



Training toolkit

Accompanying report



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EXECUTIVE SUMMARY

The iBRoad2EPC training toolkit contains all the information and training materials required to teach energy experts how to create an iBRoad2EPC as a complement to the Energy Performance Certificate (EPC). It is designed for training institutions in the individual countries that organise regular training courses for energy experts and EPC issuers. The training institutions can either integrate the iBRoad2EPC training toolkit into their regular EPC-curricula or offer it as a separate course.

The actual circumstances of EPC trainings in the six iBRoad2EPC pilot countries (Bulgaria, Greece, Poland, Portugal, Romania and Spain) build the starting point for creating a training toolkit that meets all different expectations. Adaptation requirements refer to the trainings' organisation either as part of the regular EPC training or as stand-alone seminars. In some countries, EPC training is provided by a variety of private institutions whereas in others training is centralised and offered via official institutions. The training content is organised in a semi-flexible way. It consists of the basics and objectives, the core functions of iBRoad2EPC and the additional modules, which can be selected individually in each country. These include the additional indicators on smart readiness, indoor environmental quality and measured energy performance. The training toolkit is presented to the pilot countries (as well as other Member States) as a pool containing the complete information about all iBRoad2EPC functionalities.

The training toolkit consists of the following elements:

- **iBRoad2EPC Handbook for energy auditors**
It provides guidance and advice on how to issue the iBRoad2EPC in general, what principles to respect and how to define the renovation steps in collaboration with the building users. Additional functionalities are also explained, i.e., the assessment of the energy demand, investment cost, indoor environmental quality, measured energy consumption and smart readiness. The handbook explains all basic processes and provides the reader with concrete steps on the use of these functionalities.
- **iBRoad2EPC training presentations for energy auditors**
The basic presentation (available in English) 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. Additional country specific and/or translated presentations are available for Bulgaria, Greece, Poland, Portugal, Romania and Spain.
- **Checklist for the preparation of the iBRoad2EPC on-site visit**
The checklist has a preparational function to the mandatory on-site visit. It gathers all relevant information that need to be available to the energy auditor to ensure perfect execution of the iBRoad2EPC
- **Blank template for the on-site visit**
The blank template is intended 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.

All training material is initially provided in English language. The training toolkit has also been adapted to specific country requirements by erasing parts related to functionalities that are not implemented in the country as well as by translating the relevant parts to the respective language. On top of that, training institutions can enhance the iBRoad2EPC training presentation to further address national specifications.

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I. OBJECTIVES OF THE TRAINING TOOLKIT

The iBRoad2EPC training toolkit aims to address a number of objectives that are dedicated to one main goal. This main goal is to create a training for energy experts to enable them to issue an iBRoad2EPC. This included multiple sub-tasks.

It started with the analysis of country specific boundary conditions of the EPC training in the six partner countries. This analysis aimed to reveal what is missing in the EPC training regarding a sufficient preparation to the iBRoad2EPC training. Those findings were used to develop the four parts of the iBRoad2EPC training toolkit, i.e., the iBRoad2EPC Handbook for energy auditors, the iBRoad2EPC training presentation, the checklist for the preparation of the iBRoad2EPC on-site visit and the blank template for the iBRoad2EPC on-site visit. The analysis also aimed to define the added value which the training toolkit could provide to the national EPC training. To ensure that the iBRoad2EPC training (and the corresponding toolkit) will be attractive to the market after the end of the project, the critical points for a connection to the national EPC training were also analysed.

Using the training toolkit, energy auditors should be able to take advantage of the full range of iBRoad2EPC functionalities. They should be enabled to prepare and perform the on-site visit and hence issue the iBRoad2EPC. They should gain knowledge to act as advisors for the building/dwelling owner and therefore enhance the EPC issuance with recommendations that anticipate foreseeable legal obligations, prevent lock-in situations and finally lead to a deeply renovated building. The knowledge that is to be provided by the training toolkit goes even beyond that. Energy auditors will be able to use advanced indicators like I(ndoor) E(nvironmental) Q(uality) assessment, the M(easured) E(nergy) P(erformance) I(ndicator) or the S(mart) R(eadiness) I(ndicator) which all address features of the building that will gain in importance envisioning a climate neutral building stock.

II. REVIEW OF SPECIFIC TRAINING REQUIREMENTS IN EACH PARTNER COUNTRY

As part of the overall screening which took place in the report “*Conceptualising iBRoad2EPC: How EPCs can be upgraded to include building renovation passport elements*”, an overview of the situation regarding available expert training in pilot countries was given. Building upon that, the existing situations of EPC trainings in the countries are further investigated to identify possible market introductions for iBRoad2EPC training, in particular regarding merging it with existing EPC trainings.

For this purpose, interviews were held with the six pilot countries to analyse the currently available expert trainings (either mandatory or voluntary) and their boundary conditions in the countries. The results supported the development of the iBRoad2EPC training toolkit.

The availability of trainings for energy experts differs significantly between the pilot countries. In Greece, Poland, Portugal and Spain, training is not mandatory to become an EPC issuer. In all pilot countries, except Spain, EPC issuers have to be accredited. However, dedicated trainings (even if not official) are available in all pilot countries except Bulgaria and Poland. Although the criteria and content of the training is well defined in Bulgaria, no trainings have been offered for eight years. Availability of training and institutions providing training for EPC issuers is a prerequisite for iBRoad2EPC. Also, experienced instructors who are familiar with all aspects of energy-efficient building renovation are required. The necessary organisational structures cannot be provided by the iBRoad2EPC project.

The training courses for EPC issuers are offered by official providers in some pilot countries and by private providers in others. The iBRoad2EPC training is suitable for implementation by both official and private training institutions. In the case of private providers, however, it should be noted that the national adaptation of iBRoad2EPC must be coordinated by a central organisation.

EPC issuers in all pilot countries must have a university or professional degree in a building-related technical realm. For this reason, the iBRoad2EPC training toolkit assumes a solid basic knowledge of energy-efficient building renovation. Neither general explanations about building efficiency nor about renewable energy are included in the iBRoad2EPC training, as they would reach significantly beyond the project scope.

Table 1 shows an overview of the EPC trainings’ situations in the six pilot countries.

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

	Bulgaria	Greece	Poland	Portugal	Romania	Spain
Training and/or accreditation mandatory to issue EPC	Yes	Training: no Accreditation: yes	Training: No Registration: Yes	Training: No Accreditation: Yes	Yes	No
Training availability	Practically not available due to policy crisis	Available, not official	Not available	Officially available	Officially available	Available, not official
Provider	Technical Universities	Private training entities		National Energy Agency ADENE; Private training entities	Technical Universities; Private training entities	Public entities; Private training entities
Prerequisites to attend EPC training or issue EPC	University or professional degree in a building-related technical realm.	University or professional degree in engineering; Membership in Technical Chamber of Greece	Engineering or Architecture Degree	Engineering or Architecture Degree; Five years of experience in energy efficiency in buildings	Issue EPC: Attendance of training, physical and mental health, lack of criminal antecedents, professional experience	Engineering or Architecture Degree
Duration	Level 1: 115 h Level 2: 80 h	12 h to 60 h depending on training provider		Category I: 56 h Category II: 36 h	80 h	6 h to 40 h depending on provider
Topics	Level 1: Energy audits (30 topics), building certification, evaluation of investment projects, Practice Level 2: Energy audits (20 topics), building certification, evaluation of investment projects, Practice	Building envelope, electromechanical systems, EPC examples and software demonstration		Six common topics for all trainees, two specific topics each for Class I (residential) and Class II (commercial/service) trainees	Legislation and technical regulations, calculation Methodology, renewable energy	Practical use of certification programmes
Examination	Yes	No	-	Yes	Yes	No

	Bulgaria	Greece	Poland	Portugal	Romania	Spain
Derived specifics	Very advanced EPC issuers; Broad technical knowledge in place; Knowledge transfer on a scientific basis with fixed curriculum	Capability of EPC issuers not clearly defined; Knowledge transfer not governed; Minor EPC quality	Capability of EPC issuers unclear; No official training; Knowledge transfer not governed; Minor EPC quality	EPC issuers have sound knowledge; Knowledge transfer is governed and constantly ensured;	Advanced EPC issuers; Knowledge transfer is governed; High aims on EPC quality but low conversion rate	Capability of EPC issuers not clearly defined; Knowledge transfer not governed

III. FLEXIBILITY OF THE IBROAD2EPC TRAINING TOOLKIT

Based on the insights of the country interviews, the following boundary conditions can be derived for the development of the training toolkit.

- **Flexibility with respect to EPC trainings**
 - According to the interviews, it seems at the moment not probable for iBRoad2EPC training to be combined with existing EPC training in any of the pilot countries. Thus, the training toolkit must build a discreet unit and allow for a separate iBRoad2EPC training independent from the national EPC training. Of course, basic knowledge about energy efficiency and EPCs is assumed. The iBRoad2EPC training toolkit does not provide a complete introduction into EPCs and Building Renovation Passports (BRPs).
 - On the other hand, iBRoad2EPC must be adaptable to existing EPC trainings. It can easily be integrated into the curricula of EPC trainings as a specific unit without affecting other content. In particular, the duration of iBRoad2EPC training is short compared to the duration of the complete EPC trainings. This allows integration either as a mandatory or a voluntary addition to the EPC training.
- **Flexibility with respect to the training institutions**
 - The interviews show that the training institutions throughout the pilot countries are both either an official national agency or a private training institution. They are in some cases regulated and in some cases not regulated. Private institutions will easily be able to integrate iBRoad2EPC training in their curricula. By the date of this report, no private training institution answered positively to the iBRoad2EPC partner institutions' request to integrate the iBRoad2EPC training into their curricula. However, iBRoad2EPC is designed to be officially implemented in a Member State in case EPC training is already in place. A train-the-trainer seminar is recommended to explain the usage and targets of iBRoad2EPC to training institutions.
- **Flexibility with respect to the content**
 - According to the interviews, not all pilot countries will implement all iBRoad2EPC modules. Especially in Greece two versions of iBRoad2EPC with different information depth are foreseen. This means that the training toolkit must be easily adaptable to different content requirements. To this end, the training toolkit is organised in a semi-flexible way with general core information explaining principles and basic procedures. The presentation is provided in editable format to enable users to adapt the content to their country specific needs.

IV. TRAINING TOOLKIT

The training toolkit includes the following elements:

- **iBRoad2EPC Handbook for energy auditors**
It provides guidance and advice on how to issue the iBRoad2EPC in general, what principles to respect and how to define the renovation steps in collaboration with the building users. Additional functionalities are also explained, i.e., the assessment of the energy demand, investment cost, indoor environmental quality, measured energy consumption and smart readiness. The handbook explains all basic processes and provides the reader with concrete steps on the use of those functionalities.
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The tool to issue the iBRoad2EPC - the iBRoad2EPC Assistant - is an integral part of the iBRoad2EPC concept. Although it is not part of the training toolkit, it is indispensable for the experts' training. Please find more information on the implementation of the iBRoad2EPC Assistant in the iBRoad2EPC reports "*iBRoad2EPC in depth: Technical report on the definition of the proposed concept, content and methodology of iBRoad2EPC*" and "*Specification for the iBRoad2EPC software tools: Report on adaptation requirements for roll-out countries*".

V. ADAPTING THE IBROAD2EPC TRAINING TOOLKIT TO COUNTRY REQUIREMENTS

When adapting the iBRoad2EPC training toolkit, a fundamental distinction must be made between adaptation for the nationwide roll-out of iBRoad2EPC and adaptation as part of the field test. It is very important to design the training toolkit so flexibly that it can be easily adapted for a nationwide roll-out. This flexibility is described in chapter III. The further design and customisation of iBRoad2EPC in the individual countries will be discussed within the National Advisory Committees over the coming months. It will have to be decided whether and how the iBRoad2EPC training should be integrated into the regular EPC training or whether it should be offered as a separate additional training course. Both options can be covered with this training toolkit.

During the field test of iBRoad2EPC, the training toolkit was already partially adapted to the needs of the individual countries. For example, most of the training material was translated into the languages of the pilot countries (except Greek), and the training was offered as a supplementary programme to national EPC training courses. However, for the field test, all iBRoad2EPC modules were presented during the training (instead of a country-specific selection). The trainings were conducted by the country partners to guarantee consistent training quality.

Table 2 provides an elaborated summary of the implemented country specific adaptations. The adapted presentations as used for the energy experts' trainings in the six pilot countries are part of the Annex to this report.

Table 2: Country specific adaptations of the iBRoad2EPC training toolkit

	Bulgaria	Greece	Poland	Portugal	Romania	Spain
Target group	Advanced, trained, and registered EPC issuers of at least Level II; Building related Engineers	Trained Engineers, Architects or Professionals; registered as energy inspector	Engineering and Architecture Graduates with EPC issuing experience	Trained and registered EPC issuers at least Category II	Trained and registered EPC issuers; Engineers, Architects, Professionals or Chimney Sweeper	Trained EPC issuers; Engineers or Architects
Training institution	EnEffect	INZEB	KAPE	ADENE	URBAN INCERC	Cíclica
Expert's prerequisites / requirements	Recognised qualification for issuing EPCs Registration in a certification system (if present) Completed attendance of relevant EPC training At least 7 EPCs issued No notification about minor EPC quality on the record of the auditor					
Content	iBRoad2EPC introduction; Steps for issuing an iBRoad2EPC; iBRoad2EPC Assistant; Additional functionalities of iBRoad2EPC;	Latest legislation changes; iBRoad2EPC introduction; iBRoad2EPC Assistant; Additional functionalities of iBRoad2EPC; Practising within the Assistant	iBRoad2EPC introduction; Steps for issuing an iBRoad2EPC; iBRoad2EPC on-site visit checklist; iBRoad2EPC handbook; iBRoad2EPC Assistant	Latest legislation changes; iBRoad2EPC introduction; Steps for issuing an iBRoad2EPC; iBRoad2EPC training toolkit; iBRoad2EPC Assistant	iBRoad2EPC introduction; Steps for issuing an iBRoad2EPC; iBRoad2EPC Assistant Additional functionalities of iBRoad2EPC; Practising within the Assistant	iBRoad2EPC introduction; iBRoad2EPC Assistant; Practising within the Assistant

Duration	2,75 h	4,5 h	2 h	4 h	6 h	4 h
Point of time	After EPC training	After EPC training	After degree	After EPC training	After EPC training	After degree/after EPC training
Language	Bulgarian	English	Polish	Portuguese	Romanian	Spanish

The emergence of the iBRoad2EPC training toolkit was an iterative process. Relying on a sound basic toolkit that was originally developed to meet various adaptations and country specific variations, each of the six partner countries presented an adapted toolkit to the trainees.

In Bulgaria, Poland and Spain, the training presentations were shortened due to different reasons. In Poland and Spain, a general harmonised basic knowledge about EPC cannot be assumed because there is no EPC training obligation. Furthermore, the EPC framework in Spain relies on the various certification systems. Therefore, the training presentations were shortened to keep things simple or, in the case of Spain, focused on the skills the experts already have. In Bulgaria, however, the EPC training framework is standardised and elaborated so that it was sufficient to shorten the presentation.

All countries focused the training session on the use of the iBRoad2EPC Assistant. This tool is crucial to the whole process, and it was presented in depth during the training sessions, to provide room for tool-related questions and prepare the energy auditors for the use of the Assistant during the field test.

VI. CONCLUSION

The iBRoad2EPC training toolkit provides all basic information that energy experts need to issue an iBRoad2EPC. At the same time, it is highly flexible to adapt to the requirements of the iBRoad2EPC pilot countries as well as Member States beyond the consortium willing to implement iBRoad2EPC. The training toolkit proved its practicability during the iBRoad2EPC field test trainings. To this end, it was translated into five additional languages, and flexibly shortened or enhanced with country specific content.



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