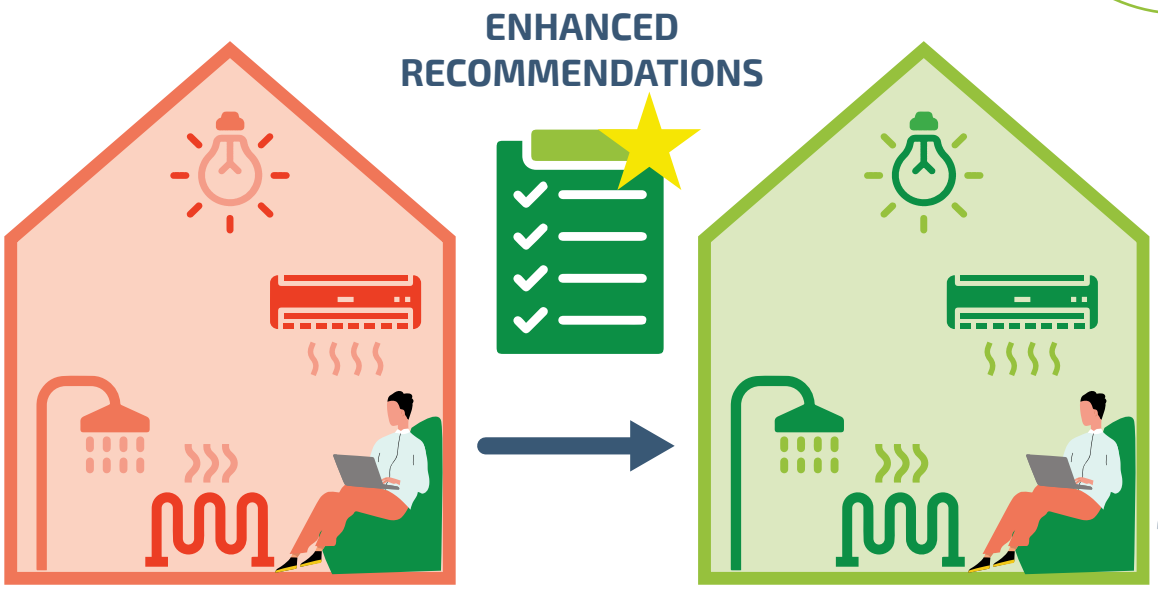
X-tendo

INTRODUCTORY REPORTS

ENHANCED RECOMMENDATIONS

MARCH 2021



THIS FEATURE DEMONSTRATES HOW TO AUTOMATICALLY PROVIDE ENHANCED RECOMMENDATIONS IN ENERGY PERFORMANCE CERTIFICATES (EPCS), MAINLY FOR BUILDING TRANSACTIONS (SELL/BUY/RENOVATE), AND HOW THEY CAN BE LINKED TO NATIONAL LONG-TERM RENOVATION AND CLIMATE STRATEGIES FOR THE BUILDING STOCK. ENHANCED RECOMMENDATIONS ARE ESPECIALLY IMPORTANT FOR OWNERS UNDERTAKING AND IMPLEMENTING DEEP RENOVATIONS. TARGETED RECOMMENDATIONS REQUIRE A HIGH LEVEL OF ACCURACY AND DETAIL, WHICH NEEDS TO BE REFLECTED IN THE INFORMATION COLLECTED AND THE DESIGN OF THE TOOL.

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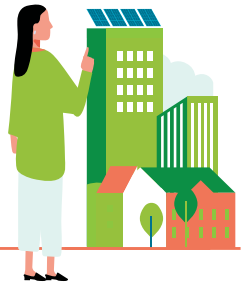
WHY WE DEVELOPED THIS FEATURE

EPC recommendations in many EU countries are not sufficiently informative to meet objectives. While reliable and usable indicative recommendations are sufficient for buying and selling houses, deep renovations require detailed recommendations.

The ambition of the X-tendo project is to improve on the current state of generic recommendations, which often only provide limited value to homeowners or buyers. The enhanced recommendations methodology will demonstrate a method to automatically generate useful EPC recommendations, extending the recommendations currently provided in EPC schemes. Although the proposed recommendations will improve the status quo, they cannot fully replace professional advice.

Additionally, the methodology suggests an approach to align the EPC recommendations with the national long-term renovation strategies. This approach could enhance the quality of recommendations by ensuring that they are not only in line with building requirements, but also in line with the national long-term energy and climate objectives.

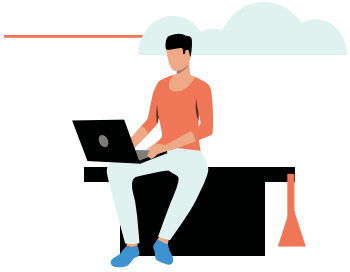
SCOPE OF APPLICATION



Current EPCs provide recommendations for different building types. This project will focus on residential buildings (single-family houses and/or multi-family buildings).

Building typology	New and existing buildings • Residential (single-family, multi-family)
Tenure	Owner-occupied, unoccupied, co-operative, private rental, public rental
Property status	Selling, buying – new built and renovation

LEVEL OF EXPERTISE, SKILLS AND TRAINING



No additional expertise beyond an intermediate level of energy auditing practice is required to provide the "enhanced recommendations" according to the methodology developed in X-tendo. The actual methodology will transparently show what additional data is needed to provide enhanced recommendations and support energy auditors' work.

	Fundamental awareness (basic knowledge)	**Novice** (limited experience)	**Intermediate** (practical application)	**Advanced** (applied theory)	**Expert** (recognised authority)
Enhanced recommendations			✓		

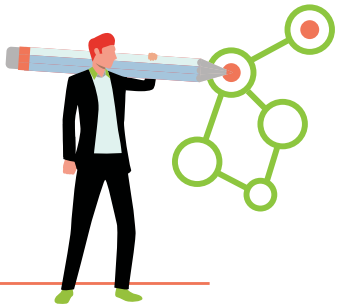
GOOD PRACTICES

Across the EU, a variety of tools and methods are in place for providing detailed and tailored recommendations.

- The Flemish research organisation VITO developed a tool which provides tailored recommendations based on the size of the house, family composition and the energy consumption of the residents.
- The Danish web platform BetterHome, a one-stop-shop solution, provides enhanced tailored recommendations for technical improvements and personalised recommendations.
- In the UK, Dynamic Engine enables customers to build an energy efficiency package that meets their personal needs, budget and objectives through tailored recommendations.

However, EPC recommendations still lack detail, and in many countries are based on standardised lists. X-tendo will develop a method to enhance EPC recommendations, which can be easily and automatically integrated into the existing EPC auditing processes. It should not be a standalone tool.

METHODS AND ASPECTS INCLUDED

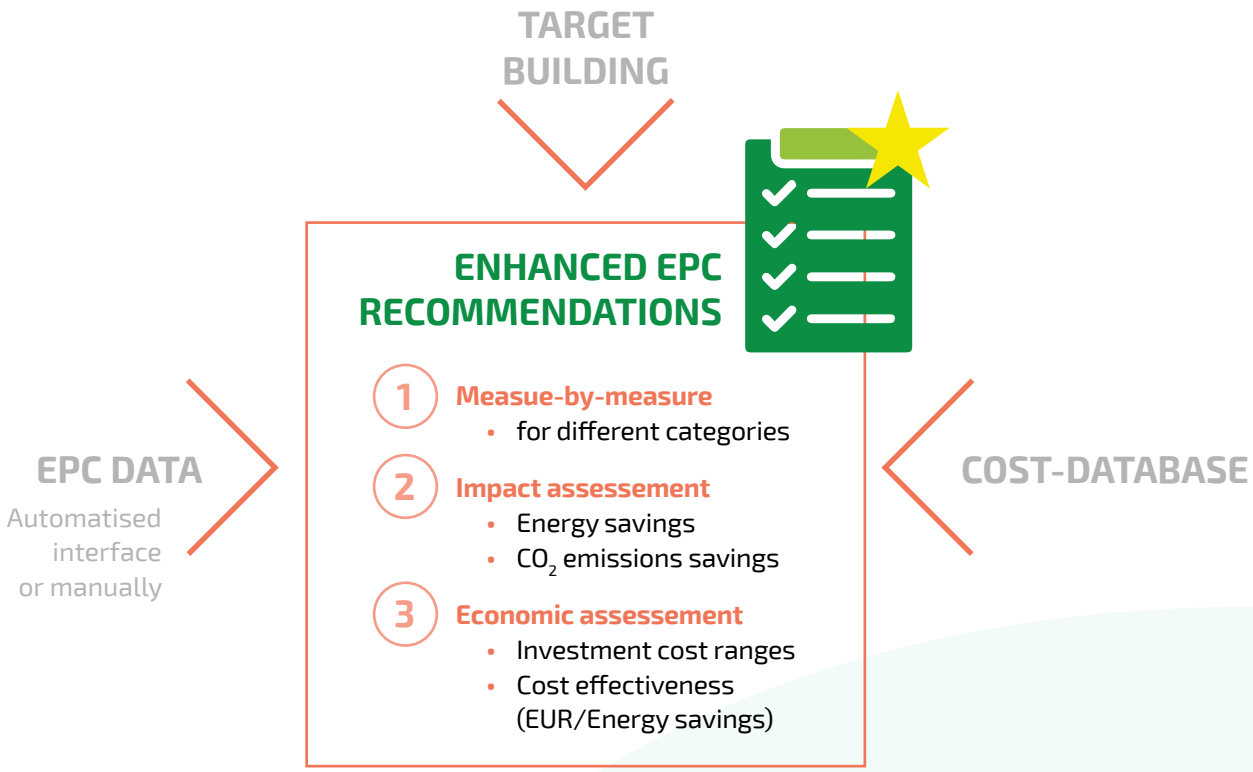


The proposed method is built on three pillars:

1. Enhancing actual recommendations, by automatically generating building-specific recommendations: this will comprise a discussion of how co-benefits resulting from these recommended measures can be included in the EPC recommendations.
2. Showing how the costs of recommended measures can be included in the EPC provision process, enabling calculation of the cost-effectiveness of the recommended measures.
3. Setting targeted values for recommendations to guarantee that they are in line with national long-term renovation and climate strategies for the building stock. In addition to the calculation methods, guidelines will also be provided on how to perform the calculations and assess the values, as a support handbook for energy auditors.

Figure 1 below presents an overview of the method. In general, this method can be divided in three parts: providing measure-by-measure recommendations, assessing the whole building impact of all recommendations, and providing an economic assessment. The third is optional, as it will depend on the availability and link to external databases, such as cost databases. Another aspect covered by the methodology is the definition of the target building, which can be set based on: 1) actual building standards regulations, 2) energy auditors' expertise, or 3) national long-term renovation strategies or other climate plans. The X-tendo methodology remains relevant for the UK, although it is no longer bound by EU energy or climate regulations.

Figure 1 - Overview of enhanced EPC recommendation methodology



HOW WE WILL IMPLEMENT IT

In general, the approach should commonly applied across all implementing countries (and EU Member States). Table 1 below shows the country-specific implementation of the proposed methodology:

Table 1 - Country-specific adaptations

	DENMARK	POLAND	SCOTLAND
ENHANCED MEASURE-BY-MEASURE RECOMMENDATIONS		Target building standards will be set according to Polish building regulations	
ENHANCED MEASURE-BY-MEASURE RECOMMENDATIONS INCLUDING ECONOMIC ASSESSMENT	Target building standards will be set according to Danish building regulations. Cost data will be defined according to actual market values.		Target building standards will be set according to UK building regulations. Cost data will be gathered from internal tools, such as insight and analytics.

OVERALL EVALUATION

LESSONS LEARNT

- Currently no clear definition of enhanced recommendations.
- Recommendations can be tailored to building users' behaviour or specific building data, instead of standardised recommendations based on a pre-defined list.
- Definition depends on the intended use and purpose of the EPC and the included recommendations.

PREREQUISITES

- Accurate gathering of building-related and end-user behaviour data helps in providing recommendations that are more accurate.
- The process should be done in a way that keeps EPC costs affordable. This is a relevant trade-off.

REPLICATION

- The methodology is easily replicable. Transparent documentation about required EPC data is available.
- Long-term replicability will be assured if the provided methods are integrated into EPC calculation software or automatically integrated into energy auditors' practice. Avoiding the use of many different tools is advisable.

PROS

- The methodology goes beyond energy efficiency savings to consider climate targets.

CONS

- Ideally needs to be incorporated in existing EPC calculation software to ensure long-term effectiveness.
- Member States must clearly define implications on different building archetypes in their long-term renovation strategies.

RISKS

- No integration with available EPC calculation software – but can be used as a standalone method.
- Imbalance in the trade-off between accuracy and higher EPC prices against less accuracy and lower EPC prices.

RECOMMENDATIONS

- Ensure well-defined long-term renovation strategy.
- Establish a transparent cost database of building materials and technical systems technology.

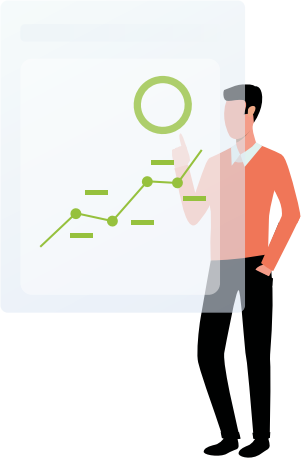
NEXT STEPS

- Increase the number of provided recommendations with potential to be applicable to different building types.
- Test the calculation of whole-building indicators in different countries.

COMPLEXITY

- The method suggests calculating a whole building indicator through building stock modelling or similar holistic approaches. These approaches should be able to calculate scenarios in line with the long-term renovation strategies.

COMPLIANCE WITH CROSS-CUTTING CRITERIA



QUALITY AND RELIABILITY OF EPCS

The main objective of the feature is to improve recommendations based on already available energy performance data collected in EPCs.

USER-FRIENDLINESS

The results of the methodology will be presented in a user-friendly manner, highlighting the type of recommended measure and consequent implication in terms of costs, emissions, energy demand and compliance with efficiency and decarbonising targets.

CONSISTENCY WITH STANDARDS

Calculation procedures are built on those used in best practice that are nationally allowed and foreseen in existing standards.

ECONOMIC AND POLITICAL FEASIBILITY

The target is to develop a scheme for recommendations by building on the existing EPC data of different Member States. Only limited additional costs should occur in the overall assessment. This should be feasible from a political point of view.

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LAAECR Asociația Auditorilor Energetici pentru Clădiri din România

adene

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