

EXPLORING METHODOLOGIES AND CONCEPTS FOR THE IMPLEMENTATION OF NEW ENERGY PERFORMANCE CERTIFICATES FEATURES FOR BETTER DATA HANDLING ONE-STOP SHOPS

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Preliminary version

This document is a preliminary version. It will be further adapted in the coming months through the findings of the test phase of the project.

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EXECUTIVE SUMMARY

The X-tendo project is developing a framework of ten "next-generation EPC features", aiming to improve compliance, usability and reliability of the EPC. These features are divided in two categories, innovative indicators and innovative data handling.

This report describes the methodologies and concepts for the technical implementation of each innovative data handling feature - **EPC databases, building logbooks, enhanced recommendations, financing options and one-stop shops**. It also presents more in detail how the developed methodologies will be country specific implemented in the X-tendo target countries.

The present report builds on past projects activities. And, upcoming project activities include the technical implementation with excel spread and programming code, providing guidelines to handle with the tools as well as, the testing of the present methodology, in each implementing country. Below, the series of previous project reports are listed, which present complementary information to the present one:

1. [Introductory reports of the 10 innovative EPC features](#) (Deliverable 2.3)
2. [Description of implementing partners' user needs and detailed technical specifications regarding features on handling and user of EPC data](#) (Deliverable 4.2)
3. Summary of implementing partners' user needs and detailed technical specifications (Deliverable 4.3)
4. Tools, concepts (country-specific for the Logbook feature) and guidelines for features Enhanced recommendations and EPC Database) (Deliverable 4.5)

Beyond that, the described the methodologies and concepts for the technical implementation methodology will be technically implemented and tested during the forthcoming stages of the project. The complete material will be online accessible in the X-tendo Toolbox.

This document is the revised version of the report completed in April 2021.

1 INTRODUCTION

EPCs are the most widely available information documents on building energy performance across Europe. They have the potential to be used as more than just an informative document, as they have the potential to provide market participants with relevant information to assess, benchmark and improve the building's energy performance. Besides the information included in each document, the usage of these information and data handling are becoming more and more important. The recent [Renovation Wave Communication](#) published by the European Commission in October 2020 reinforced the importance of the existing EPC frameworks to improve the data gathering, storage and overall quality of EPCs.

In this context, the five X-tendo EPC features **EPC databases, building logbooks, enhanced recommendations, financing options and one-stop shops** play a relevant role, targeting to improve the way EPC data is being handled and used for different objectives and targeted stakeholders. The main objectives of the features are summarized below. The present document describes in detail the methodologies and concepts for the technical implementation of each feature: EPC databases ([Chapter 2](#)), logbook ([Chapter 3](#)), enhanced recommendations ([Chapter 4](#)), Financing options (Chapter 5) and one-stop-shops ([Chapter 6](#)).

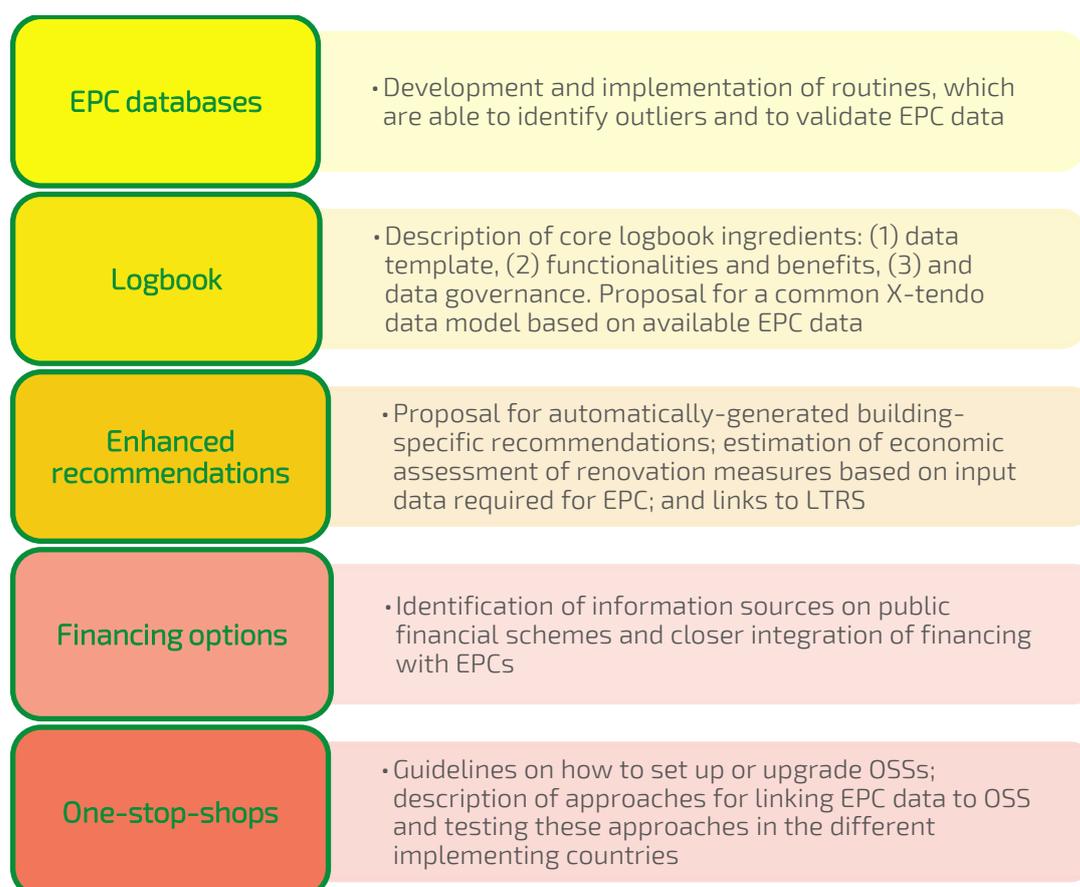
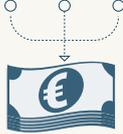


Figure 1: X-tendo methodology for features EPC Databases, Logbook, Enhanced recommendations, Financing options and One-stop-shops

The methodology will be tested in different X-tendo target countries, as showed in the table below.

Table 1: Implementing and expert countries per features

| |  EPC databases |  Building Logbooks |  Enhanced Recommendations |  Financing Options |  One Stop Shops |
|-----------------|--|--|---|--|---|
| Feature lead | TU Wien | BPIE | TU Wien | ADENE | ADENE |
| Austria, EAST | | | Expert | | |
| Denmark, DEA | Implementer | | Implementer | Implementer | Implementer |
| Estonia, TREA | | Implementer | | | |
| Greece, CRES | Implementer | Implementer | | | |
| Italy, ENEA | Implementer | | | | |
| Poland, NAPE | | | Implementer | Expert | |
| Portugal, ADENE | | Expert / Implementer | | Implementer | Expert |
| Romania, AAECR | | | | Implementer | Implementer |
| UK, EST | Expert | | Implementer | | Implementer |



2 ONE-STOP-SHOPS

2.1 Introduction

One-stop-shops (OSS) can be defined as advisory tools to facilitate the access to financial mechanisms, benefits and support schemes, assist consumers concerning technical and financial issues and to guide them through their building renovation process. Therefore, to provide these functionalities and valuable building information, the data coming from the EPC plays a special role and should be linked to the OSS (among other sources of data).

The key benefit of setting up an OSS is the possibility to overcome the manifold and simultaneous barriers related to residential building renovation. On one hand, the OSS acts as an intermediary that simplifies the fragmented offer of renovation suppliers, for example, the aggregation of designers, suppliers, installers, financiers into a single package to the homeowners. An OSS also supports the supply side of building renovation by mediating with the potential clients, using techniques such as organising offer packages, pooling the projects, and managing the project implementation. The OSS is well-placed to facilitate the implementation of locally developed projects and strong and trustworthy partnerships between homeowners, local actors, and local governments.

This feature will link EPC data to OSS and the applicability of these approaches for the different implementing countries taking account their corresponding existing EPC data, activities and needs.

2.2 Proposed Methodology

Similarly, to the Building Logbook feature, it has become clear that a fully developed and fully operational one-stop-shop requires investment of time and financial resources which is beyond the scope and timeline of the X-tendo project. OSS can have different approaches and types of stakeholders involved which may lead to different levels of expertise, skills and training needed. All these requirements are influenced by the functionalities of an OSS, that can range from simple marketing, communication and awareness, provide technical assistance and financial advice, support access to products and financial instruments, coordination of works or assurance of performance. Furthermore, it was also clear that different partners are at different one-stop-shop maturity levels, as for example, Romania does not have an operating one-stop-shop running specifically for energy renovation issues.

In this sense, it was proposed a modular approach to the one-stop-shop methodology based on the most relevant functionalities usually available, particularly by exploring the link to EPCs, in which the implementing partners could be developing and testing specific modules considering their one-stop-shops needs and specifications. The outcome dedicated to public authorities will be guidance on how to setup/upgrade and link EPC schemes with One-stop-shops.

The proposed methodology is divided in six guidance modules (Figure 2): One-stop-shop, Building logbook, Enhanced recommendations, Financing, Marketplace and Advice centre. It is important to highlight the ability of this feature to link, integrate and boost other X-tendo features, being this one of the points to clearly discuss in the upcoming partners meetings.

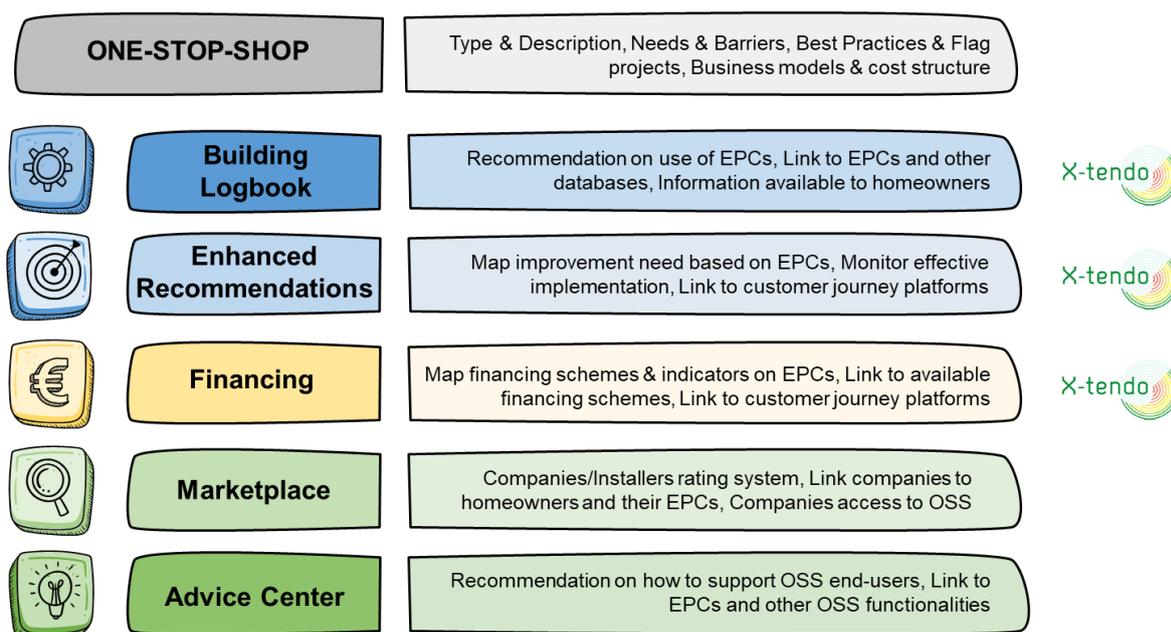


Figure 2: Overview of Feature 10 – One-stop-shops methodology

Despite the approach taken there's a common sense that an OSS dedicated to building renovation can involve aspects that cross the whole customer journey from capturing the attention of the homeowner to access the OSS to the implementation of measures and taking advantage of its benefits. Therefore, there are important synergies between this feature and other features developed under the X-tendo project, such as the Building Logbook, Enhanced Recommendations and Financing, whose outcomes could be integrated in the OSS concept, centralizing in a single place several functionalities and providing a more effective and efficient service to all stakeholders benefiting from this tool.

Regardless of the guidance resulting from the testing phase, there will always be important challenges that need to be overcome when setting-up this methodology. Similarly, there will also be several benefits resulting from it. Figure 3 summarizes some of these challenges identified by the implementing partners under the X-tendo project as well as some of the benefits boosted by implementing this methodology.



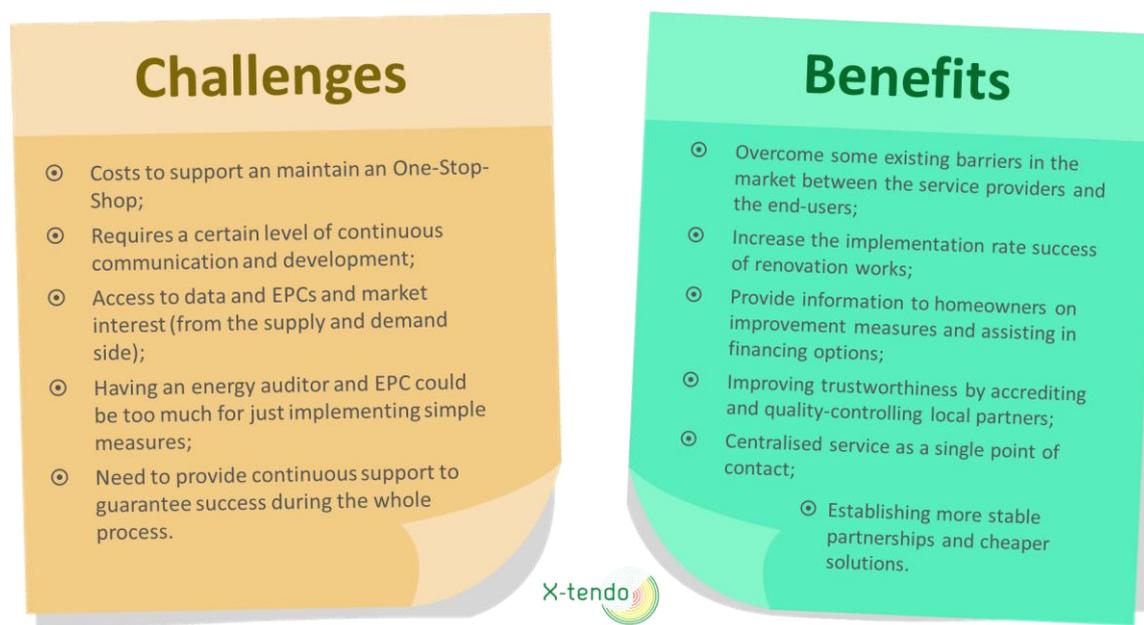


Figure 3: Main challenges and benefits of One-stop-shops methodology implementation

2.3 Implementation of the proposed methodology

There are 4 pilot countries participating in this feature testing (Table 2): Portugal (ADENE) will be testing the marketplace functionality, namely in what concerns the testing and implementation of an installers/companies rating system and on the link of homeowner and the companies directory, but also on the development of an one-stop-shop business plan; Denmark (DEA) will be testing the national One-stop-shop BetterHome, with a focus on performed energy renovations in buildings, by developing interviews following homeowners from the initial phase through to after the recommendations from the BetterHome report is performed; Scotland-UK (EST) will be testing on how to give the best advice to homeowner considering data from different data sources, such as EPC and smart meter data in order to improve the advice centre delivery; and Romania will be testing the first steps in setting up an one-stop-shop, having already identified two potential solutions for testing such as i) professional association for a decent fee/customer, and ii) energy efficiency department at local authorities for free. It will also be investigated if existing platforms, like those which intermediate between customers and construction/repairing/design services from registers companies might be interested in adding energy renovation and certification services. In all these three cases, the building energy assessors must be part of the information process and offer services for energy performance certification and recommended measures.

| | Portugal | Denmark | Scotland - UK | Romania |
|--------------------------|--|--|---|----------------------|
| One-stop-shop | OSS Business Plan | - | - | Setting up an OSS |
| Building Logbook | Testing in Feature 7 | - | - | - |
| Enhanced Recommendations | - | Enhanced recommendations feedback (homeowners) | - | - |
| Financing | Testing in Feature 9 | Testing in Feature 9 | | Testing in Feature 9 |
| Marketplace | Rating System; Link homeowners and companies directory | - | - | - |
| Advice Centre | - | - | Improve the Advice centre delivery (different data sources) | - |

Table 2: Summary of X-tendo activity per implementing country

The following sections describe in more detail the concept of one-stop-shops in the implementing countries and on how the proposed methodology will be implemented.

2.3.1 Portugal – Portal casA+

As explained in Chapter 3 – Feature Logbook, portal casA+ is a one stop shop dedicated to energy efficiency. The goal of this portal is to act as a property ID, facilitating the access of the homeowner to building related information while encouraging energy efficiency home improvements. The portal also facilitates communication between the homeowner, the building expert and companies/service suppliers.



Figure 4 maps the implemented data flows, i.e. what data, from what sources (left) to which casA+ functionalities (right). The functionalities currently made available by casA+ OSS are as follows:

- **Building Logbook functionality:** that concentrates the majority of the data coming from the EPC database (through a webservice – WS), but also in information and documents uploaded by the homeowner (HO), working as a repository of information for further consultation;
- **Improvement Measures proposal functionality:** currently based on EPC recommendations to guide the homeowner on building renovation. However, it is foreseen in the near future to develop an automatic system to generate improvement measures based on the number of occupants and user profiles data (occupancy, appliances and lighting);
- **Budget proposals functionality:** linking the homeowners to installers, which can manage and propose services on building renovation based on the improvement needs identified by the homeowner in casA+;
- **Energy Saving Simulator functionality:** allow the homeowner to simulate his/her house energy performance and the impact of several improvement measures;
- **Request an EPC functionality:** access to EPC data (when an EPC is available), request of EPC renovation or request an EPC (when an EPC is not available) linking to the EPC auditors database;
- **Companies Directory functionality:** information on registered and qualified companies/installers which can propose services on building renovation to the homeowner;
- **Guides & Tips functionality:** guides and tips uploaded by the casA+ administrator on energy and water efficiency;
- **Financing opportunities:** available financing mechanisms for building renovation related to energy and water efficiency.

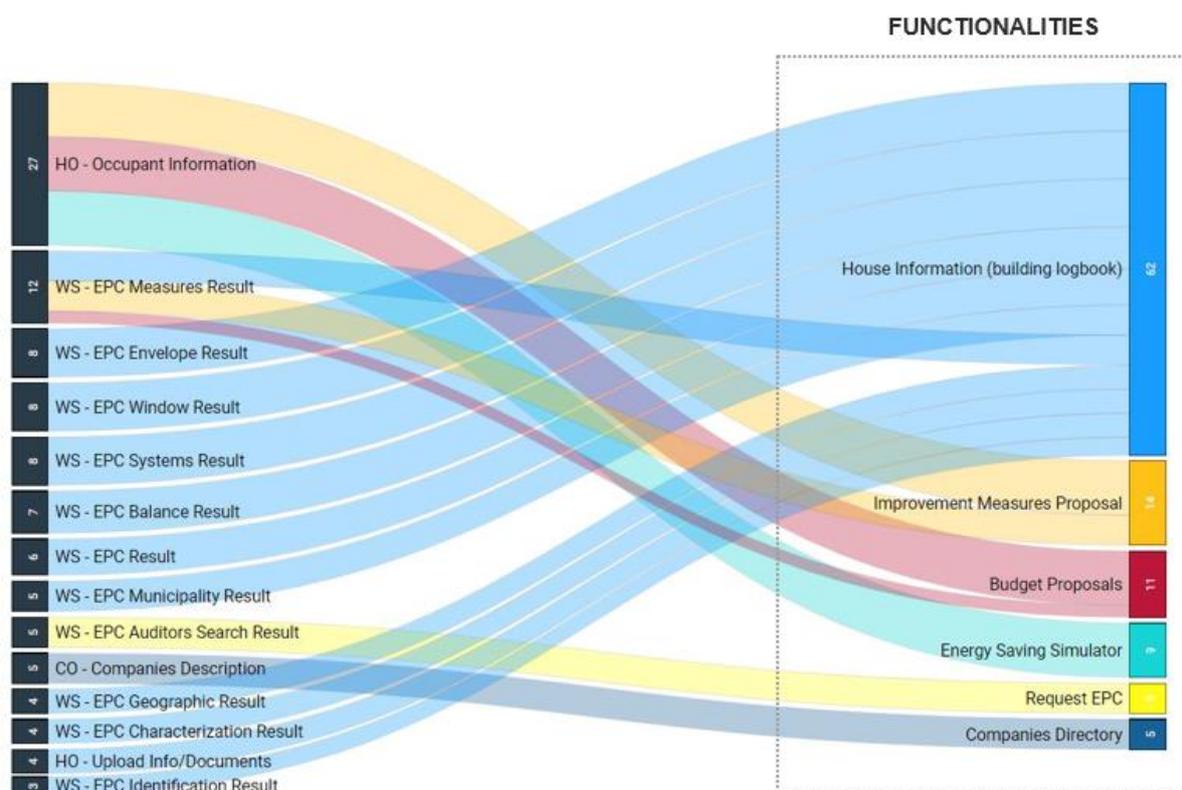


Figure 4 – casA+ data sources and functionalities currently available

Under the X-tendo methodology, a survey on OSS business plan and a workshop on OSS attractiveness will be taken with relevant stakeholders in order to collect feedback on existing and future functionalities according to their needs and perception/willingness to subscribe casA+. In this survey and workshop it will be presented the following functionalities foreseen to be implemented up to the end of the year:

- **Companies Directory Rating System functionality:** which will allow the homeowner to evaluate the quality of the services provided by the installers/companies registered in casA+, as well as have access to other user opinions and evaluation;
- **Monitoring consumption (energy/water) functionality:** energy and water household consumption and benchmark with other users with similar characteristics;
- **Request an AQUA+ functionality:** access to AQUA+ data (when a water certificate is available), request the AQUA+ renovation or request an AQUA+ (when an AQUA+ is not available) linking to the AQUA+ auditors database;

2.3.2. Denmark - BetterHome

The one-stop shop in Denmark is called BetterHome. The BetterHome is Danish national consultancy scheme (Voluntary and market-driven system). The purpose with the scheme is:

- Promotion of refurbishment of private residential buildings;



- Remove barriers – make it simpler/ easier and more manageable for homeowners and create a scheme that the homeowners can trust.

The BetterHome scheme is an extension to the EPC scheme and can be based on an existing EPC for a building. The BetterHome calculations are also performed in the same tool as the EPC's, to ensure comparability and easy data transfer. The scheme also provides counselling through all of the building renovation process, and can support the homeowners in the following phases of a renovation:

- **Screening of the building:** The consultant will screen the building and map the potential of energy renovations.
- **The BetterHome Plan:** The consultant will perform a better home plan. This plan will be based on the dialogue with the homeowners and it is then possible to include other needs like maintenance needs, aesthetics, interior design and other functionalities. The BetterHome plan will also contain calculations, recommendations and budget key numbers, which can be used, for example, as documentation when applying for a loan.
- **The BetterHome Project:** The consultant will function as a project manager and will help the homeowners with project design, tendering, construction process management, handover and follow-up.

During the X-tendo project there will be conducted a series of interviews with the purpose of identifying some of the barriers and opportunities regarding the BetterHome scheme. On the basis of the interviews there will be conducted an analysis, which will investigate and discuss the results. This analysis will strive to enlighten concrete revisions and improvements to the BetterHome scheme in Denmark.

2.3.3. Scotland – UK – Home Energy Scotland

Home Energy Scotland is a developed one stop shop, covering advice, financing and supply-chain engagement for everyone living in Scotland. In 2019 the Network helped more than 90,000 customers in Scotland and even with these very large volumes, customer satisfaction was at 97%. The lifetime savings on energy bills by customers using the network in 2017-18 is estimated to be more than £82 million and lifetime carbon savings more than 300,000 tonnes CO₂. Total lifetime energy bill savings from the network since its inception are estimated to be well over a billion pounds.

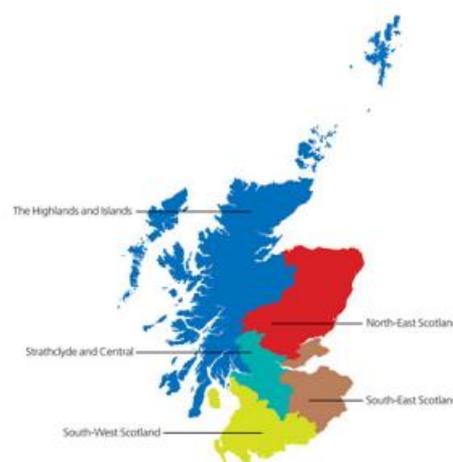


Figure 5 – Local Agencies providing advice in Scotland

Home Energy Scotland is managed centrally by the Energy Saving Trust on behalf of the Scottish Government. Advice is provided at local level across Scotland by five local agencies covering areas as shown in Figure 5. This ensures that the very different needs across different areas, particularly the diverse needs of the highly rural Highlands and Islands and the urbanised central region, are addressed.



Advice

In Scotland householders (owner occupiers, tenants) and smaller private landlords are able to access free, independent, personalised and impartial advice from the Home Energy Scotland service. Broadly, three types of advice are provided under Home Energy Scotland:

1. Personalised advice delivered over the phone by trained advisors working from regional advice centres across Scotland;
2. Free, in-home expert advice for households identified as needing in-depth advice and support: very vulnerable households, people installing more complex home energy measures and some private landlords;
3. Online advice consisting of both static webpages and online tools, managed and provided centrally by Energy Saving Trust on behalf of the Scottish Government;

A "Green Homes Network" of exemplar low energy/carbon homes reinforces these three advice channels.

Financial Support

Home Energy Scotland provides customers with "one-stop shop" access to the financial (and other) support for home energy efficiency offered by the Scottish Government under the Home Energy Efficiency Programme for Scotland as shown in the diagram below (Figure 6):

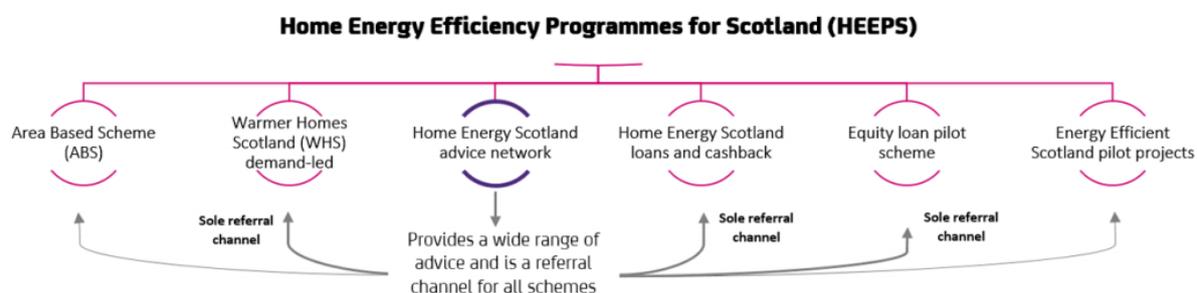


Figure 6 - Home Energy Efficiency Programme for Scotland

Supply Chain support and Development

Home Energy Scotland helps connect its advice customers with the supply chain through online tools including a renewable installer finder.

A parallel activity to Home Energy Scotland is the Sustainable Energy Supply Chain programme which provides assistance and support to businesses in Scotland to help them to participate fully and effectively in the supply chain for energy efficiency and home renewables installations. The programme also seeks to raise standards across the supply chain and ensure householders and business can access suppliers regardless of their location.

Planned X-tendo Test Project for Feature 10 in Scotland

The planned X-tendo development activity for the OSS relates to advice – see Figure 2 above. In Scotland the advice is provided over the telephone and in-person as described above.

Smart meters are being rolled out across Scotland providing householders with personalised access to their energy bills data on a half hourly basis. This can be used to provide advice on behaviour change and detailed advice on the bill saving impacts of installed measures. Energy Saving Trust has developed a data interface to allow advisors to see householders' smart meter data, when the householder gives permission for this.

Home Energy Scotland advice to householders in Scotland is already informed by the Energy Performance Certificate data for their home. EPC data and recommendations are based on an asset-based (i.e. standardised building performance) assessment. This is very different from the real energy use data available from smart meters.

Therefore, there is a challenge for advisors working with these two data sets and the Scotland test project will develop systems to help advisors use both smart meter and EPC data in parallel.

2.3.4. Romania

As stated before, currently Romania does not have an operating one-stop-shop running specifically for building energy performance. In this sense, under the X-tendo project, Romania will be testing the one-stop-shop methodology considering the first steps needed to setup a one-stop-shop, in three different contexts: (i) using a blog/forum approach within a professional site, for a small fee at registration; (ii) using the energy efficiency departments at local authorities, for free, or (iii) using an existing platform that intermediates between customers and services offered by different companies, for a fee per request, if the platform host agrees.

The OSS functionalities will be decided with relevant stakeholders after a full inquiry. Linkages to geographical energy auditors lists, to financing mechanisms sites, to major companies performing renovation measures or providing renovation materials and/or technologies, and to local authorities responsible in monitoring and reporting renovation of buildings will be explored and evaluated.

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