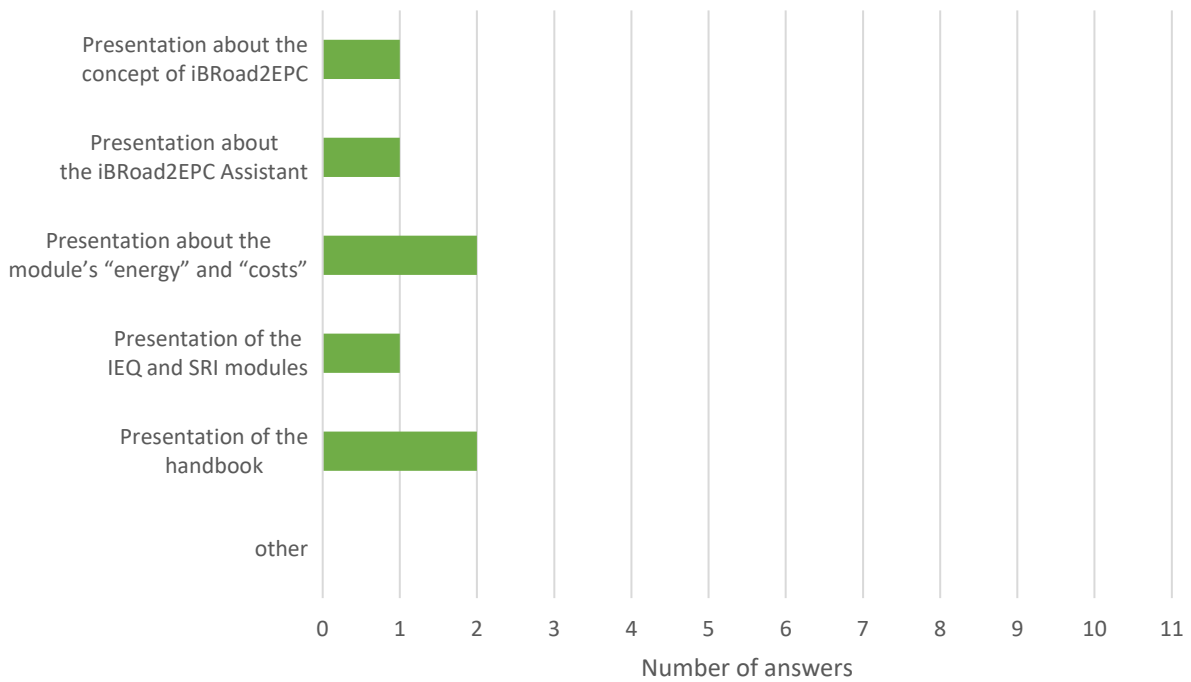


Figure 51: Answers to the question: What did you not like about the training? in Bulgaria. n=11

The trainings' length of 3 hours was rated just right by nine participants. One participant said the training was too short (see Figure 52).

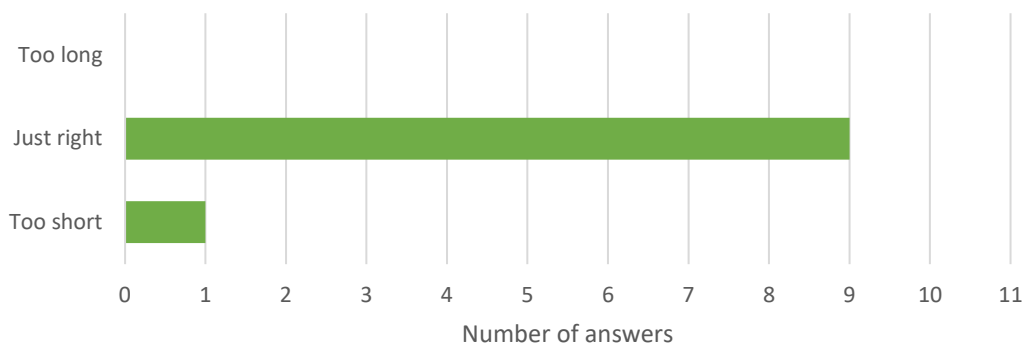


Figure 52: Rating of the Bulgarian trainings' length. n=11

Next to the trainings' organisation, the training material, i.e., the iBRoad2EPC presentation, handbook, on-site visit checklist and on-site visit blank template had to be evaluated by the participants. As shown in Figure 53, a lot of the participants were satisfied with the iBRoad2EPC presentation. Figure 53 allows a more detailed evaluation of this part of the training. Approx. half of the participants completely agreed that it was easy to understand, contained high quality, interesting and well-structured information and answered most of their questions about iBRoad2PC. One answered that the presentation was not that easy to understand. The participants were more likely to answer, "tend to agree" to the statement "the presentation was concise/to the point". Four completely agreed or tended to agree that the training was not concise whereas seven said that it was concise.

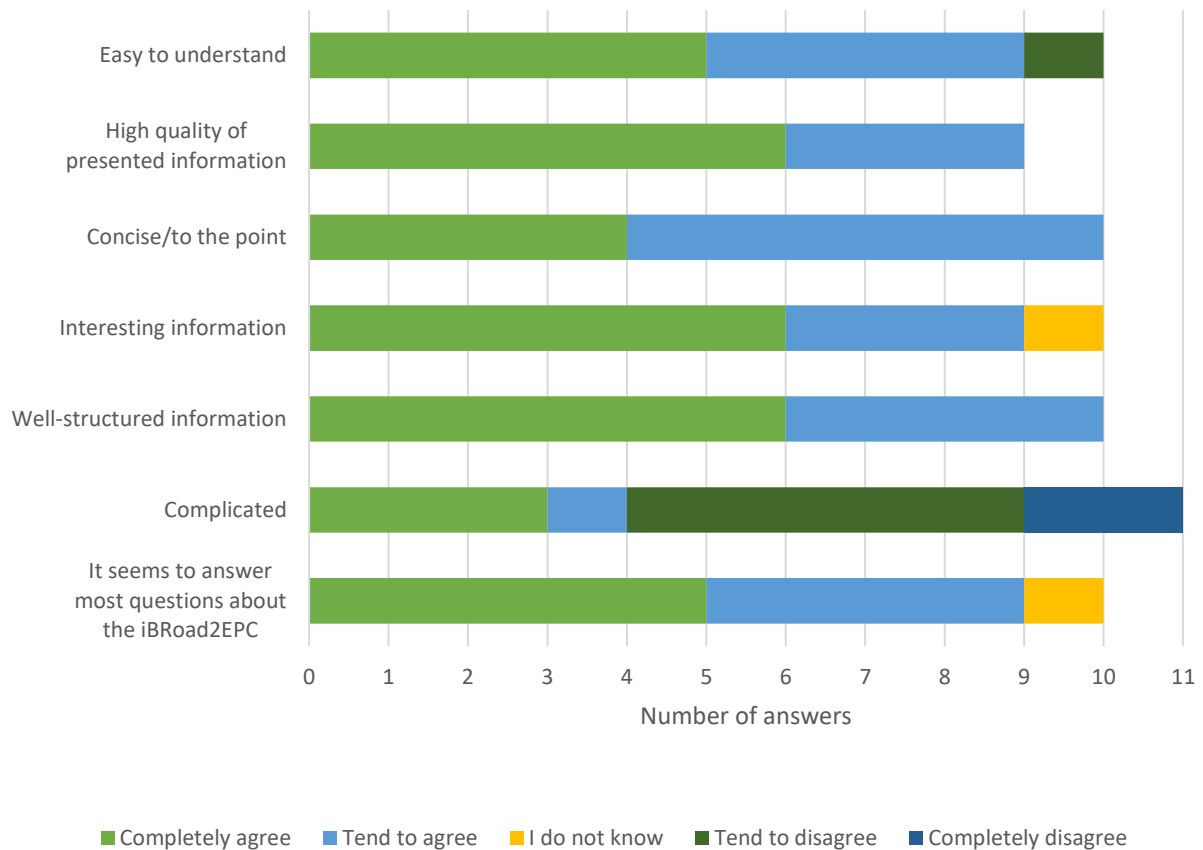


Figure 53: Answers to the question: What do you think about the iBRoad2EPC presentation? in Bulgaria. n=11

All participants in Bulgaria received the handbook before the training session. All except one totally or tend to agree that it was easy to understand. Furthermore, all participants totally or tend to agree that the handbook contained high quality, interesting and well-structured information, was concise and answered most of their questions about iBRoad2EPC. (see Figure 54).

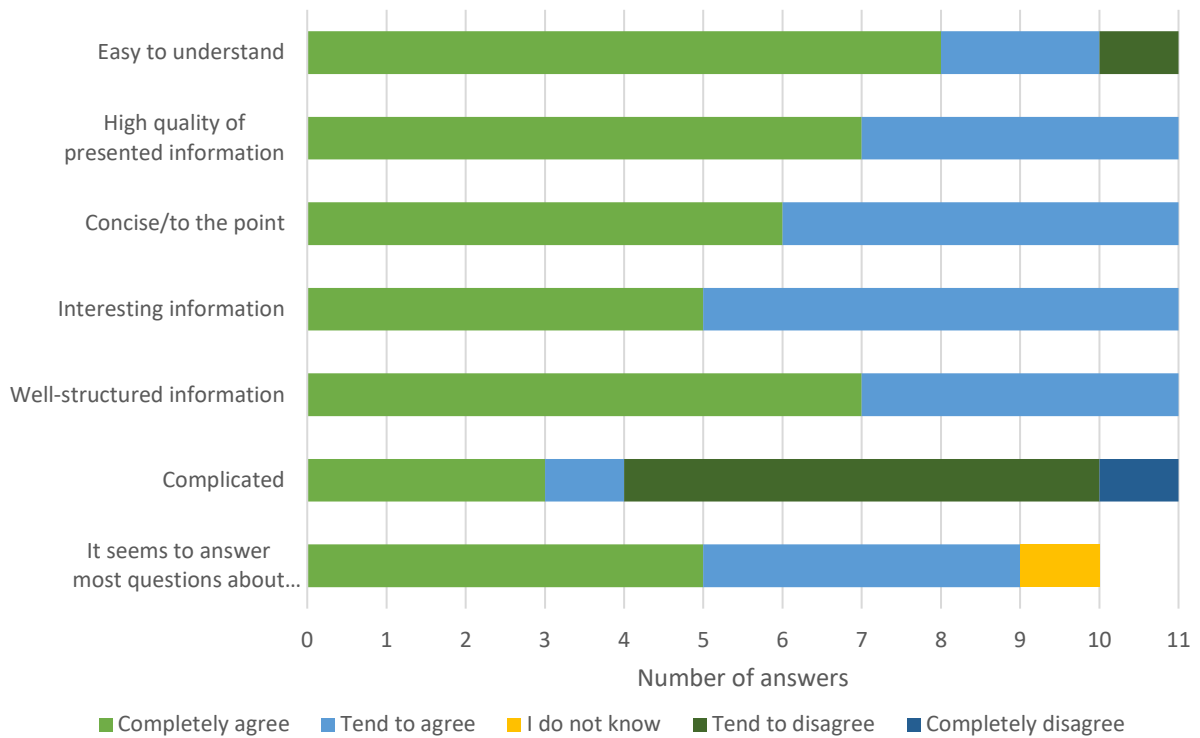


Figure 54: Answers to the question: "What do you think about the iBRoad2EPC handbook?" in Bulgaria. n=11

Ten participants received the on-site visit checklist and nine of them said they were able to understand it very well (see Figure 55)

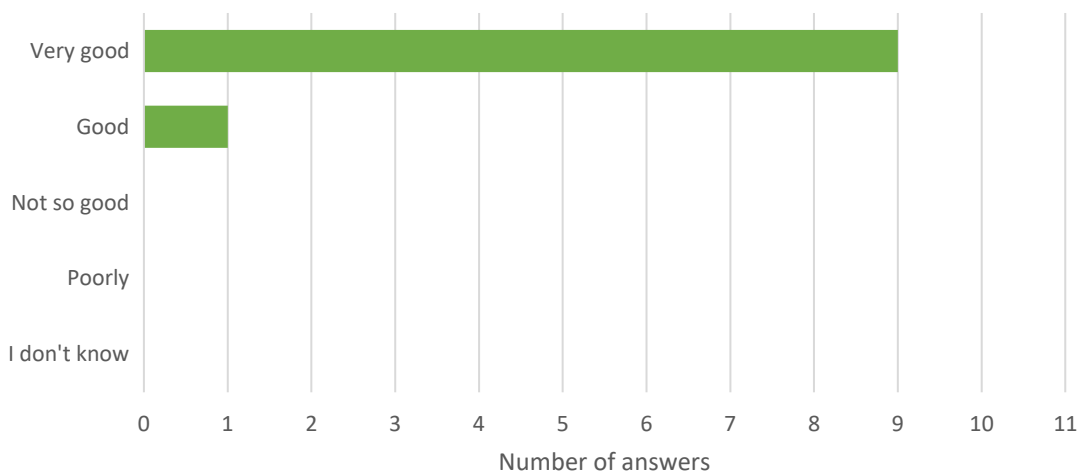


Figure 55: Extent to which the Bulgarian participants said that they understood the on-site visit checklist. n=11

The blank template for the on-site visit has been received by nine participants. Figure 56 shows that all of them had no issues in understanding it.

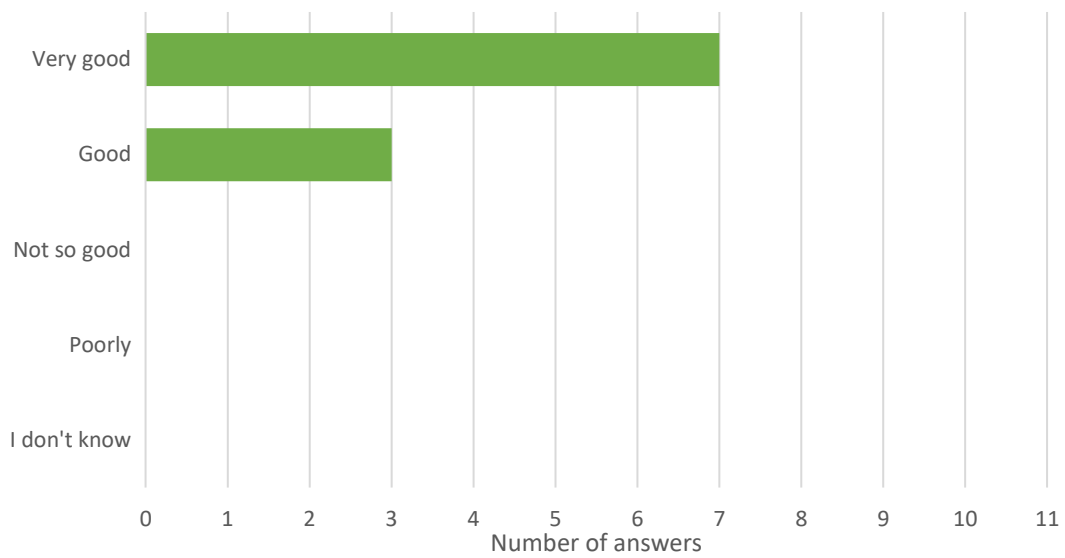


Figure 56: Extent to which the Bulgarian participants understood the iBRoad2EPC on-site visit blank template. n=11

Nine participants saw the demo tour of the iBRoad2EPC Assistant and eight took the chance to use the iBRoad2EPC Assistant during the online training.

Greece

31 out of the 66 participants answered the survey questions about the iBRoad2EPC training. 5 of the participants had already participated in one or two other trainings from INZEB and rated those training sessions very good (4 participants) or good (1 participant).

As mentioned in Annex 2, the training in Greece was solely conducted online. All participants answered that this training format was just right. They also rated the overall organisation, presentation, and content of the training solely good and very good (see Figure 57 to Figure 59). The participants were also asked what they (dis-)liked about the trainings content. The presentation of the iBRoad2EPC concept (18 participants) and Assistant (15 participants) as well as the presentation of the handbook (13 participants) were the most liked parts (see Figure 60). On the other hand, twelve participants didn't like the presentation of the IEQ and SRI modules and seven didn't like the presentation of the energy and cost modules as well as the presentation of the iBRoad2EPC concept (see Figure 61).

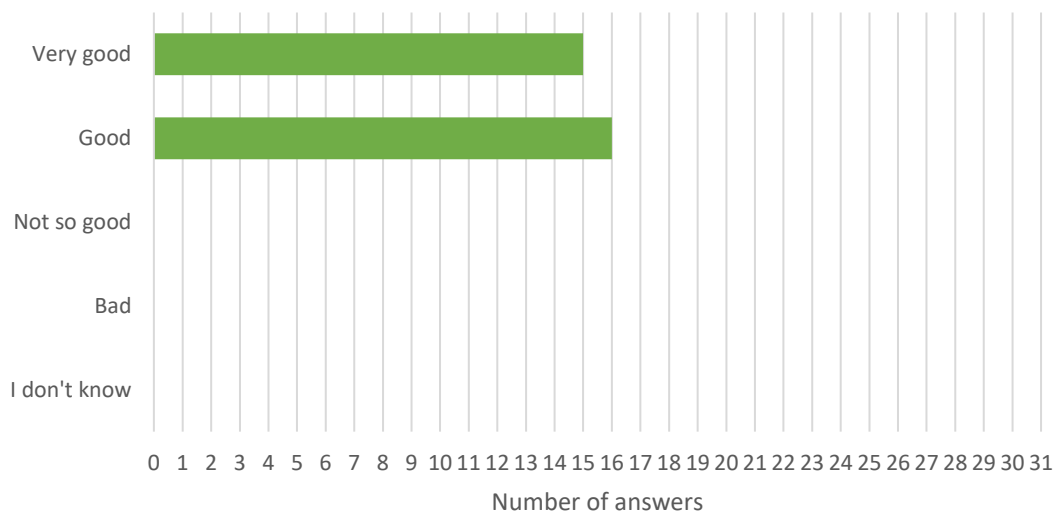


Figure 57: Rating of the Greek trainings' organisation in general. n=31

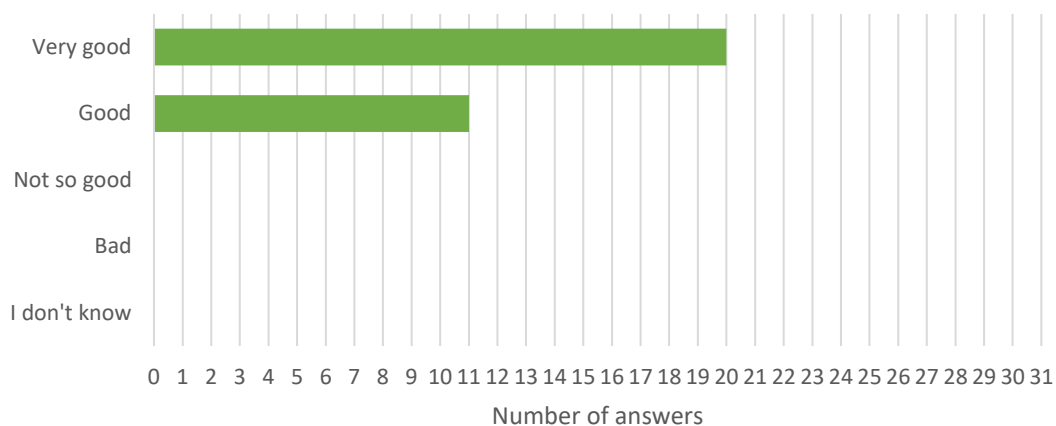


Figure 58: Rating of the Greek presenters' capacity. n=31

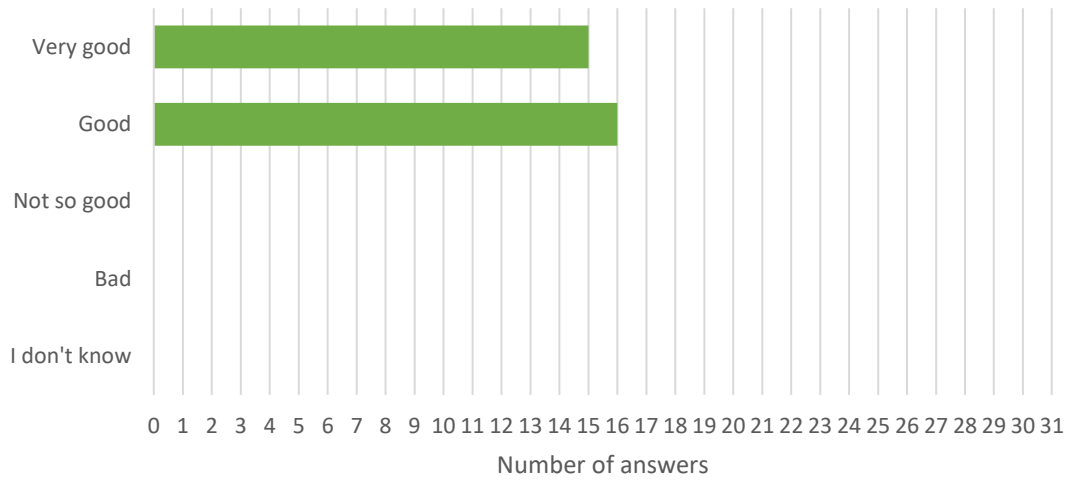


Figure 59: Rating of the Greek trainings' content. n=31

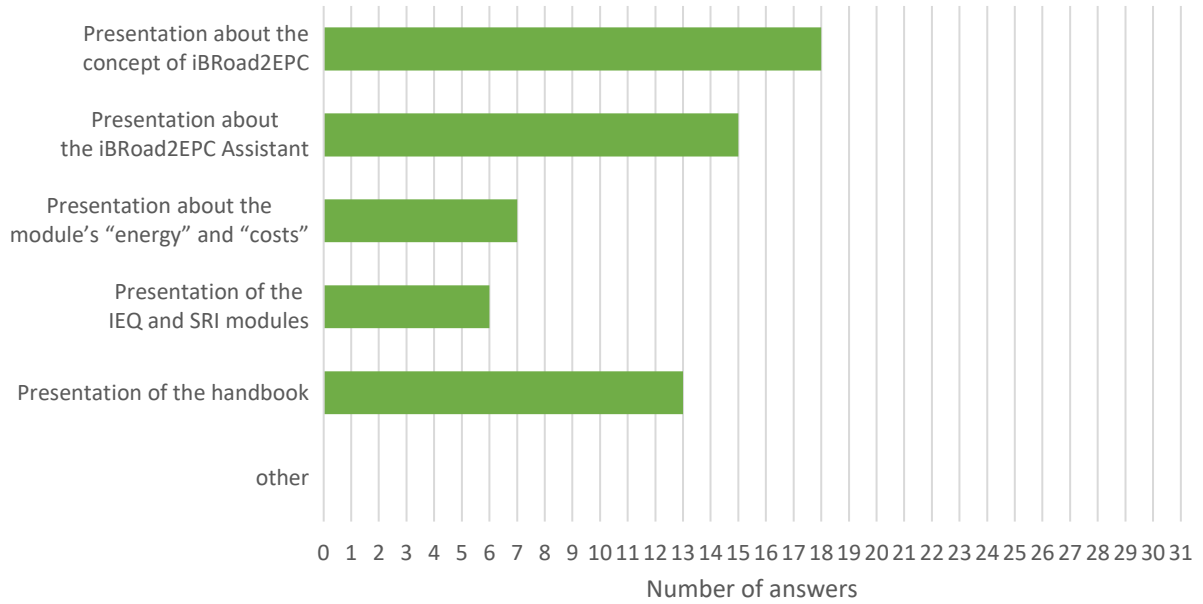


Figure 60: Answers to the question: "What did you like about the training?" in Greece. n=31

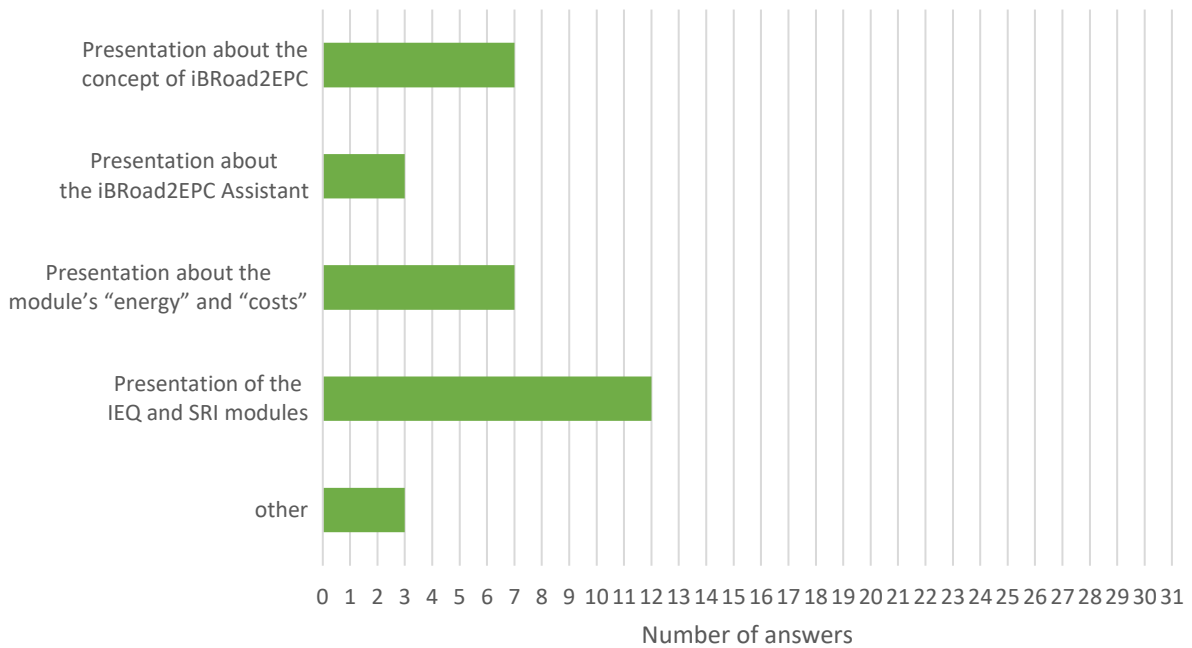


Figure 61: Answers to the question: “What did you not like about the training?” in Greece. n=31

The trainings’ length of 4,5 hours was rated just right by 23 participants. Participants that didn’t like the length tended to assess it as too short (see Figure 62).

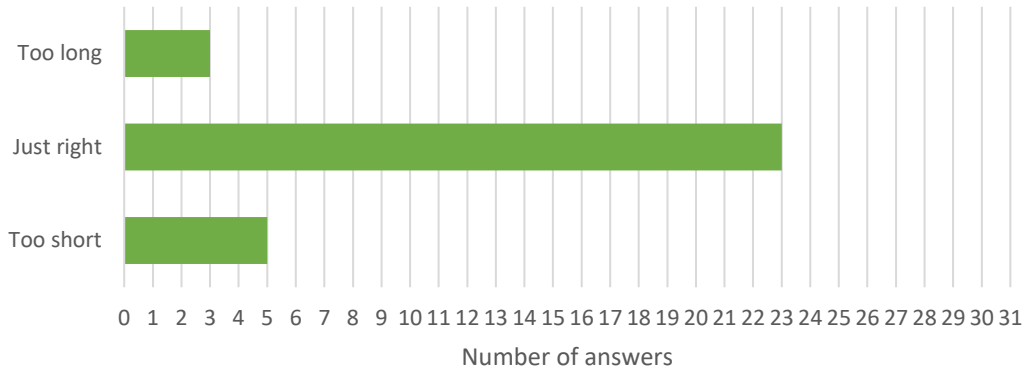


Figure 62: Rating of the Greek trainings' length. n=31

Next to the trainings’ organisation, the training material, i.e., the iBRoad2EPC presentation, handbook, on-site visit checklist and on-site visit blank template had to be evaluated by the participants. As shown in Figure 60, a lot of the participants were satisfied with the iBRoad2EPC presentation. Figure 63 allows a more detailed evaluation of this part of the training. Most of the participants tend to agree that the training was easy to understand, contained high quality information, was concise and interesting as well as structured, and answered most of the questions about the iBRoad2EPC. About one third of the participants would completely agree to the answers “easy to understand”, “high quality of presented information”, “concise” and “interesting information”. 15 participants rated the training complicated whereas 13 agreed that it was not complicated.

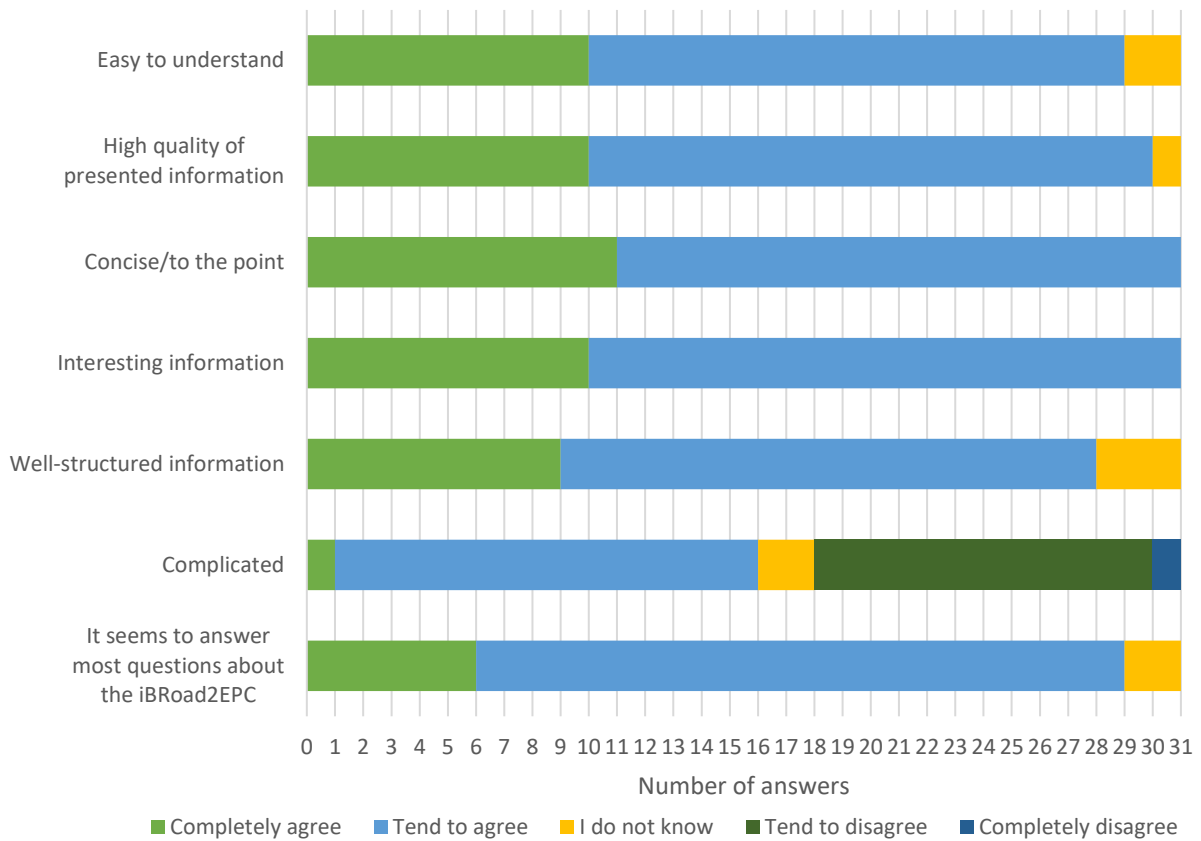


Figure 63: Answers to the question: “What do you think about the iBRoad2EPC presentation?” in Greece. n=31

In Greece, the handbook was not submitted to the experts before training, therefore it could not be evaluated by them after the training. The on-site visit checklist was presented to the experts during the training sessions; 24 replied that they received it and 23 of them said that they were able to understand it very well or well (see Figure 64).

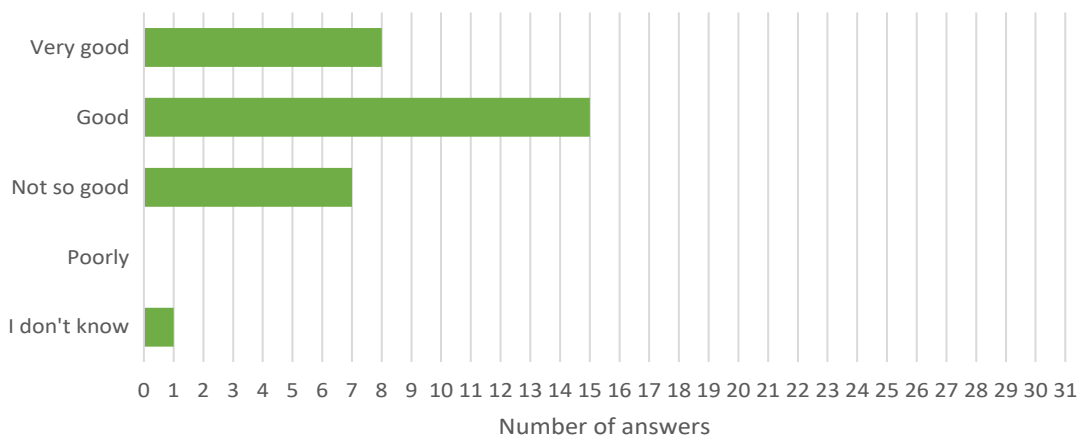


Figure 64: Extent to which the Greek participants said that they understood the on-site visit checklist. n=31

The blank template for the on-site visit was also presented to the experts during the training sessions and 10 participants responded that they received it, whereas 19 said that they did not receive it, and 2 didn't want to answer.

As for the understanding, Figure 65 shows, that 16 participants had no issues understanding the blank template. 15 participants said, they had issues understanding it or were not sure about their understanding of the blank template.

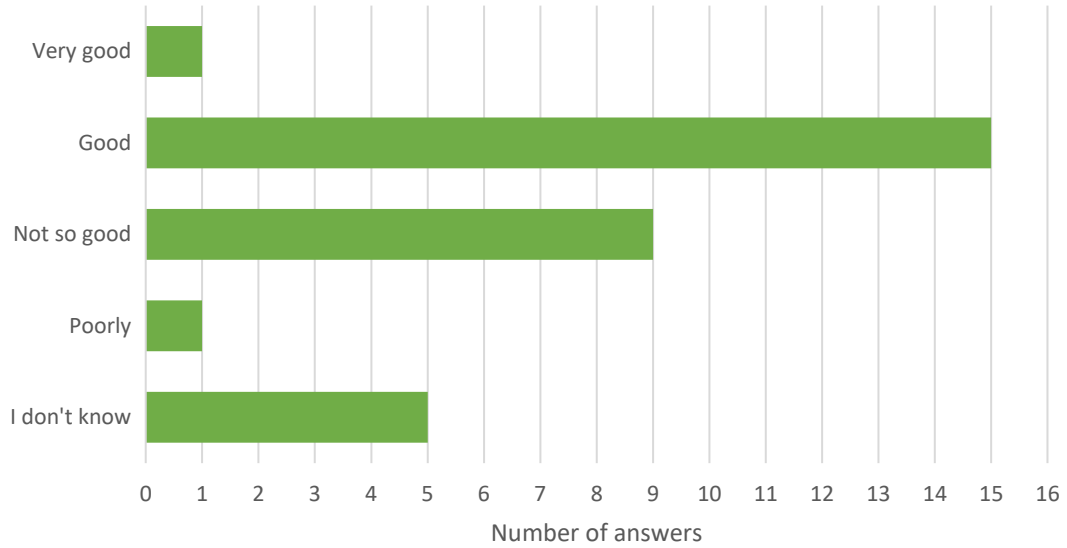


Figure 65: Extent to which the Greek participants understood the iBRoad2EPC on-site visit blank template. n=31

28 participants saw the demo tour of the iBRoad2EPC Assistant and 15 took the chance to use the iBRoad2EPC Assistant during the online training.

Poland

5 out of the 15 participants answered the survey questions about the iBRoad2EPC training. None had already participated in other trainings from KAPE.

As mentioned in Annex 2, the training in Poland was solely conducted online. All participants answered that this training format was just right. They also rated the overall organisation, presentation, and content of the training solely good and very good with a slight tendency towards “very good” for organisation and presentation, and towards “good” regarding the content (see Figure 66-Figure 68). The participants were also asked what they (dis-)liked about the trainings content. The presentation of the iBRoad2EPC concept (all participants) and Assistant (3 participants) were the most liked parts (see Figure 69). On the other hand, three didn’t like the presentation of the IEQ and SRI modules (see Figure 70).

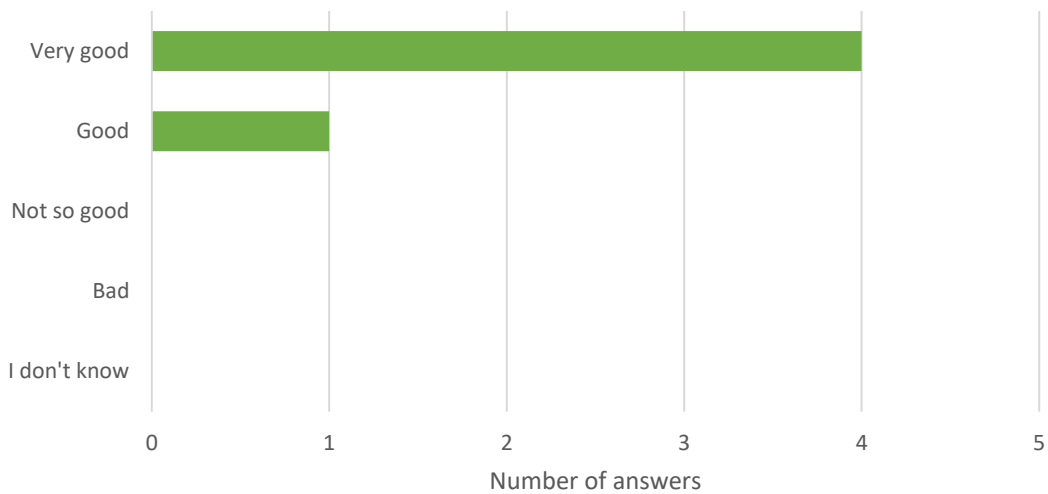


Figure 66: Rating of the Polish trainings' organisation in general. n=5

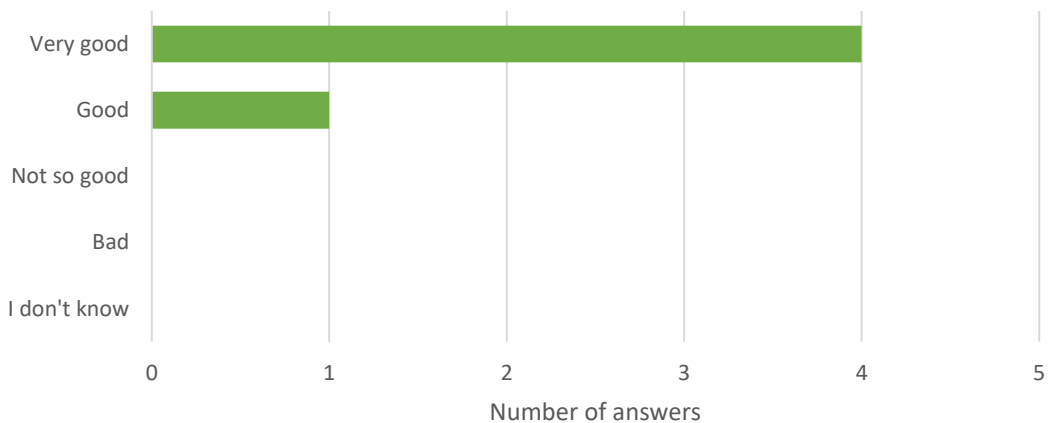


Figure 67: Rating of the Polish presenters' capacity. n=5

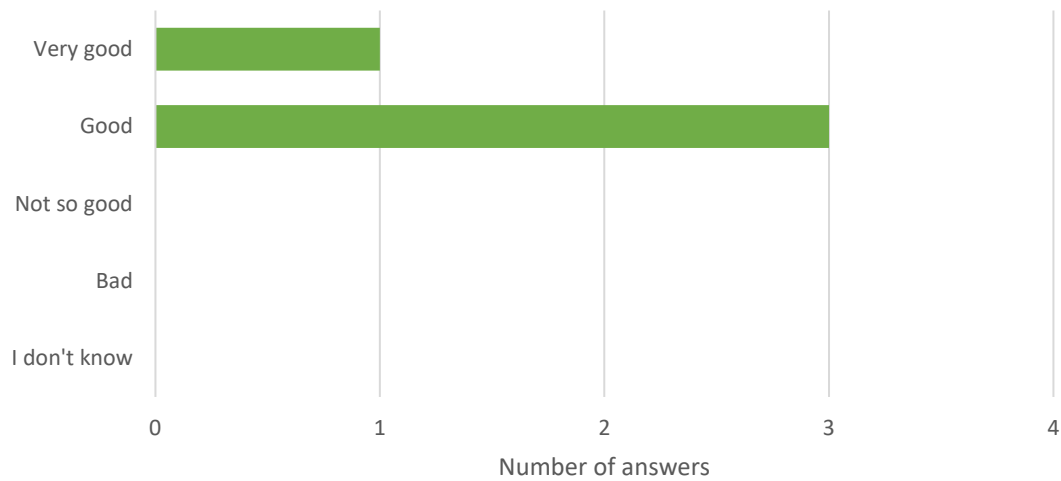


Figure 68: Rating of the Polish trainings' content. n=5

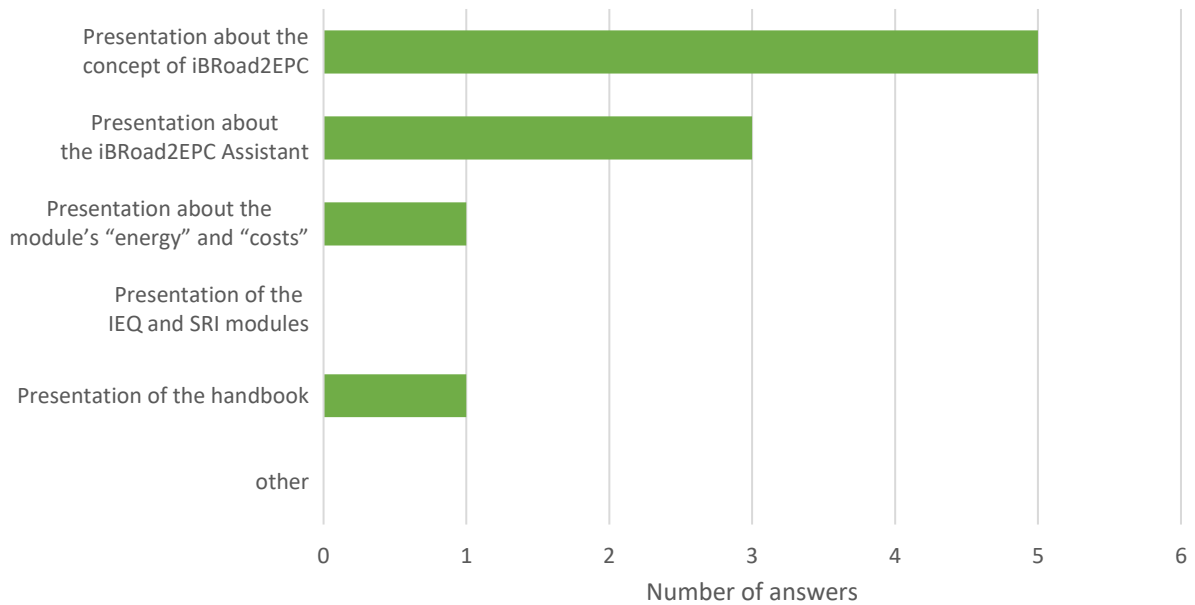


Figure 69: Answers to the question: What did you like about the training? in Poland. n=5

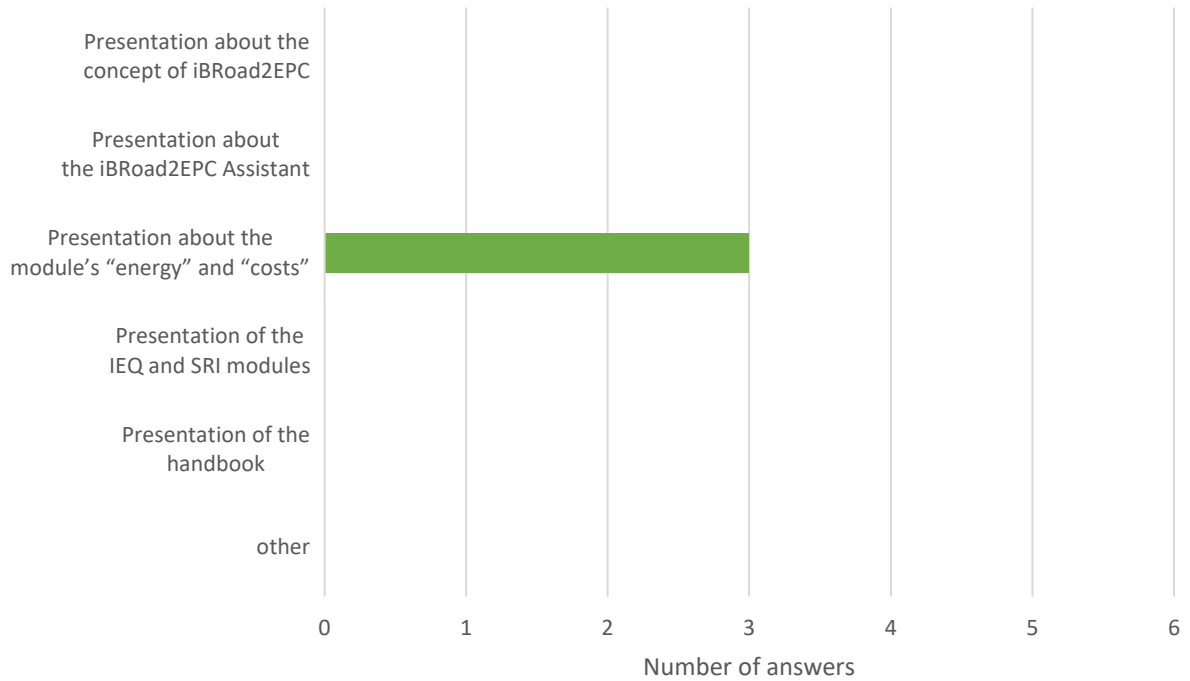


Figure 70: Answers to the question: What did you not like about the training? in Poland. n=5

The trainings' length of 2 hours was rated just right by four participants. The one participant that did not think so said it was too short (see Figure 71).

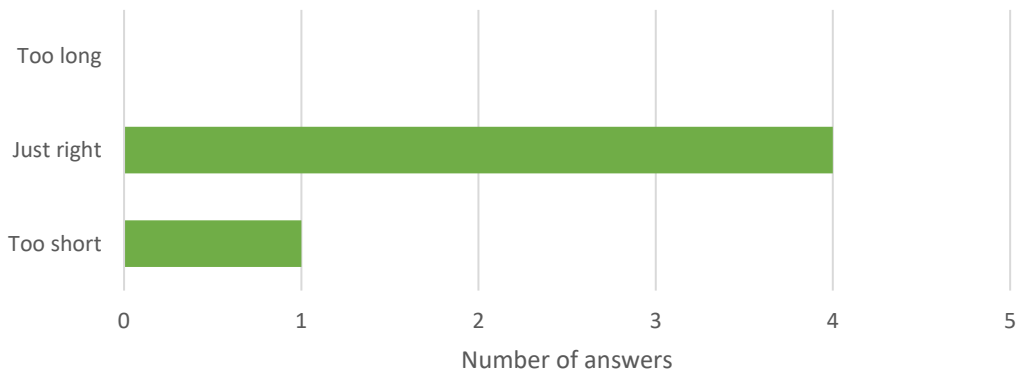


Figure 71: Rating of the Polish trainings' length. n=5

Next to the trainings' organisation, the training material, i.e., the iBRoad2EPC presentation, handbook, on-site visit checklist and on-site visit blank template had to be evaluated by the participants. As shown in Figure 69, all participants were satisfied with the presentation. Figure 72 allows a more detailed evaluation of this part of the training. Three participants totally agree that the training was easy to understand, concise, and contained well as structured information. Two said they tend to agree to the structure whereas one said so regarding concision and understanding. One participant said, he/she is not sure about the understanding, concision and if the presentation answers most of his/her questions about the project. Two tend to rate the training complicated whereas two totally disagreed to this.

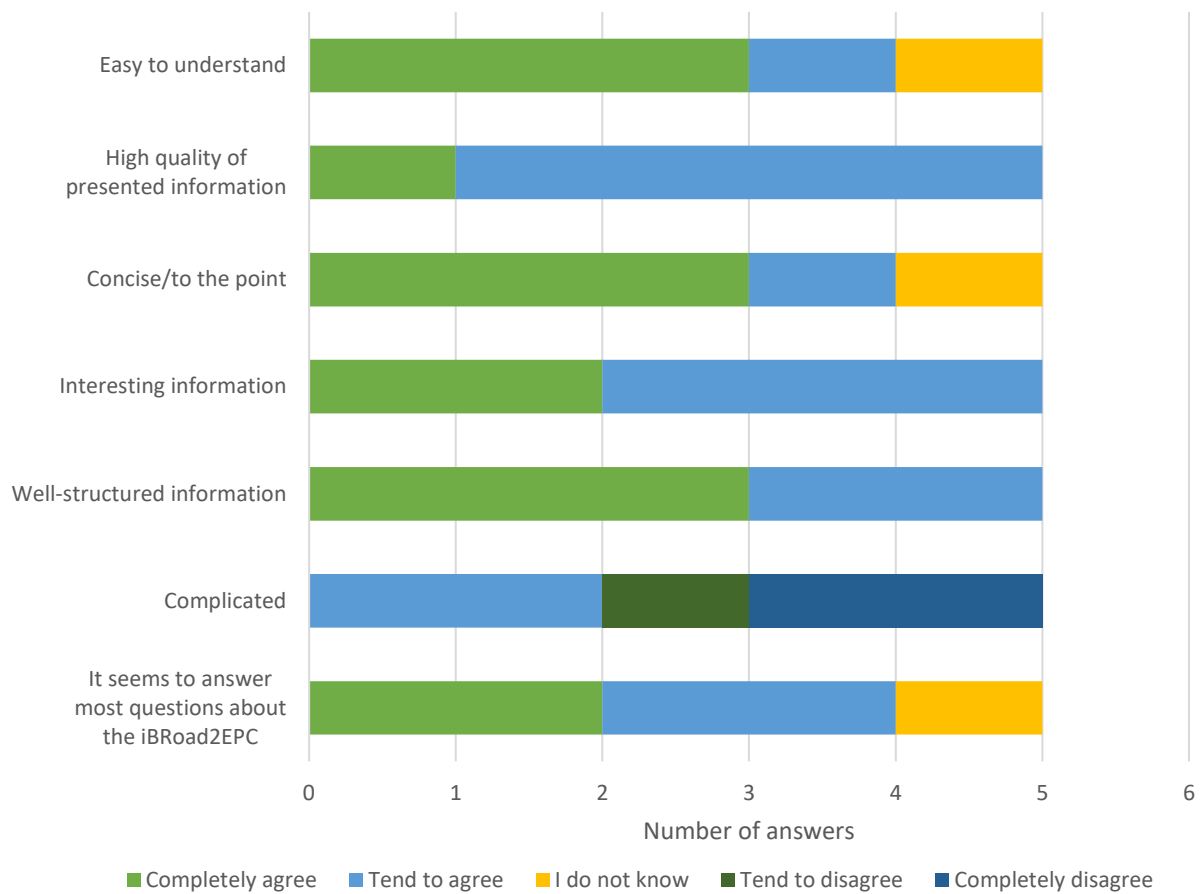


Figure 72: Answers to the question: What do you think about the iRoad2EPC presentation? in Poland. n=5

All participants from Poland received the handbook before the training session. Most participants tend to agree that the handbook contains high quality and interesting information and is concise. Three totally agree that it is easy to understand whereas two only tend to agree to that. There were also answers (1 at a time) in total disagreement on the structure of the information and answering of the questions about iRoad2EPC as well as the complication of the handbook. On the questions if they found the handbook to be complicated participants answered evenly from “tend to agree” to “completely disagree” whilst no one expressed complete agreement on this proposition (see Figure 73).

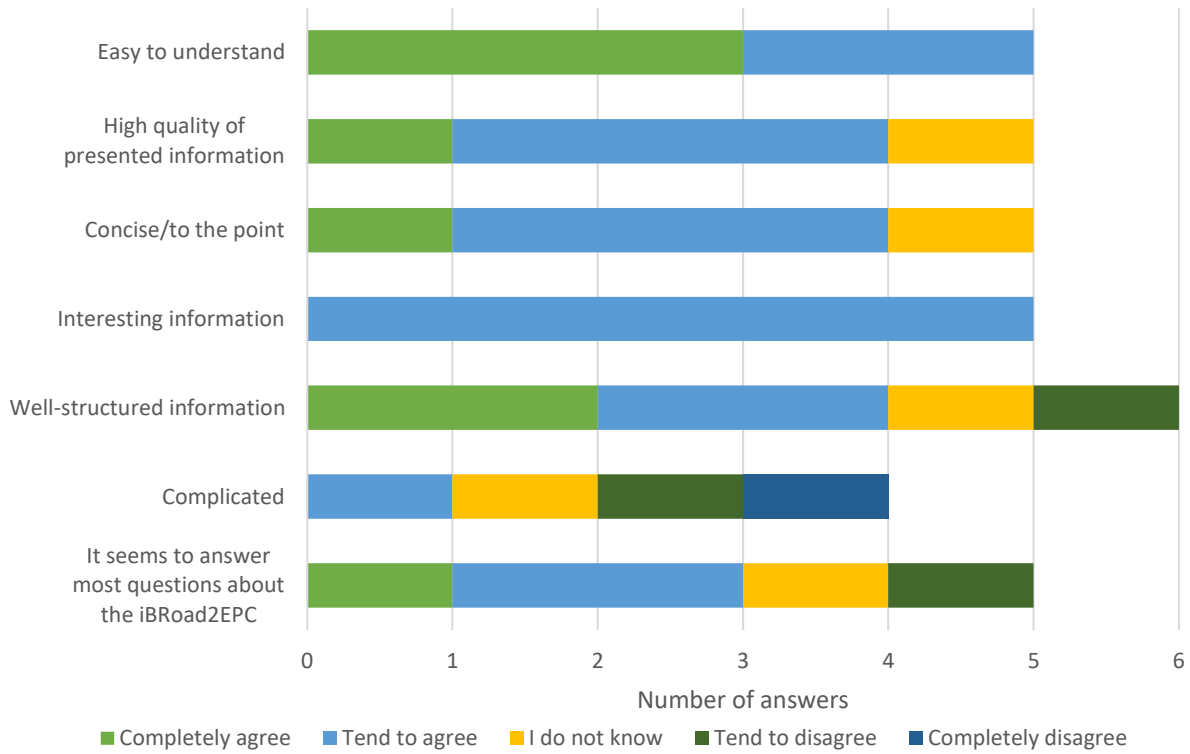


Figure 73: Answers to the question: "What do you think about the iBRoad2EPC handbook?" in Poland. n=5

All participants received the on-site visit checklist and four of them said they were able to understand it "very good" whilst one voted for "good" (see Figure 74)

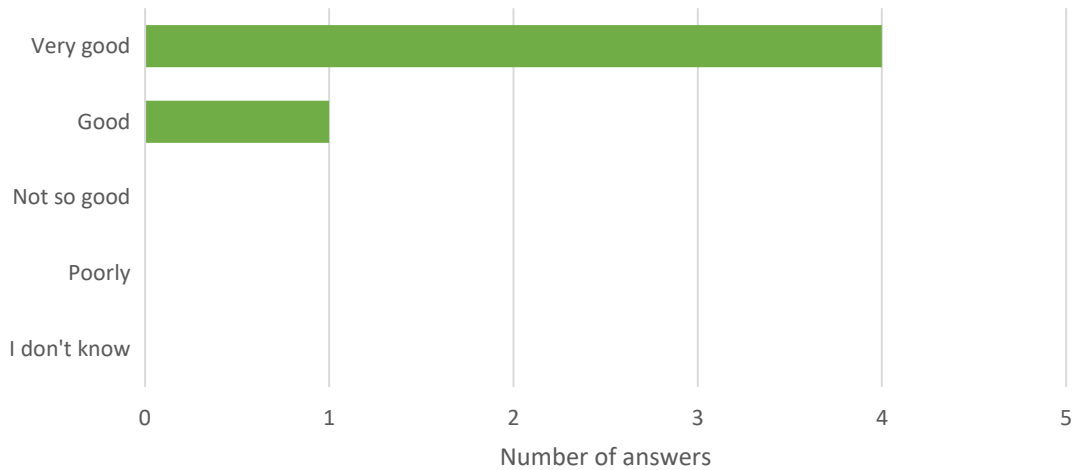


Figure 74: Extent to which the Polish participants said that they understood the on-site visit checklist. n=5

The blank template for the on-site visit has also been received by all participants. As for the understanding, Figure 75 shows that three participants had no issues understanding the template for the on-site visit whereas one did poorly understand it and one was not sure about it. One person ticked two boxes and answered, "very good and "I don't know".

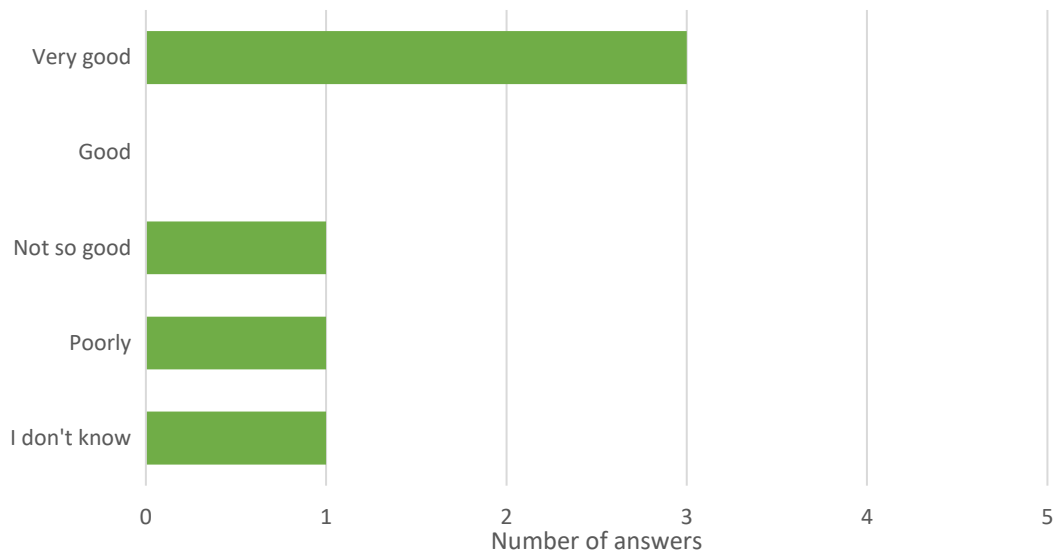


Figure 75: Extent to which the Polish participants understood the iRoad2EPC on-site visit blank template. n=5

Four participants saw the demo tour of the iRad2EPC Assistant and almost two took the chance to use the iRoad2EPC Assistant during the online training.

Portugal

6 out of the 20 participants answered the survey questions about the iBRoad2EPC training. One of them had already participated in two other trainings from ADENE and rated those training sessions as very good.

As mentioned in Annex 2, the training in Portugal was solely conducted online. All participants answered that this training format was “just right” for them. Five rated the overall organisation, and six rated the presentation of the training as “very good”. Two rated the content as “very good” whilst four said it was “good” (see Figure 76 to Figure 78). The participants were also asked what they (dis-)liked about the trainings content. The presentation of the iBRoad2EPC concept (5 participants) and Assistant (3 participants) were the most liked parts (see Figure 79). On the other hand, there was one participant that did not like the presentation of the handbook, and one said did not like the “lack of depth, application examples and test cases” (see Figure 80).

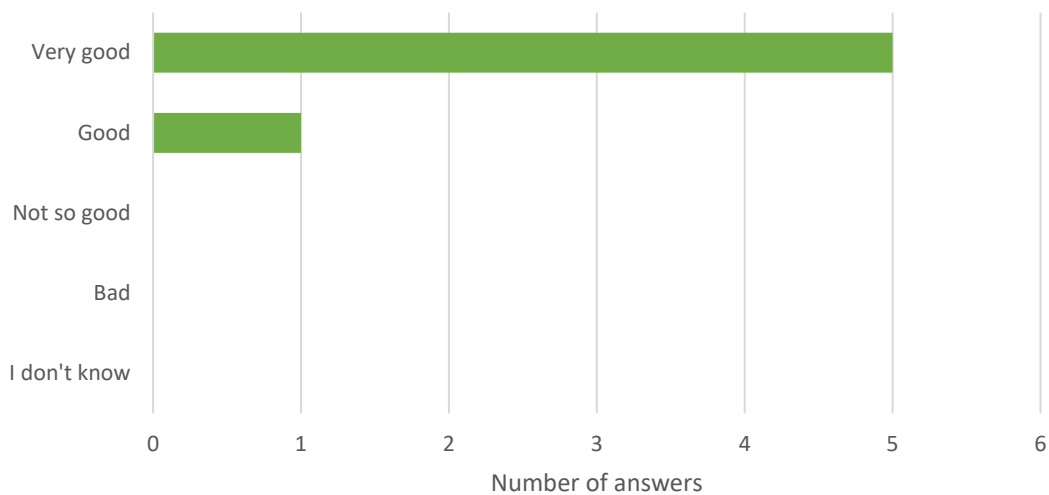


Figure 76: Rating of the Portuguese trainings' organisation in general. n=6

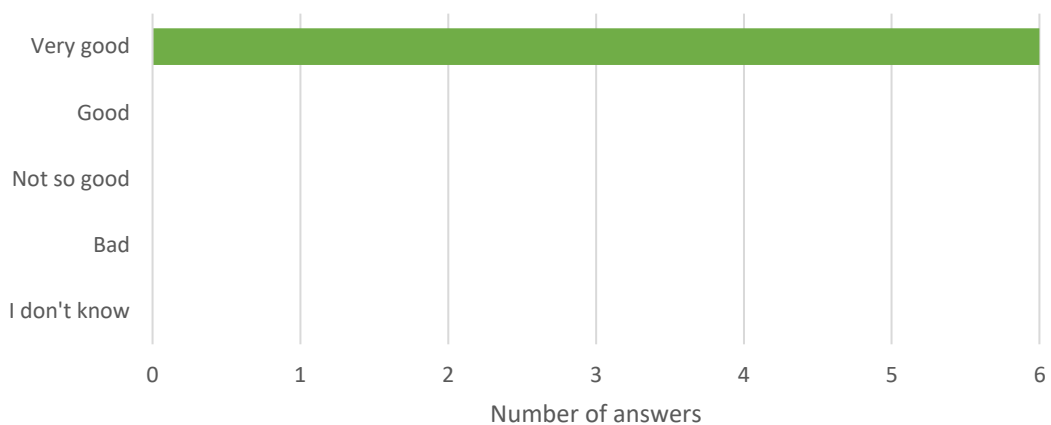


Figure 77: Rating of the Portuguese presenters' capacity. n=31

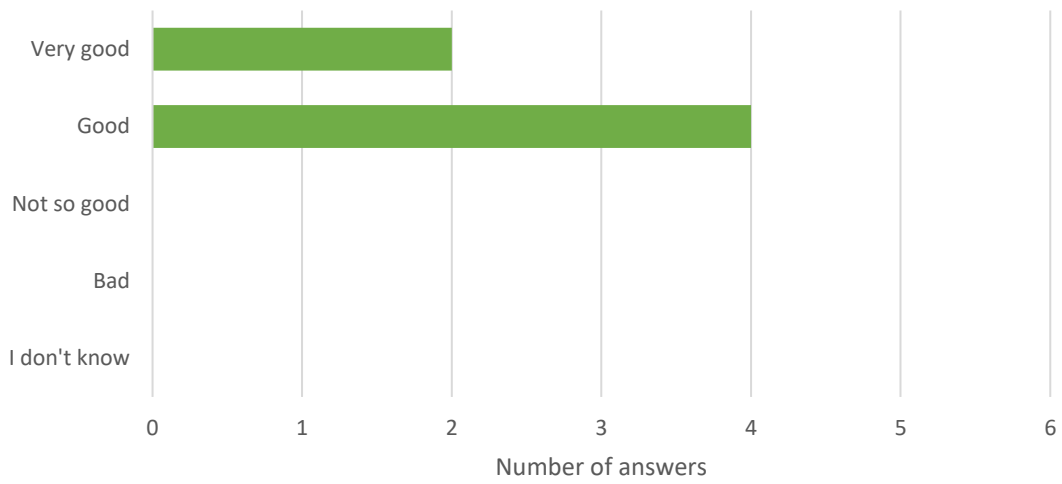


Figure 78: Rating of the Portuguese trainings' content. n=6

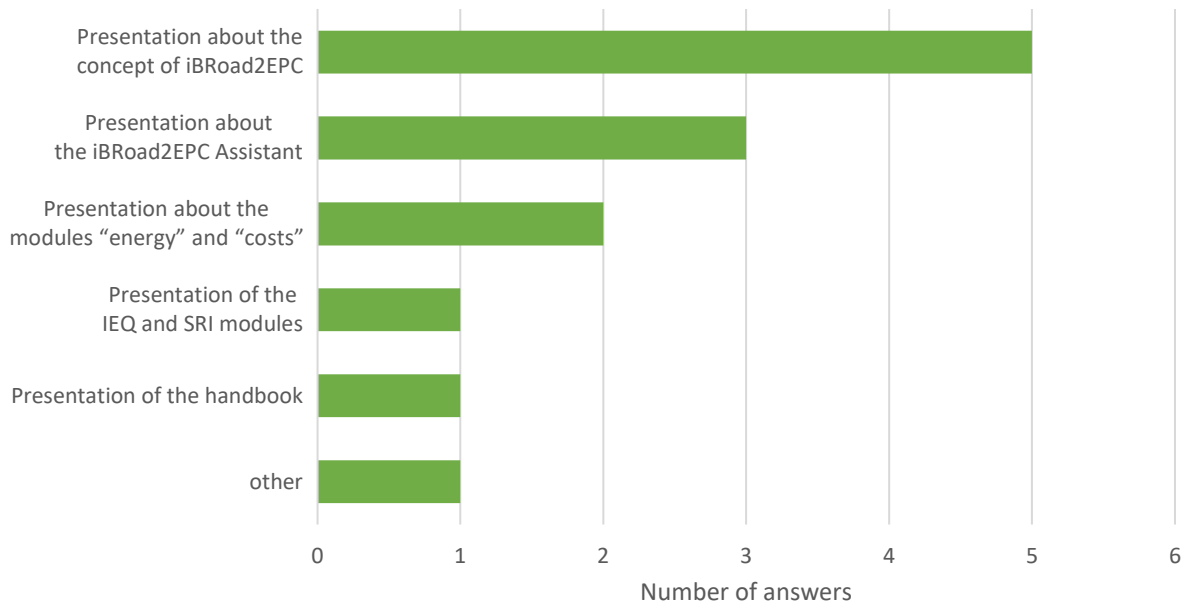


Figure 79: Answers to the question: What did you like about the training? in Portugal. n=6

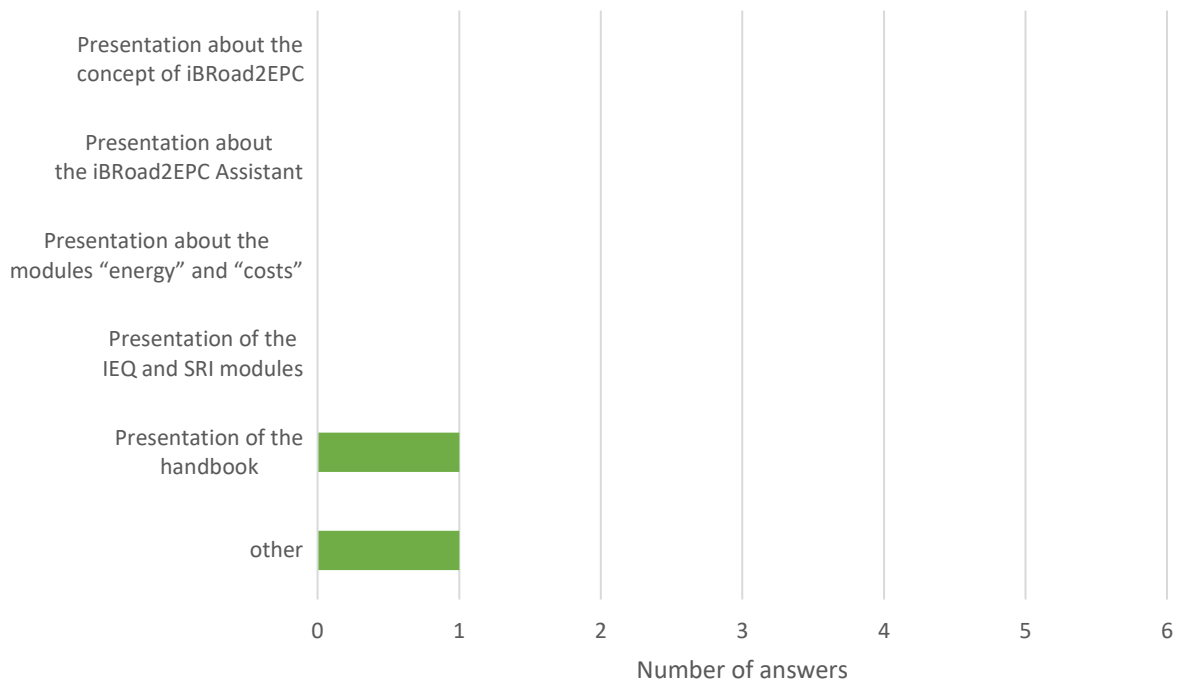


Figure 80: Answers to the question: What did you not like about the training? in Portugal. $n=6$

The trainings' length of 4 hours was rated just right by five participants. One said it was too short (see Figure 81).

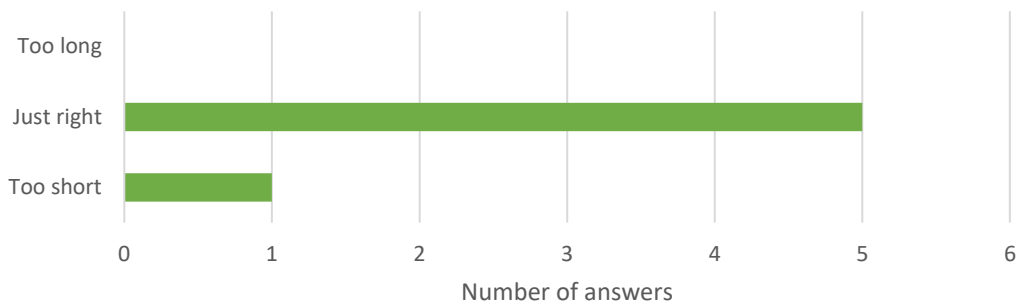


Figure 81: Rating of the Portuguese trainings' length. $n=6$

Next to the trainings' organisation, the training material, i.e., the iBRoad2EPC presentation, handbook, on-site visit checklist and on-site visit blank template had to be evaluated by the participants. As shown in Figure 79, a lot of the participants were satisfied with the presentation. Figure 82 allows a more detailed evaluation of this part of the training. Five participants tend to agree that the training was concise and answered most of the questions about the iBRoad2EPC. Three would completely agree to the answers "easy to understand" and "High quality of presented information" whereas the other half only tend to agree to those propositions. Four totally agreed on the proposition that the presentation contained interesting and well-structured information. There were three participants that totally or tend to disagree on the question if the presentation was complicated. Three were not sure about this.

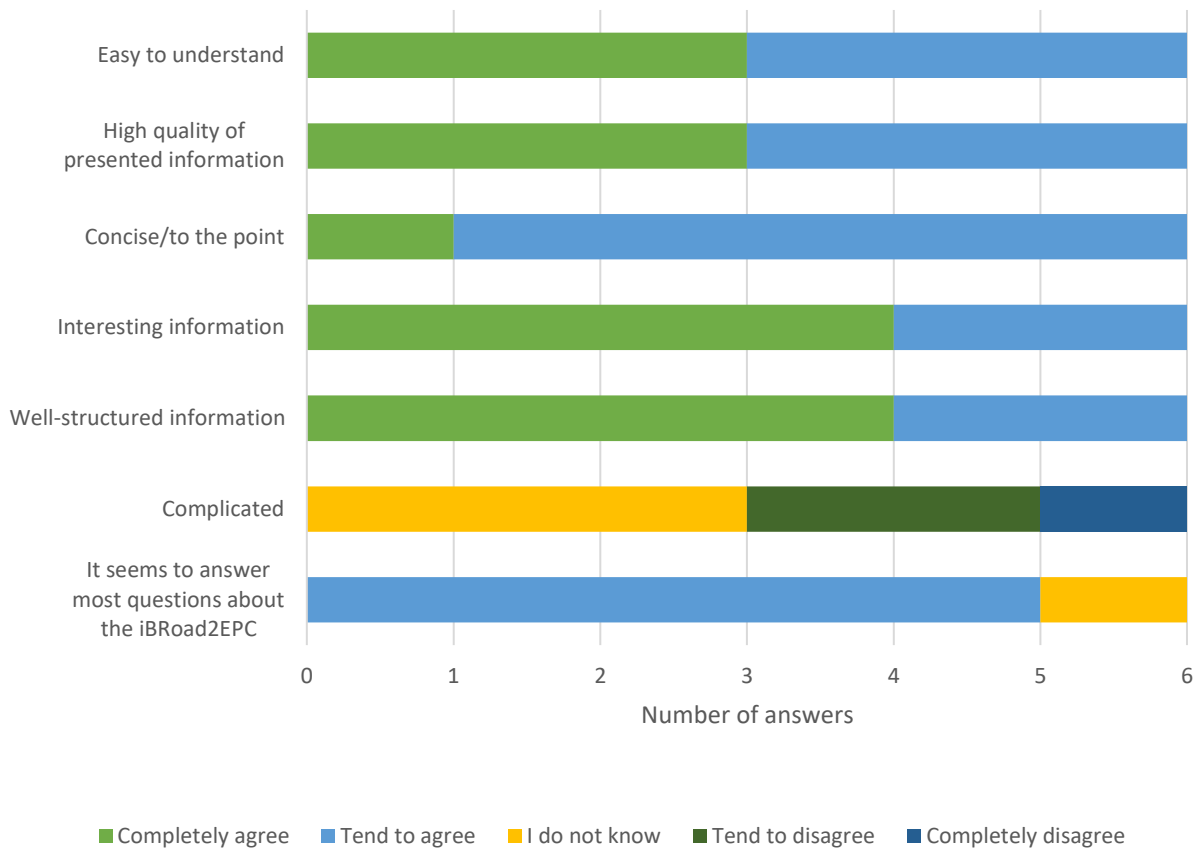


Figure 82: Answers to the question: What do you think about the iBRoad2EPC presentation? in Portugal. n=6

All participants in Portugal received the handbook before the training session. Two participants at the time completely or tended to agree that the handbook was easy to understand and contained interesting information. For all propositions there were two participants that were not sure about their agreement. Also, there is a slight tendency towards “tend to agree” for “high quality of information” and “concise”, whereas three completely agreed on the good structure of the information in the handbook in comparison to one only tending to agree to this. Three participants completely or tend to disagree that the handbook is complicated whilst one tends to agree that it is (see Figure 83).

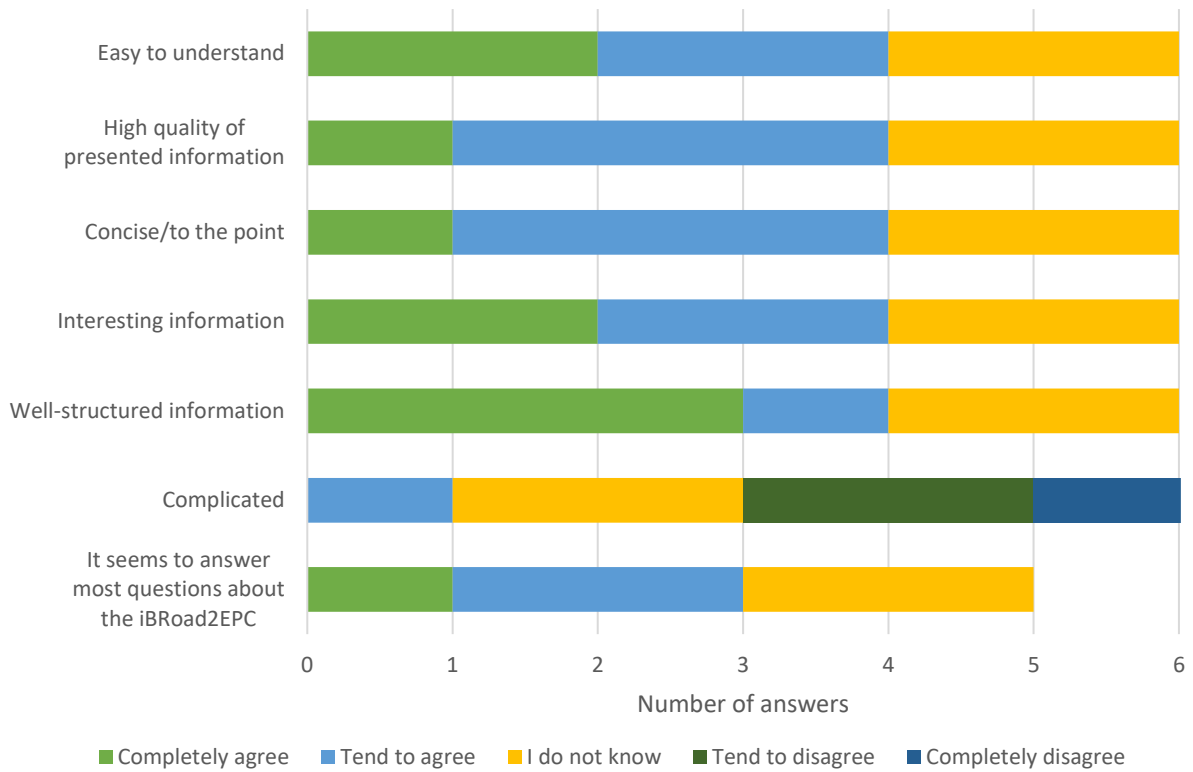


Figure 83: Answers to the question: "What do you think about the iBRoad2EPC handbook?" in Portugal. n=6

Five participants received the on-site visit checklist all of them said they were able to understand it well (see Figure 84)

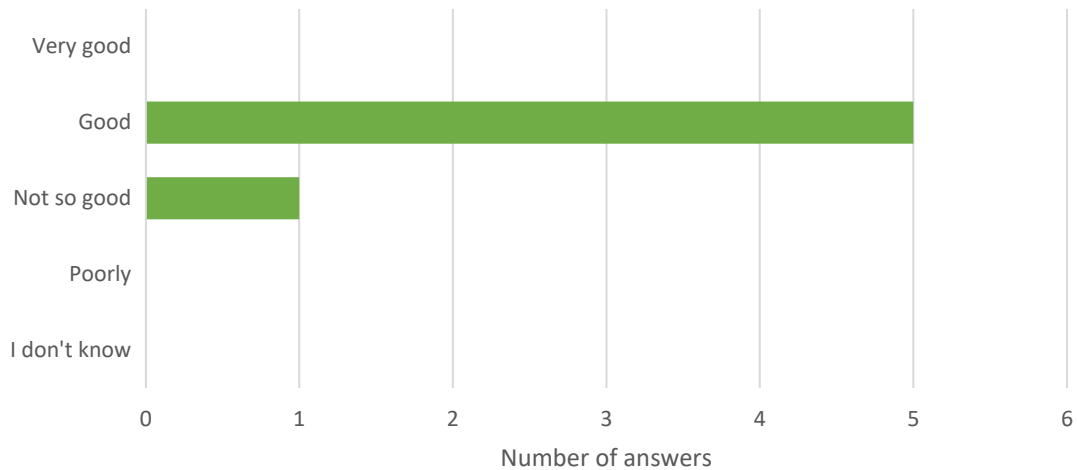


Figure 84: Extent to which the Portuguese participants said that they understood the on-site visit checklist. n=6

The blank template for the on-site visit has been received by only three participants. All three said they understood it well (see Figure 85).

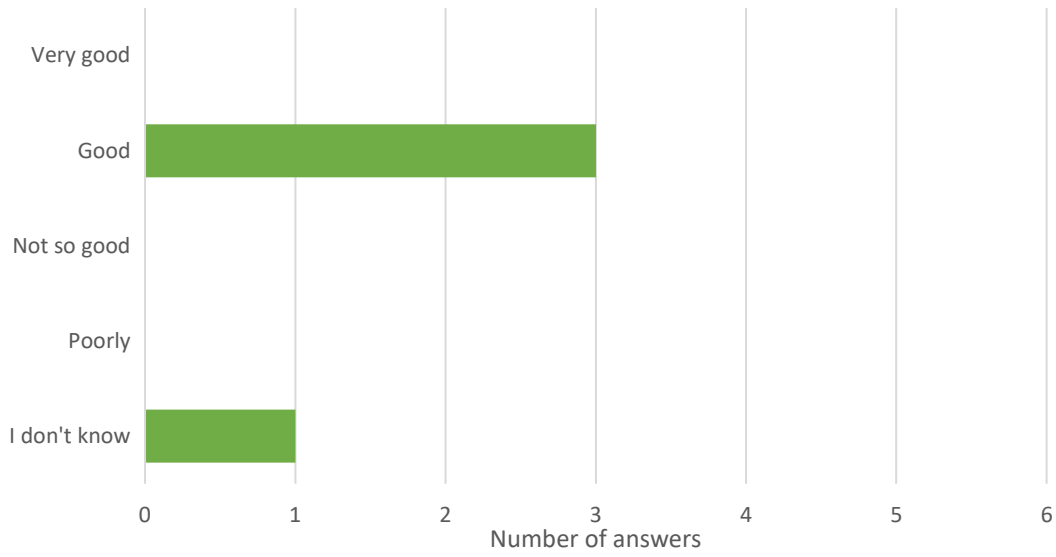


Figure 85: Extent to which the Portuguese participants understood the iRoad2EPC on-site visit blank template. n=6

Five participants saw the demo tour of the iRoad2EPC Assistant and two took the chance to use the iRoad2EPC Assistant during the online training.

Romania

28 out of the 64 participants answered the questionnaire about the iBRoad2EPC training. Nine of them had already participated in one or two other trainings from INCD URBAN-INCERC and rated those training sessions as very good (7 participants) or good (2 participants).

As mentioned in Annex 2, the training in Romania was solely conducted online. All participants answered that this training format was just right. They also rated the overall organisation, presentation, and content of the training solely “good” and “very good” trending to “very good” (see Figure 86 to Figure 88). The participants were also asked what they (dis-)liked about the trainings content. The presentation of the iBRoad2EPC concept was the most liked part (see Figure 89). On the other hand, there were few answers on the disliked topics. Three participants didn’t like the presentation of the IEQ and SRI modules and two participants didn’t like the presentation of the iBRoad2EPC concept (see Figure 90).

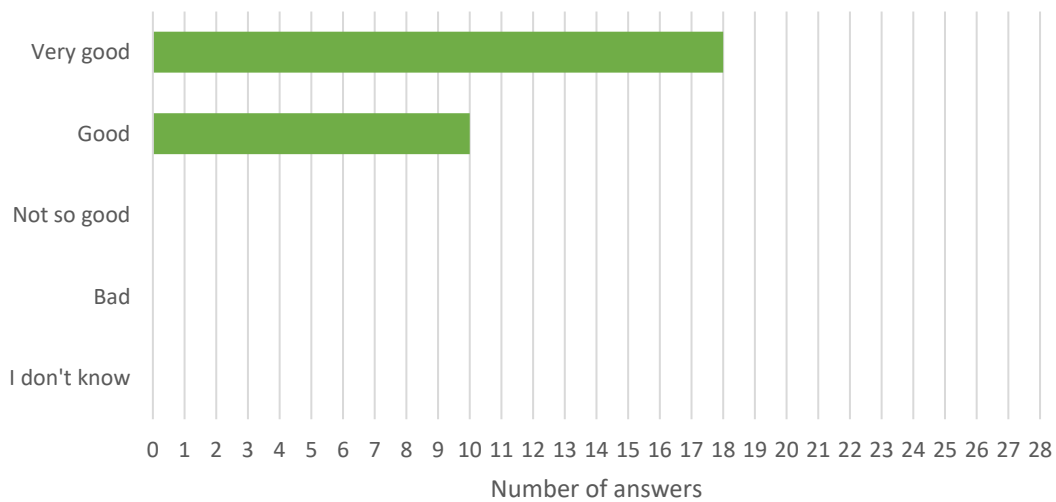


Figure 86: Rating of the Romanian trainings' organisation in general. n=28

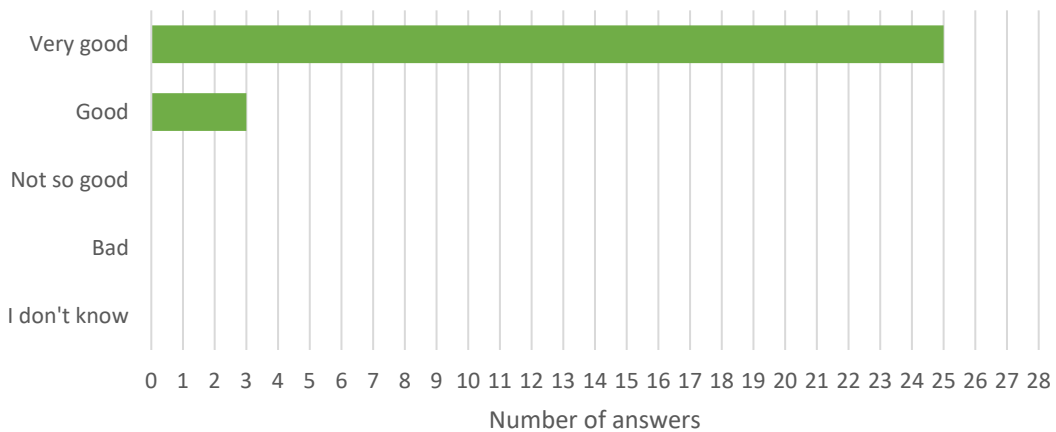


Figure 87: Rating of the Romanian presenters' capacity. n=28

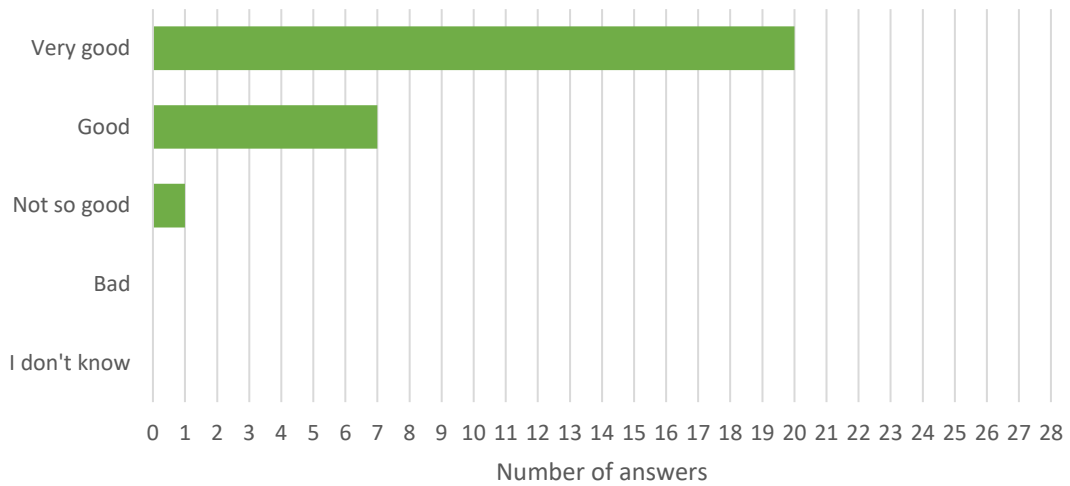


Figure 88: Rating of the Romanian trainings' content. n=28

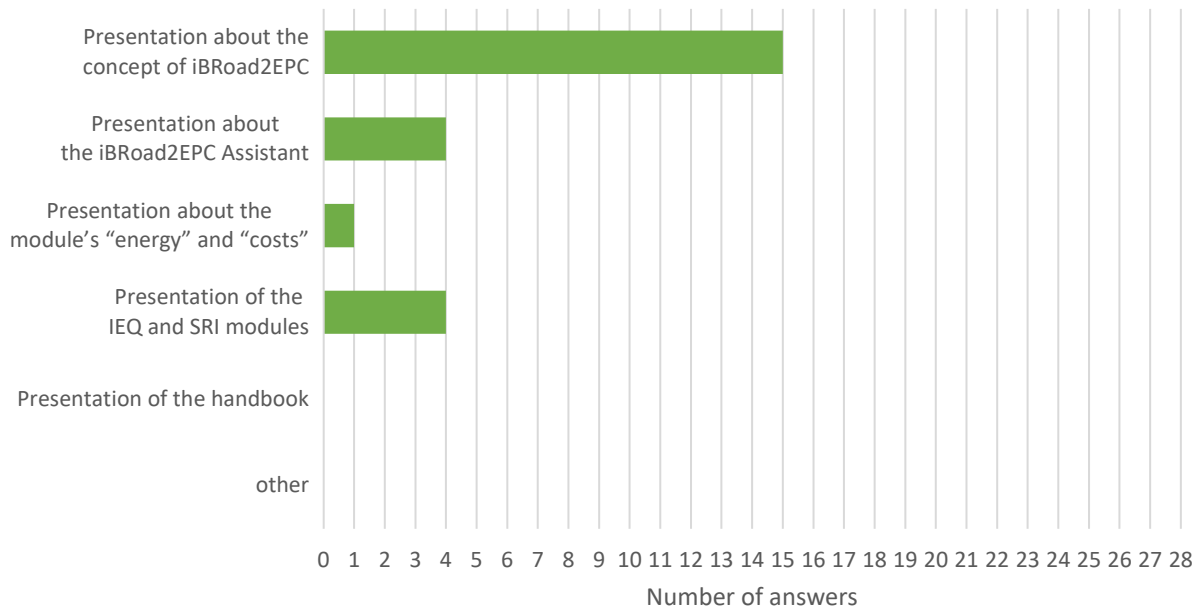


Figure 89: Answers to the question: "What did you like about the training?" in Romania. n=28

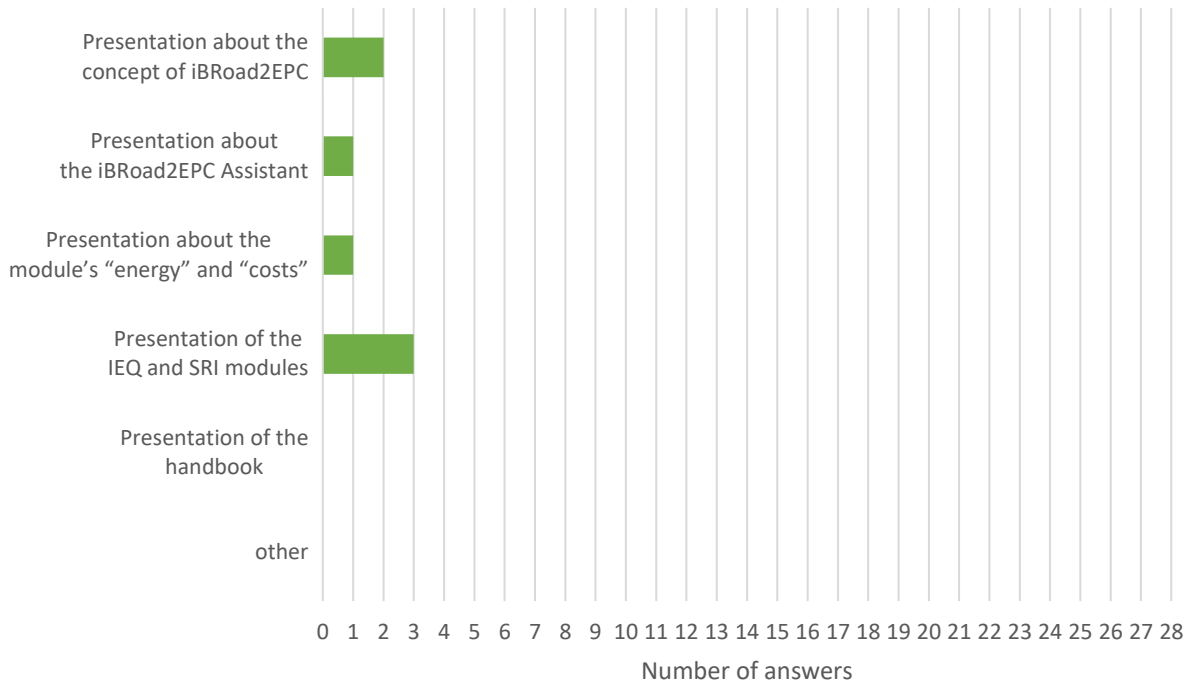


Figure 90: Answers to the question: “What did you not like about the training?” in Romania. n=28

The trainings’ length of 6 hours was rated just right by slightly more than half of the participants. Participants that didn’t like the length tended to assess it as too long (see Figure 91).

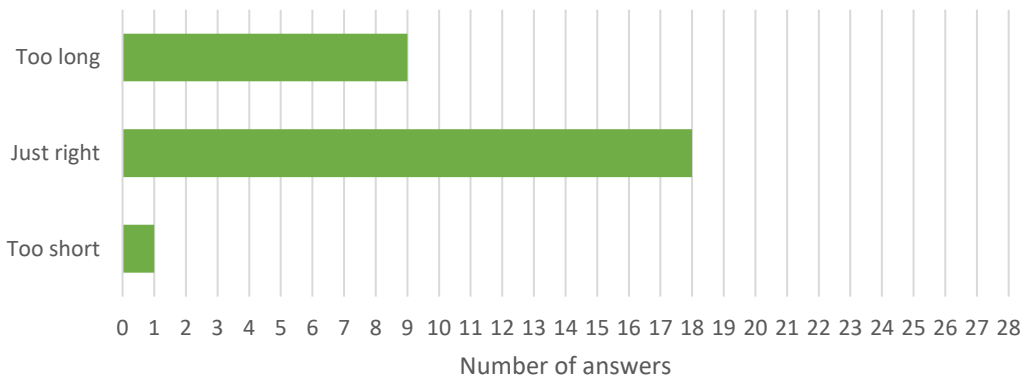


Figure 91: Rating of the Romanian trainings' length. n=28

Next to the trainings’ organisation, the training material, i.e., the iBRoad2EPC presentation, handbook, on-site visit checklist and on-site visit blank template had to be evaluated by the participants. As shown in Figure 89, more than half of the participants were satisfied with the iBRoad2EPC presentation. Figure 92 allows a more detailed evaluation of this part of the training. All participants totally or tend to agree that the training was easy to understand and contained high quality information. Four said it was not concise or were at least uncertain about the conciseness of the presentation. All participants except one rated it interesting as well as structured. Half of the participants said, they found the training to be complicated, however 25 participants said that the presentation answered most of their questions about the iBRoad2EPC.

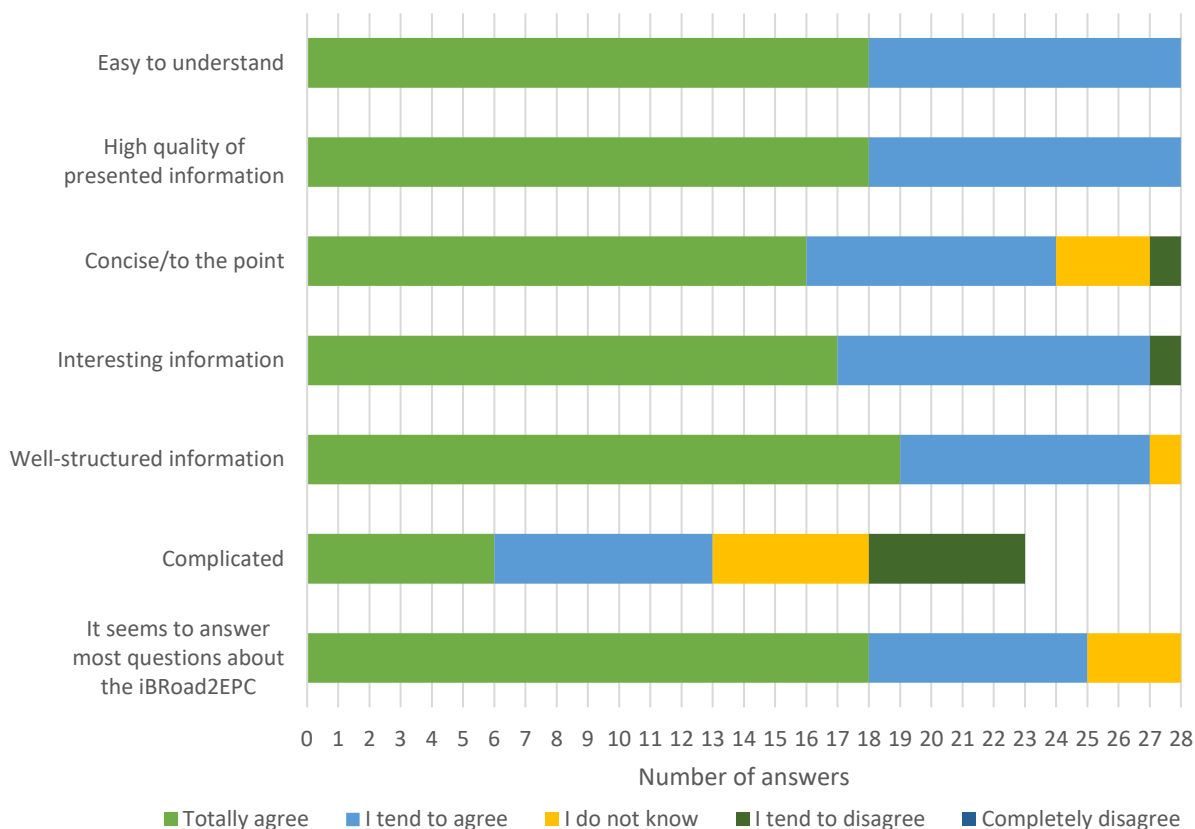


Figure 92: Answers to the question: “What do you think about the iBRoad2EPC presentation?” in Romania. n=28

In Romania, 26 participants received the handbook before the training session. 22 totally or tend to agree that it was easy to understand and concise, contained high quality, well-structured and interesting information and answered most of the questions about iBRoad2EPC. Nine participants said that the handbook is complicated whereas four did not think so and ten were not sure about this (see Figure 93).

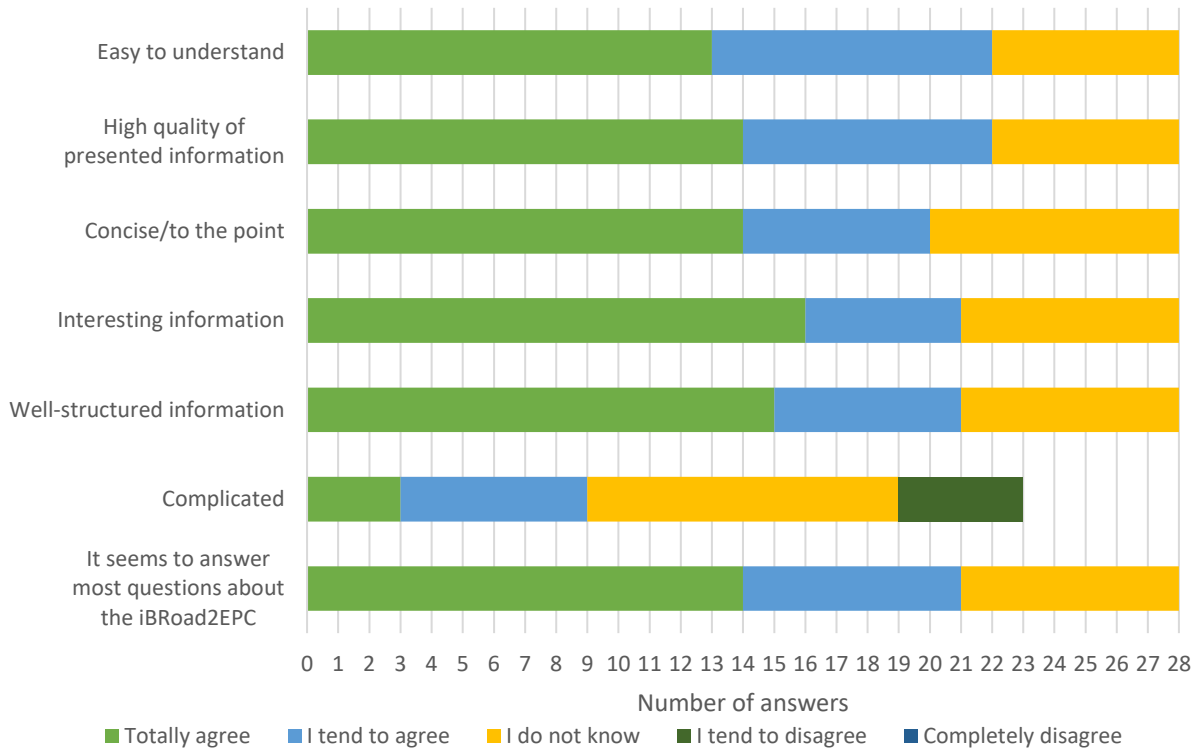


Figure 93: Answers to the question: "What do you think about the iBRoad2EPC handbook?" in Romania. n=28

24 participants received the on-site visit checklist or had a look at it, and 23 of those said they were able to understand it very well or well whereas three said they had issues doing so (see Figure 94).

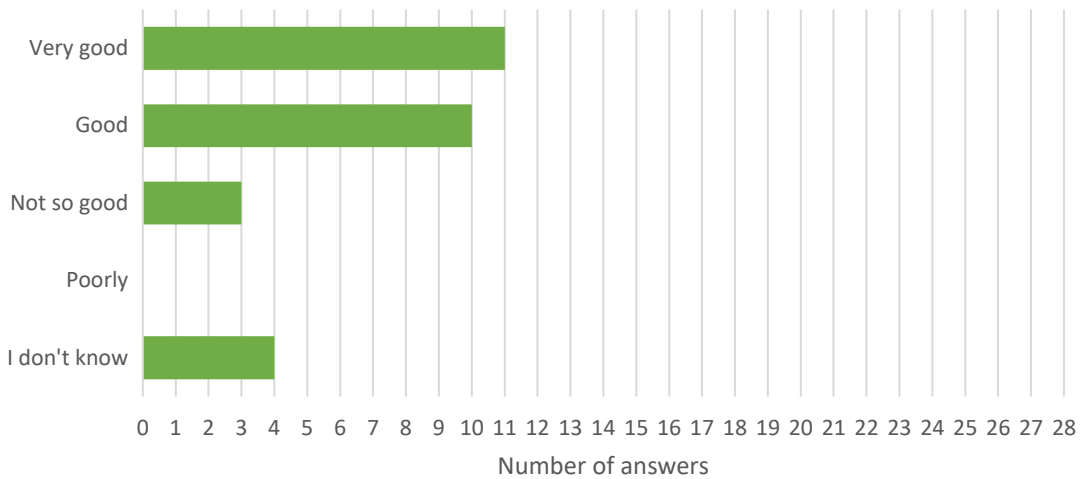


Figure 94: Extent to which the Romanian participants said that they understood the on-site visit checklist. n=28

The blank template for the on-site visit has been received or looked at by 24 of the participants. As for the understanding, Figure 95 shows that 21 participants had no issues understanding the template for the on-site visit and 4 had issues.

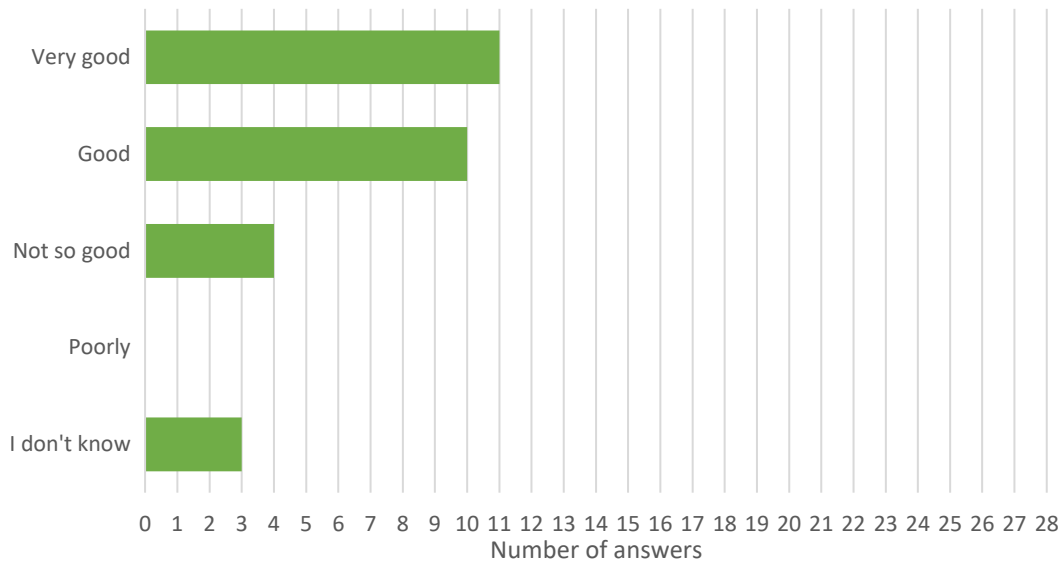


Figure 95: Extent to which the Romanian participants understood the iRoad2EPC on-site visit blank template. n=28

25 participants saw the demo tour of the iRoad2EPC Assistant during the training and 14 of them took the chance to use the iRoad2EPC Assistant during the online training.

Spain

14 out of the 17 participants answered the survey questions about the iBRoad2EPC training. 4 of them had already participated in two or more other trainings from Cíclica/GBCe and rated those training sessions as very good (2 participants) or good (1 participant).

As mentioned in Chapter 3.3, the training in Spain was solely conducted online. Almost all participants answered that this training format was just right, one did not agree to this point. They also rated the overall organisation, presentation of the training solely good and very good (see Figure 96 and Figure 97). The same applies to the content of the training with one exception (see Figure 98). The participants were also asked what they (dis-)liked about the trainings content. The presentation of the iBRoad2EPC concept (eight participants) and Assistant (eight participants) as well as the presentation of the IEQ/SRI module (five participants) were the most liked parts (see Figure 99). Few participants answered that they did not like something. The most disliked part (three participants) was about the IEQ/SRI module (see Figure 100).

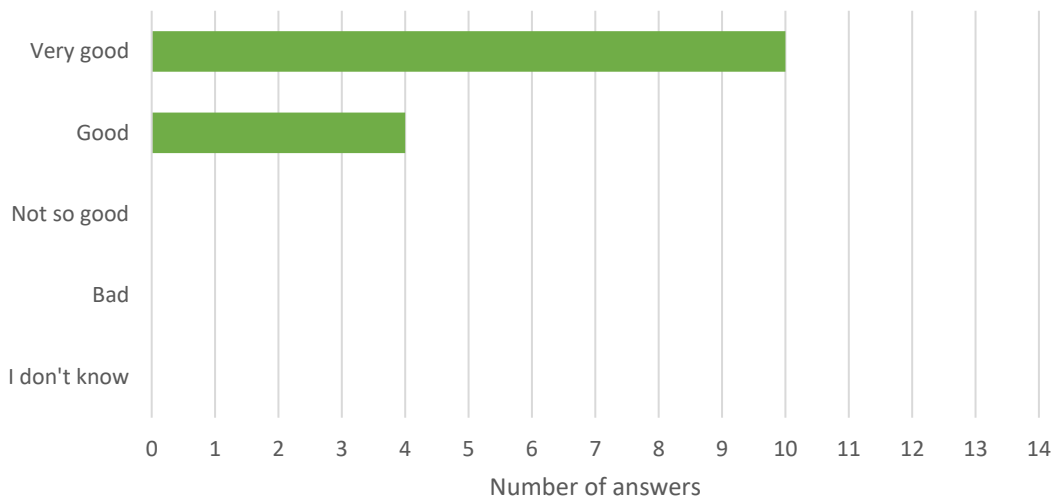


Figure 96: Rating of the Spanish trainings' organisation in general. n=14

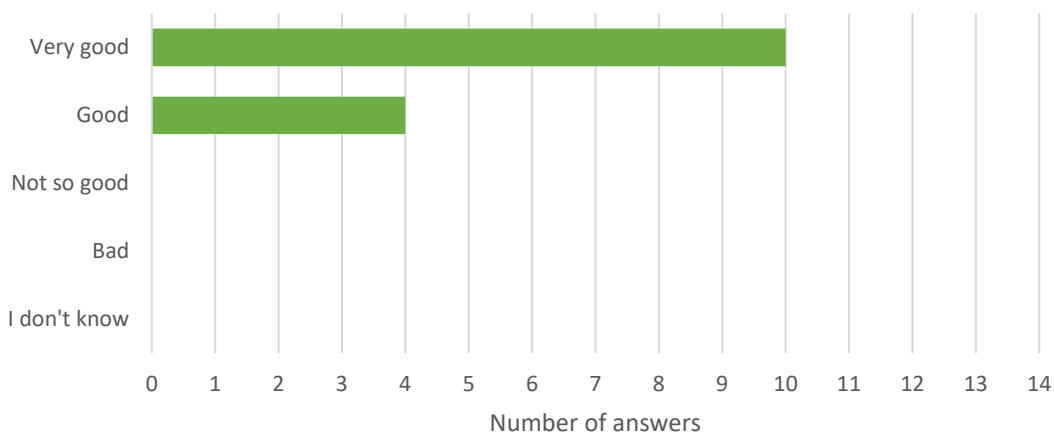


Figure 97: Rating of the Spanish presenters' capacity. n=14

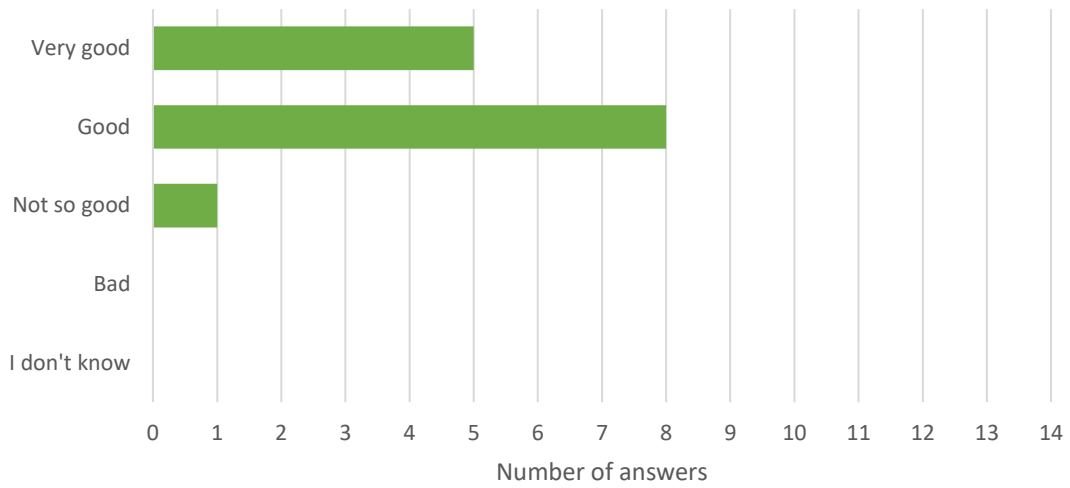


Figure 98: Rating of the Spanish trainings' content. n=14

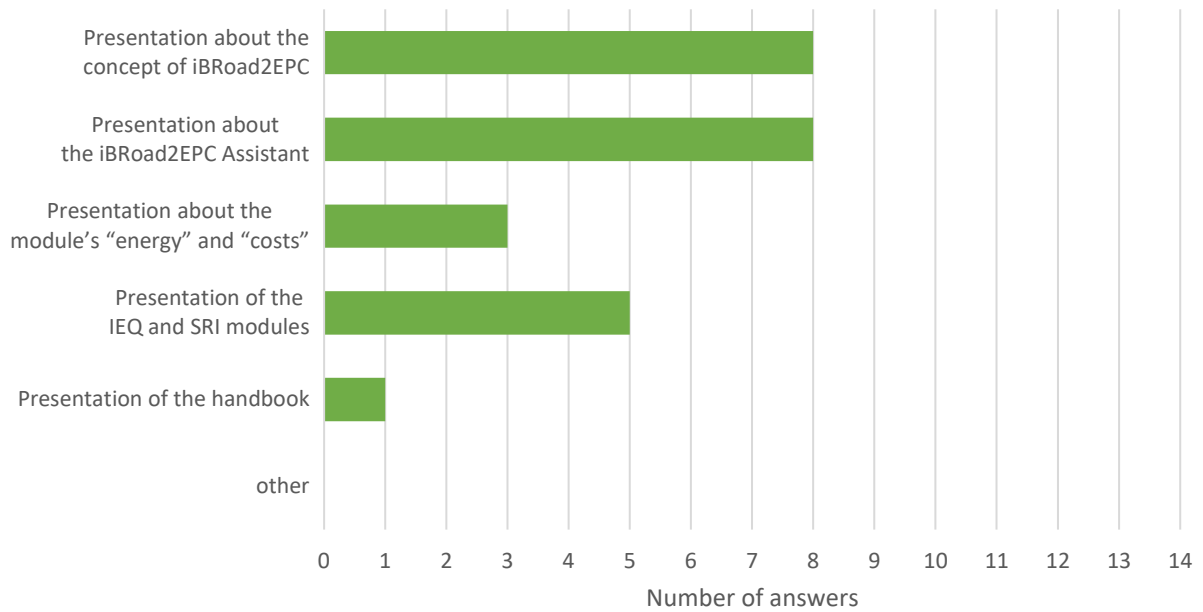


Figure 99: Answers to the question: "What did you like about the training?" in Spain. n=14

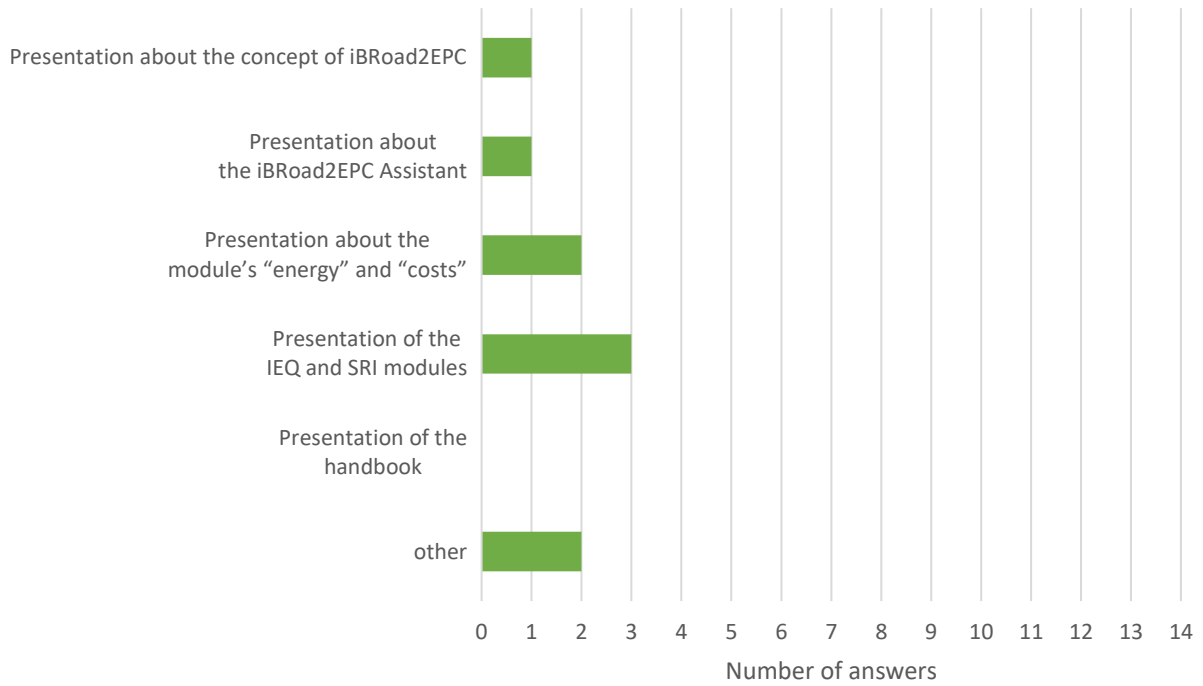


Figure 100: Answers to the question: "What did you not like about the training?" in Spain. n=14

The trainings' length of 4 hours was rated just right by most of the participants. Only two didn't think so, one of which said it was too long and the other that it was too short (see Figure 101).

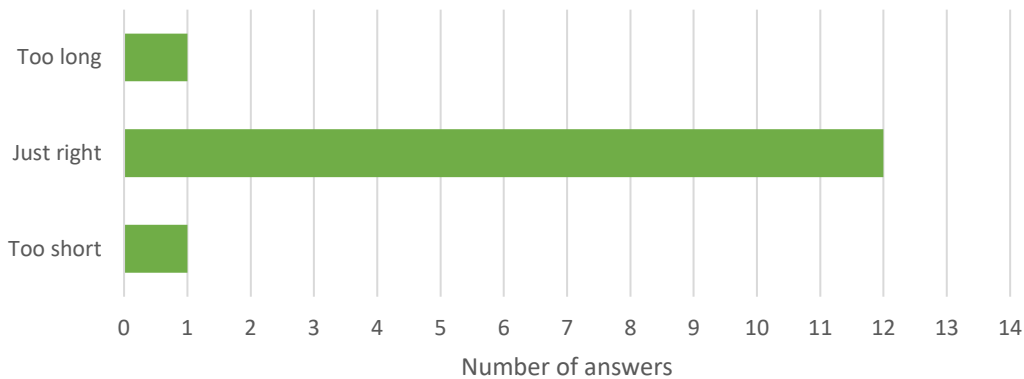


Figure 101: Rating of the Spanish trainings' length. n=14

Next to the trainings' organisation, the training material, i.e., the iBRoad2EPC presentation, handbook, on-site visit checklist and on-site visit blank template had to be evaluated by the participants. As shown in Figure 99, a lot of the participants were satisfied with the iBRoad2EPC presentation and the iBRoad2EPC Assistant. Figure 102 allows a more detailed evaluation of this part of the training. Eleven participants totally or tend to agree that the training was easy to understand and contained well-structured information. One said he or she is not sure about those points. Ten totally or tend to agree that the presentation was concise and contained interesting information, whilst nine said that the provided information was also of high quality. Seven participants had most of their questions about iBRoad2EPC answered by the presentation. Two rated the presentation complicated in comparison to eight of them answering that it was not complicated.

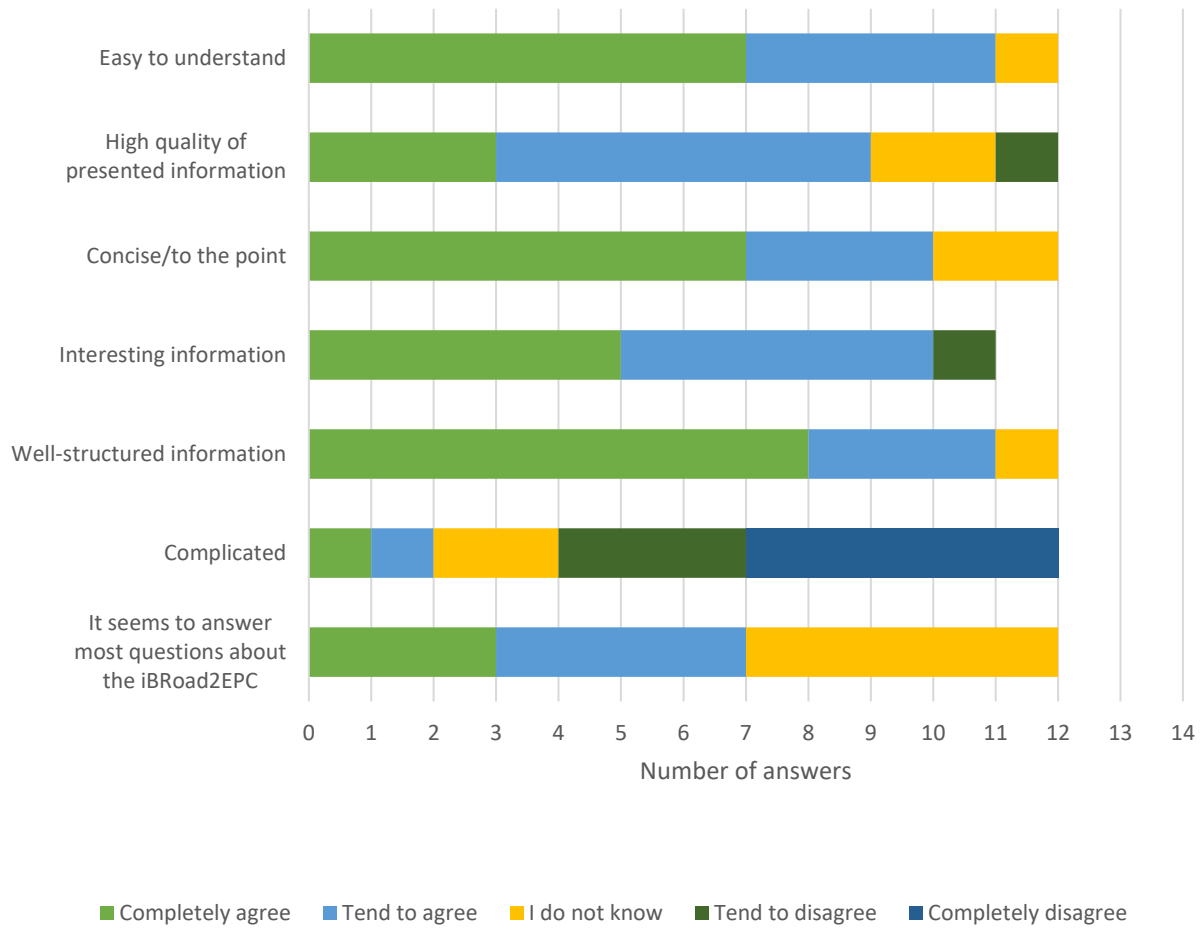


Figure 102: Answers to the question: “What do you think about the iBRoad2EPC presentation?” in Spain. n=14

14 participants in Spain received the handbook before the training session. At least ten answered that they completely or tend to agree that it was easy to understand and concise, contained high quality, well-structured and interesting information. However only seven said that it answered most of their questions about iBRoad2EPC and five were uncertain if this is the case. Eleven participants said that the handbook is not complicated (see Figure 103).

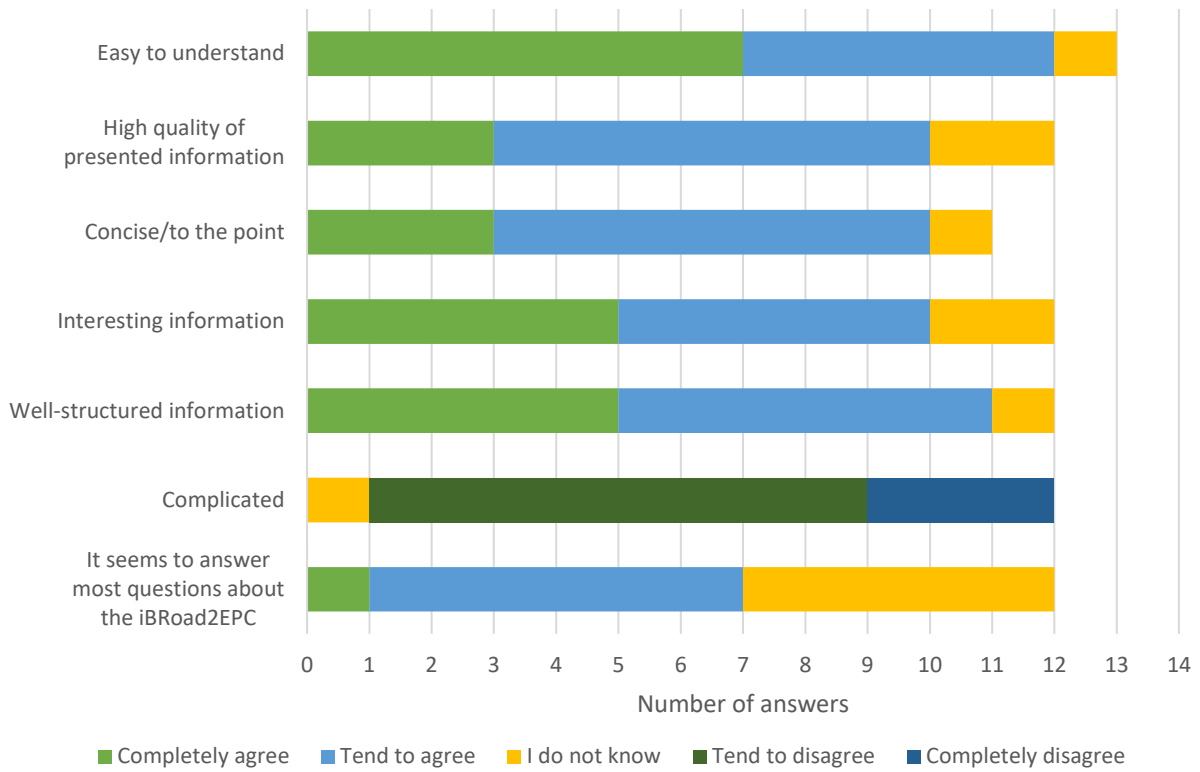


Figure 103: Answers to the question: "What do you think about the iBRoad2EPC handbook?" in Spain. n=14

Nine participants received the on-site visit checklist and said they were able to understand it very well or well (see Figure 104). One answered that it was poorly understandable, probably because this participant did not receive the checklist.

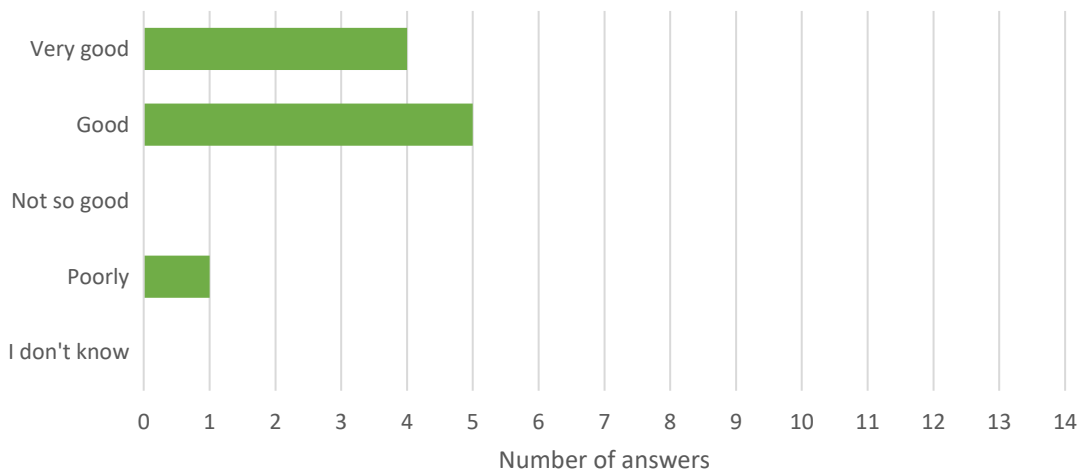


Figure 104: Extent to which the Spanish participants said that they understood the on-site visit checklist. n=14

The blank template for the on-site visit has been received by ten participants, whereas one did not receive or had a look at it. As for the understanding, Figure 105 shows that nine participants had no or minor issues understanding the blank template. One said it was poorly understandable.

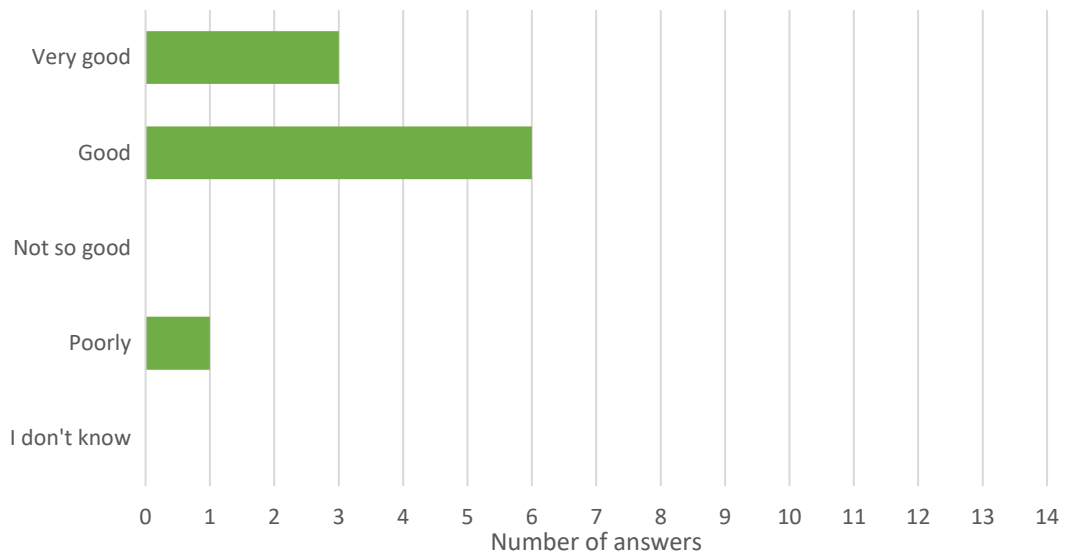


Figure 105: Extent to which the Spanish participants understood the iRoad2EPC on-site visit blank template. n=14

Eight participants saw the demo tour of the iRad2EPC Assistant and nine had the chance to use the iRoad2EPC Assistant during the online training.

ANNEX 4 – QUESTIONNAIRE FOR EXPERTS

Questions highlighted in blue are not analysed within this report.

iBRoad2EPC – Integrating Building Renovation Passports into Energy Performance Certification schemes for a decarbonised building stock

Evaluation of the auditors training Questionnaire for energy experts

Dear energy expert,

iBRoad2EPC is a European project intended to integrate Building Renovation Passport (BRP) elements into existing EPC schemes. Part of the concept developed within the iBRoad2EPC project, is the iBRoad2EPC auditors training.

You have kindly attended the iBRoad2EPC auditors training offered by [provider] on [date] in [country]. The iBRoad2EPC training was [combined/not combined] with normal EPC auditors training.

The main purpose of this questionnaire is for participants of the iBRoad2EPC auditors training to evaluate the relevant training and related material for us to:

- improve the training itself and related material.
- understand experts' views on the potential for integration of the iBRoad2EPC concept, and thereby also training, into the national EPC scheme, including auditor's training schemes.

Your answers are subject to the data protection regulations of the General Data Protection Regulation (GDPR) and will only be used within the framework of the iBRoad2EPC scientific research. They will not be passed on to third parties.

We will evaluate your answers anonymously. We will not store your answers together with your personal data, so that your answers will remain anonymous in the future.

Your feedback is valuable to us and may contribute to the further development of relevant schemes in your country; we very much appreciate your contribution!

1. To which of the following age categories do you belong?	
18 - 20	<input type="checkbox"/>
21 - 29	<input type="checkbox"/>
30 - 39	<input type="checkbox"/>
40 - 49	<input type="checkbox"/>
50 - 59	<input type="checkbox"/>
60 or older	<input type="checkbox"/>

2. Please enter your gender.	
Male	<input type="checkbox"/>
Female	<input type="checkbox"/>
Non-binary	<input type="checkbox"/>
Prefer not to say	<input type="checkbox"/>

3. What is your level of education?	
Lower school degree	<input type="checkbox"/>
High school graduation or equivalent	<input type="checkbox"/>
Studies without a degree	<input type="checkbox"/>
Bachelor's degree	<input type="checkbox"/>
Master's degree	<input type="checkbox"/>
PhD degree	<input type="checkbox"/>

4. What is your field of education?	
Architecture	<input type="checkbox"/>
Structural engineering	<input type="checkbox"/>
Engineering (construction)	<input type="checkbox"/>
Technical building equipment	<input type="checkbox"/>
Physics	<input type="checkbox"/>
Electrical engineering	<input type="checkbox"/>
Mechanical engineering	<input type="checkbox"/>
Chimney sweep or similar	<input type="checkbox"/>
Other	<input type="checkbox"/>

5. Are you a certified/qualified EPC issuer?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

6. For how long have you been an EPC issuer?	
0 - 6 months	<input type="checkbox"/>
6 months to 1 year	<input type="checkbox"/>
1 - 3 years	<input type="checkbox"/>
More than 3 years	<input type="checkbox"/>

7. With whom did you have your training as an EPC issuer? (Name of the institute/company/authority/university). <i>Please write free text.</i>

8. How long did the EPC issuer training last (hours/days/months)? <i>Please write free text.</i>

9. What was the content of your initial EPC training? <i>Please write free text.</i>

10. Did you have to pass an examination after the EPC training?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

11. For Greece: Are you an A, B or C class EPC issuer?	
A class issuer	<input type="checkbox"/>
B class issuer	<input type="checkbox"/>
C class issuer	<input type="checkbox"/>

12. For Bulgaria: Are you a level 1 or level 2 EPC issuer?	
Level 1	<input type="checkbox"/>
Level 2	<input type="checkbox"/>
Level 1 and 2	<input type="checkbox"/>

13. For Portugal: Are you a RES - PQ I or COM - PQ II EPC issuer?	
RES - PQ I	<input type="checkbox"/>
COM - PQ II	<input type="checkbox"/>
RES - PQ I and COM - PQ II	<input type="checkbox"/>

14. For Romania: Are you a Professional degree I or Professional degree II EPC issuer?	
Professional degree I	<input type="checkbox"/>
Professional degree II	<input type="checkbox"/>
Professional degree I and Professional degree II	<input type="checkbox"/>

15. Approximately how many EPCs have you already issued (excl. those issued/to be issued as part of the iBRoad2EPC field test)?	
None	<input type="checkbox"/>
Less than 10 EPCs	<input type="checkbox"/>
10 - 50 EPCs	<input type="checkbox"/>
More than 50 EPCs	<input type="checkbox"/>

16. For which building types have you already issued EPCs in the past? <i>Multiple answers possible.</i>	
Single-family buildings	<input type="checkbox"/>
Two family houses	<input type="checkbox"/>
Multi-family buildings	<input type="checkbox"/>
Apartments	<input type="checkbox"/>
Office buildings	<input type="checkbox"/>
Buildings for research and university	<input type="checkbox"/>
Health and care buildings	<input type="checkbox"/>
School buildings	<input type="checkbox"/>
Buildings for culture	<input type="checkbox"/>
Sports buildings	<input type="checkbox"/>
Technical buildings	<input type="checkbox"/>
Transport buildings	<input type="checkbox"/>

17. Do you also provide energy audits/energy advice other than EPC audits?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
I don't know/don't understand	<input type="checkbox"/>

18. How many energy audits (other than EPC audits) have you already carried out?	
None	<input type="checkbox"/>
Less than 10	<input type="checkbox"/>
10 - 50	<input type="checkbox"/>
More than 50	<input type="checkbox"/>

19. Have you carried out energy audits (other than EPC audits) for the following building types? <i>Multiple answers possible.</i>	
Single-family buildings	<input type="checkbox"/>
Two family houses	<input type="checkbox"/>
Multi-family buildings	<input type="checkbox"/>
Apartments	<input type="checkbox"/>
Office buildings	<input type="checkbox"/>
Buildings for research and university	<input type="checkbox"/>
Health and care buildings	<input type="checkbox"/>
School buildings	<input type="checkbox"/>
Buildings for culture	<input type="checkbox"/>
Sports buildings	<input type="checkbox"/>
Technical buildings	<input type="checkbox"/>
Transport buildings	<input type="checkbox"/>

20. Do you use the EPC renovation recommendations in the EPC?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
I am not aware of/do not have this function in the EPC	<input type="checkbox"/>

21. What do you think about the renovation recommendations in the EPC?	
They give the customer a good overview of future renovations	<input type="checkbox"/>
They do not provide much information	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

22. Have you previously developed a long-term renovation plan for a building? <i>Please write free text.</i>	

23. Have you participated in other trainings from this provider before?	
No	<input type="checkbox"/>
Yes, in one or two trainings	<input type="checkbox"/>
Yes, in more than two trainings	<input type="checkbox"/>

24. If question 23 was yes, when was this training?	
Within 2023	<input type="checkbox"/>
Last year	<input type="checkbox"/>
Between 1 and 5 years ago	<input type="checkbox"/>
Longer than 5 years ago	<input type="checkbox"/>

25. If question 23 was yes, about what topic was this training? <i>Please write free text.</i>

26. If question 23 was yes, how would you rate the trainings you have attended with this provider in the past?	
Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Not so good	<input type="checkbox"/>
Poor	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

The following questions refer to today's iBRoad2EPC training

27. What was your motivation to attend this training? <i>Multiple answers possible.</i>	
I would like to know new developments of the EPC	<input type="checkbox"/>
I am interested to broaden my knowledge about building energy efficiency and building decarbonisation in general	<input type="checkbox"/>
I believe the EPC must be enhanced, adapted, and modernised to facilitate climate targets	<input type="checkbox"/>
I believe the EPC must be enhanced, adapted, and modernised to accommodate the needs of building users	<input type="checkbox"/>
I feel there is more added value in a renovation plan than in the EPC recommendations	<input type="checkbox"/>
I believe the quality of EPCs must be improved	<input type="checkbox"/>
I feel the EPC is missing out on aspects like comfort, smart readiness, user advice or other	<input type="checkbox"/>
I strongly feel that EPC issuers need better, improved, and updated skills	<input type="checkbox"/>
The iBRoad2EPC was explained to me in advance and I am eager to see what it contains and would like to know how the iBRoad2EPC will be issued.	<input type="checkbox"/>
Other: <i>Please write free text.</i>	<input type="checkbox"/>

28. How did you participate in this training?	
Online	<input type="checkbox"/>
Physically	<input type="checkbox"/>

29. Did you like this training format?	
Yes, it was just right.	<input type="checkbox"/>
No, I believe it would be better if it was ... <i>(Please write free text.)</i>	<input type="checkbox"/>

30. How would you rate the organisation of this training in general?	
Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Not so good	<input type="checkbox"/>
Bad	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

31. How would you rate presenters of this training?	
Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Not so good	<input type="checkbox"/>
Bad	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

32. How would you rate the content of the training?	
Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Not so good	<input type="checkbox"/>
Bad	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

33. How would you rate the part of the training about...	Very good	Good	Not so good	Bad	I don't know
iBRoad2EPC Overview	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IEQ Module	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SRI Module	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discussion (Q&A)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

34. Do you have any suggestions for improvement? What should be changed? <i>Please write free text.</i>

35. How would you rate the length of the iBRoad2EPC training in general?	
Too long	<input type="checkbox"/>
Just right	<input type="checkbox"/>
Too short	<input type="checkbox"/>

36. What did you like about the training?	
Presentation about the concept of iBRoad2EPC	<input type="checkbox"/>
Presentation about the iBRoad2EPC Assistant	<input type="checkbox"/>
Presentation about the module’s “energy” and “costs”	<input type="checkbox"/>
Presentation of the IEQ and SRI modules	<input type="checkbox"/>
Presentation of the handbook	<input type="checkbox"/>
Other (<i>Please write free text</i>)	<input type="checkbox"/>

37. What did you not like about the training?	
Presentation about the concept of iBRoad2EPC	<input type="checkbox"/>
Presentation about the iBRoad2EPC Assistant	<input type="checkbox"/>
Presentation about the module’s “energy” and “costs”	<input type="checkbox"/>
Presentation of the IEQ and SRI modules	<input type="checkbox"/>
Presentation of the handbook	<input type="checkbox"/>
Other (<i>Please write free text</i>)	<input type="checkbox"/>

38. Do you have any wishes or suggestions for improving the training? <i>Please write free text.</i>

iBRoad2EPC training material

iBRoad2EPC presentation

39. What do you think about the iBRoad2EPC presentation?	Completely agree	Tend to agree	I do not know	Tend to disagree	Completely disagree
Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High quality of presented information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concise/to the point	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interesting information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well-structured information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It seems to answer most questions about the iBRoad2EPC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. Do you have any suggestions for improving the presentation of iBRoad2EPC? *Please write free text.*

--

iBRoad2EPC handbook

41. Did you receive the handbook about iBRoad2EPC?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

42. What do you think about the handbook of iBRoad2EPC?	Completely agree	Tend to agree	I do not know	Tend to disagree	Completely disagree
Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High quality of presented information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concise/to the point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interesting information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well-structured information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It seems to answer most questions about the iBRoad2EPC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

43. Do you have any suggestions for improving the iBRoad2EPC handbook? Please write free text.	

iBRoad2EPC checklist

44. Did you receive the checklist for the on-site visit to iBRoad2EPC?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

45. Did you understand the iBRoad2EPC on-site visit checklist?	
Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Not so good	<input type="checkbox"/>
Poorly	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

46. Do you have any suggestions for improving the on-site visit checklist for iBRoad2EPC? Please write free text.	

iBRoad2EPC blank template

47. Did you receive the blank template for the iBRoad2EPC on-site visit? Please write free text.	

48. Did you understand the blank template for the iBRoad2EPC on-site visit?	
Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Not so good	<input type="checkbox"/>
Poorly	<input type="checkbox"/>
I don't know	<input type="checkbox"/>

49. Do you have any suggestions for improving the blank template for the iBRoad2EPC on-site visit? Please write free text.

iBRoad2EPC Assistant

50. Did you see a demo tour of the online tool "iBRoad2EPC Assistant"?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

51. Did you use the online tool "iBRoad2EPC Assistant" during the training?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

52. What do you think about the online tool "iBRoad2EPC Assistant"?	Completely agree	Tend to agree	I do not know	Tend to disagree	Completely disagree
Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High quality of presented information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concise/to the point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interesting information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well-structured information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

53. Do you have any suggestions for the online tool "iBRoad2EPC Assistant"? Please write free text.

Content of the iBRoad2EPC training

54. Which aspects of the iBRoad2EPC do you think are most interesting?	Very interesting	Rather interesting	Less interesting	Not interesting	I don't know
The improvement of the renovation recommendations in the EPC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The long-term perspective until 2050	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The possibility of stepwise renovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The preparation for future obligations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The preparation of future renovation steps (avoidance of lock-in effects)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information on the energy demand for future renovation steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information on renovation costs for future renovation steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information on indoor environmental quality (IEQ) for future renovation steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information on the smart readiness indicator (SRI) for future renovation steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information on user behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The graphical layout of the iBRoad2EPC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The fact that it uses an existing tool, the EPC, and brings it closer to an individual building renovation roadmap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

55. For which building types do you think iBRoad2EPC is most suitable? <i>Multiple answers possible.</i>	
Single-family buildings	<input type="checkbox"/>
Two family houses	<input type="checkbox"/>
Multi-family buildings	<input type="checkbox"/>

Apartments	<input type="checkbox"/>
Office buildings	<input type="checkbox"/>
Buildings for research and university	<input type="checkbox"/>
Health and care buildings	<input type="checkbox"/>
School buildings	<input type="checkbox"/>
Buildings for culture	<input type="checkbox"/>
Sports buildings	<input type="checkbox"/>
Technical buildings	<input type="checkbox"/>
Transport buildings	<input type="checkbox"/>

56. Would you offer the iBRoad2EPC to your clients?	
Yes <i>(Please describe why in a free text.)</i>	<input type="checkbox"/>
No <i>(Please describe why in a free text.)</i>	<input type="checkbox"/>

57. Do you see potential in the integration of EPC with iBRoad2EPC? Please write free text.

Further questions

58. What would you consider the added value for your potential clients? Please write free text.

59. What would be the added value for you? Please write free text.

60. What would be the added value for the climate targets? Please write free text.

61. How do you think clients would receive the iBRoad2EPC integration with the EPC?	
Very positively	<input type="checkbox"/>
Positively	<input type="checkbox"/>
Not so positively	<input type="checkbox"/>
Negatively	<input type="checkbox"/>
I don't know	<input type="checkbox"/>
<i>If you like, please describe why in a free text.</i>	

62. What would you consider a reasonable additional cost for the iBRoad2EPC if merged with the EPC?	
Free of charge	<input type="checkbox"/>
Up to 50 €	<input type="checkbox"/>
50 - 100 €	<input type="checkbox"/>
100-200 €	<input type="checkbox"/>
200-400 €	<input type="checkbox"/>
More than 400 €	<input type="checkbox"/>

63. What is missing from the iBRoad2EPC training to make it suitable for merging with EPC? Please write free text.

64. Do you think training of energy experts should be mandatory or optional?	
Mandatory	<input type="checkbox"/>
Optional	<input type="checkbox"/>

65. Do you think an examination after the EPC training would be useful?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

Thank you very much for your help!

The results of the evaluation will contribute to the further development of the iBRoad2EPC.



iBRoad2EPC

www.ibroad2epc.eu



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