



# Feasibility study to finance low-cost energy efficiency measures in low-income households from EU funds

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## Abbreviations

<b>CF</b>	Cohesion Fund
<b>DG ENER</b>	European Commission Directorate-General for Energy
<b>EEOS</b>	Energy Efficiency Obligation Schemes
<b>ERDF</b>	European Regional Development Fund
<b>ESF</b>	European Social Fund
<b>ESIF</b>	European Structural and Investment Funds
<b>EU</b>	European Union
<b>IEA</b>	International Energy Agency
<b>IEE</b>	Intelligent Energy Europe
<b>MA</b>	Managing Authority
<b>MTFF</b>	Multiannual Financial Framework
<b>NEEAP</b>	National Energy Efficiency Action Plan
<b>NGO</b>	Non-Governmental Organisation
<b>OP</b>	Operational Programme

## **Executive summary**

### **Background and context**

Energy (or fuel) poverty is a persistent problem in the European Union (EU), affecting a significant proportion of its citizens. Energy poverty generally refers to 'a situation where individuals or households are not able to adequately heat or provide other required energy services in their homes at affordable cost'. Although it can affect all consumers, low-income households and other vulnerable consumers are at highest risk of energy poverty.

The main causes of energy poverty are low household income, difficulty in accessing finance, high energy prices and low energy efficiency of homes. The relief of energy poverty therefore requires a combination of measures, chief among which are interventions to improve the energy efficiency of dwellings and the education of households on behavioural changes to reduce energy consumption. While some of these measures demand longer implementation times and carry higher costs (e.g. deep building renovation), others can be delivered relatively quickly and cheaply. These low-cost measures include the provision of information and advice to households, energy efficiency services (e.g. draught proofing, optimisation of existing building technology systems, etc.), as well as energy efficiency devices and kits (e.g. low-energy lighting, water saving devices, etc.).

### **Objectives**

The European Commission's Directorate-General for Energy (DG ENER) has commissioned this study to identify good practices in the delivery of low-cost energy efficiency measures, to low-income households in particular, and to investigate their replication potential. In addition, the study aims to determine the role that EU funds can have in financing schemes providing low-cost measures to low-income households. On the basis of this analysis, recommendations have been developed for promoting relevant schemes through EU funds and within the context of the Energy Efficiency Directive and the Energy Performance of Buildings Directive.

### **Methodological approach**

The study was structured in four work packages. Work package 1 identified a set of schemes which deliver (or have delivered) low-cost energy efficiency measures to low-income households. The project team compiled a shortlist of relevant schemes, their characteristics and effectiveness, using desk research and expert knowledge. Success drivers and barriers were identified for each of the shortlisted schemes, and the potential for replicating these schemes was assessed. Recommendations were then developed for their successful design and implementation.

Work package 2 assessed the possibility of using EU funds to support the implementation of schemes delivering low-cost energy efficiency measures to low-income households. A set of minimum criteria was developed from desk research and a small set of telephone interviews with scheme owners, which was used to select the most suitable EU funding options for detailed review. Finally, this work package developed two sets of recommendations for the use of EU funds – one for fund managers and one for scheme owners.

In work package 3, the Energy Efficiency Directive and the Energy Performance of Buildings Directive were reviewed to identify the provisions offering the most interesting and viable opportunities for fostering low-cost energy efficiency measures

in low-income households. A legal analysis of relevant provisions was carried out to clarify and present their meaning as simply as possible. This analysis, complemented by a survey of Member States' National Energy Efficiency Action Plans (NEEAPs) and together with other documents produced under the Directives, was used to develop recommendations for supporting the delivery of low-cost energy measures in low-income households under the provisions of the two Directives.

Work package 4 prepared a communication document to present the key messages of this study.

### **Key findings**

The analysis of existing schemes providing low-cost energy efficiency measures to low-income households showed that the measures delivered provide various benefits to the households. Even though these low-cost measures cannot replace longer term, higher cost energy efficiency measures (e.g. deep building renovations), they offer households immediate benefits in terms of reduced energy consumption and related costs, as well as improved indoor temperatures and associated health benefits.

The assessment of the drivers of, or barriers to, the success of the schemes in question showed that the overall success of a scheme depends on its implementation, meaning that the drivers of success for one scheme may represent a barrier for another, and vice versa. The drivers and barriers identified fall into broad groupings: involvement of key institutions; interaction with the wider policy framework; nature and type of funding sources; expertise and skills required; type of support provided; situational characteristics of the household and its members; and method through which measures are delivered.

With respect to funding options for these schemes, the EU funds that emerged as the most suitable are the European Structural and Investment Funds (ESIF), in particular the European Regional Development Fund (ERDF), the Cohesion Fund (CF) and the European Social Fund (ESF). Each of these ESIF is implemented through Operational Programmes (OPs) managed by Managing Authorities (MAs) in the Member States at national or regional level, and can support different but complementary objectives. The ERDF and CF can specifically support energy efficiency projects in the housing sector and can thus, in general, finance the delivery of both high-cost and low-cost measures, separately or in combination, to the extent that this is foreseen in the relevant OPs. Nevertheless, the ERDF and CF are expected to primarily focus on long-term solutions to reducing energy poverty, including deep building renovations. The ESF, on the other hand, is focused on supporting social inclusion as well as employment and education opportunities, and can finance schemes that include specialised training of energy efficiency advisors or checkers. As the experience of some schemes shows, this presents an opportunity to (re-)qualify the long-term unemployed, thus providing additional benefits to the wider community.

Another relevant EU fund, albeit to a lesser extent than the ESIF, is Horizon 2020 – the EU programme for research and innovation. The fund aims to support various actions that contribute to the EU's 2020 policy targets, including those on energy efficiency. Depending on the priorities defined in its work programme, it can support the development and piloting of innovative approaches and schemes.

The research conducted for this study provided very limited information about the relationship between the Energy Efficiency Directive and the Energy Performance of Buildings Directive and the schemes analysed. This evidence gap may stem, in part,

from the limited scale of the schemes, which remain outside of the high-level strategies linked directly to implementation of the Directives. This study shows that the Directives provide several opportunities to promote the delivery of low-cost energy efficiency measures to low-income households in a way that contributes to their implementation. These measures can be included in national building renovation strategies alongside more costly, longer term interventions such as deep building renovations. They can also be part of the energy efficiency plans adopted by public bodies and social housing bodies in the Member States. Those countries that have set up energy efficiency obligation schemes (EEOS) can include requirements with a social aim, such as mandating energy suppliers to provide energy efficiency improvement measures to low-income households. Member States could also consider promoting schemes that deliver low-cost energy efficiency measures to low-income households as the alternative policy measures to EEOS referred to in the Directive. However, it is uncertain whether schemes such as those reviewed here would meet the stringent conditions set by the Energy Efficiency Directive for alternative policy measures. The Directive also includes rules on the provision of information on individual energy consumption in multi-apartment buildings. As the analysis of some of the existing schemes shows, the relevant meters can be installed at low cost. The schemes analysed can also greatly contribute to reaching the objectives of the Directives in relation to the provision of information and advice to households and other stakeholders.

Detailed recommendations on the design and implementation of schemes to deliver low-cost energy efficiency measures to low-income households, their financing through EU funds and support within the framework of the Energy Efficiency Directive and the Energy Performance of Buildings Directive, are provided in the full report.

### **Key recommendations for replication, design and delivery of schemes**

- Involvement of key institutions:
  - Establish strong partnerships: Work with partners that are trusted by the targeted households or that are in direct contact with them, such as social workers or medical professionals.
  - Put in place a well-defined framework: This will clarify roles and responsibilities, ensure that partners stay committed, safeguard sufficient investments by the different organisations, and provide support for the scheme owners with overall coordination.
  - Secure local community support: Raise awareness of the benefits of the measures to increase buy-in among the targeted households.
- Interaction with wider policy context:
  - Exploit synergies: Linking the scheme to existing structures or policies can establish complementary measures and avoid overlap.
  - Gain political support: Linking schemes to existing policies or political priorities can increase political buy-in and contribute to the successful implementation of a scheme.
  - Create links with relevant public funding programmes: Public funding is usually linked to the achievement of key policy objectives. Receiving public funding, therefore, creates visible targets for energy efficiency schemes.
- Nature and type of funding source:
  - Novel sources: Search for funding sources other than the 'usual suspects'. Opportunities may exist outside of local or national governments, or within other sectors.
  - Reducing costs: Support from volunteers to deliver the energy efficiency measures can reduce implementation costs. However,



limitations related to the availability and long-term involvement of volunteers must be considered.

- Expertise and skills:
  - Training: Provide regular and targeted training opportunities, particularly for front-line staff and energy efficiency advisors employed to deliver the various measures. Training should address communication issues and be supported by tailored guidance materials.
  - Knowledge: Ensure that staff has up-to-date knowledge on installation practices and are able to assess the existing levels of energy efficiency in the households.
  - Follow-up: Installation by households themselves may be problematic and may require follow-up checks to ensure that measures are installed correctly.
- Type of support provided and method of measure delivery:
  - 'No costs' approach: where possible, deliver the energy efficiency measures at little or no cost to the targeted energy-poor households.
  - Open and clear communications: Deliver the measures in a clear, simple and flexible way, while managing the expectations of the households. Where possible, face-to-face interaction with the households should be favoured.
  - Flexible support: Tailor the support provided to the needs of the households, e.g. regional context or local climate.
  - Community members: Directly involve members of the community to engage and deliver measures. This can be particularly effective where target households are closely grouped together. Try to engage all household members.
  - Monitoring and improvement: Use project management tools to continually monitor the scheme and mitigate risks. The effectiveness of the measures is enhanced by setting targets and checking in with the households. This also allows data to be gathered in order to review the scheme.
  - Wider benefits: Ensure that the scheme can, to the extent possible, deliver wider energy and social benefits, e.g. by training unemployed persons as energy advisors in the schemes.
  - Marketing methods: Use a variety of marketing methods and information tools, including advertising synergies with organisations that have direct contact with the targeted households, e.g. social services.
- Situational characteristics of the household:
  - Multi-family buildings: Ensure agreement between the different households is reached before implementing the measures.
  - Landlord-tenants: Consider these relationships, as they can have an impact on the level of engagement or support from the tenant or the landlord.
- Characteristics of household members:
  - Language barriers: When targeting households where language is a barrier, ensure that the scheme has the flexibility to be delivered in different languages.
  - Time constraints: Ensure the measures are delivered at times convenient for the household members, e.g. by arranging visits in advance.
  - Reluctance to share personal information: Be transparent about the purpose of sharing personal details.

- Hesitance to interact with official institutions: Try to limit the need for interaction with official institutions, and communicate any such needs to the households early and clearly.

### **Key recommendations for using EU funds to deliver low-cost energy efficiency schemes - policy makers and ESIF Managing Authorities**

The delivery of low-cost energy efficiency measures can contribute to wider energy and social objectives and bring multiple benefits to local communities, such as relieving energy poverty and contributing to social inclusion. In order to harness these opportunities, policy makers and the Managing Authorities of ESIFs in Member States can take several actions at the different stages of the fund management cycle:

- Inform and train staff members about the opportunities and benefits of delivering low-cost energy efficiency measures to low-income households and/or other disadvantaged and vulnerable consumers.
- Facilitate, or at least do not restrict, funding for schemes supporting low-cost energy efficiency measures in low-income households when implementing the ESIF OPs (to the extent that this would fall under the scope of the specific OP) or the Horizon 2020 multi-annual work programmes.
- Communicate the possibilities for ESIF and Horizon 2020 funding to likely energy efficiency scheme owners.
- Provide likely scheme owners with technical assistance, guidance and support in preparing eligible applications and, where relevant, in implementing the energy efficiency schemes.
- When relevant, develop eligibility criteria and performance indicators that encompass energy efficiency schemes that deliver low-cost measures to low-income households.

### **Key recommendations for using EU funds to deliver low-cost energy efficiency schemes - scheme owners**

Public authorities at different levels of governance in Member States, their related agencies or implementing institutions and NGOs, charities and private sector actors may also support national, regional and local energy and social objectives with energy efficiency schemes focused on low-cost measures and low-income households. Such schemes might be implemented through EU funding, and these bodies are advised to:

- Examine the EU funding opportunities available in the relevant geographical and/or thematic area.
- Seek support and guidance in preparing fund applications.
- Develop eligible funding applications and design successful energy efficiency schemes.
- Seek support during the implementation of the EU funded schemes, where such support is available.

### **Key recommendations for using EU legislation to support low-cost energy efficiency measures in low-income households**

- Member State authorities:
  - Include (support for) schemes delivering low-cost energy efficiency measures to low-income households in national building renovation strategies, alongside more ambitious initiatives (such as deep building renovations).
  - Inform public bodies and social housing bodies about the energy savings and wider benefits associated with low-cost energy efficiency measures in low-income households, and encourage the adoption of energy efficiency action plans that include such measures.

- Where an EEOS is in place, consider introducing requirements with a social aim which promote low-cost energy efficiency measures in low-income households.
- Consider the possibility of including the promotion of low-cost energy efficiency measures in low-income households among policy measures alternative (or in addition) to, EEOS. Be aware that technical, administrative and financial support may be necessary to ensure that the criteria for alternative policy measures under the Energy Efficiency Directive are fulfilled.
- Consider setting up schemes that follow the good practices presented here with respect to providing information to low-income households on funding and energy savings. Exemplary projects could also be set up to prove the benefits of low-cost energy efficiency measures and encourage replication by the private sector.
- Scheme owners:
  - Review and influence the development of NEEAPs to identify relevant actions and financing opportunities.
- European Commission:
  - Encourage Member States to consider the potential of low-cost energy efficiency measures in their NEEAPs and recommend the implementation of good practices, such as those presented in this study.
  - Issue guidance to Member States on the inclusion of requirements with a social aim in EEOS.
  - Consider the desirability of helping scheme owners to meet the criteria for alternative policy measures under the Energy Efficiency Directive by, for example, providing technical support, simplified tools or standard approaches for estimating and monitoring energy savings, etc.

# 1 Introduction

## 1.1 Energy poverty and study context

Energy or fuel poverty is a persistent problem in the European Union (EU), affecting a significant number of its citizens. While different definitions exist, the concepts of energy and fuel poverty generally refer to 'a situation where individuals or households are not able to adequately heat or provide other required energy services in their homes at affordable cost'<sup>1</sup>. The main causes are low household income, difficulty in accessing finance, high energy prices and low energy efficiency of the home. Given the multiple factors, the relief of energy poverty requires a combination of measures, including energy efficiency improvements.

Member States have a range of policies in place to deliver energy efficiency measures but these are not necessarily targeted to low-income or energy-poor households. In fact, not all Member States have a formal definition of energy poverty and thus do not have targeted policies in place to tackle the issue<sup>2</sup>. Energy efficiency policy tends to focus on more substantial retrofit measures and building upgrades, with a view to greater benefits. Alongside these deeper building renovations, smaller scale low-cost measures can be provided to vulnerable households. These low-cost measures have little or no upfront cost and can be provided relatively cheaply to a large number of households. Such measures include: lighting, pipe insulation, draught proofing, re-commissioning, or changing behaviours by providing information. These measures can be provided relatively quickly to help low-income households to reduce energy bills without locking-out savings from potential deeper renovation work in the future.

The implementation of energy efficiency policies in the Member States is often supported by national and/or regional financing programmes. Different EU funds and financing instruments are available to complement national funds and help Member States to achieve their 2020 policy targets. EU support is available to a variety of potential beneficiaries (e.g. public authorities, private entities, research institutions) in different forms, including grants, loans and guarantees. Some of the main EU sources of finance for energy efficiency in the EU are the European Structural and Investment Funds (ESIF), the European Fund for Strategic Investments, the European programme for research and innovation - Horizon 2020, the European Energy Efficiency Fund and the recently launched financial instrument Private Finance for Energy Efficiency. Low-cost energy efficiency measures in low-income households and/or for vulnerable consumers are not, however, the primary focus of these EU funding instruments.

### **Low-cost energy efficiency measures**

In this report, 'low-cost energy efficiency measures' are understood to consist of different types of measures (chiefly advice and information, energy efficiency services (e.g. re-commissioning) and energy efficiency devices and kits (e.g. energy efficient lighting, thermostats)) that deliver power, heat and/or water savings (with energy savings as an indirect benefit in the latter case) at little or no upfront cost.

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1 INSIGHT\_E (2015) Energy poverty and vulnerable consumers in the energy sector across the EU: analysis of policies and measures, Policy Report, p.V.

2 Ibid.; BPIE (2014) Alleviating fuel poverty in the EU: Investing in home renovation, a sustainable and inclusive solution.

The low (or no) cost of these measures distinguishes them from the larger, deeper, more structural retrofit measures. Unlike the latter, low-cost energy efficiency measures can be rolled out and installed relatively quickly and easily – in many cases by households themselves, without the need for a technician. These measures can, therefore, be provided cheaply and quickly to a large number of households. Although limited in their scope and the level of potential energy savings achievable, and despite offering only short-term fixes to energy efficiency issues, they can usefully complement the more ambitious actions that remain necessary to reach energy efficiency objectives in the longer term.

## 1.2 Aims and objectives

The European Commission's Directorate-General for Energy (DG ENER) has commissioned this study to identify good practices in the delivery of low-cost energy efficiency measures to low-income households and investigate their replication potential. In addition, the study aims to determine the role that EU funds can have in financing schemes providing low-cost measures to low-income households. On the basis of this analysis, the study developed recommendations for promoting relevant schemes through EU funds and within the context of the Energy Efficiency Directive<sup>3</sup> and the Energy Performance of Buildings Directive<sup>4</sup>.

The study was structured into four work packages:

- **Work package 1** identified a set of schemes which deliver (or have delivered) low-cost energy efficiency measures to low-income households. The work package assessed the success of the schemes and identified drivers of, and barriers to, success. It also examined the potential for replicating these schemes in other environments and considered their interactions with other relevant policy instruments.
- **Work package 2** assessed the possibility of using EU funds to support the implementation of schemes delivering low-cost energy efficiency measures to low-income households. It developed recommendations for EU and Member State authorities responsible for the management of the funds and for the scheme owners.
- **Work package 3** developed recommendations for the delivery of low-cost energy measures in low-income households under the provisions of the Energy Efficiency Directive and the Energy Performance of Buildings Directive.
- **Work package 4** produced communication material to disseminate the key messages from all three work packages.

This report presents the results of work packages 1, 2 and 3. The communication material developed under work package 4 is provided separately.

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<sup>3</sup> Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

<sup>4</sup> Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings.

## 2 Methodology

This chapter presents the approach applied to each of the work packages within this study.

### 2.1 Work package 1

The objective of this work package was to identify a set of good practices for the use of low-cost energy efficiency measures to support low-income households, i.e. to identify a set of schemes which have successfully delivered these measures to vulnerable households. The results of this work package are presented in Chapter 3.

Once a set of good practices was identified, those characteristics to which their success was attributed (i.e. 'drivers' of success), together with the issues arising during their implementation (i.e. 'barriers' to success) were pinpointed. Both drivers and barriers can be associated with the design and/or implementation methods of the scheme, as well as the context within which the scheme has been implemented. The focus of the analysis was on the former (as those characteristics which can be influenced will be of greater interest to policy makers), but contextual factors have been acknowledged where necessary.

Identification of the drivers of, and barriers to, success is a valuable exercise. Where prospective policy makers are considering replicating a particular scheme, awareness of the drivers of success will increase the likelihood of successful delivery in other environments. The ability to anticipate issues and address these from the outset also increases the likelihood that such issues can be offset.

#### 2.1.1 Identification of good practices

In order to identify a set of good practices, a longlist of schemes which deliver energy efficiency measures was compiled. This list was developed from a number of sources: the initial list of schemes defined in the Terms of Reference, schemes known by the project team, a targeted literature review of relevant publications and policy databases and, most importantly, focused engagement of a network of relevant contacts. This network was used to:

- Verify that the schemes identified were appropriate for inclusion in the study (i.e. they delivered low-cost energy efficiency measures to low-income households) and that they could be considered 'good practice';
- Identify other relevant schemes which could be considered good practice; and
- Suggest useful sources of data and information.

The longlist of potential schemes was then refined to a 'shortlist' for more detailed consideration.

The shortlist was also refined, firstly by ruling out any schemes that did not deliver energy efficiency measures considered low-cost, as well as those schemes that did not specifically target vulnerable households. The list was further refined to ensure a spread of experiences (as far as possible) across a number of key priorities: type of low-cost measure delivered (e.g. covering advice and information, energy efficiency services, energy efficiency devices and kits, etc.), geographical location (i.e. coverage

across both northern and western, and southern and eastern European states; relevant experiences from third countries), urban and rural locations, schemes implemented at local, regional and national level, and where possible, focused on assisting immigrant households.

The shortlist was further refined by removing similar schemes in different locations, and by focusing more closely on schemes implemented at local level, in line with the clients' particular interests.

The shortlist of the schemes included in this review is set out in Section 3.1 below.

### 2.1.2 Data collection

Data were gathered on the characteristics and effectiveness of each of the shortlisted schemes, including drivers of, and barriers to, success.

A data capture template was developed for evidence gathering, ensuring that the information collected was appropriate to the work package objectives, that it was consistent across schemes and that the detail of any information (e.g. methodology underpinning quantitative data, etc.) was also captured.

The data collection itself primarily consisted of a wide-ranging literature review taking a tiered approach:

- Firstly, databases and websites containing information on identified low-cost measures were reviewed;
- Secondly, additional data was collected from ex-post evaluations, which were a key source of information;
- Thirdly, where gaps still existed in the information gathered, further input was gained from ex-ante Impact Assessments and other published material concerning the schemes (e.g. from scheme websites).

### 2.1.3 Assessing effectiveness and identifying good practices

In order to deem a scheme 'good practice', it is necessary to judge the extent to which it has achieved its objectives, goals and intended effects. When undertaking studies of this nature there are several challenges related to assessing scheme effectiveness:

- **Lack of ex-post evaluations:** For many interventions there is no robust evaluation formally assessing the effectiveness of a scheme relative to its original objectives;
- **Original objectives not clearly stated:** Although the primary objective of the schemes reviewed is likely to be to deliver benefits to vulnerable households, this and other supporting objectives are often not explicitly set out by published material;
- **Focus on activity/output rather than impact-related indicators:** Where scheme evaluations exist, they typically provide figures for indicators such as the amount of money spent, rather than related to key objectives such as energy savings;
- **Detail of methodology is missing:** In many reviews, the detail of the methodology adopted and/or the information sources used is partial or not presented. This makes it difficult to assess the robustness of the evaluation methodology;

- **Concerns around impartiality:** Reviews and evaluations are often undertaken by scheme owners rather than third parties, and the peer review process is frequently unclear. As such, it was not always possible to verify the reliability of the results;
- **Modelled or measured:** Where impact estimates are presented, in some cases it is difficult to deduce whether these are modelled estimates or measured impacts.

### Schemes

In the context of this study, 'schemes' are understood to constitute the overall mechanisms required for the successful delivery of (a combination of) low-cost energy efficiency measures. They define, for example, the types of processes that can be implemented, as well as the criteria to identify eligible low-income households. Schemes are managed by scheme owners.

### Scheme owners

Here, a 'scheme owner' is an organisation which develops (and thus 'owns') an energy efficiency scheme that delivers low-cost energy efficiency measures to low-income households. The scheme owner can be public or private, e.g. local authorities, Non-Governmental Organisation (NGO) or a private company. The scheme owner is responsible for sourcing the necessary funding for the scheme to be implemented. In cases where the scheme is financed with an EU fund, the scheme owner is also a 'fund beneficiary'. The scheme owner is not necessarily the same as the organisation implementing the scheme and delivering the energy efficiency measures to households.

Problems also arise when comparing different schemes to determine their relative effectiveness. This is a consequence of:

- **Variance in information reported:** Where impacts are reported, the type and degree may vary across schemes. For example, one scheme may report energy savings, and another financial savings. Some may report more than one impact;
- **Variance in metrics:** Even where similar impacts are reported, these may be presented using different metrics. Also, some may present results quantitatively and others qualitatively;
- **Variance in methodology:** Where similar metrics are calculated and the detail of the methodology is reported, differences in methodology which cannot be rectified or made consistent may reduce comparability;
- **Difficulties in controlling for all variables:** As noted above, schemes vary in their size and number of households assisted. Considering impacts on a per household basis removes one variable which will influence the comparison between schemes. However, impacts will depend on a wide range of contextual and policy-linked factors, including the measures delivered and to whom, how they were delivered, local climate, etc. Often, only partial information is provided on these factors, reducing the ability to identify and control for these.

A recent review by Joanne Wade and Nick Eyre on behalf of the UK Energy Research Centre provides a good overview of the problems encountered when comparing



different evaluations<sup>5</sup>. Work by the International Energy Agency (IEA) has also stressed that 'very few thorough evaluations of economic instruments in energy efficiency policy are available that would facilitate benefit-cost ratio comparisons. The available sources do not allow general recommendations on which policies are most effective or efficient'<sup>6</sup>.

Given that these challenges cannot be overcome in the present study, they must be borne in mind in the following discussion. However, while these limitations do exist, they impact only on cross-scheme comparison and not the overall credibility and utility of the study findings.

#### **2.1.4 Answering the research questions**

The outputs of work package 1 formed the basis of a catalogue of good practices for prospective policy makers, scheme owners, and other interested stakeholders. This review focuses on capturing the information which will be of most value to these groups.

##### **How successful are the experiences?**

As discussed above, there are several limitations when assessing the effectiveness of a given scheme relative to its original objectives, and to comparing impacts between schemes.

This study focused on collecting and reviewing information related to the size of the impact of schemes on vulnerable households. Although this does not allow for a scheme to be definitively categorised as 'effective', or held up as an example of good practice, it identifies whether schemes have made progress towards this end. The schemes identified here can thus be seen as delivering some level of tangible benefits to low-income households. This also demonstrates that there are a number of effective approaches to delivering measures, as well as a range of positive direct and indirect effects that such schemes can have.

##### **What are the main reasons behind schemes' success or failure?**

Success drivers and barriers are presented generically and grouped by theme rather than listed specifically for each scheme. The themes and relevant sections of the report are set out in Table 1.

Drivers and barriers associated with a common theme are presented in the same section, bringing the discussion of common issues together in the narrative. This highlights that established drivers of success can transform into barriers for those schemes for which they are not implemented.

This thematic approach to identifying drivers and barriers avoids repetition (many were common across schemes) and reflects the fact that not all drivers and barriers associated with a particular scheme will be explicitly identified in the material reviewed.

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<sup>5</sup> Wade, J., Eyre, N. (2015): Energy Efficiency Evaluation: The evidence for real energy savings from energy efficiency programmes in the household sector. UKERC: London.

<sup>6</sup> IEA (2012), Mobilising investment in energy efficiency. IEA: Paris.

In fact, the vast majority of the drivers and barriers highlighted can be considered as generic and valuable 'good practice' reference points for prospective policy makers. As such, rather than focusing on promoting specific schemes as 'good practice' (given the limitations noted above), it is considered more valuable to draw out these generic conditions that have contributed to the success of schemes. These lessons were compiled into checklists for prospective policy makers. These checks are presented in Sections 3.2-3.9 for each theme, and brought together in Appendix 2.

The drivers and barriers are not ranked in these sections. The scarcity of information in the underlying literature on the relevance of each driver made any such prioritising impossible. Also, the importance of different drivers is likely to be scheme and context specific. Given that the underlying literature may not identify all relevant drivers and barriers for all schemes, it is also difficult to identify which (if any) are more common.

**Table 1 – Driver and barrier themes as set out in this report**

Driver / barrier theme	Report section
Involvement of key institutions	Section 3.2
Interaction with wider policy framework	Section 3.3
Nature and type of funding sources	Section 3.4
Expertise and skills required	Section 3.5
Type of support provided	Section 3.6
Situational characteristics of household	Section 3.7
Characteristics of household members	Section 3.8
Method of measure delivery	Section 3.9

### **Are these experiences with the measures, and schemes within which they are operating, replicable in other environments?**

Mirroring the drivers of success and overcoming the barriers are crucial to the successful replication of the experiences included in this review. There may also be factors which are specific to the scheme and which prevent wider replication. As such, each scheme has been assessed to explore the potential for replication in other environments and to highlight whether any of these 'necessary conditions' constitutes a pre-requisite for success. When undertaking this assessment, three points were noted:

- The conditions required for replication are inherently scheme specific (whereas the drivers and barriers can be viewed as more generic lessons for policy makers);
- The extent to which schemes will be replicated is uncertain. It is unclear whether policy makers will want to replicate schemes exactly and, in fact, this perhaps should not be recommended given differences in context (and opportunities) between countries;
- Many conditions which characterise a scheme in a given context may not necessarily need to be imitated exactly, e.g. a condition may still facilitate a given level of success even if it is implemented slightly differently.

Where certain conditions are considered necessary for replication of a particular scheme, they are included in the conclusions for each theme. Only limited examples of such 'necessary conditions' have been identified.

### **How do these measures, and the schemes within which they are operating, interact with other policy instruments?**

The review highlighted that interaction with policy instruments can be an important success driver or barrier. As for other impacts, these interactions are presented in terms of the valuable lessons learned for policy makers in Section 3.3.

## 2.2 Work package 2

The objective of this work package was to assess the possible use of existing EU funds to support the implementation of low-cost energy efficiency measures in low-income households in Member States. The evidence shows that low-cost energy efficiency measures are delivered to low-income households through specially defined schemes or mechanisms. The targeted low-income households do not receive EU funding directly but, rather, EU funding is obtained by scheme owners who manage schemes to deliver low-cost energy efficiency measures to multiple beneficiary households (see Figure 1 below).

**Figure 1 – How EU funds can support the implementation of low-cost energy efficiency measures in low-income households**



Various EU financing options are available to support a wide range of energy efficiency measures in Member States, with a view to achieving the 2020 climate and energy targets and related social policy objectives<sup>7</sup>. Since schemes delivering low-cost energy efficiency measures to low-income households can contribute to wider climate, energy and social policy objectives at EU, national and/or regional levels while offering multiple benefits to the recipient beneficiary households, they are a likely candidate for EU funding. The specificities of EU funding programmes, however, mean that certain programmes are more suitable than others for funding low-cost energy efficiency schemes.

### 2.2.1 Identification of the most suitable EU funds

In order to identify the most suitable funding options, the appropriate EU funding options should meet certain minimum requirements. Firstly, EU funds should be able to support energy efficiency schemes (such as those considered in Chapter 3) and allow:

- The combination of energy efficiency and social objectives;
- The delivery of different types of energy efficiency measures, e.g. low-cost measures or a combination of low- and high-cost measures.

Secondly, the funding should be available to the scheme owners (i.e. the potential beneficiaries of the EU funds) at little or no cost, usually in the form of grants or non-repayable subsidies, or a combination of grants and loans, with the grant intensity taking into account social considerations. Past experience and the evidence gathered

<sup>7</sup> <https://ec.europa.eu/energy/en/topics/energy-efficiency/financing-energy-efficiency> (last accessed 30 March 2016).

in the course of this study suggest that the delivery of energy efficiency measures to low-income households by the scheme owners is primarily provided at little or no cost to the households<sup>8</sup>. This approach works because low-income households cannot afford to invest in energy efficiency measures. Implementing such schemes at little or no cost to the beneficiary households also offers some key advantages to the scheme owners. For example, such schemes are relatively simple to administer, which is a major advantage in case of limited resources. Such schemes are also highly attractive to the final recipients, especially low-income households, which is important for meeting social and/or energy efficiency policy objectives<sup>9</sup>. Harnessing these advantages increases the likelihood that schemes will engage a large number of low-income households. The objective of reducing the vulnerability of these consumers implies that all of the costs for the delivery of the energy efficiency measures and/or implementation of the initiative are borne by the scheme owners. As the benefits and potential revenues from the energy and financial savings accrue only to the households, there is limited or no scope for the scheme owners to receive substantial revenues through such schemes. Depending on the scale at which a scheme is delivered (i.e. number of households that are engaged) the scheme owners may need only limited upfront investment. This suggests that schemes are unlikely to be eligible for funding options that utilise loans or guarantees, meaning that those types of EU financing instruments (e.g. European Energy Efficiency Fund, Private Finance for Energy Efficiency), as well as project development assistance facilities that require significant leverage factors (e.g. the ELENA facility managed by the EIB), are outside of the scope of this study.

Thirdly, the funding should be available to different types of entities that may act as scheme owners, including public bodies, NGOs and other private sector businesses. This study set no restrictions with respect to scheme owners or the types of institutions implementing the schemes and delivering the measures, as the evidence suggests that there are several successful options. EU funding must therefore be accessible to various types of actors, including public authorities at different levels of governance, NGOs and other private sector actors, and financing options not available to such entities have thus been excluded from this study.

Given the three suitability requirements set out, the European Structural and Investment Funds (ESIF) – and in particular the Cohesion Fund (CF), the European Regional Development Fund (ERDF) and the European Social Fund (ESF) – and, to a lesser extent, Horizon 2020, emerged as the most suitable options for funding low-cost energy efficiency measures in low-income households (see Table 2 for an overview of the requirements and shortlisted funds). These funds: aim to support energy efficiency in the EU; can be dispersed in the form of grants (even though loans, or combinations of instruments are also available); and are available to different potential beneficiaries, including public authorities and NGOs. Previous experience with the Cohesion Policy funds from 2007-2013 indicates that support for energy efficiency projects has been provided primarily in the form of grants to the

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8 Ecorys et al. (2013), Housing investments supported by the European Regional Development Fund 2007-2013: Housing in sustainable urban regeneration; Ramboll and IEEP (2015), Energy efficiency in public and residential buildings, Final Report Work Package 8: Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF).

9 Ecorys et al. (2013), Housing investments supported by the European Regional Development Fund 2007-2013: Housing in sustainable urban regeneration.

fund beneficiaries<sup>10</sup>. While the 2014-2020 period strongly encourages a move towards a wider use of financial instruments for energy efficiency investments, grants could still be used to address social issues. The evidence also suggested that even though Horizon 2020 is less suitable for supporting the large scale roll-out of energy efficiency schemes throughout the EU, it can support the development of innovative schemes.

**Table 2 – Overview of the suitability requirements and the shortlisted EU funds for further analysis**

Suitability requirements	ESIF (CF, ERDF, ESF)	Horizon 2020
Can the funds support:		
• the combination of energy efficiency and social objectives?	Yes	Yes
• the delivery of different types of energy efficiency measures, including low-cost measures or a combination of low- and high-cost measures?	Yes	Yes
Are the funds available in the form of grants or other forms that come at little or no cost to the beneficiaries (i.e. the scheme owners)?	Yes	Yes
Can the funds be accessed by various types of actors, including public authorities at different levels of governance?	Yes	Yes

### 2.2.2 Data collection

Information for the shortlisted EU funds was primarily gathered through desk research. Relevant legislation, evaluations and information materials available for each EU fund were reviewed, with short overviews compiled for each fund. Short telephone interviews were also carried out with the managers of some of those schemes in receipt of EU funding, in order to complement the desk research<sup>11</sup>. The purpose of these interviews was to obtain a better understanding of their experience in sourcing EU funds in order to support the development of practical recommendations on the use of EU funds to finance schemes that deliver low-cost energy efficiency measures to low-income households.

### 2.2.3 Assessing how EU funds can support low-cost energy efficiency measures in low-income households

In order to assess how the shortlisted EU funds can support the implementation of low-cost energy efficiency measures in low-income households, the main features of the ESIF and Horizon 2020 were reviewed against the list of minimum requirements outlined in Section 5.2.1 of this report. The following main features of the shortlisted EU funds were examined:

- Objectives;
- The overall funding amount available;
- Forms of support (e.g. grants, loans, guarantees) and co-financing provisions if relevant;

<sup>10</sup> Ibid.; Ramboll and IEEP (2015), Energy efficiency in public and residential buildings, Final Report Work Package 8: Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF).

<sup>11</sup> Stromspar Check, ACHIEVE, EC-LINC and Energy Ambassadors. A complete list of all schemes considered in this study, including those that were EU funded, can be found in Section 3 and Appendix 1.

- Eligibility requirements for both the beneficiaries and the types of possible interventions;
- Implementation modalities (e.g. programming, application procedures, etc.);
- Other relevant components and/or potential limitations.

Previous examples where the ESIF, Horizon 2020 and IEE have supported energy efficiency schemes were reviewed, and a set of recommendations developed on how these existing EU funds can best be used to support the implementation of low-cost energy efficiency measures in low-income households. These recommendations are aimed at both the Management Authorities (MAs) of ESIF in Member States and potential scheme owners who may benefit from the funds.

The results of this analysis are presented in Chapter 4 and detailed overviews of the main features of the shortlisted EU funds are presented in Appendix 3.

### **2.3 Work package 3**

The objective of work package 3 was to develop recommendations to support the delivery of low-cost energy measures in low-income households under the provisions of the Energy Efficiency Directive and the Energy Performance of Buildings Directive.

The two Directives were reviewed in order to identify the provisions offering the most interesting and viable opportunities to foster low-cost energy efficiency measures in low-income households. Once the relevant provisions were selected, a legal analysis was carried out to interpret their meaning and present it as clearly as possible in the report. Where appropriate, the legal analysis was complemented by:

- A review of the guidance published by the Commission in relation to certain provisions of the Energy Efficiency Directive<sup>12</sup>;
- An analysis of Member States' NEEAPs (current 2014 NEEAPs, as well as those from 2011 and 2007)<sup>13</sup>, annual reports (2016, as well as previous reporting years)<sup>14</sup> and national building renovation strategies<sup>15</sup> under the Energy Efficiency Directive and, where available, the lists of financial support measures for funding energy efficiency under the Energy Performance of Buildings Directive<sup>16</sup>.

This additional research helped to verify the legal viability of the recommendations made and the extent to which the schemes reviewed are considered to contribute to the implementation of the Directives. In developing recommendations, the possible roles of different stakeholders were considered. As a result, the recommendations proposed target various types of stakeholders:

- Member State authorities;
- Public bodies;

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12 Available at: <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive>

13 In relation to the Member States in which schemes reviewed in this study are active, and to the extent that such documentation is available online at: <https://ec.europa.eu/energy/node/84>

14 Ibid.

15 In relation to the Member States in which schemes reviewed in this study are active, and to the extent that such documentation is available online at: <https://ec.europa.eu/energy/node/85>

16 In relation to the Member States in which schemes reviewed in this study are active, and to the extent that such documentation is available online at: <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings/financing-renovations>

- Social housing bodies;
- Scheme owners;
- European Commission.

Recommendations are intended to inspire actions beyond those required by the Directives and do not reflect all binding requirements set out therein.

The results of this work package are presented in Chapter 5 of this report.

## **2.4 Work package 4**

The objective of work package 4 was to produce communication material to share the key messages of this study with a wide audience, including policy makers, fund MAs, potential scheme owners and direct beneficiaries. Communication needed to present low-cost energy efficiency measures, explain their benefits and methods of promoting their uptake (through financing from EU funds and under the Energy Efficiency Directive and Energy Performance of Buildings Directive).

The communication material was developed from this report and summarised in clear and straightforward language. Visual content was developed to convey information in a more immediate and appealing manner. A balance was sought between length and level of detail of the text, and visual content.

The communication document is presented separately from this report.

### 3 Good practices for delivering low-cost energy efficiency measures in low-income households

#### 3.1 Summary of schemes reviewed

The list of schemes reviewed in this study is provided in Table 3.

**Table 3 – List of schemes reviewed**

No.	Scheme name	Location
1	Better Energy Warmer Homes scheme	Ireland
2	Warm Zones	UK
3	Nest	Wales, UK
4	Northern Exposure project	Northern Ireland, UK
5	Multi-family Building Development Programme	Lithuania
6	Social assistance fund for energy management works (Les Fonds sociaux d'aide aux travaux de maîtrise de l'énergie (FSATME))	France
7	Compagnons Bâtisseurs	France
8	Pacte Energie Solidarité	France
9	Temporary Subsidy scheme on Energy savings for Low-Income households (TELI) (Tijdelijke subsidieregeling energiebesparing huishoudens met lage inkomens)	Netherlands
10	Just Change	Melbourne, Australia
11	Pilot project against fuel poverty	Austria
12	Stromspar Check	Germany
13	Seasonal Health Intervention NETwork (SHINE)	London, UK
14	ACTION in low-income Households to Improve energy Efficiency through Visits and Energy diagnosis (ACHIEVE)	Bulgaria, France, Germany, Slovenia, UK
15	Energy Check for Low-INCOME households (EC-LINC)	Austria, Belgium, Germany, Hungary, UK
16	Students Achieving Valuable Energy Savings (SAVES)	UK, Cyprus, Greece, Lithuania, Sweden
17	Provision of advice in Meridiana, Barcelona	Barcelona, Spain
18	Energy Ambassadors	Bulgaria, Denmark, Greece, Spain, France, Italy, Romania, Sweden UK
19	Family Intelligent Energy Saving Targeted Action (FIESTA)	Italy, Spain, Croatia, Bulgaria, Cyprus
20	Beat the Cold	Staffordshire, UK
21	Smart-Up	UK, Malta, Italy, Spain, France
22	Energy saving kits	British Columbia, Canada
23	Seattle city light conservation kits	Seattle, US
24	EDF Energy Solidarity Kit	France

A detailed summary of each of these schemes is provided in Appendix 1.

##### 3.1.1 Types of measures delivered

A range of low-cost energy efficiency measures exist which can be provided to low-income households. The measures provided through the schemes listed here are described in Table 4, together with the number of schemes which provided these measures.



Low-cost energy efficiency measures exist to save heat energy, power and water (with energy savings as an indirect benefit). The majority of schemes (19) provided more than one measure, reflecting the diversity of energy efficiency needs among low-income households. In several cases, these measures were bundled together and provided to households as energy saving kits.

In many cases (13 schemes), low-cost energy efficiency measures were delivered together with potentially more costly measures, such as insulation, replacement of heating systems with new fossil fuel or renewable systems, or small-scale renewable generation technologies. Low-cost measures can thus complement (and not preclude) deeper energy efficiency retrofits. Of the five schemes which delivered only one measure, four delivered energy saving advice.

Most schemes (21) fully funded the measures provided to households. Two schemes combined direct funding of measures with grants, depending on household circumstances. For the three schemes where measures were not directly funded, two used grants while one used a mix of grants and loans (in this case the loan provision was for non-vulnerable households). The funded nature of the schemes reflects an understanding that low-income households often lack upfront capital to invest in energy efficiency measures, even where these are low cost and can offer a net benefit to households over their lifetime (see Section 3.6 for a more detailed discussion).

The types of measures delivered will impact on the savings achieved: this is considered in Section 3.1.6.

The specific measures delivered by each of these scheme are provided in Appendix 1.

**Table 4 – Low-cost energy efficiency measures and frequency in schemes studied**

Type	Measure	Description	No. of schemes in study sample delivering measure
<b>Advice and information</b>	Advice and information	Significant savings can be achieved through behavioural change by providing households with advice and information on energy consumption and ways to save energy.	19
<b>Energy efficiency services</b>	Draught proofing	Blocking gaps around windows, doors, floor/wall junctions and service penetrations which allow heat transfer through uncontrolled air flow. Also includes switch sealers and exhaust fan covers to reduce unwanted air flow.	10
	Optimisation of existing building technology systems	A range of measures can be retrofitted to existing heating systems to increase households' control of their energy consumption. This includes: thermostatic radiator valves, system thermostats, and timers/programmers for boilers and hot water tanks. In addition, optimisation can include appropriate temperature, timings and other settings on existing system controls.	8
	Re-commissioning of apartment blocks	Identification and implementation of operational and maintenance work to improve and ensure continued performance. It ensures that building systems are functioning and optimised and, where multiple systems exist, that these systems work optimally together <sup>17</sup> . Can also include information provision to building occupants <sup>18</sup> .	1
	Metering	Direct metering can be a useful tool in reducing energy bills by providing households with information on their energy use, allowing them to identify sources of energy demand,	5

17 [http://www2.schneider-electric.com/documents/buildings/recommissioning\\_your\\_building\\_to\\_deliver\\_peak\\_performance.pdf](http://www2.schneider-electric.com/documents/buildings/recommissioning_your_building_to_deliver_peak_performance.pdf)

18 [http://www.re-co.eu/sites/default/files/files/Guidebook\\_re-commissioning\(1\).pdf](http://www.re-co.eu/sites/default/files/files/Guidebook_re-commissioning(1).pdf)

Type	Measure	Description	No. of schemes in study sample delivering measure
<b>Energy efficiency devices and kits</b>		compare their use to other households and achieve energy savings through installation of energy efficiency equipment and behavioural change. In-house displays help households to understand their energy consumption habits by providing various forms of feedback.	
	Low-energy lighting	Incandescent lamps are very inefficient in comparison to more modern compact fluorescents (CFLs) and light-emitting diodes (LEDs).	13
	Energy efficient household appliances	Appliances with higher energy efficiency ratings than existing appliances can be provided. One scheme provided a voucher for refrigerator scrappage.	4
	Small power saving devices	A range of smaller measures exist which can be provided to save power, such as: Extension leads with switches <sup>19</sup> , power distributors, standby breakers and single appliance timer switches.	7
	Water saving devices	Measures which save hot water also save the energy to heat and pump water, having the dual benefit of reducing water and energy bills. Such measures include: low-flow showerheads, tap aerators, flow restrictors, shower timers, water flow measuring bags, and shower shut-off valves.	10
	Small monitoring devices	Other equipment provides information on energy consumption to encourage behaviour	6

<sup>19</sup> Appliances plugged into the wall may continue to use power if they go into standby mode. Plugging these into a power bar with switches can save energy where the user flicks the switch to 'off' when they are not in use (<http://www.empr.gov.bc.ca/EAED/Documents/Energy%20Saving%20Kit%20Booklet.pdf>).

Type	Measure	Description	No. of schemes in study sample delivering measure
		change. This includes thermometers installed in fridges and hot water gauges <sup>20</sup> .	
	Insulation of pipes	Uninsulated pipework can be a significant source of heat loss and wasted energy – it acts as an uncontrolled heat source in unwanted areas and takes useful heat away from areas that need it. Pipes can be insulated to reduce energy loss, in particular for internal ‘cold spaces’ such as lofts or under floors. This provides additional benefit through reducing the risk of pipe freezing and associated damage.	7
	Insulating film for windows	Replacement of windows to increase the level of glazing can be expensive. Plastic film can be applied to glass windows to reduce heat transfer from solar gains (also known as ‘solar control window films’).	3
	Radiator foil	Thin sheets or foil can be applied to the wall behind, and closely spaced from, a domestic heating radiator to reduce heat losses into the wall and increase the output of the radiator.	2
	Energy efficiency kits	Kits provide a bundle of low-cost energy efficiency equipment, devices, appliances and, sometimes, information, as a package to households. The specific equipment and devices provided can vary between kits, e.g. a kit may include some or all of the above.	8

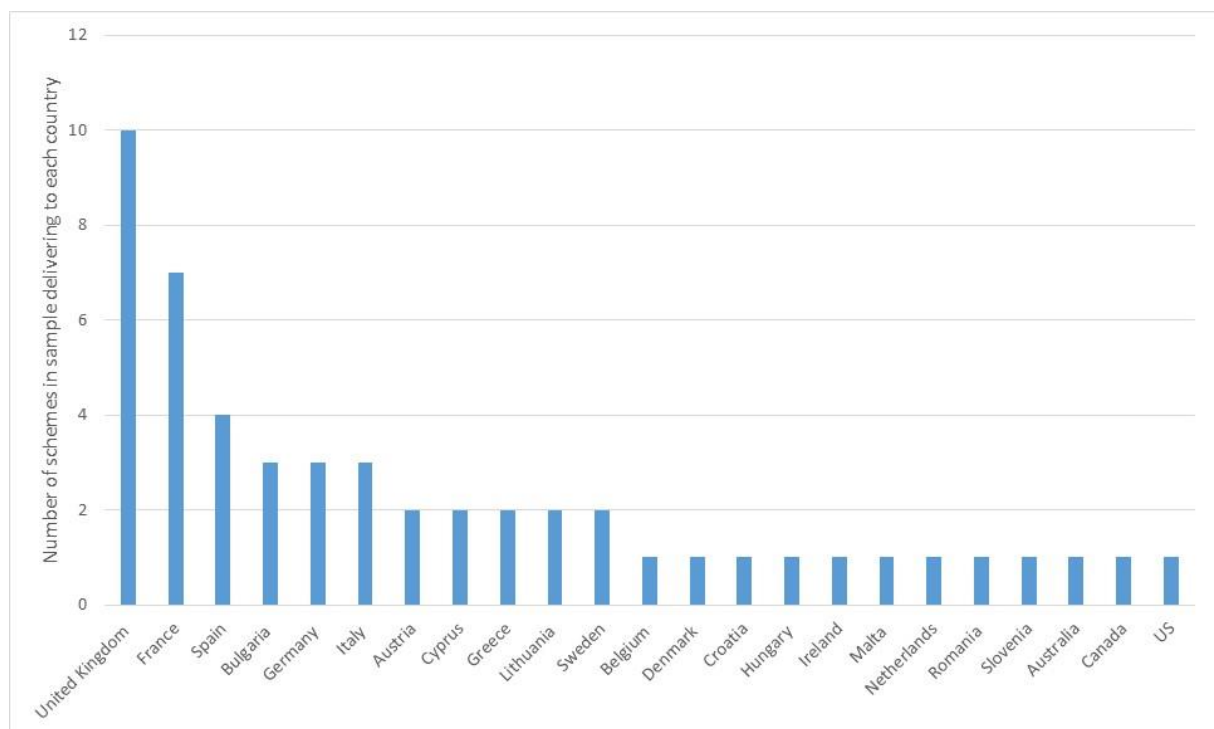
<sup>20</sup> Other low-cost measures can also help to improve the comfort of the home, such as hygrometers which can be used to measure moisture content in the atmosphere and allow the household to change heating and ventilation to reduce the risk of damp.

### 3.1.2 Geographical coverage

The schemes included in this study have benefitted vulnerable households across 23 different countries (20 EU Member states, Australia, Canada and the US). The number of schemes which have delivered low-cost energy efficiency measures across these countries is shown in Figure 2. This study has not undertaken a full review of all schemes delivering low cost energy efficiency measures across the EU but, rather, selected a limited but well-distributed sample for review. If a country is not represented here, it does not necessarily mean that no policy or relevant scheme exists to deliver low-cost energy efficiency measures to low-income households.

**Figure 2 – Number of schemes included in the study sample delivering low-cost energy efficiency measures in each country**

(Note: Some schemes deliver to multiple countries)



The spread of schemes across countries suggests that low-cost energy efficiency measures exist which can be applied more broadly and are not limited to particular geographical or climatic regions. This is also true across both northern and western (35 instances of schemes delivering across these countries) and southern and eastern Member States (14 instances)<sup>21</sup>. The measures provided by schemes differ across countries, reflecting the importance of local context (e.g. variation in climate, housing conditions and type, etc.). This is discussed further in Section 3.6 below.

The countries with the highest concentration of selected schemes are the UK (10 schemes), France (seven), Spain (four), Italy and Bulgaria (three apiece). The fact that many schemes in the UK and France were included in the sample is not

<sup>21</sup> Northern and western Member States are: Austria, Belgium, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden, and the UK. Southern and eastern Member States are: Bulgaria, Cyprus, Czech Republic, Estonia, Greece, Croatia, Hungary, Lithuania, Latvia, Malta, Poland, Romania, Slovakia, and Slovenia.

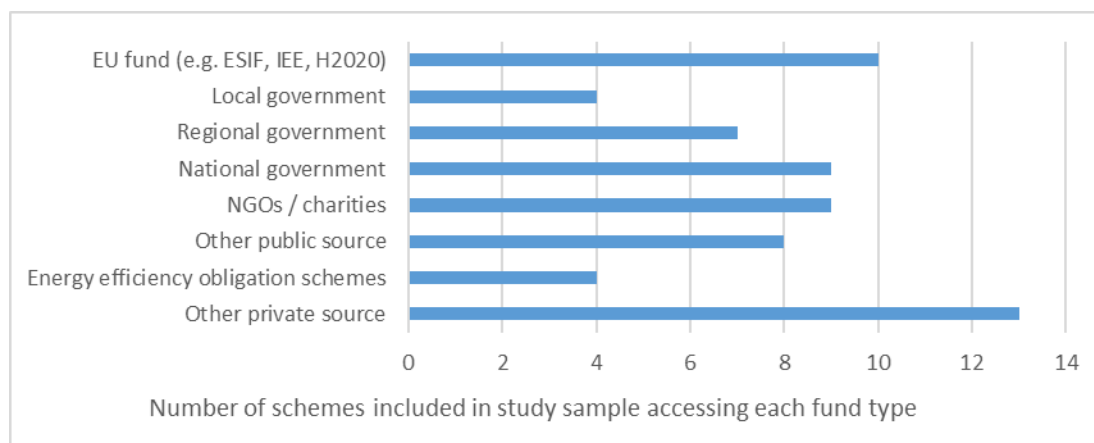
surprising, as fuel or energy poverty has been a policy objective in these countries for a number of years, allowing schemes to become more established. Many Member States do not yet identify or quantify vulnerable consumers at a national policy level: less than one-third of Member States officially recognise energy poverty, with few having an official definition in their national legislation<sup>22</sup>. Even where energy poverty (or ‘fuel poverty’ in some cases) is acknowledged by national governments, this may not be a sufficient priority to encourage policies and schemes or make funding available. Some schemes may focus on deeper retrofit measures, rather than the low-cost energy efficiency assistance which is the focus of this study.

### 3.1.3 Spread across funding sources

A number of possible funding sources are available to finance the delivery of low-cost energy efficiency measures to low-income households. These are exemplified by the schemes included in the study sample, with the different sources and number accessing each source presented in Figure 3.

**Figure 3 – Number of schemes studied which accessed each type of funding source**

(Note: many schemes accessed more than one type of funding)



The sources of funding noted as contributing to each individual scheme are provided in Appendix 1.

Alongside the named funding sources shown in Figure 3, schemes also accessed a range of ‘other’ public and private sources of funding, including public health services, donations, volunteers, housing associations, non-Energy Company Obligation (ECO) funding from energy companies (i.e. investment provided by energy companies which is not linked to meeting obligations under an ECO), suppliers of energy efficiency equipment and, in some cases, banks and financial institutions.

EU funding may be available to finance the delivery of low-cost measures. In the study sample, 10 schemes noted that EU funding had been accessed to partly or fully finance the assistance provided: five cited the Intelligent Energy Europe programme as the source, with two references for ERDF (of which one accessed funding through

<sup>22</sup> INSIGHT\_E (2015), Energy poverty and vulnerable consumers in the energy sector across the EU: analysis of policies and measures, Policy Report, p.V.

INTERREG), and one each for ESF and Horizon 2020 (detail on the EU funding source used could not be found for one scheme).

In most cases, schemes combined funding from more than one source. This simultaneously helped the schemes to access greater resources to assist a larger number of low-income households, as well as reducing the risk for scheme owners through diversified funding increasing value for money for funders. Only 10 schemes accessed funding from a single source.

This review was only able to identify funding sources where they were explicitly referenced as contributing to those schemes. In some cases, it is possible that not all funding sources were clearly identified in the literature. Equally, this is also likely only to capture direct funding contributions and ignore other resources provided, such as the time committed by partner agencies. Information on the proportion of funding provided by each source was available for some, but not all, schemes, making it impossible to assess the importance of each source of funding to the schemes. Finally, although some information could be found on the source of funding and the form of support provided to households, no information was found about the form in which EU (or other) funding was received by the scheme owners from the funding institutions.

### **3.1.4 Number of households assisted / measures installed**

The schemes included in this review vary substantially in size, with some being very broad while others are very narrow. The review found evidence that all schemes had effectively delivered low-cost energy efficiency measures to low-income households, irrespective of the scheme size<sup>23</sup>. This suggests that there is no typical scheme size for the delivery of measures, with all scales having the potential to be effective.

The number of households that will be assisted by a given scheme will depend on a number of factors, chiefly the level of ambition and resources available. Other influences are the target group and its population, effectiveness of identification and delivery methods, scheme duration, whether or not the assistance is widely applicable, and the presence of underlying barriers which may prevent engagement (e.g. landlord-tenant divergence of incentives).

Schemes implemented at a national level tend to have the highest number of beneficiaries. The Better Energy Warmer Homes scheme in Ireland, for example, has assisted 83,000 households since 2000<sup>24</sup> and 157,000 households have participated in the Stromspar Check scheme in Germany to the end of 2014<sup>25</sup>. Schemes implemented at a local or regional level are more targeted, therefore naturally reach fewer households. 11,000 households in Wales, for example, received advice or support under the Nest scheme in 2014/15<sup>26</sup>. However, even local level schemes can still assist a large number of households: the Kirklees Warm Zones initiative assessed 134,000 dwellings in West Yorkshire in England between 2007 and 2010 and retrofitted 71,000 homes<sup>27</sup>.

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23 This is the case for all but four schemes: in two cases the schemes (FIESTA and Smart-Up) were at an early stage and evaluation material was unavailable; for the remaining two (FSATME and Compagnons Batisseurs) no evidence could be found in the limited documentation.

24 [http://www.seai.ie/Grants/Warmer\\_Homes\\_Scheme/WHS\\_FAQ/](http://www.seai.ie/Grants/Warmer_Homes_Scheme/WHS_FAQ/)

25 <http://proceedings.eceee.org/visabstrakt.php?event=5&doc=2-392-15>

26 [http://www.nestwales.org.uk/sites/default/files/Nest%20Annual%20Report%202014-15\\_2.pdf](http://www.nestwales.org.uk/sites/default/files/Nest%20Annual%20Report%202014-15_2.pdf)

27 [http://bpie.eu/uploads/lib/document/attachment/60/BPIE\\_Fuel\\_Poverty\\_May2014.pdf](http://bpie.eu/uploads/lib/document/attachment/60/BPIE_Fuel_Poverty_May2014.pdf)

Several pilot initiatives were covered in the review, which, given their nature, tended to reach even smaller numbers of households. For example, 1,920 household visits took place across seven areas in the ACHIEVE scheme<sup>28</sup>, and 400 households were assisted through the Austria pilot scheme. However, it is likely that schemes which replicate these pilots could reach a much larger number of households by rolling out on a more ambitious scale.

The number of measures delivered by a scheme follows the same pattern as the number of households assisted, i.e. the greater the number of households assisted, the greater the number of measures delivered. Where schemes focus on delivering a single measure type (e.g. advice in the case of Energy Ambassadors, or low-cost loft insulation in the case of Pacte Energie Solidarité), the number of households is equivalent to the number of measures delivered. For schemes offering a wider range of measures, the number of measures provided is greater than the number of households assisted. For example, the Kirklees Warm Zones scheme delivered over 64,000 measures in 51,000 homes.

### **3.1.5 Organisational mapping**

All schemes are underpinned by a framework of different roles and responsibilities which collectively facilitate the successful delivery of low-cost energy efficiency measures to low-income households. These roles can be filled by either a single body or multiple organisations.

The schemes reviewed vary widely in terms of the number and type (e.g. governmental or public bodies, NGOs, private businesses, etc.) of organisations that fill these roles. The organisations involved will depend on the scheme itself, through factors such as level of ambition, target households, type of support delivered, method of delivery, etc.

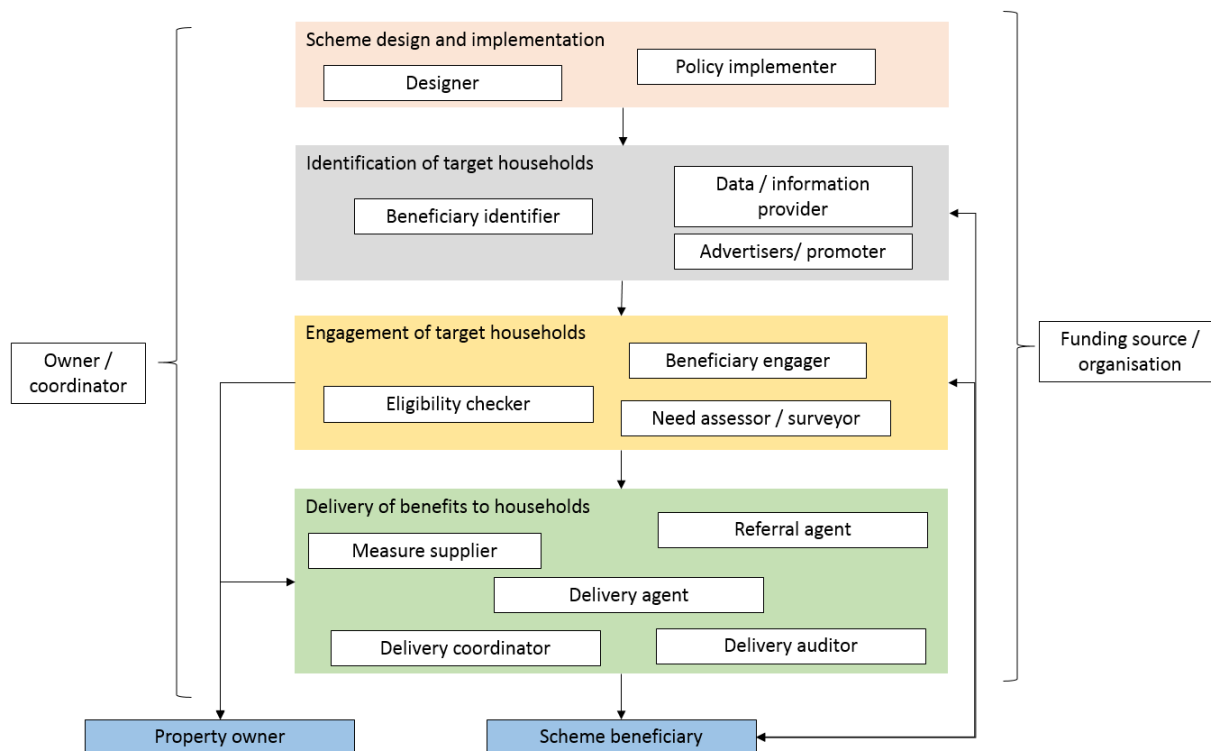
In addition, the specific roles played by different organisations vary between the schemes, although some commonalities can be identified. Figure 4 shows these commonalities in the generic organisational mapping across the different stages of scheme development and delivery. Many of the roles may overlap and/or interact significantly with one another, making them much less defined in practice.

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28 [http://www.achieve-project.eu/index.php?option=com\\_phocadownload&view=category&download=332%3Afinal-publishable-report-achieve&id=32%3Aeu-dissemination&Itemid=6&lang=eueu](http://www.achieve-project.eu/index.php?option=com_phocadownload&view=category&download=332%3Afinal-publishable-report-achieve&id=32%3Aeu-dissemination&Itemid=6&lang=eueu)



**Figure 4 – Generic scheme organisational mapping**



A brief description of each role is provided in Table 5.

**Table 5 – Organisational mapping role description**

Role	Description
<b>Overarching</b>	
Owner / Coordinator	Oversees all stages of development and delivery of the scheme and holds overall responsibility for the scheme and its success
Funding source / organisation	Provides financial and other resources (e.g. work hours) to support all stages of the scheme
<b>Scheme design and implementation</b>	
Designer	Responsible for designing the detail of the different elements of the scheme, e.g. the measures to be delivered, definition of eligible households, etc.
Policy implementer	Responsible for putting the scheme into practice, including setting up ongoing organisation and process structures
<b>Identification of target households</b>	
Beneficiary identifier	Identifies households who may meet eligibility criteria
Data/information provider	Provides information which can be used to help identify eligible households, e.g. Warm Zones used data from the UK national statistics service (ONS) to identify areas of high deprivation
Advertiser / promoter	Designs and distributes marketing material to raise awareness of the scheme, either in target households or among wider stakeholders
<b>Engagement of target households</b>	
Beneficiary engager	Once identified, engages household through direct communication. This typically includes providing further information about the scheme, measures available, delivery process and potential benefits for the household. This helps to gain household buy-in to the scheme
Eligibility checker	Performs detailed comparison of household circumstances relative to eligibility criteria of the scheme
Need assessor /	Assesses specific requirements of the household to identify the most

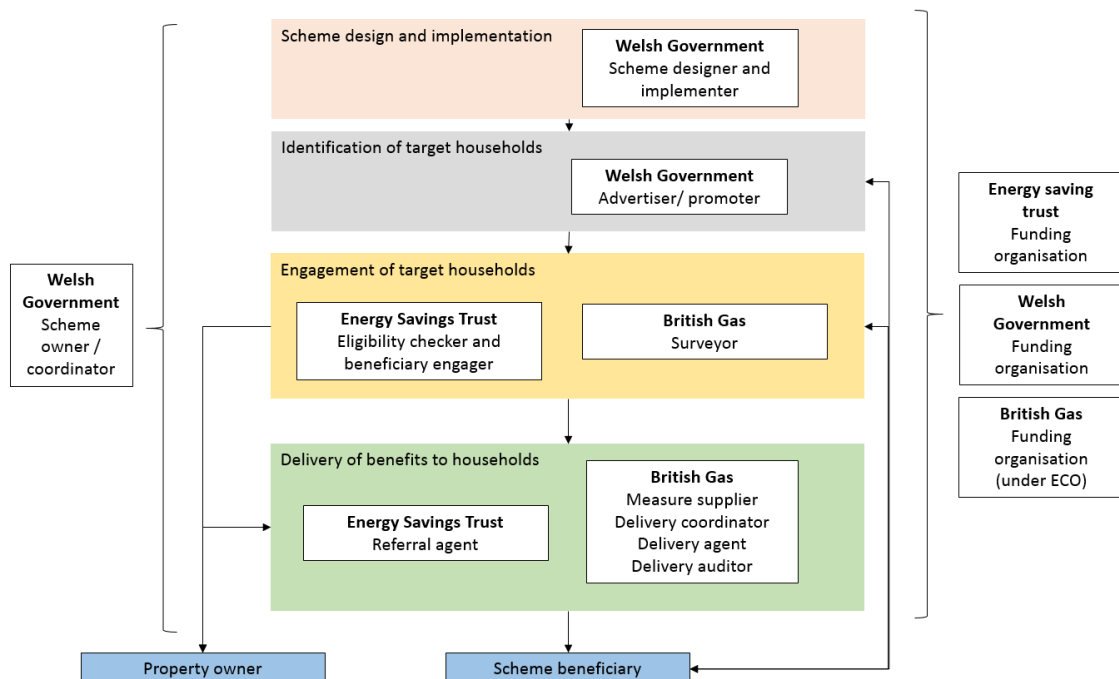
Role	Description
surveyor	appropriate energy efficiency measures from those available
<b>Delivery of benefits to households</b>	
Measure supplier	Provides energy efficiency measures which are subsequently delivered to the beneficiary
Delivery coordinator	Oversees delivery of measures to beneficiary household, acts as a single point of contact for the household and others involved
Delivery agent	Responsible for actual delivery of energy efficiency measures to household (and installation, where appropriate)
Referral agent	Refers household on to other schemes, services or benefits for which they may be eligible
Delivery auditor	Provides follow-up checks to ensure measures have been delivered (and installed) correctly and are delivering the intended effects

Multiple organisations can contribute to a single role. Likewise, a single organisation can take on multiple roles. Different organisations will hold different capabilities and will have varying capacity to contribute to schemes: organisations may hold the necessary expertise for some aspects of the scheme but may need to partner with other organisations to fill all roles required for successful delivery. Again, this will depend on a number of scheme-specific factors, including the support to be provided, how and to whom.

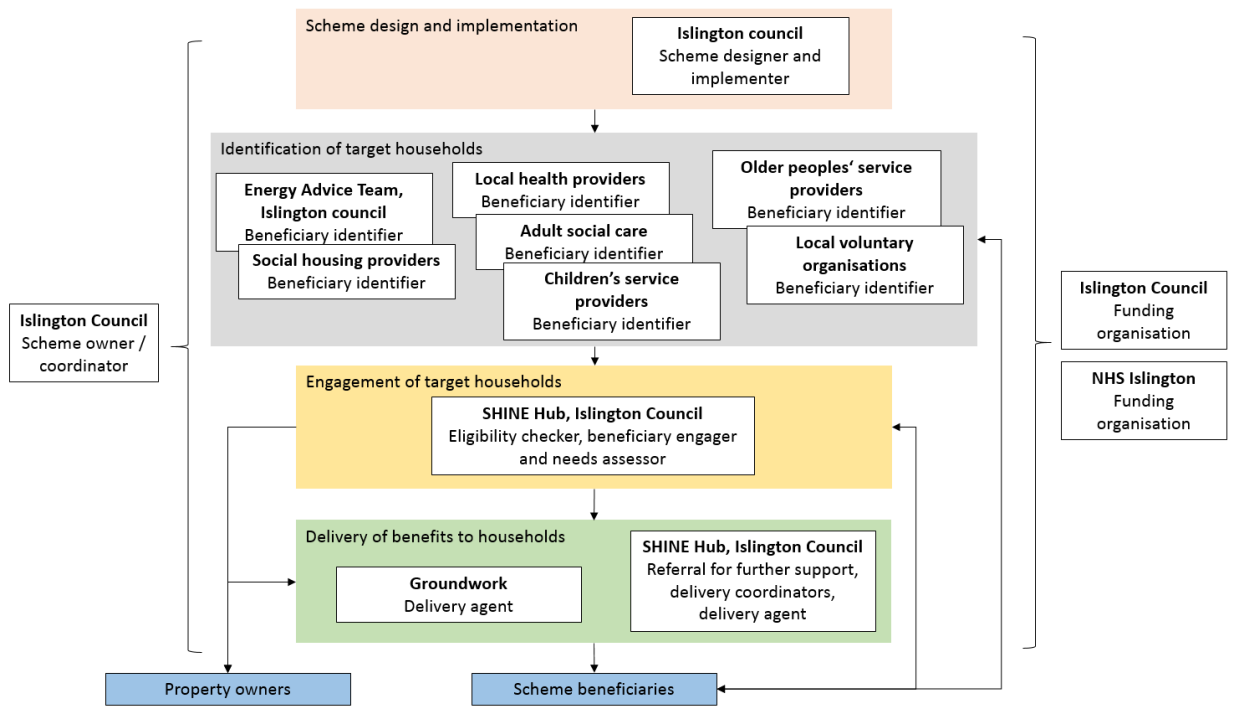
For a scheme to successfully deliver low-cost energy efficiency measures to low-income households, all roles need to be filled (or considered and dismissed as unnecessary for the scheme in question). It will be important for the scheme owner to carefully consider if they have sufficient capability and resources to play all relevant roles, and if not, to identify suitable partners.

Examples of the organisational mapping of three schemes are included below: Figure 5 for the NEST scheme in Wales, Figure 6 for the SHINE scheme in London, UK and Figure 7 for the pilot project against fuel poverty in Austria.

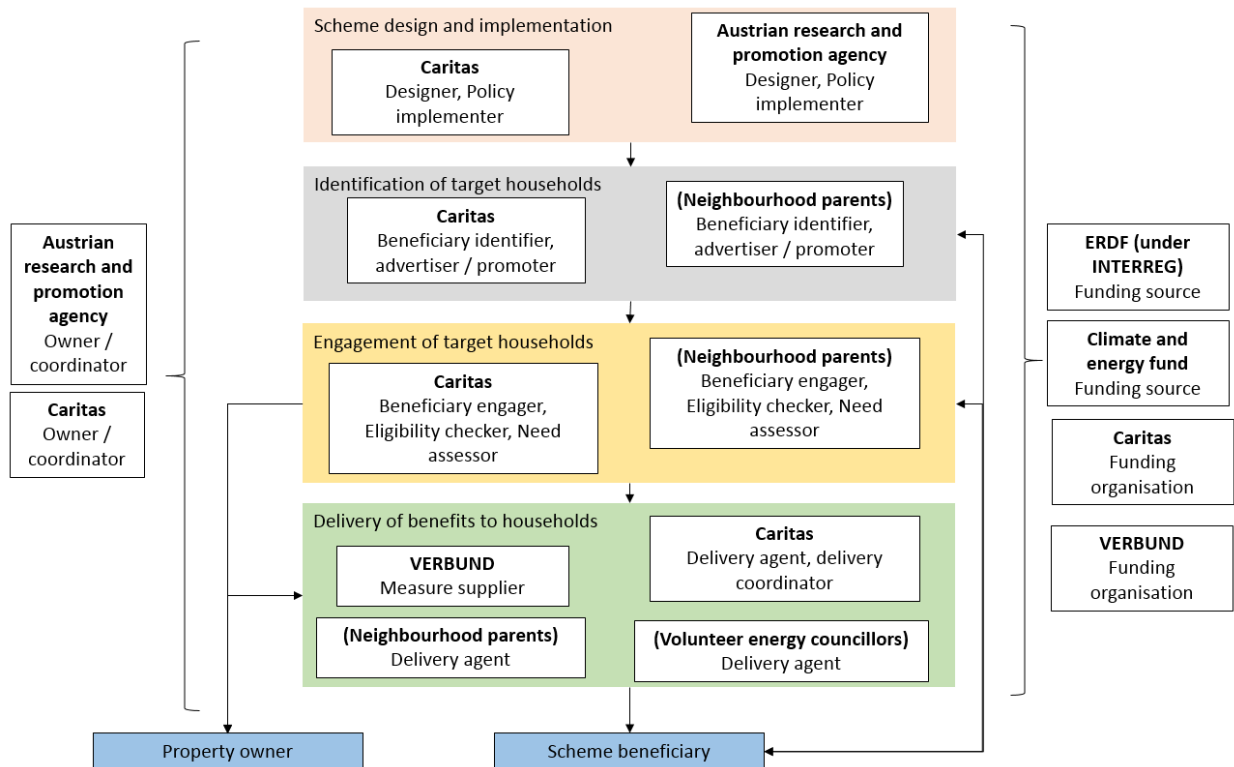
**Figure 5 – Organisational mapping: NEST**



**Figure 6 – Organisational mapping: SHINE**



**Figure 7 – Organisational mapping: Pilot project against fuel poverty, Austria**



Note: contributors to the scheme not affiliated with overarching organisations are shown in brackets.

These figures illustrate the key roles directly involved in the delivery of the measures to beneficiary households. Depending on the financial supports for measures, there

may be a further network of organisations underpinning the funding of the scheme. For example, the Multifamily Building Renovation Programme provides support to households in the form of loans (which are converted to grants for vulnerable households) funded in part through the JESSICA programme. A network of government departments and agencies, European institutions, financial intermediaries and urban development funds have been set up to meet the requirements of the JESSICA fund and allocate funding to renovation project owners<sup>29</sup>.

### **3.1.6 Impact on vulnerable households assisted**

Energy efficiency measures can deliver reductions in energy consumption and subsequent financial savings. Where these savings are instead taken as comfort, the installation of measures can (instead or in addition) result in improved temperature, condition and comfort of the home. The schemes can also have broader effects in terms of improvements in the physical wellness (e.g. reduction of health issues associated with living in under-heated homes) and/or mental health (e.g. reduced stress or anxiety caused by energy bills or debt) of household members.

All schemes included in this review aimed to deliver positive impacts for vulnerable households against at least one of the four impact types (energy or financial saving, and temperature or health improvement). The review found evidence of benefits to households for all but four of the schemes. Of those four, two schemes (FIESTA and Smart-Up) are at an early stage (although intended energy savings were noted and the expected impacts can also be considered positive), and for the remaining two (FSATME and Compagnons Batisseurs), the documentation was too limited to provide evidence.

#### **Energy savings achieved by schemes reviewed**

The level of energy savings achieved will depend on a number of factors, not least the type of measures provided. The evidence reviewed in this study suggests that low-cost measures can deliver real energy saving benefits for vulnerable households.

It is difficult to conclusively determine the savings associated with individual low-cost measures from the schemes reviewed in this study:

- Energy savings are not reported for all schemes;
- Many schemes deliver more than one low-cost measure, and evaluation material reports energy savings at household rather than measure level;
- Some schemes deliver low-cost measures together with other, higher cost measures (e.g. solid wall insulation, replacement boiler or heating systems), with savings again reported at household level;
- Schemes deliver different measures across different contexts. These wider variables which influence savings cannot be controlled for in the evidence collected from the review.

An illustrative range of savings associated with different measure groupings is presented in Table 6. This was compiled from the information reviewed for each scheme.

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29 Annexes D-F of: [http://www.worldbank.org/content/dam/Worldbank/Event/ECA/Lithuania\\_EE\\_CaseStudy%20final%20rev.pdf](http://www.worldbank.org/content/dam/Worldbank/Event/ECA/Lithuania_EE_CaseStudy%20final%20rev.pdf)

It is not surprising that those schemes delivering a combination of low- and high-cost energy efficiency measures achieve the greatest savings, given the impact of these higher cost measures. Bundles of low-cost measures in the form of energy saving kits and energy saving advice are both seen to reduce energy demand, with overlapping ranges of savings.

**Table 6 – Illustrative range of savings based on schemes reviewed**

Measure grouping	Range of savings (kWh per annum per household)	Notes
Combination of low-* and higher cost energy efficiency measures	1,400 – 2,100	Low bound is from Better Energy Warmer Homes, high bound is from Kirklees Warm Zone (both include higher cost measures together with a range of low-cost measures and advice)
Energy efficiency devices provided in the form of energy saving kits	160 – 360	Low is based on Seattle City Lights; high is based on Energy saving kits Canada. Will depend on measures included in the kits
Advice and information	250 – 2,400	Low bound is based on Energy Ambassadors scheme and high bound is based on EC-LINC (will include influence of other low-cost measures provided through this scheme)

\*Low-cost measures provided by schemes include different selections of multiple measures across the three low-cost measure categories (advice and information, energy efficiency services and energy efficiency devices). These are offered and provided (where appropriate) to households in a combined package of assistance.

As well as the type of measure delivered, the level of energy savings achieved will depend on a range of factors, including the target group itself and their interest in energy efficiency (in particular for behavioural measures), level of follow-up after installation (to check correct installation and sustained behavioural change), and baseline energy consumption (which in turn relies on a range of factors, such as local climate, underlying building efficiency, energy type used for heating, etc.). For example, savings reported under the EC-LINC project varied from 760 kWh per household per annum in Hungary to 2,400 kWh per household per annum in Belgium, even though a similar service was offered across pilot areas<sup>30</sup>.

### Financial savings achieved by schemes reviewed

Many schemes report positive impacts on vulnerable households through financial savings and, again, these benefits are shown across different measure types:

- **Combination of 'low' and relatively 'higher cost' measures:** the Nest scheme in Wales reports savings of around EUR 596 per household per annum across heating and electricity<sup>31</sup>;
- **Energy efficiency devices provided in the form of Energy saving kits:** The EDF scheme delivering energy saving kits in France report savings of EUR 60-170 per household per year;

30 [https://secure.berliner-netzwerk-e.de/media/file/472.EC\\_LINC\\_Brochure\\_web.pdf](https://secure.berliner-netzwerk-e.de/media/file/472.EC_LINC_Brochure_web.pdf)

31 [http://www.nestwales.org.uk/sites/default/files/Nest%20Annual%20Report%202014-15\\_2.pdf](http://www.nestwales.org.uk/sites/default/files/Nest%20Annual%20Report%202014-15_2.pdf)

- **Advice and information:** the SHINE scheme predominantly focused on providing energy advice reports savings of EUR 2.4m<sup>32</sup> per annum saving on bills<sup>33</sup> (equivalent to around EUR 135 per household per annum).

The examples also illustrate that the type of scheme owner is not necessarily a determinant of success, whether national or local public institutions (as in the case of Nest or SHINE above), private companies or non-profit organisations. For example, the Pacte Energie Solidarité, delivering low-cost loft insulation and which is coordinated by private company CertiNergy, suggests households could save up to 25% on energy bills<sup>34</sup>, while the pilot project to reduce fuel poverty in Austria delivered by NGO Caritas records financial savings of EUR 115 per household per annum<sup>35</sup>.

### Cost of assisting households under schemes reviewed

The cost of schemes depends on a range of factors, such as the number of households assisted, the range and type of measures provided, the means by which measures are provided, the target group and its identification, etc.

As with energy and financial savings, it was difficult to identify the costs of measures from the information reviewed. Costs are not reported for all schemes, or estimates vary in evaluation studies depending on the costs that have been included in the assessment, e.g. estimates may include only the costs of measures, or could also include installation costs, identification costs, or even overarching scheme administration costs. It is often difficult to get a clear picture from the evaluation material of the costs that have been included in, or excluded from, the estimation.

An illustrative range of costs associated with delivering different measure groupings is presented in Table 7, compiled from the information reviewed for each scheme. These are presented on a per household basis.

**Table 7 – Illustrative range of costs based on schemes reviewed**

Measure grouping	Range of costs (EUR per household)	Notes
Combination of low- and higher cost energy efficiency measures	44 – 5,800	Low is based on the ACHIEVE pilot, which only includes costs of measures installed, with high based on multifamily building renovation programme in Lithuania, which undertook the recommissioning of apartment buildings, installing both low-cost (e.g. draught proofing and pipe insulation) alongside higher cost (e.g. insulation and heating system replacement) measures
Energy efficiency devices provided in the form of	13 - 33	Low is based on Seattle City Lights scheme implemented in 2001-02

<sup>32</sup> Figure converted to EUR (1 GBP to 1.25 EUR).

<sup>33</sup> <https://www.cse.org.uk/downloads/file/pitch-slides-john-kolm-murray.pdf>

<sup>34</sup> <http://www.cerdd.org/content/download/14259/56037/file/fiche+bonne+pratique+pacte+energie+solidarite+certainergy.pdf>

<sup>35</sup> [http://oin.at/\\_publikationen/PublikationenNEU/Forschungsberichte/Endbericht\\_PilotprojektGegenEnergiearmut.pdf](http://oin.at/_publikationen/PublikationenNEU/Forschungsberichte/Endbericht_PilotprojektGegenEnergiearmut.pdf)

Measure grouping	Range of costs (EUR per household)	Notes
energy saving kits		(includes installation) and high is based on EDF Energy Solidarity Kits <sup>36</sup>
Advice and information	52-792	Low is based on Energy Ambassadors scheme and high is based on EC-LINC (this will include cost of other low-cost measures provided and wider pilot costs, such as partner coordination, development of training materials, review procedures and information distribution).

The cost range is widest for those schemes delivering both low- and high-cost energy efficiency measures. These schemes also seem to have the highest cost boundary. Such results are not unexpected, given the wide variance in aims and measures delivered by these schemes. Delivering energy saving kits appears to be relatively low-cost. The cost of schemes delivering advice sits somewhere between the other two groupings but, again, there is a wide range of cost estimates which will be driven by factors specific to the scheme (e.g. the specific advice delivered, how it is delivered, whether other low-cost measures are also delivered, etc.) and to the evaluation approach (e.g. the types of costs included in the estimation).

### Benefits and costs of individual measures

Information on the impacts and costs associated with individual low-cost energy efficiency measures was not readily available for the schemes reviewed. The initial scheme-orientated literature review was thus supplemented with further targeted research on the individual impacts associated with each type of measure.

Energy and financial savings associated with individual measures will vary according to a range of factors (similar to the impacts presented at scheme level). These factors include the target group and their interest in energy efficiency (in particular for behavioural measures), the level of follow-up after installation (to check correct installation and sustained behavioural change), and baseline energy consumption, which in turn is influenced by a range of factors, such as local climate, house and household size, heating or cooling preferences, underlying building efficiency, energy type used for heating, etc. It will also vary depending on whether measures are installed in isolation or in combination with other energy efficiency measures, as well as assumptions about comfort taking or rebound effects on the demand for heat.

Costs will also vary depending on a range of underlying assumptions, such as the size of installation, and the cost components included in the estimation (e.g. physical cost of the measure, installation, etc.).

Table 8 presents an illustration of the savings and costs associated with the different low-cost energy efficiency measures, based on information gathered from the literature review. Although the numbers give a sense of the size of the impacts, caution should be exercised in directly comparing savings and costs between different measures (and even between savings and costs associated with a given measure), as data have been compiled from a range of studies which may have made different assumptions about the key variables influencing savings and costs.

<sup>36</sup> <http://www.cerdd.org/content/download/14273/56112/file/Fiche+bonne+pratique+economie+solidaire+ccas+roubaix.pdf>

**Table 8 – Illustration of savings and costs associated with low-cost energy efficiency measures<sup>37</sup>**

	Measure	Savings associated with measure (per household per year)	Cost of measure (one-off purchasing cost)
<b>Advice and information Energy efficiency services</b>	Advice and information	EUR 35 – 228 <sup>38</sup>	EUR 52-792 <sup>39</sup>
	Draught proofing	Savings of EUR 31 <sup>40</sup> -69 <sup>41</sup> per annum	Cost will vary depending on property size and quality of installation; quoted costs range between EUR 63 <sup>42</sup> -363 <sup>43</sup> per home
	Optimisation of existing building technology systems	Installing system controls can save between EUR 81 <sup>44</sup> -513 <sup>45</sup> per annum, depending on the controls are assumed to be installed	As with savings, costs also vary depending on how systems are assumed to be optimised: a single room thermostat can cost as little as EUR 140 <sup>46</sup> , but together with thermostatic radiator valves the cost can increase to EUR 640 <sup>47</sup>
	Recommissioning of apartment blocks	Pilot recommissioning in non-domestic buildings has demonstrated average energy savings of 10% (range from 4-20%) <sup>48</sup>	At a building level, costs of recommissioning can be large. The average costs of pilot recommissioning projects in non-domestic buildings was EUR 68,000 <sup>49</sup> . In domestic properties, this would be split by the number of resident households
	Metering	The research literature suggests that direct	Home energy monitors can cost between

37 Figures converted using exchange rate of GBP1 to EUR1.25 and USD1 to EUR 0.85.

38 Low and high bound based on EC-LINC (will include influence of other low-cost measures provided through this scheme).

39 Low bound based on Energy Ambassadors scheme and high bound based on EC-LINC (includes cost of other low-cost measures provided and wider pilot costs such as partner coordination across Europe and development of lessons learned).

40 <http://www.energysavingtrust.org.uk/home-insulation/draught-proofing>

41 [http://www.energyagency.org.uk/en/draught-proofing\\_46673/](http://www.energyagency.org.uk/en/draught-proofing_46673/)

42 [http://www.energyagency.org.uk/en/draught-proofing\\_46673/](http://www.energyagency.org.uk/en/draught-proofing_46673/)

43 <http://www.energysavingtrust.org.uk/home-insulation/draught-proofing>

44 Installation of room thermostat only: [http://www.energyagency.org.uk/en/low-cost-measures\\_46638/](http://www.energyagency.org.uk/en/low-cost-measures_46638/)

45 Installation of room thermostat and thermostatic radiator valves: [http://www.salford.ac.uk/\\_\\_data/assets/pdf\\_file/0012/562989/pdf2-BEAMA-Heating-control-White-paper.pdf](http://www.salford.ac.uk/__data/assets/pdf_file/0012/562989/pdf2-BEAMA-Heating-control-White-paper.pdf)

46 <http://www.homeadvisor.com/cost/heating-and-cooling/install-a-thermostat/>

47 Derived from payback periods: [http://www.salford.ac.uk/\\_\\_data/assets/pdf\\_file/0012/562989/pdf2-BEAMA-Heating-control-White-paper.pdf](http://www.salford.ac.uk/__data/assets/pdf_file/0012/562989/pdf2-BEAMA-Heating-control-White-paper.pdf)

48 [http://www.re-co.eu/sites/default/files/files/Guidebook\\_re-commissioning\(1\).pdf](http://www.re-co.eu/sites/default/files/files/Guidebook_re-commissioning(1).pdf)

49 [http://www.re-co.eu/sites/default/files/files/Guidebook\\_re-commissioning\(1\).pdf](http://www.re-co.eu/sites/default/files/files/Guidebook_re-commissioning(1).pdf)



	Measure	Savings associated with measure (per household per year)	Cost of measure (one-off purchasing cost)
<b>Energy efficiency devices and kits</b>	Low-energy lighting	feedback devices can deliver energy savings of between 5-15% <sup>50</sup> CFLs are estimated to save between EUR 4 <sup>52</sup> -6 <sup>53</sup> per bulb per annum. Replacing the five most used bulbs in the home with LEDs on the other hand could save between EUR 30-60 per annum <sup>54</sup> . Using both CFLs and LEDs an average household could save around EUR 44 per annum <sup>55</sup>	EUR 50-125 per household <sup>51</sup> CFLs can cost around EUR 6 per bulb <sup>56</sup> and LEDs around EUR 13 each <sup>57</sup> . Using both CFLs and LEDs, the cost to an average household to replace all bulbs would be around EUR 125 <sup>58</sup>
	Energy efficient household appliances	Savings will depend on the type and age of appliance replaced. Studies suggest that upgrading a refrigerator could save up to EUR 330 over its lifetime, and a washing machine around EUR 48 <sup>59</sup>	Likewise, the cost will depend on the appliance type and what is replaced. An energy efficient refrigerator could cost between EUR 225-513, and a washing machine EUR 313-563 <sup>60</sup>
	Small power saving devices	Households could save around EUR 44 per annum by using sockets with switches <sup>61</sup> . Using other devices more widely to avoid standby losses could save a household up to EUR 113 per annum <sup>62</sup>	Cost will depend on the device used, but typical devices can cost in the region of EUR 15-28 each <sup>63</sup>

50 [https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/esma\\_publishable\\_report\\_en.pdf](https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/esma_publishable_report_en.pdf)

51 <https://www.uswitch.com/energy-saving/guides/energy-saving-gadgets/>

52 [http://www.energyagency.org.uk/en/lighting-appliances\\_46636/](http://www.energyagency.org.uk/en/lighting-appliances_46636/)

53 <http://www.energysavingtrust.org.uk/home-energy-efficiency/lighting>

54 [https://www.energystar.gov/ia/products/globalwarming/downloads/Buyers\\_Guide\\_LEDRenovations.pdf](https://www.energystar.gov/ia/products/globalwarming/downloads/Buyers_Guide_LEDRenovations.pdf)

55 If the average household replaced all of their remaining old-fashioned bulbs with CFLs, and all of their halogens with LEDs: <http://www.energysavingtrust.org.uk/home-energy-efficiency/energy-saving-quick-wins>.

56 [http://uir.ulster.ac.uk/25441/1/NorthernExposureReport\(WEB\)-11Mar13.pdf](http://uir.ulster.ac.uk/25441/1/NorthernExposureReport(WEB)-11Mar13.pdf)

57 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/328083/Energy\\_efficient\\_products\\_helping\\_us\\_to\\_cut\\_energy\\_use\\_-\\_publication\\_version\\_final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/328083/Energy_efficient_products_helping_us_to_cut_energy_use_-_publication_version_final.pdf)

58 <http://www.energysavingtrust.org.uk/home-energy-efficiency/energy-saving-quick-wins>

59 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/328083/Energy\\_efficient\\_products\\_helping\\_us\\_to\\_cut\\_energy\\_use\\_-\\_publication\\_version\\_final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/328083/Energy_efficient_products_helping_us_to_cut_energy_use_-_publication_version_final.pdf)

60 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/328083/Energy\\_efficient\\_products\\_helping\\_us\\_to\\_cut\\_energy\\_use\\_-\\_publication\\_version\\_final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/328083/Energy_efficient_products_helping_us_to_cut_energy_use_-_publication_version_final.pdf)

61 [http://uir.ulster.ac.uk/25441/1/NorthernExposureReport\(WEB\)-11Mar13.pdf](http://uir.ulster.ac.uk/25441/1/NorthernExposureReport(WEB)-11Mar13.pdf)

62 <http://www.gisprojects.net/pictures-of-how-to-make-house-more-energy-efficient/>

63 <http://www.thisismoney.co.uk/money/bills/article-2537674/From-energy-monitors-radiator-tubes-SEVEN-gadgets-cut-bills-hundreds-pounds.html>

	Measure	Savings associated with measure (per household per year)	Cost of measure (one-off purchasing cost)
	Water saving devices	The level of saving will depend on the measure installed. Low-flow showerheads could save households up to EUR 209 per annum, <sup>64</sup> shower timers up to EUR 38 per person per annum <sup>65</sup> , and water flow measuring bags up to EUR 225 per annum <sup>66</sup> . Tap aerators reduce water demand by 11-18% <sup>67</sup> .	Again the cost will depend on the measure installed. Tap aerators cost around EUR 9 each <sup>68</sup> , shower timers EUR 2 each <sup>69</sup> and water flow measuring bags up to EUR 15 <sup>70</sup>
	Small monitoring devices	Thermometers allow householders to identify how warm or cold different parts of the home are and identify areas which need attention <sup>71</sup> . Energy savings will be made through behaviour change, e.g. turning the thermostat down from 19 to 18°C can save 13% of space heating energy per annum <sup>72</sup>	Thermometers can be purchased for less than EUR 2 <sup>73</sup>
	Insulation of pipes	Pipe insulation could save a household between EUR 13 <sup>74</sup> -19 <sup>75</sup> per annum. Insulating hot water tanks could lead to greater savings, ranging between EUR 31-175 <sup>76</sup> per annum, depending	Estimates of pipe insulation cost range between EUR 6 <sup>77</sup> -25 <sup>78</sup> . Hot water tank insulation could cost between EUR 15-19 <sup>79</sup>

64 Based on family of four and including both water and energy savings: <http://www.energysavingtrust.org.uk/home-energy-efficiency/energy-saving-quick-wins>

65 <https://www.savewatersavemoney.co.uk/products/view/3056/free-4-minute-shower-timer-united-utilities.html>

66 <http://www.thisismoney.co.uk/money/bills/article-2537674/From-energy-monitors-radiator-tubes-SEVEN-gadgets-cut-bills-hundreds-pounds.html>

67 <https://www.savewatersavemoney.co.uk/products/view/317/water-efficient-tap-miracle-black.html>

68 <https://www.savewatersavemoney.co.uk/products/view/317/water-efficient-tap-miracle-black.html>

69 <https://www.savewatersavemoney.co.uk/products/view/759/four-min-showertimer-swsm.html>

70 <http://www.thisismoney.co.uk/money/bills/article-2537674/From-energy-monitors-radiator-tubes-SEVEN-gadgets-cut-bills-hundreds-pounds.html>

71 <https://www.uswitch.com/energy-saving/guides/energy-efficient-heating/>

72 This relies on having the system controls in place to enact behavioural change. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/128720/6923-how-much-energy-could-be-saved-by-making-small-cha.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/128720/6923-how-much-energy-could-be-saved-by-making-small-cha.pdf)

73 <https://www.carbontrust.com/resources/tools/carbon-trust-thermometer/>

74 <http://www.energysavingtrust.org.uk/home-insulation/insulating-tanks>

75 [http://www.energyagency.org.uk/en/loft-insulation-tank-and-pipes\\_46627/](http://www.energyagency.org.uk/en/loft-insulation-tank-and-pipes_46627/)

76 <http://www.energysavingtrust.org.uk/home-insulation/insulating-tanks>

77 [http://www.energyagency.org.uk/en/low-cost-measures\\_46638/](http://www.energyagency.org.uk/en/low-cost-measures_46638/)

	Measure	Savings associated with measure (per household per year)	Cost of measure (one-off purchasing cost)
		on the existing level of insulation	
	Insulating film for windows	Low emissivity film can reduce heat loss from windows by between 30-50% <sup>80</sup> , delivering potential energy savings of between 5-15% <sup>81</sup> on cooling and heating demand combined	Considered a low cost measure which can be delivered for less than EUR 85 <sup>82</sup>
	Radiator foil	35% of radiator heat is lost into walls <sup>83</sup> . Estimates of energy bill savings range from EUR 1-5 per radiator per annum <sup>84</sup>	Estimates of cost range from EUR 2.50 <sup>85</sup> per panel to EUR 25 to retrofit a full house
	Energy efficiency kits	EUR 5 – 170 <sup>86</sup>	EUR 13 <sup>87</sup>

78 <http://www.energysavingtrust.org.uk/home-insulation/insulating-tanks>

79 [http://www.energyagency.org.uk/en/low-cost-measures\\_46638/](http://www.energyagency.org.uk/en/low-cost-measures_46638/)

80 <http://energy.gov/energysaver/window-types>

81 Based on non-domestic buildings: <http://www.osti.gov/scitech/servlets/purl/1089147>

82 [https://www.energystar.gov/index.cfm?c=home\\_sealing.hm\\_improvement\\_applying\\_plastic](https://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_applying_plastic)

83 <https://www.uswitch.com/energy-saving/guides/save-energy-under-25-pounds/>

84 <http://www.thegreenage.co.uk/do-radiator-reflectors-work/>

85 [http://www.energyagency.org.uk/en/low-cost-measures\\_46638/](http://www.energyagency.org.uk/en/low-cost-measures_46638/)

86 Low based on Seattle City Lights; high based on EDF solidarity kit. Will depend on measures included in kits.

87 Based on Seattle City Lights scheme.

## Other impacts

Although less frequent, several schemes report temperature improvements as a result of the installation of measures. Given relative difficulties in measurement, these reported impacts often tend to be qualitative in nature. A selection of impacts is included in Table 9.

**Table 9 – Selection of temperature and health improvement impacts noted by some schemes studied**

Temperature improvements	Health improvements
Northern Exposure scheme found the number of participants finding the home 'too cold' significantly reduced and the number of households forced to go without heating 'often' or 'very often' was reduced to zero after assistance <sup>88</sup> .	Northern Exposure scheme noted an improvement in mental health scores following assistance. After Northern Exposure, the results indicate wellbeing approximating the Scottish average, relative to the start of the scheme where many of the participants were 'probably classifiable as borderline depressed'.
Following assistance from the Multi-family Building Development Programme, the number of apartments reporting 'low temperature' decreased from 61% to 6% and those reporting 'normal temperature' went from 37% to 94%	Multi-family Building Development Programme reported a high proportion of those assisted (76% in 2012) agreeing that the process of renovation improves the quality of life <sup>89</sup> .
Improvements in temperature are not always experienced: a survey of households assisted through the Austria pilot found no significant reduction in reported temperature-related concerns <sup>90</sup> .	Austria pilot initiative found a reduction in the reported levels of hardship and stress caused by energy bills <sup>91</sup> .
Nest provided support to households in Wales: 89% of those who received support reported being better able to heat their home.	
Just Change pilot reported an increase in the number of tenants agreeing with the statements: 'The home is comfortable' and 'The house stays warm in winter' following participation in the scheme <sup>92</sup> .	
Attendees of advice sessions in the Meridiana region of Barcelona reported being better prepared to overcome winter and high temperatures in summer.	
	Kirklees Warm Zones estimated that assistance through the scheme delivered an economic benefit from the savings to the National Health Service (NHS) of EUR 6.1 million <sup>93</sup> .

## Achievement of wider social objectives

88 [http://uir.ulster.ac.uk/25441/1/NorthernExposureReport\(WEB\)-11Mar13.pdf](http://uir.ulster.ac.uk/25441/1/NorthernExposureReport(WEB)-11Mar13.pdf)

89 [http://www.seattle.gov/light/Conserve/Reports/evaluation\\_1.pdf](http://www.seattle.gov/light/Conserve/Reports/evaluation_1.pdf)

90 [http://oin.at/\\_publikationen/PublikationenNEU/Forschungsberichte/Endbericht\\_PilotprojektGegenEnergiearmut.pdf](http://oin.at/_publikationen/PublikationenNEU/Forschungsberichte/Endbericht_PilotprojektGegenEnergiearmut.pdf)

91 <http://www.bestclimatepractices.org/practices/seasonal-health-interventions-network-shine/>

92 <http://www.cuac.org.au/research/external-research/181-just-change-evaluation-report-energy-efficiency-for-low-income-renters-in-victoria/file>

93 Figure converted into EUR. The source reports GBP 4.85 million. See [http://bpie.eu/uploads/lib/document/attachment/60/BPIE\\_Fuel\\_Poverty\\_May2014.pdf](http://bpie.eu/uploads/lib/document/attachment/60/BPIE_Fuel_Poverty_May2014.pdf)

For a handful of schemes, the evidence reviewed in this study suggests that those delivering low-cost energy efficiency measures can deliver additional benefits for low-income households and/or contribute to the achievement of wider social objectives:

- **Job creation:** The Kirklees Warm Zones initiative created 126 direct full-time equivalent (FTE) jobs and Pacte Energie Solidarité reports creating 80 direct and indirect jobs<sup>94</sup>.
- **Reduction in long-term unemployment:** Both the Stromspar Check and EC-LINC schemes recruited long-term unemployed persons to act as energy advisors. The Stromspar Check scheme trained 4,200 long-term unemployed people as energy auditors, many of whom reintegrated into the job market: 20% are typically reintegrated into the regular job market, with a further 12% active in partially subsidised roles<sup>95</sup>. Likewise, EC-LINC provided training and social support for 20 long-term unemployed persons and employed 16 professional energy advisors as consultants on the project<sup>96</sup>.
- **Other financial benefits (not linked to energy savings delivered through low-cost energy efficiency measures):** The Beat the Cold scheme reports delivering over EUR 96,000 worth of financial benefits to assisted households, including receipt of wider energy subsidies. The SHINE scheme achieved EUR 23,000 of debt relief for low-income households in 2013/14 and achieved additional financial outcomes through assistance with benefit claims.
- **Reductions in GHG emissions:** Where schemes save energy, they will also accrue savings in GHG emissions. For example, Nest in Wales reports achieving over 190 ktCO<sub>2</sub>e lifetime savings through the measures installed to 2015 (this included a mix of low-cost measures such as draught proofing, insulation of pipes and advice, and higher cost measures, such as loft and cavity wall insulation and replacement of heating systems).
- **Energy security:** In some cases, achieving energy savings in a cost-effective way is a key objective. The Seattle City Lights Conservation Kit scheme was primarily targeted at reducing energy demand to avoid additional power purchases. The scheme was judged effective at meeting this objective as it delivered energy savings at a cost of 1 cent per kWh, saving the utility around EUR 1.1m in 2001 in avoided annual wholesale power purchases<sup>97</sup>.
- **Supporting small businesses:** Nest reports supporting 46 SMEs to date through the scheme.

## 3.2 Involvement of key institutions

### 3.2.1 How the involvement of institutions in the scheme can be a driver of success

An important driver of success across many of the schemes reviewed was the **establishment and maintenance of strong partnerships** with other organisations. In particular, **partnership working with front-line services** (such as social workers, medical professionals, social housing workers, etc.) in direct contact with potential target households has a number of advantages. Firstly, front-line services interact directly with potential target households and are able to easily identify those

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94 Direct correspondence with CertiNergy, scheme owner, May 2016.

95 <http://proceedings.eceee.org/visabstrakt.php?event=5&doc=2-392-15>

96 EC-LINC Publishable report (unpublished – provided by DG ENERGY).

97 Figure converted into EUR. The source reports USD 1.3 million. See [http://www.seattle.gov/light/Conserve/Reports/evaluation\\_1.pdf](http://www.seattle.gov/light/Conserve/Reports/evaluation_1.pdf)

households which may be eligible for services (or they can do so by acquiring limited additional information). They can also help to promote the scheme to target households and other front-line services, and offer a ready avenue through which households can be engaged. This means schemes are able to reach households that might otherwise be overlooked.

Front-line staff can also be involved in the delivery of measures, thereby reducing associated costs. A good example of this is found in the Energy Ambassadors scheme, through which social workers in nine Member States were trained to deliver advice to vulnerable households on managing their energy and water consumption. A key lesson from the ACHIEVE scheme was that informing agencies who interact with target households is critical to achieving lasting impacts, as it maintains the key messages and motivation<sup>98</sup>. The benefits of engaging local actors and social enterprises were also noted as critical to the success of the EDF scheme to distribute Energy Solidarity Kits. To take advantage of these productive partnerships, however, front-line services must be in place, which may not be the case in all EU countries.



**Scheme name:** EDF Energy Solidarity Kits

**Location:** France

**Period of operation:** 2014 – present

**Scheme co-ordinator:** EDF

**Beneficiaries served:** 300 households received kits/advice in 2014

**In partnership with other public stakeholders, EDF provides energy saving kits ('Energy Solidarity Kits' or Maîtrise de la Demande d'Énergie) to the most fuel-poor households who are having difficulty paying energy bills, together with energy-saving advice.** These kits consist of energy efficient lightbulbs, shower shut-off valves, thermometers, power strips, etc. It is estimated that the kits help vulnerable households to save between EUR 60-170 per household per annum. An important factor in the scheme's success is the high quality of its partnerships with local actors and social enterprises. Through this, EDF were able to identify eligible households and distribute information about the scheme.

More specifically, several schemes noted that **working with trusted intermediaries** was a key driver of success. This has the potential to increase the engagement of target households in the scheme, as they are more likely to interact and follow guidance provided by an organisation with whom they already have a positive relationship. This was the case in the scheme delivering energy advice to residents of the Meridiana area of Barcelona. Here, energy advice was delivered by social workers, in coordination with a trusted religious organisation. This particularly helped to engage immigrant households who made up a large proportion of the local community.

It is not just front-line services or other social organisations that prove to be advantageous partners, **commercial entities can also provide valuable partnership opportunities**. For example, Nest partnered with energy utility firm British Gas. In doing so, the scheme was able to take advantage of existing delivery frameworks to supply energy efficiency measures to households. As a result, no new functions needed to be developed, reducing the cost of delivery. Partnering with energy utilities, however, can also present a barrier, which is discussed further in the next section.

98 [http://www.achieve-project.eu/index.php?option=com\\_phocadownload&view=category&download=332%3Afinal-publishable-report-achieve&id=32%3Aeu-dissemination&Itemid=6&lang=eue](http://www.achieve-project.eu/index.php?option=com_phocadownload&view=category&download=332%3Afinal-publishable-report-achieve&id=32%3Aeu-dissemination&Itemid=6&lang=eue)

Establishing **strong partnerships allows schemes to offer a wider range of benefits**. Where partners offer alternative energy efficiency measures, this can increase the range of measures which can be provided (and/or reduce the costs of providing measures under the scheme). Households can also benefit from more general support with the causes and consequences of energy poverty and wider non-energy support measures (e.g. benefit checks, handyman services, etc.). Target households thus receive a more holistic service and can more easily access a range of potential services, which in turn increases their willingness to engage. This could also increase referrals for low-cost energy efficiency measures as partners identify eligible households and 'cross-refer' to the services of the scheme. Partner organisations are likely to be willing to engage in this way as they also benefit from increased awareness raising, 'cross-referrals' and from their clients accessing a wider range of benefits. An excellent example of this is the SHINE scheme in Islington, London. A recent review noted that the service was partnered with over 130 teams across 86 organisations to offer a wide range of services to households<sup>99</sup>. Of course, any synergies will depend on the level of service and engagement of potential partner organisations.



**Scheme name:** SHINE  
**Location:** London, UK  
**Period of operation:** 2010 – present  
**Scheme coordinator:** Islington council  
**Beneficiaries served:** Over 9,200 referrals through 2015

**SHINE is a multidisciplinary scheme, aiming to reduce winter deaths and hospital admissions by tackling fuel poverty, as well as other physiological, social and environmental factors.** Front-line staff refer vulnerable people (e.g. people aged over 75, or with respiratory or cardiovascular disease) to a single point of contact for a range of interventions, such as energy efficiency improvements, benefit checks, falls assessments and befriending services.

SHINE brings together a wide partnership of over 130 teams across 86 organisations. Although a number of organisations were initially reluctant to join-up with the scheme, this was overcome by strongly emphasising the benefits for all services involved. An important selling point was the simplification of the referral process, resulting in more direct referrals and a reduced chance that households would get lost in the process. A particular success of SHINE was its engagement of local health services, with medical professionals now playing a key role in referring individuals to SHINE on the basis of their health problems. The multidisciplinary approach of the scheme means that organisations are currently promoting fuel poverty as part of the wider health agenda in the borough.

### 3.2.2 How the involvement of institutions in the scheme can present a barrier to success

Firstly, **some organisations may not be looked on favourably by target households**, even though their involvement could benefit the scheme. For example, partnerships formed with energy utility companies under the Kirklees Warm Zones scheme in the UK were considered to have a deterrent effect on some households, given their lack of trust in these companies<sup>100</sup>. Even though partnering with these organisations can provide benefits (such as the use of existing delivery frameworks

99 <http://www.bestclimatepractices.org/practices/seasonal-health-interventions-network-shine/>

100 [https://www.cse.org.uk/downloads/reports-and-publications/policy/insulation-and-heating/warm\\_zones\\_evaluation\\_full\\_final.pdf](https://www.cse.org.uk/downloads/reports-and-publications/policy/insulation-and-heating/warm_zones_evaluation_full_final.pdf)

described above), their involvement has associated risks. It is the balance of factors in the local context which will determine whether commercial partners can have an overall positive effect on the scheme.

**Some partners may lack time, knowledge or motivation to help** in the identification and engagement of households, and **some may be completely inappropriate to associate with the scheme**. A key barrier noted in the Energy Ambassadors scheme was the time constraints experienced by social workers, which restricted their ability to share energy saving advice, given their primary focus on emergency or social issues. The Just Change pilot scheme in Australia found that some partners, such as real estate agents, may have de-prioritised identifying and referring households as a result of the lack of financial incentives or a full understanding of the benefits to those involved. The scheme also engaged environmental organisations and high-cost rental agencies as a means of referral, however neither come into contact with target group households and so were unable to provide any referrals to the scheme.

**Involvement of too many stakeholders can increase organisational costs.** Literature on the SHINE scheme in Islington, London, noted that a large deal of effort is required to develop and sustain cross-working between a large number of agencies. This is supported by the lessons learned from the ACHIEVE scheme.



**Scheme name:** ACHIEVE

**Location:** Bulgaria, France, Germany, Slovenia, UK

**Period of operation:** 2011 – 2014

**Scheme coordinator:** CLER, Network for energy transition

**Beneficiaries served:** 1,920 households visited

ACHIEVE identified households who were most vulnerable to fuel poverty and worked with them to take suitable steps to reduce unnecessary energy costs. The scheme was delivered through a large network of local partners, who identified households that could benefit from free energy visits. Several visits were scheduled with the household: firstly to diagnose the water and energy consumption and habits, and then to install the devices that were likely to generate the best energy and water savings. The household also received a report about potential savings and costs based on the information obtained during the first visit, together with some tips about energy and water saving. In total, roughly 923 kWh of energy was saved, translating into EUR 144 of financial savings per household per year. One of the lessons learned from the scheme was that maintaining and mobilising local networks required regular and not insignificant resource.

Where numerous parties are involved, the **absence of clear communication and failure to manage expectations can create friction** between scheme partners, as noted in the Austrian pilot scheme.

An additional barrier also illustrated by the Kirklees Warm Zones scheme was that **lack of community involvement may limit buy-in** to the scheme. A review during the pilot stage highlighted that greater engagement at the community level could have improved fundraising activities and facilitated greater awareness of the scheme among target households.

**Some partners may be unwilling to cooperate in a scheme they feel may consume or replace their service.** Whilst developing the SHINE scheme, a number



of potential partners were initially reluctant to join-up with the scheme as they considered SHINE to be 'treading on their toes'.

Once suitable partner organisations have been identified, **difficulties in identifying an appropriate contact point within the organisation can cause delays** to the design and implementation of the scheme, as experienced in the Just Change scheme in Australia.

**Changes in partner organisations can create uncertainty around their role in the scheme and lead to delays in the design or delivery of the scheme.** More substantial impacts can occur where the provision of resources (either work hours or funding), services (e.g. complementary energy efficiency measures or wider benefits) or wider input, is reduced or withdrawn. An example of this is found in the Energy Ambassadors scheme, where changes in potential partner organisations delayed implementation of the scheme.

### 3.2.3 Conclusions and recommendations for replication

The involvement of the role of key institutions can be an important driver of success for energy poverty schemes, but care should be taken that they do not operate as barriers to success. Policy makers wishing to develop and implement a new scheme should therefore take into account the following recommendations.

1. Consider forming strategic partnerships with relevant stakeholders to increase the effectiveness of the scheme (in particular with front-line services) but recognise the potential challenges and limitations to the approach.

A large number of schemes took advantage of partnership working. This increased effectiveness and/or reduced the costs of identifying and engaging households, and/or delivering measures themselves. The involvement of partners (especially other services targeting vulnerable households) can provide a more holistic and beneficial service to vulnerable households. In some cases, private sector partnerships can be productive, although policy makers should be sensitive to the reputation of potential partners amongst target households.

In some cases, partners will necessarily be involved in replicating a scheme, where they are fundamental to its design. For example, the Energy Ambassadors scheme provided energy efficiency advice to households through their social workers - without buy-in from the social workers themselves, this model could not work. Similarly, in order to replicate the successes of SHINE in London, such partnerships and the provision of a wide range of services is likely to be a necessary condition. This does not mean that partnership working is always critical to achieving the key outputs of the scheme. For example, although the Austria pilot worked productively with partners to generate referrals, it also used other methods, such as drawing on a network of households already seeking support from Caritas.

When identifying potential partners, their relevance to the scheme should be assessed as early as possible, together with the benefits that the partnership is intended to deliver. These expectations can then be continually monitored and reviewed over the course of the scheme to ensure partners have appropriate knowledge and are delivering sufficient value to merit their continued inclusion.

2. Where possible, use partners who are engaged with, and trusted by, the local community

Several schemes relied on the use of partners who were already established in a position of trust within the community to engage households. The scheme delivering energy efficiency advice in the Meridiana area of Barcelona, for example, engaged households through a trusted religious organisation. Although this is an important condition, it is not strictly necessary, as households can be engaged through a number of avenues. However, for successful replication it is important to consider the presence of trusted intermediaries, as, in some cases, failure to engage trusted or local community partners constituted a barrier to success.

3. Gain buy-in of partners by emphasising the benefits to their service

Working with partners is generally a win-win, with benefits to their service including cross-referrals to other front-line support services, increasing the benefits provided to assisted households, or helping private firms to meet energy-saving obligations. Early discussion of these benefits with partners will help them to fully understand the advantages of engaging with the scheme and provide a clear incentive to get involved. This will help to justify the commitment of their time and resources to the scheme. These benefits should be reiterated frequently to maintain engagement and the continued commitment of resources to the scheme. A clear and transparent approach from the start is central to avoiding misunderstanding, as is recognising that partners have other, possibly competing, demands on their time and resources. Any potential issues should be pinpointed early in the policy development process so that effective strategies can be put in place to work around any restrictions.

4. Ensure a framework is in place to coordinate the role of the different institutions

Given the complexity of some schemes, a clear overarching organisational framework is a necessary condition to manage a scheme effectively. In the case of the Multi-family Building Development Programme in Lithuania, a large number of institutions are involved in ownership and coordination of the policy, organising and disseminating finance, delivering measures, etc. Clear communication and management of expectations is also necessary to avoid friction between scheme partners, as noted in the Austrian pilot scheme.

### 3.2.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when deciding whether and how to engage with key institutions in the implementation of a new scheme.

#### Key questions to consider for the effective involvement of key institutions

- Can productive working partnerships be formed with existing front-line services to help to identify, engage and deliver measures more easily?
- Are there organisations which are trusted or held in high regard by the target group which could help to maximise engagement?
- Do potential partners offer alternative energy efficiency, energy support or wider support measures which could offer a more holistic and beneficial

service to households?

- Do key partners have time to support the scheme? Have they committed to provide and prioritise their support?
- Do key partners have the appropriate knowledge to deal with the request? What can be done to fill the knowledge gap?
- Are partners (or the services they provide) essential to achieve the main objectives of the scheme?
- Would partnerships with commercial organisations be possible and beneficial?
- Could involvement of any partners deter engagement of households, either due to poor public perception or trust, or previous negative experiences?
- Are the partners identified relevant to the successful delivery of the scheme? Do the benefits of including the partners outweigh the additional organisational costs?
- Have the boundaries of the scheme been clearly communicated to potential partners to ensure a clear remit? Would an organisational framework setting out the roles of different partners aid success?
- Has the appropriate contact point been identified for each potential partner?

### 3.3 Interaction with wider policy framework

#### 3.3.1 How interaction with the wider policy framework can be a driver of success

A critical driver of success for many of the schemes reviewed was their ability to **draw on existing sources of funding to cover the cost of providing low-cost measures**. This funding was typically provided by national, regional or local level public policy. Using these existing sources reduces the effort required to find other sources of funding, improves the cost-effectiveness of the scheme (from the perspective of the scheme in question) and/or allows the scheme to reach a greater number of households. The underlying sources of funding also benefit, as the scheme operates as an effective delivery route, helping the overarching policy to reach a greater proportion of its target group more efficiently. An important example of this is the Kirklees Warm Zones scheme in the UK, which acted as a catalyst for drawing down a considerably higher level of energy efficiency funding than might otherwise have occurred.



**Scheme name:** Warm Zones

**Location:** UK

**Period of operation:** 2002 – present

**Scheme coordinator:** Warm Zones Ltd

**Beneficiaries served:** 1 million fuel poverty assessments completed and 310,000 insulation measures delivered (until 2011)

**The key concept behind the Warm Zones scheme is the coordinated and comprehensive area-based delivery of energy efficiency services.** The aim of the scheme is to tackle fuel poverty and improve the energy efficiency of the housing stock. Warm Zones adopted a coordinated street-by-street approach, working in close partnership with trusted local organisations.

Interaction with other policies has been crucial for the success of Warm Zones. The scheme built on and further optimised different financing programmes, as well as the delivery of energy efficiency measures from other energy and fuel poverty policies. The success of the scheme was further enhanced by the fact that it secured all-party political support in some of the implementation zones. This support reduced any funding uncertainty and enabled the scheme to be promoted confidently to prospective partners and beneficiaries.

For a scheme to take advantage of such synergies, overarching policies and programmes must be in place from which funding can be drawn. This is more likely to be the case where energy poverty is higher on the political agenda and in the public consciousness.

Exploiting synergies with existing policy is not limited to funding. Some schemes are able to take advantage of opportunities to **join-up marketing activity and generation of referrals**, reducing the cost of generating interest in the scheme and engaging target households. This, in turn, may allow the scheme to reach a larger target audience. In Ireland, the Better Energy Warmer Homes scheme is part of the wider Better Energy Programme which comprises a number of related initiatives under one banner. When households eligible for one component are identified during activities under another, these households can be easily referred to the relevant initiative. This relies on the implementation of a scheme being closely linked to other related initiatives.

An additional means of harnessing policy synergies is to **offer energy efficiency measures through an existing policy or scheme**. A good example of this is the Beat the Cold scheme in the UK, which offers its advice service directly to households, as well as through other schemes and initiatives offered by other agencies (e.g. it offers advice services through the 'Warm Homes Healthy People – Staffordshire' campaign run by the Staffordshire Community Foundation). This helps to increase its own reach by utilising an alternative referral source, as well as reducing the costs of identifying and engaging households.

The **support offered by the scheme itself may be able to build on the delivery of complementary measures** by an overarching policy. For example, the Smart-Up scheme aims to increase the active and effective use of smart meters by vulnerable consumers.

**SMART-UP**  
CONSUMER EMPOWERMENT IN A SMART METER WORLD

**Scheme name:** Smart-up

**Location:** UK, Malta, Italy, Spain, France

**Period of operation:** 2015 – present

**Scheme co-ordinator:** Alpheeis SAS

**Beneficiaries served:** Aiming to provide advice to 1.000 households in each partner country (5.000 overall)

**Smart-Up is an EU funded project that will encourage vulnerable consumers in Member States with smart meters to actively use those meters and In-House Displays to achieve energy savings.** Vulnerable households are identified and engaged through installers, social workers and other front-line staff, and the scheme aims to deliver an average of 10% energy saving. Delivering advice related to smart meters has focused the scheme on those Member States which have implemented programmes to roll out smart metering, building on these initiatives to increase the effectiveness of the meters provided and subsequent benefits to vulnerable households. This may limit the replicability of the scheme, however, and its reliance on the effectiveness of the linked policy introduces what could be an inherent risk to

Schemes also benefit where **overlaps with existing policies are avoided**. For example, the FSATME scheme in France focused on providing support to homes that did not qualify for support under other policies, namely those households which fall below the threshold for assistance from the Agence Nationale pour l'Amélioration de l'Habitat (ANAH). In doing so, the scheme avoids potential duplication of effort and confusion on behalf of households leading to disengagement. The grants provided by the scheme can be used in conjunction with (or to leverage) other sources of funding, a consistency which allows households to access greater levels of support, bringing greater benefits to the recipients.

A number of the schemes reviewed also made use of existing policies to identify vulnerable households. **Eligibility for schemes can be tied to receipt of existing support for vulnerable households**. The Northern Exposure project in Northern Ireland targeted households receiving one of a range of specific social welfare benefits.

### Northern Exposure

Alleviating Fuel Poverty  
in North & West Belfast,  
Northern Ireland

**Scheme name:** Northern Exposure

**Location:** Northern Ireland, UK

**Period of operation:** 2010 - 2012

**Scheme coordinator:** North and West Belfast Fuel Poverty  
Community of Interest

**Beneficiaries served:** 60 households >1000 consultations in  
households

**The main aim of this scheme was to reduce fuel poverty in North and West Belfast, while sustaining a community development approach to creating affordable warmth.** The scheme implemented a multi-faceted programme of targeted action and capacity building in partnership with local communities and a wide range of organisations. Services delivered included draught proofing, insulation of exposed pipes and metering.

To be eligible for support, households must either: be in the 'vulnerable' category (containing either someone over 60 years, a child/children under 16 years, or someone with a disability or long-term illness) or be in receipt of other specified social welfare benefits. By targetting support through social welfare benefits the scheme was able to easily identify households which meet particular vulnerability characteristics (i.e. the criteria for receipt of the benefit), without needing to rely on self-assessment or referral on behalf of the household, and more intensive verification of eligibility by the scheme owner.

This, however, relies on the existence of benefits for vulnerable persons, and also requires that the criteria for receipt of those benefits are aligned to the objectives of the energy efficiency scheme. Many schemes draw on these underlying policies to offer a wider range of support to households, including benefit checks. As such, schemes like the Beat the Cold scheme rely on underlying social security policy to offer these wider benefits.

**Gaining all party political support** can also be a key factor in facilitating the success of a scheme. A review of the Kirklees Warm Zones in the UK noted that support was built up over a number of years prior to its instigation. This helped to secure sustainable support and funding from local government organisations, which in turn reduced uncertainty and enabled the scheme to be promoted clearly and confidently to prospective partners and beneficiaries.

### 3.3.2 How interaction with the wider policy framework can present a barrier to success

Even where overarching policies are present which can usefully be drawn on for the benefit of a scheme, **complexity in aligning with requirements of policies (or with multiple policies simultaneously)** may increase the administrative costs of designing a scheme. Complexities in aligning the funding requirements and objectives of different public administrations were described as an issue for the Beat the Cold scheme in the UK<sup>101</sup>.

**Where overlaps are not addressed, schemes can come into conflict with existing policies** or services offered to vulnerable households. For example, where schemes offer similar measures to an overlapping group of households, this can cause confusion and reduce engagement and/or doubling-up on costs of supporting these

101 <http://beatcold.org.uk/wp-content/uploads/2015/03/Martin-Chadwick.pdf>

households, reducing the overall cost-effectiveness of schemes. An example of this can be found in the Just Change scheme in Australia, which competed with other energy efficiency schemes targeting low-income households<sup>102</sup>.

For some schemes, **not taking advantage of synergies with existing policies** which could be complementary was found to be a barrier to success. The Pacte Energie Solidarité scheme was reported to diverge from the national government led Habiter Mieux programme<sup>103</sup>. This limits the potential reach and effectiveness of such schemes.

**The legal underpinnings of the scheme itself may cause issues for delivery**, as experienced by the FSATME scheme in France.

**Les fonds sociaux d'aide  
aux travaux de maîtrise  
de l'énergie (FSATME)**

Scheme name: FSATME

Location: France

Period of operation: 2002 – present

Scheme coordinator: ADEME

The Social Aid Fund for Energy Management works (FSATME) is intended to finance thermal improvement works in the homes of particularly disadvantaged families. Funds are created by communities, with the support of a wide range of public and private bodies, which complement wider policy targeted at improving housing (e.g. the Anah). FSATME focuses on actions for which the 'usual' solutions do not work (e.g. dealing with emergencies (such as heating failure, broken windows), lack of upfront money to fund investment, and small works which are below the threshold of other related policies). One barrier which has influenced the scheme's success is legal instability, as the scheme is required to be reviewed annually, creating uncertainty and limiting the extent to which the scheme can be confidently promoted into the future.

### 3.3.3 Conclusions and recommendations for replication

The interaction of a scheme with the wider policy context can influence its success. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. Consider the possibility of drawing on existing policy as a key source of funding or a basis on which to build.

A large number of schemes draw on existing policies to fund energy efficiency measures. In many cases these underlying policies are the sole source of funding for energy efficiency measures installed. An example of this is the Pacte Energie Solidarité project, which uses a significant amount of funding from the overarching energy company obligation to offer vastly discounted insulation to households. However, a number of schemes complement such overarching policy funding with other sources, such as the SHINE scheme in London. Where alternative funding is available, the availability of overarching policy as a funding source is no longer essential.

102 <http://www.cuac.org.au/research/external-research/181-just-change-evaluation-report-energy-efficiency-for-low-income-renters-in-victoria/file>

103 <http://www.cerdd.org/content/download/14259/56037/file/fiche+bonne+pratique+pacte+energie+solidarite+certinergy.pdf>

The delivery of complementary measures by other policies can be a necessary pre-condition for the scheme. In the case of the Smart-up project, for example, advice is provided to vulnerable households to maximise the benefits from smart meters which must be installed before such advice becomes useful.

2. Think about whether social security measures might offer a ready-made means of targeting vulnerable households (and a source of additional financial benefits for households)

Many schemes offer a range of wider supports to households (including benefit checks) and/ or target households by using eligibility for social security measures. Such schemes thus rely on the existence of social security measures for their implementation. It is conceivable that the range of other benefits offered (e.g. additional energy efficiency measures, social security support, etc.), as well as the means of targeting the scheme, can be adapted to the local context.

3. Overlaps with other policy or schemes should be avoided

There may be existing schemes or policies which offer similar benefits to similar target groups. New schemes should ensure consistency with existing policy to avoid confusion of households and duplication of effort and cost.

### 3.3.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when deciding whether, and how, to harness synergies with existing policy in the implementation of a new scheme.

#### **Key questions to consider for interactions with wider policy framework**

- Do any related policies or programmes exist from which investment could be leveraged to fund delivery of measures? Where the scheme intends to rely on external sources of funding, will this implicitly restrict eligibility for the scheme?
- Can synergies with other policies be taken advantage of, with respect to promotion and identifying target households?
- Could the measures provided by the scheme complement or be offered through other, existing initiatives alongside direct provision?
- Would the proposed scheme overlap with existing offerings to target households?
- Does eligibility for the scheme align with existing support to vulnerable households which could make targeting households easier?
- How simple is it to understand and meet the requirements and objectives of any overarching policies?
- Does the success of the scheme rely on successful delivery of another policy or programme?
- Does the legal framework underpinning the scheme minimise potential uncertainty of the long-term sustainability of the scheme?
- Will the sustainability of the scheme be influenced by political will? If so, can bi-partisan political support be fostered to reduce long-term uncertainty regarding the scheme?



### 3.4 Nature and type of funding sources

#### 3.4.1 How the nature and type of funding sources can be drivers of success

Partnership working is not limited to identifying or engaging households more effectively or delivering measures more easily. In some circumstances, **partners can also be a key source of direct funding** (rather than indirect funding through provision of additional services). For example, the review of the Warm Zones scheme in the UK highlighted that energy companies were the most important partner in the scheme, and this relationship was critical for accessing existing sources of funding through an energy company obligation. This provided greater certainty with respect to access to funding, as well as the process by which funding was accessed, which in turn allowed Warm Zones to be clearly and confidently promoted and delivered.

**Using volunteers can be a simple way of keeping costs low.** With limited training volunteers can easily fill administrative or central coordinating roles. The Compagnons Batisseurs scheme in France relied on programme volunteers to provide energy efficiency improvements to eligible households. The use of volunteers may be more easily accessible, however, by charitable or 'non-profit' organisations.



**Scheme name:** Compagnons Batisseurs  
**Location:** France  
**Period of operation:** 2009 – unknown  
**Scheme coordinator:** Compagnons Batisseurs  
**Beneficiaries served:** 30 households

Compagnons Batisseurs is a network for education for over 50 years. In an effort to address fuel poverty, the network started 30 pilot projects in 2009. The objective of the scheme was to solve fuel poverty by systematically integrating energy access, reduction of energy bills and security through the provision of meters and energy efficient appliances, together with higher cost energy efficiency measures, such as insulation.

The scheme worked with programme volunteers, which helped to keep costs low. The volunteers provided energy efficiency improvements directly to the selected households. Volunteers received limited training and were easily deployed in administrative and central coordinating roles. There may, however, be issues with regard to longer term commitments.

#### 3.4.2 How the nature and type of funding sources can present a barrier to success

Although a useful free resource, it **may be problematic to rely on volunteer support in the longer term**. Volunteers may often offer their time while they seek to gain experience, or as a stop-gap while in search of paid work, or in the spare time allowed by their other commitments. This makes them a less reliable resource relative to paid staff. The Just Change pilot noted that its reliance on volunteer support may have curtailed its ability to carry the scheme forward in the longer term<sup>104</sup>.

104 <http://www.cuac.org.au/research/external-research/181-just-change-evaluation-report-energy-efficiency-for-low-income-renters-in-victoria/file>

More broadly, **unreliable funding streams themselves can cause additional uncertainty** about the long-term scope and geographical coverage of schemes. This issue was experienced by the Beat the Cold scheme in the UK.



**Scheme name:** BEAT the COLD

**Location:** Staffordshire, UK

**Period of operation:** 1999 - present

**Scheme coordinator:** BEAT the COLD – registered charity

**Beneficiaries served:** 1,294 households contacted in year to end March 2014

Beat the Cold aims to reduce the incidence of fuel poverty and cold-related illness in Stoke-on-Trent and Staffordshire. It brings together a diverse partnership of local authorities, voluntary and statutory agencies, fuel companies, health and social care agencies and community groups. It informs and advises households on energy saving and makes referrals to other services through telephone advice, events, talks and displays, its website and a winter leaflet. It also helps households to apply for measures and grants to improve energy efficiency, gives advice on behavioural changes to promote efficiency and reduce fuel costs and bills, and refers households to services from other agencies. On review, the scheme coordinators stated that the variable nature of funding streams has made it difficult to sell the service consistently, which has had a knock-on effect on the consistency of referrals from partner agencies.

### 3.4.3 Conclusions and recommendations for replication

The type of funding and the means by which it is provided can influence the success of a scheme, in particular over the medium to long-term. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. Consider using volunteers to keep costs low, but be aware of potential limitations

Some schemes rely on the availability of volunteer resources to support their implementation, e.g. the Compagnons Batisseurs, but this could cause issues where volunteers cannot commit longer term.

2. Search more widely for novel sources of funding which may be available outside of local or national governments, but recognise that reliability of funding is important

Many of the schemes accessed one-off funding streams from the EU, corporate partners or volunteer donations. In some cases, funding from private companies was a productive and reliable source, in particular where this assisted firms to meet energy company obligations. However, reliable and regular funding is critical for scheme sustainability.

### 3.4.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when deciding the sources of funding that might be drawn upon in the implementation of a new scheme.

#### Key questions to consider for the nature and type of funding sources

- Can close partnerships be established with potential funders to increase

- clarity and certainty around referrals and access to funding?
- How certain is the source of funding for the scheme over the medium to longer term?
  - Would a volunteer model be an appropriate way to reduce administration costs? To what extent would this be feasible in the shorter and longer term?

### 3.5 Expertise and skills required

#### 3.5.1 How expertise and skills requirements can be drivers of success

Training is frequently needed for schemes delivering energy efficiency advice, in particular where these are delivered through front-line staff. One of the key lessons learned from the EC-LINC scheme is that advisors should have specific training to fulfill their roles, in particular **training on communication skills** to help them to interact with vulnerable households, or to encourage less motivated clients. Providing this training may be critical to engaging a greater number of the most vulnerable households in a scheme.



Scheme name: EC-LINC

Location: Austria, Belgium, Germany, Hungary, UK

Period of operation: 2011 – 2014

Scheme coordinator: Berliner Energieagentur GmbH

Beneficiaries served: >1000 consultations in households

EC-LINC provided low-income households with tailored information and consultation about energy and water savings. Low-cost devices such as low-energy lighting, switchable plug connectors, tap aerators and thermostatic radiator valves were provided at no charge. One of the key lessons taken from the EC-LINC scheme is the benefit of training advisors on communications to provide them with the skills necessary to interact with vulnerable households and to encourage less motivated clients. Clear communication about the functioning of the measures is also important if households are to be engaged and use the energy efficiency measures provided.

**Training sessions can be tailored to the background of those receiving the training.** The Smart-up project is investing heavily in its training programme to ensure that it is fit-for-purpose. Training is being tested and approved, with separate training courses being developed to reflect the divergence in backgrounds of front-line workers, e.g. between social workers and Smart Meter installers. Training was designed in conjunction with partners who work closely with vulnerable consumers to ensure it appropriately reflects the nuances of the households which the scheme intends to support. Improving the effectiveness of the learning experience for advisors will ultimately improve the service provided to vulnerable households.

#### 3.5.2 How expertise and skills requirements can present a barrier to success

In order for a scheme to be successful, **institutions must have sufficient technical capacity to design, implement and manage a scheme**. Where this capacity does not exist, the effectiveness of a scheme will be undermined, as experienced by the (JESSICA-funded) Multi-family Building Renovation Programme in Lithuania.

**Multi-family building renovation programme (JESSICA-funded)**

**Scheme name:** Multi-family Building Renovation Programme

**Location:** Lithuania

**Period of operation:** 2005 – present

**Scheme coordinator:** Housing and Urban Development Agency (HUDA)

**Beneficiaries served:** 843 apartment buildings have been upgraded since 2013

The programme implements the Lithuanian Housing strategy, whose objective is to ensure the effective use, maintenance, and modernisation of housing, and the efficient consumption of energy. The programme seeks to renovate multi-apartment buildings built before 1993. In 2009, Lithuania established a lending mechanism for residential energy efficiency (EE) using funds from JESSICA, a financial instrument developed by the EC and the European Investment Bank. This allowed Lithuania to provide low-interest loans to participating apartment blocks. For applicants and families on low incomes, up to 100% of the loan can be converted into a grant. The scheme takes a block-by-block renovation approach, delivering a standard package of measures, combining both high-cost (e.g. replacement of windows and roof insulation) and low-cost (e.g. recommissioning and optimising existing heating systems, insulating pipes) energy efficiency improvements. Under the most recent configuration of the scheme, since 2013 municipalities select the least efficient energy-using blocks of flats based on records of heating consumption and target these for improvements. However, it was recognised that the municipal institutions responsible lacked the capacity to manage major construction projects. This barrier was removed by using consultants to provide technical assistance.

***If training is inadequate, or the guidance material provided is insufficient, this may undermine the ability of staff to deliver advice.*** This issue was experienced by the Energy Ambassadors scheme.



**Scheme name:** Energy Ambassadors

**Location:** Bulgaria, Denmark, Greece, Spain, France, Italy, Romania, Sweden, UK

**Period of operation:** 2009 - 2011

**Scheme coordinator:** Prioriterre

**Beneficiaries served:** 18,000 people

This scheme, co-funded by the EU Intelligent Energy Europe Programme, aimed to tackle energy poverty through the intervention of social workers, helping vulnerable groups to manage their water and energy consumption more efficiently. Social workers were trained to include energy advice in their daily work and to show vulnerable households how to take simple steps to reduce their energy consumption significantly. The scheme covered 300 social workers and reached out to 18,000 vulnerable consumers in total. However, even though bespoke training was provided, many of the social workers trained as ambassadors continually requested additional support as they did not feel confident in delivering good advice in this new area.

Skill and knowledge requirements are not limited to delivery organisations. Barriers can also be created by ***lack of householders' knowledge of the existing level of energy efficiency.*** This caused delays and required additional checks (at extra expense) to determine the measures suitable for installation under the Just Change

scheme<sup>105</sup>. This barrier could affect all schemes which rely on households to self-assess and self-refer for assistance.

***Placing greater responsibility in the hands of households in the delivery and installation of measures can also be problematic.*** In the Multi-family Building Development Programme in Lithuania, initial take-up was low, as substantial onus was placed on apartment owners with respect to project preparation, implementation, commissioning, supervision and application for finance. However, owners often lacked knowledge of energy efficiency, did not have the time or skills required to manage projects, and were unwilling to take on financial liability for repayment of loans. The scheme was subsequently amended to allow municipal governments to take a stronger role in the delivery of measures. A further example of this barrier can be seen in the Energy Savings Kits scheme run by BC Hydro in Canada, where reported savings were lower for kits self-installed by households relative to those which received professional assistance in installation<sup>106</sup>.

### 3.5.3 Conclusions and recommendations for replication

The expertise and skill of delivery agents, scheme owners and (in some circumstances) households can influence the success of a scheme. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. Ensure that the scheme owner has the capacity to design, implement and manage the scheme (including the resources and skills required to foster and maintain partnerships)

This is a necessary condition for success. In the case of the Multi-family Building Development Programme in Lithuania, technical assistance was required by municipal authorities to assist them in managing works. The type of capacity required will vary with the nature of the scheme. For example, in schemes such as the SHINE scheme in Islington, London, which involve a large number of partner organisations, the scheme owner will require capacity to take on a strong leadership role in order to instigate, foster and maintain productive working relationships. The Just Change pilot is a further example. That initiative relied on personnel with knowledge of existing funding streams, good negotiation skills and the ability to deal with vulnerable households to successfully liaise with different stakeholders in order to agree and coordinate the work.

2. Where front-line staff are employed to deliver advice, training must be tailored and sufficient, and follow-up training or reference material could be beneficial

Front-line staff will have a range of different backgrounds and experience. Even where a learning programme is in place to train front-line staff, it must have sufficient depth if it is to provide the confidence to deliver advice. Ensuring the effectiveness of the learning experience for advisors will ultimately improve the advice service provided.

3. Be aware that relying on households in any part of the delivery-chain creates

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105 <http://www.cuac.org.au/research/external-research/181-just-change-evaluation-report-energy-efficiency-for-low-income-renters-in-victoria/file>

106 [https://www.hydro.mb.ca/regulatory\\_affairs/electric/gra\\_2014\\_2015/ir\\_pdf/rd1\\_mko\\_coalition.pdf](https://www.hydro.mb.ca/regulatory_affairs/electric/gra_2014_2015/ir_pdf/rd1_mko_coalition.pdf)

## additional risks

Some schemes have relied on households themselves to implement the measures. For example, the Multi-family Building Development Programme in Lithuania required block managers to apply for funds and manage works and loans on behalf of households. Schemes such as the Energy Saving Kits provided by BC Hydro in Canada relied on self-installation by households. In both cases, this dependence on household motivation created issues.

### 3.5.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when considering the capacity required to implement of a new scheme.

#### Key questions to consider for the expertise and skills required

- Do scheme owners have the necessary capacity to design, implement and manage the scheme? If a scheme involves a large number of partners, does the owner have the necessary skills and resources to maintain these relationships?
- Can communication skills training increase awareness of the situation of vulnerable households?
- Are training programmes for energy advisors adequate? Is further training or guidance available for reference, if required?
- Can training of advisors be tailored to their existing knowledge and expertise? Can front-line services inform the design of training itself to reflect the situation of vulnerable households?
- What functions are required of households? Do they have the necessary capacity to carry out these functions effectively?

## 3.6 Type of support provided

### 3.6.1 How the type of support provided can be a driver of success

A key barrier to the take-up of energy efficiency measures, even when these provide a positive payoff for households over their lifetime, is a lack of upfront capital to invest in measures. This is particularly the case for low-income households who have lower disposable income. For this reason, many of the schemes included in this review feature **measures which are fully funded** and incur no expense for the recipient household. One example of this is the Seattle City Lights Conservation Kit scheme.



**Scheme name:** Seattle City Lights Conservation kit  
**Location:** Seattle, USA  
**Period of operation:** 2001-2002  
**Scheme coordinator:** Seattle City Light (utility)  
**Beneficiaries served:** 179,000 households

A decade after electric utilities began the effort to transform the residential lighting market, the average household in Seattle had only one CFL. **To reduce utility loads, Seattle City Light introduced the Conservation Kit programme, which distributed an energy and water efficiency kit to electric utility customers in the Seattle City Light service area.** Seattle City Light supplied the Kit, which included lighting and water efficiency products. The scheme softened the financial burden for households by providing energy saving kits for free, thereby increasing households' engagement with the scheme.

**Sharing knowledge on the benefits of energy efficiency with households** was a key component of a number of schemes. Engaging households in the assessment of needs and installation of measures, as well as providing information on the rationale for measures, can yield positive additional effects, e.g. households are likely to be more engaged and accepting of the scheme if they understand its benefits for themselves, measures will be more effective once installed (e.g. through more appropriate installation by households or more beneficial behaviour change), and there may be positive knock-on effects (e.g. household purchases further low-cost energy efficiency measures or undertakes searches for further energy saving advice). This knowledge sharing is a key element of the FIESTA scheme which delivers energy advice to families. Here, knowledge transfer is seen as critical to engaging and empowering households.

A further consideration is the point of contact within the household, i.e. the person to whom the measures and advice are delivered. **Engaging all persons in a household** could increase the effectiveness and sustainability of measures, as all household members are informed. The FIESTA scheme, for example, focuses on delivering energy efficiency advice to all members of the family.



**Scheme name:** FIESTA

**Location:** Bulgaria, Croatia, Cyprus, Italy, Spain

**Period of operation:** 2014-2017

**Scheme coordinator:** AREA Science Park

**Beneficiaries served:** Aiming to perform 2,100 energy audits

This scheme aims to assist Southern European families (with children) to save energy at home, addressing both their energy consumption behaviour and their purchasing decisions. The scheme focuses on cooling and heating solutions. Sharing knowledge about the benefits of energy efficiency has been key in empowering households to make energy savings and to have a positive impact on their future investment decisions. Engaging all household members increased the effectiveness and sustainability of measures. For example, workshops were organised in schools, with children encouraged to take their learning home, thereby instilling knowledge and behaviour early in life, potentially resulting in more sustained behaviour change.

To increase the effectiveness of the scheme, **support can be tailored to the specific needs of the recipient household**. Advice services can be made specific to household circumstances and consumption patterns, with the measures provided adjusted depending on the characteristics of the building. In this way, the support provided is more relevant and efficient, as no unnecessary advice or measures are provided. This efficiency was described in a number of schemes:

- The scheme in Meridiana, Barcelona acknowledged the lack of understanding about the concept of energy supply among the immigrant population to which it was providing advice, and tailored its service accordingly.
- The FIESTA scheme delivering advice to families in the Mediterranean region offers advice on energy saving behaviour in respect of both heating and cooling systems.
- The Energy Saving Kits provided by BC Hydro in British Columbia, Canada are refined based on an assessment of household need.

- Advice and measures were tailored to individual households under the TELI scheme.

**Temporary  
Subsidy scheme  
on Energy  
savings for Low-  
Income  
households  
(TELI)**

**Scheme name:** Temporary Subsidy scheme on Energy savings for Low-Income households (TELI) (Tijdelijke subsidieregeling energiebesparing huishoudens met lage inkomens)

**Location:** the Netherlands

**Period of operation:** 2002 - 2006

**Scheme coordinator:** Ministry of Housing, Spatial Planning and the Environment

**Beneficiaries served:** 65,000 participating households, of which 55,000 were low-income

The Netherlands government's low-income scheme, TELI, is focused on overcoming the information and monetary barriers to energy saving measures in low-income households. The scheme subsidises energy audits and projects carried out by local authorities, energy companies, and housing corporations to provide advice on low-cost energy saving measures through home visits. Energy saving measures have also been implemented during these visits. The measures implemented include water-saving shower heads, CFLs, and insulation of pipes. Target households are identified through files from social welfare services or city cards, among others. Many projects were carried out in specific districts or neighbourhoods, where a relatively large number of households lived in the target group. A further factor in the success of the scheme was the tailoring of support provided to the specific circumstances and needs

In addition to being tailored to the needs of an individual household, schemes also focus on delivering **measures which are appropriate for the local climate context** within which they are implemented. If schemes are to be replicated, the set of measures or the advice provided would change accordingly. The Northern Exposure project in Northern Ireland, for example, predominantly focuses on measures which reduce heat loss, which is a key source of energy use in cold climates. It should be acknowledged that differences in climate will also affect the size of benefits gained through each specific measure.

A number of schemes found that a key driver of success was **delivering advice services face-to-face**. This was particularly the case for the Beat the Cold scheme, which offered advice services to vulnerable households in Staffordshire, UK. Offering advice face-to-face provides an opportunity to engage households and gain a full understanding of its particular circumstances, as well as to provide specific assistance on particular functions (e.g. setting heating controls, contacting energy firms on behalf of the household, and reviewing household bills in order to tailor advice). Closely connected to this, the use of **follow-up or repeated visits to households after delivery of the measures** provides further opportunities to assess the household situation and refine the advice offered, as well as to ensure the quality of the installation and check that measures are working as planned, to provide additional advice, gain feedback, and allow sufficient time to assist with more complicated or time-consuming services. Follow-up visits were used to positive effect in the ACHIEVE scheme, which, despite increasing costs, also reduced mistakes and built rapport with households.

### 3.6.2 How the type of support provided can present a barrier to success

**The funding structures of schemes may prove a barrier to engagement for some households.** The Pacte Energie Solidarité scheme in France, for example,



offers part-funded loft insulation for households, and it found that the small cost created doubt and uncertainty for some households about the legitimacy of the service<sup>107</sup>.

**Pacte Energie Solidarite**

**Scheme name:** Pacte Energie Solidarité

**Location:** France

**Period of operation:** 2013 - present

**Scheme coordinator:** CertiNergy

**Beneficiaries served:** Assists around 10,000 households per

**Low-income households can apply to receive aid for the installation of loft insulation from CertiNergy through the Pacte Energie Solidarité scheme.** From the beginning of 2013 to August 2013, 500 loft insulations had been completed across the country. On average, households are estimated to achieve energy savings of between 25-30%. Through the scheme and funding provided, the cost of work is reduced to EUR 1 for the first 70 sqm of roof and, beyond 70m<sup>2</sup>, to EUR 10 per m<sup>2</sup>. However, some households expressed scepticism about the low price of assistance, which may have limited their engagement with the scheme.

Under the Multi-family Building Development Programme in Lithuania, households were reluctant to take on liability for loans required to finance work, nor did they have the skills to procure and manage the loans themselves. Even where measures are planned to be funded, **under-budgeting of works can leave significant charges outstanding for households**. This was the case in the Compagnons Batisseurs programme, which stated that some households were left with charges where the financing plans among homeowners did not balance out.

A number of schemes experienced a barrier in behavioural change within households, i.e. **when provided, not all energy efficiency measures are used by the household**. This automatically reduces the cost-effectiveness of the support provided. In the EC-LINC scheme, some measures proved too difficult for households to install and/or use, as sufficient guidance was not provided with the measures<sup>108</sup>. In addition, some schemes found that **households may uninstall energy efficiency measures over time**, reducing the effectiveness of the scheme. The Stromspar Check scheme in Germany reported that around 10% of assisted households removed devices, in particular water-saving products and thermostops for small boilers<sup>109</sup>.

One scheme reported that **restricting assistance to a narrow set of measures risks missing some of the available benefits for households**. For example, documentation on the FSATME scheme in France notes that aid is restricted to a small set of measures, thereby limiting the assistance that funding can provide to households<sup>110</sup>. This is likely to be the case where schemes draw on external funding sources with restrictions on those items for which funding may be used.

The evaluation of the Northern Exposure scheme noted that **some retrofit work can be disruptive for the household**. This implies that there may be hidden, non-

107 <http://www.cerdd.org/content/download/14259/56037/file/fiche+bonne+pratique+pacte+energie+solidarite+certinergy.pdf>

108 [https://secure.berliner-netzwerk-e.de/media/file/472.EC\\_LINC\\_Brochure\\_web.pdf](https://secure.berliner-netzwerk-e.de/media/file/472.EC_LINC_Brochure_web.pdf)

109 [http://www.achieve-project.eu/index.php?option=com\\_phocadownload&view=category&download=44%3Acase-studies-a-key-learning-for-achieved-21eu-report&id=1%3Aeu-targetareas&Itemid=6&lang=eeu](http://www.achieve-project.eu/index.php?option=com_phocadownload&view=category&download=44%3Acase-studies-a-key-learning-for-achieved-21eu-report&id=1%3Aeu-targetareas&Itemid=6&lang=eeu)

110 [http://www.precarite-energie.org/IMG/pdf/fiche9-Les\\_FSATMEV3.pdf](http://www.precarite-energie.org/IMG/pdf/fiche9-Les_FSATMEV3.pdf)

financial costs to households which (if not appropriately mitigated or communicated in advance) may risk disengaging the households assisted, or preventing engagement of future households who hear of the negative experiences of others. Disruption is typically associated with larger, more costly energy efficiency measures. Low-cost energy efficiency measures, by their nature, are not likely to cause significant disruption, being typically quick and simple to install. However, all energy efficiency measures, in particular where these involve installation by professionals, may entail a small amount of disruption. Prospective scheme owners need to be mindful of the need to offset this risk.

### **3.6.3 Conclusions and recommendations for replication**

In addition to the measures actually provided, the detail of such measures can influence the success of a scheme. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. If possible, fund measures in full in order to overcome a substantial barrier to installation, but ensure that associated risks are managed

Many of the schemes studied fully funded the installation of measures in order to overcome the lack of upfront capital on behalf of households. However, budgeting must be sufficient if households are to entirely avoid additional burdens resulting from cost over-runs.

2. Consider knowledge sharing and education to increase effectiveness and longevity of measures and reduce the impact of disruption on households

Engaging households in the assessment of needs and installation of measures, as well as providing information on the underlying need for the measures, can yield positive spillover effects, avoid uninstallation of measures and help to mitigate the impact of disruption through better management of household expectations.

3. Tailor support to individual households to minimise wasted resources and increase effectiveness

Advice services can be made specific to household circumstances and consumption patterns, with the measures adjusted depending on the characteristics of the building. This makes the support more relevant and efficient, with no unnecessary advice or measures provided.

4. Deliver advice face-to-face and use follow-up engagement

Face-to-face interaction engages households and generates a deeper understanding of their individual circumstances in order to provide tailored support. Further follow-up or repeated visits after delivery of the measures also provides opportunities to ensure the quality of installation and gather feedback to refine and assess the effectiveness and performance of the scheme (e.g. through collection of information on energy savings). These follow-ups also allow sufficient time to appropriately assist with more complicated or time-consuming services.

### 3.6.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when determining the detail of measures to be provided under a new scheme.

Key questions to consider for type of support provided
<ul style="list-style-type: none"> <li>• Can measures be fully or partly funded to overcome affordability barriers?</li> <li>• Does the funding structure present any barriers to households? Are risks around funding (in particular potential for spiralling costs) appropriately managed?</li> <li>• Is it appropriate to transfer knowledge to households by providing information together with the measures?</li> <li>• What is the likelihood that measures could cause disruption for the household? Can this disruption be offset by communication in advance?</li> <li>• Will all measures provided be used by households? What is the risk that they may be uninstalled over time?</li> <li>• Is it possible to tailor the measures provided according to household requirements in order to increase efficiency?</li> <li>• Are measures provided applicable to both hot and cold climates?</li> <li>• Can face-to-face contact or repeated interaction be harnessed to better understand the household circumstances and ensure measures are working as they should?</li> <li>• Can all household members be engaged in the delivery of energy efficiency measures?</li> <li>• Does funding cover all measures which might be applicable to these households? If not, is there a pertinent reason for the exclusion of certain measures?</li> </ul>

## 3.7 Situational characteristics of household

### 3.7.1 How the situational characteristics of the household can be a driver of success

Some schemes were able to **take advantage of economies of scale** in providing low-cost measures. Where there is a high concentration of target households in a small geographical area, a blanket approach can reduce the costs of engaging households and delivering measures (relative to a more dispersed target population). This may also increase engagement with a scheme, whereby neighbours can share information and positive experiences with a scheme. A good example of this is the provision of energy advice services to the Meridiana area of Barcelona. Here, households from a particular housing area were targeted, which reduced the costs of identifying and engaging the target population.

A key driver of success for some schemes, in particular those targeted at certain groups of households, was **tailoring the delivery approach to account for specific barriers associated with the target group**. For example, tenants living in private rented accommodation are often reluctant to take up energy efficiency measures because of their concerns that rent charges may increase as a result of home improvements. The Just Change pilot in Australia attempted to address this issue directly.

## Just Change

**Scheme name:** Just Change pilot

**Location:** Australia

**Period of operation:** 2008 – 2009

**Scheme coordinator:** Just Change (not-for-profit organisation established for the specific purpose of carrying out the pilot)

**Budget:** Around EUR 8,000

**Just Change was a pilot scheme targeted at low-income rental households in metropolitan Melbourne, with the goal of overcoming the specific barriers that prevent the adoption of energy efficiency measures in these households.** Tenants living in private rented accommodation are often reluctant to take up energy efficiency measures due to their concerns that rent charges may increase as a result of home improvements. The Just Change pilot in Australia directly addressed this issue by asking landlords to sign up to a 12-month rent-freeze commitment. The nature of the landlord-tenant relationship also served to prevent tenant engagement, as did tenants' fears of losing their tenancy. Just Change addressed this by contacting landlords and by providing them with information on the scheme benefits, both for themselves and their tenants.

### 3.7.2 How the situational characteristics of the household can present a barrier to success

Several issues were noted by schemes which attempted to deliver measures to households in the private rented sector. The divergence of landlord-tenant motivations creating a barrier to improving energy efficiency is well documented. This barrier was demonstrated in practice by the experience of the Just Change scheme where the **consent of landlords was required to install energy efficiency measures which predominantly benefitted the tenant**. Just Change discussed issues with landlords and provided them with information on scheme benefits, however, some landlords still refused to consent. In addition, the nature of the **landlord-tenant relationship also served to prevent tenant engagement**. Under the Just Change scheme, despite the rental freeze and House Managers acting on their behalf, some tenants were still unwilling to ask their landlords for consent, due to their concerns about potential rent increases or the fear of losing their tenancy<sup>111</sup>.

Some schemes attempted to implement specific measures in order to overcome issues in the private rented sector, however these **attempted fixes can create issues in themselves**. This case was exemplified by the Nest scheme in Wales.

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111 <http://www.cuac.org.au/research/external-research/181-just-change-evaluation-report-energy-efficiency-for-low-income-renters-in-victoria/file>



**Scheme name:** Nest

**Location:** Wales, UK

**Period of operation:** 2011 - present

**Scheme coordinator:** Welsh Government

**Beneficiaries supported:** 11,100 households received advice or third party support in 2014-15

The main aim of Nest, which replaced the previous Home Energy Efficiency Schemes (HEES) in 2010, is to reduce fuel poverty in households in Wales. Nest targets fuel poverty through energy efficiency measures in the most energy inefficient low-income homes. Support is available to homeowners and private tenants if they, or a fellow resident, receive means-tested benefits. Free help in the form of low-energy lighting, advice and information, insulation, replacement boilers, draught proofing, renewable energy and bespoke energy savings advice is provided. The Nest scheme in Wales tried to overcome lack of tenant engagement due to perceived potential rent increases following improvements, by asking landlords to commit to a 12-month rent freeze. However, this then negatively influenced the engagement of landlords who (for this or other reasons) may have wanted to increase rent charges over that period.

The **turnover of households in homes can reduce the incentive to invest in energy efficiency measures**. This is particularly the case for the rental sector, where existing tenants are less likely to recoup all of the benefits of their investment. This in turn reduces engagement and can interrupt the organisation or delivery of measures. This was observed as a barrier in both the FSATME scheme in France and the Just Change pilot for private rented households. However, the issue is unlikely to be limited to the private rented sector - turnover of property ownership can also delay or cancel improvement works across different tenure statuses.

**For multi-residence buildings, it can be difficult to reach consensus on works affecting all households.** This issue was experienced by the Multi-family Building Renovation Programme (JESSICA funded) in Lithuania, which experienced delays (and higher organisational costs) in the agreement and delivery of energy efficiency measures as a result of the lack of consensus between households. This was particularly the case where apartment owners had different economic conditions or social interests. In the worst case scenario, this can completely prevent such works.

### 3.7.3 Conclusions and recommendations for replication

The situational characteristics of households - in particular tenure status - can present potential barriers to success. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. Consider the situation of target households and the issues that this could cause. Where possible, implement processes to overcome these challenges but be aware of the new issues these may create

Several issues were noted by schemes which attempted to deliver measures to households in the private rented sector. These were largely caused by the divergence in landlord-tenant incentives. While some schemes implemented processes and measures to mitigate these issues, they nonetheless had the potential to create knock-on complications.

## 2. Implement a procedure to mitigate issues caused by household turnover

Households moving out of properties can reduce the incentive to engage, creating delays or cancellation of works. New schemes should develop a clear course of action in such instances.

## 3. If considering direct replication, acknowledge that there may be limitations for some schemes specifically designed to target a particular type of housing situation

Some schemes are **targeted at specific types of households**. In some cases, the existence of such households is a necessary condition for replication of the scheme, in light of the measures provided, or the way in which they are delivered. The Multi-family Building Development Programme in Lithuania, for example, provided funding for specific measures that were applicable to households residing in residential blocks. Similarly, the Pacte Energie Solidarité focused solely on providing loft insulation to households which had little such insulation already. A further example is the Warm Zones scheme, which gained benefits of economies of scale by taking a street-by-street approach to delivering energy efficiency measures in areas of high deprivation. Replicating such schemes without substantial change would be difficult in the absence of these specific housing characteristics. In some cases, however, the presence of similar households is not a necessary condition, e.g. the Just Change pilot targeted the private rented sector, yet its fundamental aims and structure could also be applicable to other tenure types, such as private-owned. In fact, in this case, replicating the scheme would reduce some of the organisational costs of works.

### 3.7.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when considering whether the situation of targeted households could affect the implementation of a new scheme.

#### Key questions to consider for the underlying situational characteristics of households

- Does the scheme target the private rented sector? Has it acknowledged (and, where possible, offset) the specific issues preventing effective delivery in this area?
- Have measures introduced to overcome barriers been sense-checked to ensure they do not create further barriers to success?
- Can a mechanism be introduced to mitigate the issue of household turnover delaying or cancelling works?
- Is common consent required from more than one household to facilitate delivery?
- Do schemes target a specific set of housing characteristics? Does this prevent broadening out the scheme to other household types?
- Can economies of scale be harnessed in the identification, engagement, or delivery of measures to target households?

## 3.8 Characteristics of household members

### 3.8.1 How household member characteristics can be a driver of success

An important driver of success is a **higher initial level of interest and awareness of energy efficiency**. The Just Change pilot in Australia found that some of the

targeted households had a high existing awareness of energy efficiency. These households tended to be more engaged and willing to participate in the scheme and increased the likely success of energy saving measures. This was particularly the case for behavioural change, which was sustained for longer periods in households with a pre-existing interest in energy efficiency). Compared to other success drivers, this one is predominantly context-driven and outside the control of policy makers. It is, however, inherently linked to discussions of knowledge transfer (see Section 3.6 above).

### 3.8.2 How household member characteristics can present a barrier to success

All schemes use identifiable characteristics of vulnerable households in order to target measures at those in greatest need of support. However, there is an inherent risk that any **eligibility criteria set may not appropriately target households** requiring support:

- Under-claiming of benefits may reduce the usefulness of using benefits to target intended households. This was noted in the Just Change scheme, being found to particularly affect the provision of benefits to immigrant households, notably new arrival refugees.
- Eligibility criteria may be too loose and not focused on those most in need. For example, the Northern Exposure project recommended including quality of dwelling as part of the eligibility criteria for future schemes, as the receipt of benefits alone was not considered sufficient to target the most vulnerable<sup>112</sup>.
- Where schemes rely on funding from overarching policies or partners, there may be restrictions on eligibility stemming from funding criteria.
- As social support policy varies between countries, the lessons learned from the ACHIEVE project suggested that it is not always possible to precisely replicate a given scheme in another country using benefit eligibility as a criteria
- Targeting support at those receiving particular forms of social assistance will exclude vulnerable households not eligible for the specific benefits targeted. This is not restricted to schemes targeted using benefits, as demonstrated by the Energy Saving Kit provided by BC Hydro in Canada.



**Scheme name:** Free energy saving kit (BC Hydro)  
**Location:** British Columbia, Canada  
**Period of operation:** 2007 - present  
**Scheme coordinator:** BCHydro  
**Beneficiaries served:** 70,000 kits distributed to 2015

**BC Hydro's Low-Income Programme provides Energy Saving Kits together with other retrofit programmes to low-income households.** The Energy Saving Kit (ESK) component is a package of basic, low-cost energy savings measures believed to be easily installed by any homeowner or tenant. To receive a kit, the household must sit below income thresholds set by Statistics Canada's low-income cut-offs. A 'custom kit' is offered to households, with kits customised based on information provided by the applicant on their household type and needs. A barrier to the broader success of the scheme was the fact that the kits were only available to BC Hydro customers, potentially overlooking many vulnerable households.

112 [http://uir.ulster.ac.uk/25441/1/NorthernExposureReport\(WEB\)-11Mar13.pdf](http://uir.ulster.ac.uk/25441/1/NorthernExposureReport(WEB)-11Mar13.pdf)

These barriers reduce the ability of schemes to effectively assist the households they intend to support. However, the ‘accuracy’ of targeting support to vulnerable households is typically balanced against the administrative costs of identifying and verifying eligibility. The use of particular criteria may also be a stipulation of access to funding streams.

**The circumstances of vulnerable households may limit their ability to access the schemes** if this is not acknowledged in the delivery approach. A review of the Nest scheme in Wales noted that the application process was not consistently accessible for all groups of vulnerable households, in particular those with sight and hearing difficulties, disabilities or mental health problems<sup>113</sup>. Not accounting for the unique circumstances of all households in the target group risks reducing uptake of the scheme, potentially by the most vulnerable.

Similarly, **language can be a substantial barrier** to communicating information about the scheme, engaging households and delivering measures. This can particularly affect immigrant households, as demonstrated by the scheme delivering energy advice to households in the Meridiana area of Barcelona.



**Scheme name:** Energy advice to immigrant households in Meridiana

**Location:** Meridiana, Barcelona, Spain

**Period of operation:** 2007 – present

**Scheme coordinator:** Ecoserveis

**Beneficiaries served:** 30 people have been trained (one per

**The aim of this scheme is to inform immigrants in Meridiana about electricity and gas supply in Spain. This will help participants to understand their energy bills, to implement energy saving measures at home and to overcome difficulties when paying energy bills.** This scheme in Meridiana, Barcelona, delivers a tailored service to the immigrant population. Ecoserveis is aware that the understanding of the concept of energy supply among its targeted beneficiaries is limited, and has therefore adapted its service accordingly. Language can be a substantial barrier in communicating information and delivery of measures. The scheme therefore relies on staff with specific language skills to communicate with the target households.

The TELI scheme in the Netherlands conducted visits to households where language might also have been a potential issue.

In some circumstances, the **target households themselves may have limited time to engage and participate** in the scheme. This was the case for the SAVES scheme, where students had less time to participate due to their academic commitments at certain points in the year. Linked to this, the Northern Exposure project concluded that home visits need to be arranged at a convenient time for the household, in order to avoid wasted visits, delaying works and increasing engagement cost.

Attitudes and beliefs can also pose a barrier to success. A barrier observed in some schemes was that the **need to interact with official institutions may deter**

<sup>113</sup> <http://gov.wales/docs/caecd/research/2015/150310-evaluation-nest-energy-efficiency-scheme-en.pdf>



**engagement of some households.** The Austria pilot scheme found some individuals unwilling to approach official institutions for advice services. As with some partner organisations, lack of trust or previous negative experiences may prevent some households from coming forward for support. Similarly, **the reluctance to share personal information** was noted as a barrier to households applying for Energy Savings Kits offered by BC Hydro in Canada. **The pre-conceptions or social attitudes of some target households may pose a barrier to delivery.** For example, the SAVES scheme encountered students who simply did not want to change their behaviour, or who thought that behaviour change would only have a limited impact, given the overall poor building quality.

In some circumstances, the **benefits already received by the target group may provide a disincentive to engage** with energy efficiency schemes. For example, the Multi-family Building Renovation Programme (JESSICA funded) in Lithuania experienced poor engagement from low-income households, as they already received assistance with energy costs. This support reduced the incentive for these households to participate in additional energy efficiency activity. In response, the scheme changed the rules so that low-income households which did not engage risked having their energy support subsidies removed, leading to much greater engagement from these households.

### 3.8.3 Conclusions and recommendations for replication

The demography and attitudes of households can create potential barriers to success. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. Ensure that application, engagement and delivery processes are universally accessible and reflect the circumstances of all vulnerable households targeted

A number of schemes relied on staff with language skills to communicate with target households, e.g. the scheme delivering energy advice to households in the Meridiana area of Barcelona, which had a high population of immigrant households. Where such households make up a large proportion of the target group, such considerations are a necessary condition for successful replication.

2. Carefully consider eligibility criteria for the scheme and the influence these will have on the households targeted

A number of schemes are directed at households in receipt of benefits or subsidies in order to more easily target vulnerable households, e.g. the Nest scheme in Wales. However, this may implicitly exclude vulnerable households. The extent and targeting of state support varies greatly between countries, making it difficult to adopt this model in all countries. In most cases there are more generic pathways through which vulnerable households can be identified (e.g. income levels), therefore this is not a significant barrier to replication of schemes which target households through their benefits received.

3. Recognise that perceptions and attitudes, as well as existing supports, can both help and hinder success

An important condition for some schemes was households' underlying interest in, and awareness of, energy efficiency. The Just Change pilot found this to be a driving factor of success, as it increased engagement and the effectiveness of the measures installed. Although such a condition is important and will impact the size of savings for households, it is perhaps not a necessary condition, given that many measures provided to households are passive (e.g. energy saving light-bulbs) and/or households often only gain awareness through the provision of energy efficiency advice.

### 3.8.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when considering the influence of demography of target households on the success of a new scheme.

Key questions to consider for demography of household members
<ul style="list-style-type: none"> <li>• Are eligibility criteria appropriate for targeting the most vulnerable? Will eligibility criteria exclude key categories of vulnerable households?</li> <li>• Is the scheme universally accessible to all households, e.g. different languages, disabilities, etc.?</li> <li>• Is engagement with the household designed to work around the household activities as far as possible (e.g. to avoid visits when households are not at home)?</li> <li>• Is it possible to tailor the measures provided according to household requirements in order to increase effectiveness?</li> <li>• Does the scheme depend on underlying awareness and interest of households?</li> <li>• Are the requirements for households to provide additional requirements minimised?</li> <li>• How can the scheme deal with households who do not want to change behaviour, or who feel that this would have little or no effect?</li> <li>• Could existing support services provide a disincentive to engage with the scheme?</li> </ul>

## 3.9 Method of measure delivery

### 3.9.1 How the method of measure delivery can be a driver of success

**Using a variety of marketing methods** to inform potential partners and target households proved a driver of success for some schemes, as it recognised that different households engage with (and are exposed to) different sources of information. For this reason, a variety of marketing methods is required to reach and inform the greatest possible number of the target group. One such scheme that adopted this approach was the provision of Energy Saving Kits by BC Hydro in Canada, which was promoted through print media, a dedicated website, and most importantly, took advantage of the unique circumstances of the scheme owner to place advertisements on household utility bills. Sequential marketing can be used to strategically build trust in a scheme. The Kirklees Warm Zone, for instance, issued marketing material a couple of weeks prior to house calls by energy assessors, building knowledge and increasing the likelihood that households would recognise the purpose of the visit when it happened, and thus engage in the scheme.

A key driver of success can also be the **use of advertising appropriate to the target group**. The ACHIEVE scheme, for example, was advertised through services likely to be used by the target households and in places they might be expected to

attend, such as job centres, markets, council and municipal buildings, etc. The scheme recognised that children, the chronically ill and the elderly are particularly vulnerable, leading it to advertise in health centres and GPs' surgeries. Further awareness raising was adjusted to account for variance in culture and language among the different households in a given area. Tailoring marketing activity in this way can increase the effectiveness of information campaigns, leading to greater referral and engagement with the scheme and reducing wasted costs.

The **intensity of the marketing campaign** can also impact on the success of a scheme, as demonstrated by the Stromspar Check scheme in Germany.



**Scheme name:** Stromspar Check

**Location:** Germany

**Period of operation:** 2008 - present

**Scheme coordinator:** Deutscher Caritasverband e. V.

**Beneficiaries supported:** 157,244 households have participated to end 2014

**To help low-income households to save energy and water costs and to reduce their CO2 emissions, the German Caritas Association and the German Climate and Energy Agency (eaD) initiated the project 'Stromspar Check'. It has been successfully implemented in more than 170 cities in Germany since 2009.**

The programme involves a free energy audit for each participating household, with a home visit carried out by 'Energy Efficiency Checkers' trained by the programme. Based on the energy audit, energy saving devices are installed. Long-term unemployed people are trained as 'Energy Efficiency-Checkers' through the programme, helping them to reintegrate into the job market. During the course of the programme, more than 4,000 'Energy-Efficiency Checkers' were trained and worked on the project. A review of the scheme concluded that the high intensity of its awareness raising campaign had helped to substantially increase recognition of the scheme and referrals for support.

**Innovative marketing techniques can be effective** at generating greater interest more quickly. This in turn increases the likelihood that the scheme will identify and engage target households. An interesting example of this is the 'Brico-bus' run by the Compagnons Batisseurs scheme in France. Although not exclusively used for its energy poverty focused projects, this technique is likely to reach a different subset of households relative to more 'typical' marketing methods. The SAVES scheme, which delivered energy efficiency advice to students, utilised digital media instead of more traditional means.



**Scheme name:** SAVES

**Location:** UK, Cyprus, Greece, Lithuania, Sweden

**Period of operation:** 2014 - present

**Scheme coordinator:** National Union of Students, UK

**Beneficiaries supported:** over 7.500 students engage with the project each academic year

**SAVES is an inter-dormitory energy-saving competition run in dormitories managed by 17 different university housing providers, covering 50,314 students in total across in five countries over two years.** SAVES provides quality engagement with students, enabling, empowering and motivating them to save energy. By developing student champions in each block of each dormitory, and by motivating the champions to encourage their peers to save energy through distribution of advice and information, the programme creates a race between students, with each dormitory competing to save the most energy and win prizes. SAVES uses Smart Meter data to run real-time energy challenges, inform students about their energy use, and encourage peer-to-peer learning. A key success driver is the use of social media as a means of tapping into online student communities, using engaging digital communications to raise awareness of how students can save energy in a fun way. This allows the scheme to reach a wider proportion of its target group quickly and cheaply.

***Using members of the community to engage and deliver measures*** (particularly energy advice) can be an excellent method through which a scheme achieves its objectives. A good example of this is the 'Neighbourhood Parents' initiative under the Austria fuel poverty pilot.

**Pilot project  
against fuel  
poverty**

**Scheme name:** Pilot project against fuel poverty

**Location:** Austria

**Period of operation:** 2012 - 2014

**Scheme coordinator:** Austrian Research Promotion Agency and Caritas

**Beneficiaries served:** 2,710 households (VERBUND and energy check)

The aim of the pilot was to implement energy efficiency measures in at least 400 low-income households and to evaluate their usefulness. Households were assisted through three existing projects of the church-based charity Caritas:

- VERBUND: a collaboration between the Austrian energy supplier VERBUND and the welfare organisation Caritas. This offers three support services: energy counselling and advice through in-home visits, no-cost replacement of old appliances, and interim financial aid for electricity bills.
- Energy savings check: energy counsellors give advice on energy saving measures through in-home visits. Volunteers visit households up to three times to provide energy saving advice and an 'electricity-savings kit'.
- Neighbourhood parents: Selected residents of structurally disadvantaged residential areas receive training on the topics of energy, housing and community life, and then pass on the recently gained knowledge (becoming so-called 'Neighbourhood Parents') during home visits within their communities.

Training Neighbourhood Parents provided a range of benefits: they have better access to (and can more easily engage) target households through existing social networks; they are able to provide services in different languages; they have familiarity with the 'lived-in' world, which helps to tailor advice and deliver through a 'low-threshold' approach; and people tend to trust the advice of their social network. The results of this pilot suggested that trust in the advisor is a crucial element for success. To a certain extent, this relies on a close geographical spread of target households, or targeting of small geographical areas, in order for the community member to be sufficiently known and trusted.

A further example of this type of community-harnessing is found in the SAVES scheme, where peer-to-peer advice between students was seen as a critical factor in students adopting energy saving behaviour.

**The choice of delivery model can have wider social benefits.** For example, the use of members of the community as 'Neighbourhood Parents' in the Austrian pilot strengthened the competencies of residents and contributed step-by-step to integration of communities. The Stromspar Check scheme in Germany trained long-term unemployed people as energy auditors, helping many of them to reintegrate into the job market.

If **access and delivery are clear and simple** from the household's perspective, then the measures are more likely to achieve their intended impacts. Households will be more inclined to engage and persist with a scheme where the transaction costs of doing so are low. A good example of this is Ireland's Better Energy Warmer Homes<sup>114</sup>.

<sup>114</sup> [http://www.climateexchange.org.uk/files/8814/4594/0740/final\\_report\\_261015.pdf](http://www.climateexchange.org.uk/files/8814/4594/0740/final_report_261015.pdf)



**Scheme name:** Better Energy Warmer Homes

**Location:** Ireland

**Period of operation:** 2000 - 2011

**Scheme coordinator:** Sustainable Energy Authority Ireland (SEAI)

**Beneficiaries supported:** Around 20,000 households were assisted in 2011 and around 83,000 homes have been assisted since 2000.

The 'Better Energy Warmer Homes Scheme', which is part of the wider 'Better Energy Programme' was established in 2000. Its main aim is to alleviate fuel poverty by providing grant support to low-income households for energy efficiency improvement measures. The scheme is run by the Sustainable Energy Authority of Ireland (SEAI) and provides a range of energy efficiency measures (e.g. draught proofing, insulation of pipes, low energy lighting, advice, etc) to households in receipt of a qualifying benefit and single-parent families. In 2011, measures were installed in 20,000 homes, which also received energy savings advice. Around 19,500 of these received CFLs and attic insulation. Lagging jackets and draught proofing were received by around 15,000. Given that the scheme relied on self-referral of vulnerable households, the simplicity of its application procedure (a one-page online application form) proved particularly effective.

Schemes that are **easy to access** are also likely to achieve greater engagement of households. In a review of Nest, in Wales, it was noted that a key element of the scheme was that its self-referral structure made it much more accessible than others<sup>115</sup>.

A key driver of success for some schemes was the **use of a single, central coordinating person or entity**. This creates a clear point of contact for households and a single point responsible for coordinating delivery of the measures. A good example of this is the Just Change pilot in Australia, where its 'House Managers' were reported to be a particular strength of the scheme. These House Managers worked with all parties to negotiate and obtain consent on behalf of tenants. This reduced time and effort required by property managers, owners and tenants to improve the property, provided dedicated resources to follow-up with different actors, simplified the process for households, and provided support to negotiate on behalf of tenants who felt unable to deal with landlords directly.

**Setting targets for the time taken to deliver measures** may also help to maintain the interest of households once they are engaged in the scheme. This was found to be a key strength of the Pacte Energie Solidarité scheme in France, which set short timeframes for the delivery of measures in order to retain household engagement.

The context and policy environment within which schemes are designed and operated is constantly changing. As such, **building flexibility into the approach** has been a crucial factor underpinning the success of many of the schemes studied. The ability to adapt to changes (and to anticipate issues which may require adjustments to the approach), whether internal (e.g. changes in partner organisations) or external (e.g. changes in funding streams), allows the scheme to maintain a sustained offering to low-income households. This allows the scheme to be clearly and confidently promoted and to reach a larger number of target households. The Multi-family Building Renovation Programme in Lithuania experienced low engagement from low-income households already in receipt of assistance with energy costs, which

115 <http://gov.wales/docs/caecd/research/2015/150310-evaluation-nest-energy-efficiency-scheme-en.pdf>

undermined their motivation to participate. In response, the scheme changed its rules so that low-income households had to engage or risk having their energy support subsidies removed. As expected, this led to much greater engagement from these households.

Several schemes noted that **establishing ongoing monitoring and review processes** were a key element of success in that they allowed for continuous improvement. The Stromspar Check in Germany, for example, put in place detailed documentation procedures which allowed for differentiated analysis of the measures delivered. This, coupled with an overarching quality assurance framework (which included checking of all documentation by a designated area advisor) allowed the scheme to improve the quality of service delivered to households over time.

Finally, **piloting schemes prior to full implementation** can test the effectiveness of the scheme design and pinpoint potential issues, allowing these to be overcome before implementation. Several schemes covered in the review are pilots, with a focus on learning from their first efforts at implementation.

### 3.9.2 How the method of measure delivery can present a barrier to success

**Lack of information to directly identify or communicate with the target group** increases the administrative cost of schemes, as they then require alternative methods of identifying and engaging households. This barrier is common across most schemes, with the SAVES scheme noting that it had to use alternative, indirect methods of reaching its target group. **Some methods of engagement may be less effective than others.** The Warm Zones scheme in the UK found that a general distrust of 'cold-calling' (i.e. going door-to-door without any prior warning) and services offered door-to-door prevented some households from engaging in the scheme. Mass-media campaigns were also deemed ineffective in generating referrals to the Nest scheme in Wales, with most households finding the scheme through word of mouth. Also, **using particular media to communicate with the target group inherently overlooks those who neither access nor use this** given media.

**Relying on self-referral of households may make it difficult to identify and engage the households in greatest need**, as noted by the Pacte Energie Solidarité scheme. This may be because the neediest households often experience the greatest barriers in respect of engagement with schemes, both in terms of lack of knowledge regarding the benefits of energy efficiency or more direct barriers to application.

As noted above, ensuring that measures are delivered swiftly to households helps to maintain engagement of households throughout the process and aids successful delivery. Conversely, **long waiting times until receipt of measures can cause households to disengage** (where they have already shown an interest in the scheme) or prevent new households from engaging. This issue was experienced by the Better Energy Warmer Homes scheme in Ireland, in a review of the initiative.

An important lesson taken from the Northern Exposure project was that **it is critical to manage the expectations of households throughout the process.** Providing clear and timely information about the delivery process and those involved was key to ensuring continued satisfaction and engagement with the scheme.

Even if schemes are put in place a process to monitor and evaluate the results, **gaining robust data to feed into evaluation and improve effectiveness may be**

**difficult.** A review of the Stromspar Check scheme in Germany found that only around 15% of assisted households had their energy consumption metered, making it very difficult to record actual savings.

### 3.9.3 Conclusions and recommendations for replication

The ways in which measures are delivered to households can both create and remove potential barriers to success. Policy makers wishing to develop and implement a new scheme should take into account the following recommendations:

1. Use methods of marketing tailored to the target group and consider using a variety of methods, or innovative means. Take advantage of any specific information available to directly target households

Some schemes rely on the availability of data to directly identify and target households. The Warm Zones scheme, for example, used public data on deprivation to identify target areas for Zones, while TELI in the Netherlands had access to information on social benefits in order to identify households directly. Linked to this, some schemes harnessed opportunities to directly engage households, e.g. placing information on utility bills to promote the Energy Saving Kits provided by BC Hydro. Although this is an important condition, these direct methods of contact are not considered necessary for replication, given that there are other (perhaps more costly) ways of identifying households.

2. Use members of the community as scheme advocates where target households are closely grouped together

In some cases, schemes relied on the existence of willing members of the community to facilitate its delivery. The existence of such volunteers is a necessary condition for the replication of schemes such as the Neighbourhood Parents initiative under the Austria pilot, given the central role played by these individuals in the scheme design and rollout. However, adopting this approach also relies on a dense concentration of target households in a given area.

3. Ensure the scheme is as clear, simple and easy to access as possible for households

Households are likely to be more inclined to engage and persist with a scheme where the transaction costs of doing so are low and frustrations are minimised.

4. Use established project management tools to continually improve the scheme and mitigate risks

Establishing ongoing monitoring and review processes, as well as building flexibility into the approach, allows schemes to continuously improve.

### 3.9.4 Key questions for the replication of schemes

The checklist below summarises the key questions that should be asked by policy makers when deciding how to deliver measures to households in the implementation of a new scheme.



### **Key questions to consider for methods of delivery of measures**

- Is information available which can be used to directly identify and engage target households?
- What form of marketing is likely to be most appropriate for the target group? Can multiple forms of engagement, high-intensity marketing or innovative techniques be used to good effect to help promote the scheme? Could the marketing approach used overlook certain households?
- If self-referral is used, will this reach the most vulnerable households?
- Can a single point of contact be established for households, partner agencies and other stakeholders to consolidate responsibility for organising delivery and provide clarity for households?
- Is it possible for members of the target community to be involved in the delivery of measures themselves?
- Is the process for applying, arranging and delivering measures simple and clear from the household perspective? Is the scheme easy to access for households (in terms of first contact) where self-referral is required?
- Can targets be set for the delivery of measures in terms of length of time?
- Will households be provided with sufficient information on the service provided?
- Have flexibility and risk management processes been built into the approach to allow the scheme to adapt in the face of internal or external pressures?
- Is the scheme underpinned by an effective monitoring and evaluation framework that facilitates learning and improvements in the scheme over time? Is sufficient robust and credible information available through which the scheme can be effectively monitored and evaluated?

## 4 Using EU funds to finance low-cost energy efficiency measures in low-income households

This section presents the results of the assessment of the possible use of existing EU funds to support the implementation of low-cost energy efficiency measures in low-income households in the Member States. As presented in Section 2.2 on methodology, two key EU funding sources are included in this review, based on their suitability to finance low-cost energy efficiency measures. This section presents a more detailed analysis of the suitability of the shortlisted funds – ESIF and, to a lesser extent, Horizon 2020 – followed by two sets of recommendations on how these funds can best support schemes delivering low-cost energy efficiency measures to low-income households. Due to the specificities of both funding sources, ESIF are considered the most suitable option for implementing and rolling out such energy efficiency schemes across the EU. Horizon 2020 is, however, also relevant when new pilot approaches, particularly on behaviour change, are being tested.

### 4.1 European Structural and Investment Funds

#### 4.1.1 Objectives of the funds

The five ESIF are the main investment policy tools of the EU, with the goal of supporting 11 thematic objectives with high importance for the EU economy, society and the environment<sup>116</sup>. Financing low-cost energy efficiency measures in low-income households falls directly within the scope of two of the 11 thematic objectives of the ESIF in the current EU investment period (2014-2020)<sup>117</sup>:

- **Supporting the shift towards a low-carbon economy** – thematic objective 4 targets various actions, including energy efficiency improvements in the housing sector.
- **Promoting social inclusion, combatting poverty and any discrimination** – thematic objective 9 targets various actions for reducing poverty and risk of poverty.

Supporting the delivery of low-cost energy efficiency measures to low-income households may also indirectly fall within the scope of thematic objective 10: 'Investing in education, training and lifelong learning', if the measures are delivered through specially trained advisors. These three thematic objectives are primarily supported by the three Cohesion Policy funds (the Cohesion Fund (CF), the European Regional Development Fund (ERDF) and the European Social Fund (ESF)). The other two ESIF (the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund) are more focused on priorities within the agricultural and fisheries sectors and do not cover energy efficiency and vulnerable consumers directly. The three Cohesion Policy funds are therefore the most suited to financing low-cost energy efficiency measures in low-income households, as they collectively prioritise the two thematic objectives identified above (see Figure 8). The overall aims of the CF and ERDF are to reduce the economic and social disparity between Member States and the EU's regions, and to promote sustainable development. Both funds are explicitly

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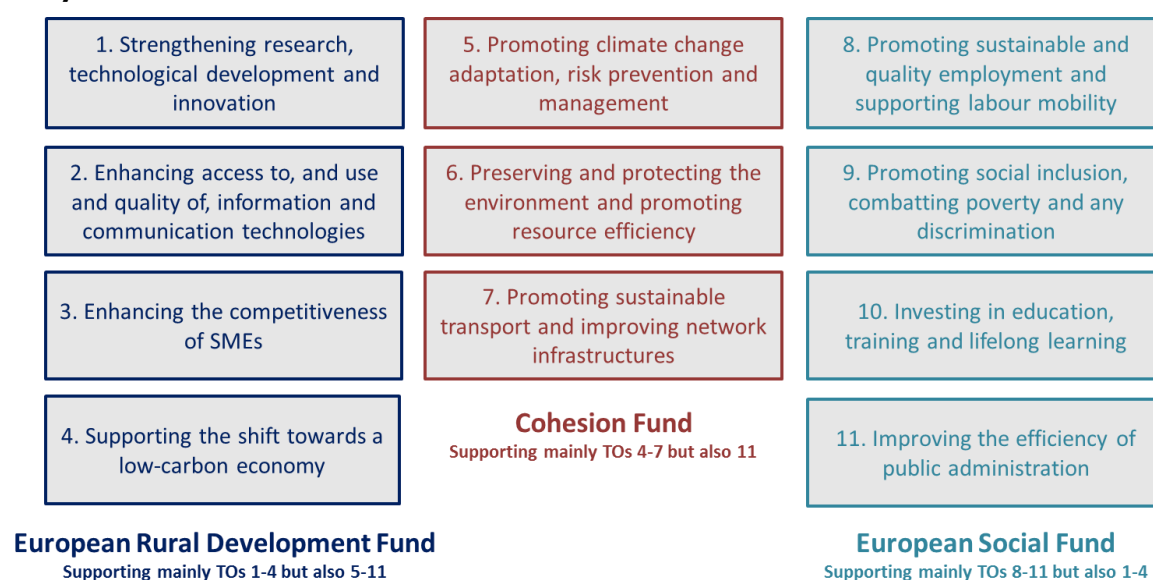
<sup>116</sup> The five ESIF are: Cohesion Fund (CF), European Regional Development Fund (ERDF), European Social Fund (ESF), European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). Common rules for the five funds are set out in the Common Provisions Regulation (Regulation (EU) No 1303/2013).

<sup>117</sup> [http://ec.europa.eu/regional\\_policy/en/policy/how/priorities](http://ec.europa.eu/regional_policy/en/policy/how/priorities) (last accessed 1 April 2016).

planned to support ‘the shift towards a low-carbon economy’ as one of their main priorities under the 2014-2020 Multiannual Financial Framework (MFF). The overall goal of the ESF is to improve both the opportunities for employment and education and the situation of the most vulnerable people at risk of poverty in the EU. Some of the main priorities of the ESF are to promote social inclusion, reduce poverty and invest in training and lifelong learning<sup>118</sup>.

Schemes which aim to reduce the energy consumption of households, improve the energy efficiency of their dwellings, reduce the energy poverty of vulnerable households, provide special training on energy efficiency and/or deliver health and social benefits related to energy efficiency measures (e.g. reduction of winter deaths and cold-related illnesses, employment of energy efficiency advisors), are within the scope of three of the five ESIF, as shown in Figure 8. As the ESIF are under shared management (i.e. jointly managed by the Commission and the Member States), the degree of suitability of these funds to support low-cost energy efficiency measures will vary across the Member States and regions, as discussed below.

**Figure 8 – Thematic Objectives of the ESIF in the 2014-2020 MFF and the Cohesion Policy funds that can finance them<sup>119</sup>**



#### 4.1.2 Available support and eligibility requirements

In the current MFF period (2014-2020), the total budget for the three Cohesion Policy funds is roughly EUR 346.4 billion. Around EUR 39.6 billion of these funds will be allocated to thematic objective 4 on low-carbon economy (through CF and ERDF), around EUR 33.1 billion to the social inclusion and poverty reduction objective (through ESF and ERDF) and approximately EUR 33.4 billion for the education and vocational training objective (through ESF and ERDF)<sup>120</sup>. More specifically, in the programmes adopted for 2014-2020, around EUR 5.4 billion is available for supporting

118 [http://ec.europa.eu/regional\\_policy/en/funding/cohesion-fund/](http://ec.europa.eu/regional_policy/en/funding/cohesion-fund/); [http://ec.europa.eu/regional\\_policy/en/funding/erdf/](http://ec.europa.eu/regional_policy/en/funding/erdf/); [http://ec.europa.eu/regional\\_policy/en/funding/social-fund/](http://ec.europa.eu/regional_policy/en/funding/social-fund/) (all last accessed 1 April 2016).

119 Based on [http://ec.europa.eu/regional\\_policy/en/policy/how/priorities](http://ec.europa.eu/regional_policy/en/policy/how/priorities) (last accessed 1 April 2016).

120 Estimates based on the information about allocated funds in MFF 2014-2020 are available at: <https://cohesiondata.ec.europa.eu/> (last accessed 31 March 2016).

energy efficiency in residential buildings from the ERDF and the CF, and around EUR 1.4 billion to housing infrastructure<sup>121</sup>. This is complemented by public and private co-financing. Table 20 in Appendix 3 provides a more detailed overview of the funding available under the three Cohesion Policy funds.

ESIF complement national, regional and local interventions and provide support to public and private bodies in the Member States in the form of grants, prizes, repayable assistance and financial instruments, or combinations of these. Public authorities at different levels of governance, private entities acting on their behalf and private sector bodies can all be relevant energy efficiency scheme owners and, as such, can receive support from the ESIF. The ERDF includes the European Territorial Cooperation (Interreg<sup>122</sup>) framework, which provides an opportunity for implementing joint actions, sharing solutions and exchanging policy experience between national, regional and local actors from different Member States and EU neighbouring countries. The overall purpose of Interreg is to help regional and local governments across Europe to develop and deliver better policy by financing international cooperation projects.

#### **4.1.3 Implementation modalities**

ESIF are jointly managed by the European Commission and Managing Authorities (MAs) in the Member States. The first step to implementing the ESIF is programming. Each Member State is required to prepare a Partnership Agreement outlining strategic level funding priorities and the allocation of funds under each selected thematic objective. The MAs (at national or regional level) in each Member State then develop Operational Programmes (OPs) which specify priorities for the selected thematic objectives and the use of ESIF budgets and national co-funding. They are subject to approval by the Commission and are then implemented by the MAs governing the spending of ESIF as agreed.

A review of some of the current OPs for the CF, ERDF and ESF<sup>123</sup> related to the two main thematic objectives relevant to this study indicates that in some Member States OPs are prepared at the regional level and cover multiple thematic objectives, while in others programmes target one or two specific objectives or sectors and cover the entire national territory. Some Member States use a combination of approaches. Energy efficiency can usually be supported under either type of programme and at the relevant territorial scale, provided it is within the thematic scope of the OP. Overall, the majority of the reviewed OPs remain rather broad in terms of the actions eligible for funding under each specific objective. This trend is supported by the evidence gathered for the CF and ERDF for the previous programming period<sup>124</sup>.

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121 European Commission (2015), Contribution of the European Structural and Investment Funds to the 10 Commission Priorities, p.8, available at: [http://ec.europa.eu/contracts\\_grants/pdf/esif/key-energy-union-climate\\_en.pdf](http://ec.europa.eu/contracts_grants/pdf/esif/key-energy-union-climate_en.pdf) (last accessed 4 April 2016).

122 <http://www.interregeurope.eu/> (last accessed 4 May 2016).

123 A list of past and current OPs for CF and ERDF is available at: [http://ec.europa.eu/regional\\_policy/en/atlas/programmes/](http://ec.europa.eu/regional_policy/en/atlas/programmes/); A list of OPs for ESF can be found at: <http://ec.europa.eu/esf/main.jsp?catId=576&langId=en> (all last accessed 2 May 2016).

124 Ramboll and IEEP (2015,) Energy efficiency in public and residential buildings, Final Report Work Package 8: Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF).

#### **4.1.4 Experience with financing low-cost energy efficiency measures in low-income households**

Past experience with relevant Cohesion Policy funds from the 2007-2013 period reveals that these funds have already supported energy efficiency projects, even though most of these projects were not focused on low-cost energy efficiency measures<sup>125</sup>. An ex-post evaluation<sup>126</sup> of the contribution of the CF and ERDF to supporting energy efficiency in buildings in the period 2007-2013 suggests that the total commitments for the thematic priority 'energy efficiency, co-generation, energy management' under the two funds was EUR 6 billion (around 2% of the total allocations of the two funds). The large majority of the commitments (about 90%) was provided in the form of non-repayable grants. Generally, CF and ERDF provided complementary support to national financing schemes, which was invested primarily in high-cost energy efficiency actions such as insulation, renovation, modernisation of heating systems, improvements to lighting systems, installation of ventilation systems and energy audits of buildings. Several of the support schemes were targeted at residential buildings and, in some Member States, also at reducing energy poverty. The same ex-post evaluation of the CF and ERDF also assessed the Member States' OPs in that period and found that most OPs were explicitly designed to be broad and rather flexible. The relevant MAs explained their preference for this approach, as it imposed fewer restrictions on the eligibility of projects and thus allowed the financing of various actions. In most cases, specific rationales, targets and selection criteria were established only at the project or scheme level, but were not always reflected formally in the OPs.

Another study<sup>127</sup> assessed the contribution of the ERDF to 10 projects implementing both energy efficiency improvements (usually high-cost measures such as building insulation) and social measures, finding that financing through the ERDF has been used to support joint energy and social objectives. ERDF was mainly used as a grant but in most of the examined cases it was also matched by some form of loan. This is not surprising, as the studied projects financed high-cost energy efficiency measures.

The results from the schemes identified in Chapter 3 also indicate that three schemes providing low-cost energy efficiency measures in low-income households have received funding from the Cohesion Policy fund programmes. More specifically:

- 'Stromspar Check' (Germany) has received contributions from the ESF – the social objective of the scheme to train long-term unemployed persons to be 'Energy Efficiency-Checkers' in the context of the scheme made it eligible for ESF funding in the 2007-2013 period (further details about the experience of EU funded schemes in using the funds can be found in Box 2 in Section 4.2.4).
- 'Pilot project against fuel poverty' (Austria) has received contributions from the ERDF under Interreg – this scheme was based on the German experience with Stromspar Check and, therefore, could benefit from inter-regional experience exchange.

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125 SWD (2013) 143 final: European Commission Staff Working Document 'Financial support for energy efficiency in buildings', p. 8.

126 Ramboll and IEEP (2015) Energy efficiency in public and residential buildings, Final Report Work Package 8: Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF).

127 Ecorys et al. (2013), Housing investments supported by the European Regional Development Fund 2007-2013: Housing in sustainable urban regeneration.

- 'Multi-family Building Development Programme' (Lithuania) has received contributions from the ERDF – the programme aims to provide both high- and low-cost energy efficiency measures and generally improve the energy efficiency of the housing stock in the country. It therefore contributes to the energy efficiency objectives of the ERDF and is eligible for funding (further details for each scheme in the study sample can be found in Appendix 1).

#### **4.1.5 Conclusions on suitability of the funds**

Funding for low-cost energy efficiency measures in low-income households falls within the scope of the three Cohesion Policy funds. What is most important, however, is that project proposals for low-cost energy efficiency schemes are eligible under the relevant OPs in the Member States. The 2014-2020 OPs funded by CF, ERDF and ESF and targeting thematic objectives 4 and 9 (low carbon economy and social inclusion) are therefore potential sources of funding for schemes delivering low-cost energy efficiency measures in low-income households. It should be acknowledged, however, that in terms of energy efficiency investments, the ERDF and CF are encouraged to primarily focus on long-term solutions to reducing energy poverty, including deep building renovations.

OPs supported by CF and ERDF funding can provide financing for relevant schemes implementing low-cost energy efficiency measures, including in combination with higher cost energy efficiency improvements or other resource efficiency options. Energy efficiency schemes with a clear social component, e.g. alleviation of energy poverty in relation to thematic objective 9, or contributing to vocational training related to energy efficiency in line with thematic objective 10, can be eligible for ESF financing. Schemes for low-cost energy efficiency measures in low-income households can fall under the scope of priorities focused on delivering energy efficiency improvements in the housing sector (especially if combined with higher cost energy efficiency measures), reducing energy poverty and/or increasing local employment (especially if the measures are delivered by specially trained local advisors).

Financing from Interreg may be used for projects which build capacity and facilitate experience exchange between public authorities across the EU. The CF and ERDF have been used to finance energy efficiency in buildings in the previous financing period (2007-2013), while the ERDF has been used to finance projects with both energy efficiency and social objectives, with promising results<sup>128</sup>. This study found that ESF is a suitable source of funding when schemes make a clear link with social objectives, e.g. training and employing long-term unemployed persons, as in the case of the Stromspar Check scheme in Germany. Depending on the mechanisms set up under a scheme, it might contribute directly to the thematic objectives for social inclusion and/or vocational training and thus be eligible for support under the ESF (some generic examples of how the ESF can contribute to energy efficiency in the context of this study are provided below).

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<sup>128</sup> Ramboll and IEEP (2015), Energy efficiency in public and residential buildings, Final Report Work Pack-age 8: Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF); Ecorys et al. (2013) Housing investments supported by the European Regional Development Fund 2007-2013: Housing in sustainable urban regeneration.

**Box 1 – Generic examples of how the ESF can contribute to the implementation of low-cost energy efficiency measures in low-income households<sup>129</sup>**

**Thematic objective 9 – social inclusion:**

The ESF can support schemes providing low-cost energy efficiency measures specifically to low-income households or other marginalised energy consumers.

The ESF can also support schemes providing low-cost energy efficiency measures to low-income households when the delivery of the measures involves the (training and) employment of vulnerable groups, e.g. long-term unemployed, young unemployed or low-skilled unemployed persons.

**Thematic objective 10 – education and vocational training:**

The ESF can support schemes providing low-cost energy efficiency measures to low-income households when the implementation of the scheme involves dedicated vocational training in energy efficiency (e.g. implementation of measures or provision of advice). This may be more relevant for schemes delivering both high- and low-cost energy efficiency measures, as the installation of high-cost energy efficiency measures requires more specialised knowledge and training than low-cost measures.

As ESIF funding can be availed of by various bodies, organisations such as local and regional authorities and NGOs can obtain the funding and act as the owners of schemes implementing low-cost energy efficiency measures in low-income households at local level (a mapping of the main stakeholders which can act as scheme owners in the context of this study is presented in Table 11 in Section 4.3.1).

Table 20 in Appendix 3 provides an overview of the main features of the relevant ESIF for supporting low-cost energy efficiency measures in low-income households in the Member States.

## **4.2 Horizon 2020**

### **4.2.1 Objectives of the fund**

Horizon 2020 is the EU's framework programme for research and innovation for the 2014-2020 MFF<sup>130</sup>. Its general objective is to support the implementation of the Europe 2020 strategy and other EU policies by leveraging research, development and innovation funding. The programme is structured around three pillars, based on the three priorities of Horizon 2020 (excellent science, industrial leadership and societal challenges), with 18 specific objectives grouped around these pillars. Energy efficiency projects can be supported under one of the seven 'societal challenges', namely 'secure, clean and efficient energy'. Horizon 2020 now includes also the successor to the Intelligent Energy Europe II (IEE II) programme, which was focused exclusively on supporting EU energy efficiency and renewable energy policies<sup>131</sup>. Supporting low-cost

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129 European Commission (2015), Potential for climate action, Examples of how to mainstream climate action and the potential for doing so through ESF, available at: [http://ec.europa.eu/clima/publications/docs/05-climate\\_mainstreaming\\_fact\\_sheet-esf\\_en.pdf](http://ec.europa.eu/clima/publications/docs/05-climate_mainstreaming_fact_sheet-esf_en.pdf) (last accessed 18 July 2016).

130 <http://ec.europa.eu/programmes/horizon2020/en> (last accessed 18 April 2016).

131 The IEE II programme ran in the period 2007-2013 with a budget of EUR 730 million and aimed to support EU energy efficiency and renewable energy policies. It consisted of three funding streams: project funding (primarily grant-based), project development assistance and procurement of products and services. More details available at: <http://ec.europa.eu/energy/intelligent/getting-funds/financing-streams/> (last accessed 5 April 2016).

energy efficiency measures in low-income households is thus within the scope of Horizon 2020.

#### **4.2.2 Available support and eligibility requirements**

In the current seven-year MFF period, more than EUR 78 billion is available under Horizon 2020, with nearly EUR 30 billion earmarked for the pillar 'societal challenges'. More specifically, under the current 2016-2017 work programme, more than EUR 1 billion is available for the societal challenge 'secure, clean and efficient energy'.

The fund is administered through calls for proposals, with potential beneficiaries required to fulfill the requirements specified. Generally, there are no limitations in respect of the types of organisations that can benefit from Horizon 2020, suggesting that public authorities can access the support provided by the fund. However, it is expected that Horizon 2020 will be implemented primarily through transnational collaborative projects. Depending on the type of targeted actions, eligibility requirements may stipulate the minimum participation of three to five entities from three Member States or Horizon 2020 associated countries. It can also be assumed that prospective Horizon 2020 projects will be required to have an innovative component in order to be eligible for funding.

#### **4.2.3 Implementation modalities**

Unlike ESIF, Horizon 2020 is centrally managed by the European Commission, which defines multi-annual work programmes under each specific objective of the fund for overlapping three-year periods. Each work programme has 18 thematic sections for each of the specific objectives of the fund, describing the goals, calls for proposals, and topics within each call. Based on these multi-annual work programmes, specific calls for proposals are launched each year by relevant EU executive agencies<sup>132</sup>. Potential beneficiaries then submit applications to these calls.

#### **4.2.4 Experience with supporting low-cost energy efficiency measures in low-income households**

Even though there is, as yet, limited experience of Horizon 2020 funded projects on energy poverty, the sample of relevant schemes gathered in this report has identified one ongoing scheme currently financed by the fund – Smart-Up. This confirms that certain schemes delivering low-cost energy efficiency measures to low-income households are currently eligible for Horizon 2020 funding. In particular, energy poverty is explicitly considered in the 2016-2017 work programme of the fund, under the topic 'EE-06-2016-2017: Engaging private consumers towards sustainable energy'<sup>133</sup>. Additionally, the sample in this study provides evidence of experience with IEE II funding in the period 2007-2013, before Horizon 2020 was set up. In particular, five schemes identified in Chapter 3<sup>134</sup> received support from IEE II (ACHIEVE, EC-LINC, SAVES, Energy Ambassadors and FIESTA). Furthermore, the REACH project<sup>135</sup>,

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132 Depending on the specific calls, they might be launched and managed by the Research Executive Agency (REA), Innovation and Networks Executive Agency (INEA) or the Executive Agency for Small and Medium-sized Enterprises (EASME).

133 European Commission Decision C(2016)1349 of 9 March 2016: Horizon 2020 Work Programme 2016-2017, 10. 'Secure, Clean and Efficient Energy', pp. 22-24.

134 Other relevant schemes, not examined in detail for this study, have also received IEE II funding (e.g. the scheme Reduce Energy use And Change Habits (2014-2017) (REACH), active in Bulgaria, Croatia, Macedonia and Slovenia).

135 <http://reach-energy.eu/>



engaging vocational school teachers and students to deliver advice to fuel poor households, was also funded by the IEE II programme. This experience is relevant, as IEE II, like Horizon 2020, was implemented through calls for proposals and had a large focus on transnational projects with innovative elements. All of the sample schemes reviewed in this study that were supported by IEE II were implemented in more than one Member State, had links to strategic EU objectives (e.g. 2020 climate and energy targets or 2020 social targets) and were focused on sharing best practices (further details about the experience of EU funded schemes in using the funds can be found in Box 2 below; details about the schemes and the measures they delivered can be found in Appendix 1).

### **Box 2 – Findings from the telephone interviews**

#### **Overview of the EU funded schemes' experience of using the EU funds – findings from the telephone interviews**

The overall experience of the four EU funded schemes discussed in more detail through short telephone interviews (Stromspar Check, EC-LINC, ACHIEVE, and Energy Ambassadors) was positive. The EU funds helped these schemes to find the additional finance they lacked and allowed them to share relevant experiences across Member States (e.g. in some cases the EU funded schemes built on previously existing national schemes that delivered advice and energy efficiency measures to vulnerable consumers). In all cases the scheme owners reported that they had previous experience with EU funding prior to applying for EU funds to finance these energy efficiency schemes. This made the application process significantly easier and they did not require support by the relevant EU fund support services at local level. However, the interviewees pointed out that in some cases the application process for EU funds may be burdensome and less experienced organisations may require guidance and support. They also indicated that during the implementation of the schemes it may be helpful to receive some more guidance and flexibility regarding the 'performance indicators' against which EU funded projects are evaluated. The scheme owners who benefitted from IEE II support confirmed that there is continuity with the Horizon 2020 programme and they are aware of similar calls for proposals focusing on energy efficiency measures for vulnerable consumers under Horizon 2020.

#### **4.2.5 Conclusions on the suitability of the fund**

Supporting low-cost energy efficiency measures in low-income households is generally within the scope of Horizon 2020. While it is less suitable for the roll-out of large energy efficiency schemes than ESIF, it can be a possible funding source for innovative engagement approaches and demonstration schemes. In addition, in order to be eligible, schemes must meet the requirements of the specific call for proposals and be generally in line with the innovation focus of the fund, which may require tailoring the schemes to the specific objectives of the calls. A potential limitation of this EU funding option is the requirement to partner with several bodies from different countries in order to implement transnational activities. Finding international partners might pose a significant additional administrative burden and create expense for local public authorities managing social housing buildings, or the private entities acting on their behalf.

Table 21 in Appendix 3 provides an overview of the main features of Horizon 2020 as they relate to supporting low-cost energy efficiency measures in low-income households in Member States.

### **4.3 Recommendations for the use of EU funds**

The recommendations on how EU funds can best be used to support schemes providing low-cost energy efficiency measures to low-income households are aimed at policy makers and fund managers at Member State level (i.e. MAs of ESIF), as well as potential beneficiaries of EU funding (i.e. scheme owners). In order to distinguish between the different target audiences, stakeholders are first mapped in the context of the suitable EU funds and energy efficiency schemes.

#### **4.3.1 Stakeholder mapping**

The recommendations in this section are aimed at two main categories of stakeholders, with an initial overview of the main types of institutions and actors responsible for managing the EU funds and implementing energy efficiency schemes, together with their main roles and motivations (Table 10; Table 11). In particular, the main roles played by different institutions in relation to fund management or scheme development are considered, together with the benefits they may obtain from supporting schemes that deliver low-cost energy efficiency measures to low-income households.

The following sections then outline the recommendations for the two target audiences of this study – policy makers and MAs at Member State level and potential scheme owners.

**Table 10 – Key stakeholders that may be involved in EU fund management**

Stakeholder	Role	Main benefits of supporting schemes that deliver low-cost energy efficiency measures	Ensuring that schemes contribute to wider policy objectives
EU level policy makers	Decide on the fund budget and underlying provisions; the Commission is a co-manager of ESIF; the Horizon 2020 work programmes are defined in consultation with Member States	Low-cost energy efficiency measures and schemes delivering such services can facilitate the achievement of all relevant thematic objectives of ESIF and Horizon 2020. At a higher level, all of these contributions can support Member States in achieving their 2020 climate and energy policy targets. Additionally, supporting relevant energy efficiency schemes will contribute to the goals of the third energy package, to support vulnerable consumers and tackle energy poverty.	Facilitating support from EU funds for schemes implementing low-cost energy efficiency measures in low-income households can contribute to multiple policy and fund objectives. This can be achieved by supporting MAs in the development and implementation of ESIF OPs, e.g. through targeted guidance documents and training, as well as developing and implementing Horizon 2020 work programmes that facilitate the launch of relevant calls for proposals.
MAs in Member States (these can be at national, sectoral or regional level)	Implement and manage respective fund OPs	<p>MAs are focused on managing the OPs in line with the objectives and development needs of the territory or sector in question. Schemes providing low-cost energy efficiency measures can enhance this goal as they support several ESIF thematic objectives and OPs' specific objectives at the same time:</p> <ul style="list-style-type: none"> <li>• Objectives related to the shift towards a low-carbon economy and/ or energy efficiency improvements;</li> <li>• Objectives related to the promotion of social inclusion, combatting poverty and any discrimination.</li> </ul> <p>Additionally, supporting relevant energy efficiency schemes can contribute to the achievement of various climate, energy and social policy goals (both in relation to EU 2020 targets and any relevant national objectives), simultaneously allowing for economies of scale.</p>	<p>Facilitating the EU funds' support for schemes implementing low-cost energy efficiency measures in low-income households can contribute to multiple national and EU policy targets and fund objectives. MAs can achieve this by:</p> <ol style="list-style-type: none"> <li>1. Training their staff members to understand and recognise the benefits of such schemes;</li> <li>2. Implement OPs in a manner that facilitates, or at least does not restrict, funding for such schemes;</li> <li>3. Communicating the possibilities for funding to likely scheme owners;</li> <li>4. Providing technical assistance and guidance to likely scheme owners who might be potential fund beneficiaries in preparing eligible schemes, and where relevant, in implementing these schemes;</li> <li>5. Developing and employing relevant eligibility criteria and performance indicators that facilitate the eligibility and implementation of such energy efficiency schemes. (Further details can be found in Section 4.3.2)</li> </ol>

**Table 11 – Key stakeholders that may act as scheme owners and benefit from EU funds**

Stakeholder	Role	Main benefits of supporting schemes for low-cost energy efficiency measures with EU funds	Accessing EU funding
National sectoral Ministries and public authorities	These authorities might be responsible for implementing national climate, energy and social policies and strategies.	<p>Developing energy efficiency schemes that provide low-cost services to low-income households might be an attractive option to complement deeper and longer term building renovations and energy targets. Such schemes can deliver significant social co-benefits to local communities (e.g. improved employment prospects, increased productivity) and contribute to wider social policy goals.</p> <p>Obtaining EU funding for the implementation of such schemes is an attractive option which can be relatively stable over the 2014-2020 period. It can also supplement other available or secured funding for the schemes, thereby enhancing the impact of the scheme (either in terms of energy efficiency measures delivered or number of households serviced).</p>	<p>In order to access EU funding for schemes delivering low-cost energy efficiency measures in low-income households, it is important to design successful schemes by following the guidelines presented in this report and developing eligible projects that meet the objectives and requirements of the EU funds. For this, it is important to consult the relevant OPs in the case of ESIF, or the calls for proposals in the case of Horizon 2020. Where relevant, it can be beneficial to seek the support of local MAs or helpdesks that can provide guidance and technical assistance.</p> <p>(Further details can be found in Section 4.3.3)</p>
Public institutions at regional and local level (e.g. municipalities, agencies)	These institutions might be responsible for implementing regional and local energy and social policies. They might also own or manage social housing stock.	The motivation is similar to that of national public institutions (see above). Nevertheless, such energy efficiency schemes can contribute to regional and local policy and strategy targets in the fields of climate, energy and social policy.	In order to access EU funding, regional and local level governance authorities can follow the same steps as national ones (see above).
NGOs, charities and other private sector actors	These actors may either act on behalf of public authorities (e.g. management of social housing stock, delivery of social services), or on their own behalf.	The motivation of private sector actors acting on behalf of public authorities to develop schemes providing low-cost energy efficiency measures to low-income households and finance them with EU funds can be similar to that of public authorities (see above). The motivation of private actors operating on their own behalf may differ slightly, in line with its own internal objectives.	Regardless of the underlying motivation, private actors need to follow the same steps for obtaining EU funds as the public authorities (see above). In addition, private sector actors should align their internal objectives for the schemes with those of the respective OPs and Horizon 2020 calls for proposals, when relevant. (Further details can be found in Section 4.3.3)

#### **4.3.2 Recommendations for policy makers and ESIF Managing Authorities**

The main role for policy makers and MAs in the Member States would be to channel EU funds' support to schemes delivering low-cost energy efficiency measures to low-income households where appropriate (bearing in mind, for example, that in terms of energy efficiency investments, the ERDF and CF are encouraged to primarily focus on long-term solutions to energy poverty, including deep building renovations, while Horizon 2020 is aimed at innovative actions). This can be of considerable relevance for policy makers and MAs, as such schemes offer a wide range of energy and social benefits and can thus:

- Complement ESIF investments or national, regional or local energy efficiency strategies focusing on high-cost energy efficiency improvements with measures that can bring immediate effects and co-benefits, such as reduced energy consumption, improved energy efficiency and relief of energy poverty;
- Contribute to the achievement of EU 2020 climate and energy targets, as well as related national, regional and local objectives by complementing energy efficiency strategies with low-cost energy efficiency measures;
- Contribute to the achievement of EU, national, regional and local social objectives, e.g. reducing unemployment, increasing youth employment and ensuring social inclusion.

In order to harness these opportunities, policy makers and MAs in Member States can ensure that the EU funds support good practices implementing low-cost energy efficiency measures in low-income households, such as those presented here. In order to do this, policy makers and MAs can take several actions at the different stages of the fund management cycle: programming of OPs and work programmes, launching of OPs and work programmes, preparation of calls, evaluation and selection of the received applications, scheme implementation and programme monitoring and evaluation. These are presented below.

- I. Inform and train internal staff members on the opportunities and benefits of delivering low-cost energy efficiency measures to low-income households and/or other disadvantaged and vulnerable consumers

An important pre-condition for successfully implementing the following recommendations is ensuring staff members in the various MAs across the EU understand the benefits and opportunities created by schemes that provide vulnerable consumers with low-cost energy efficiency measures. Staff should be able to recognise such schemes among the applications for funding, and should be well equipped to provide useful technical assistance and support during the application preparation process and scheme implementation stage. This can be achieved through training and awareness-raising initiatives among staff members, e.g. by communicating this study using the materials developed for Work package 4.

- II. Facilitate, or at least do not restrict, funding for schemes supporting low-cost energy efficiency measures in low-income households when implementing the OPs (to the extent that this would fall under the scope of the specific OP) or the Horizon 2020 work programmes

The programming of ESIF OPs or Horizon 2020 multi-annual work programmes can be crucial for ensuring that energy efficiency schemes with a focus on low-cost measures

and low-income households have access to EU funds. The current Horizon 2020 work programmes include provisions that can facilitate support for such schemes. However, ESIF OPs for the current MFF period (2014-2020) have already been finalised and a stronger emphasis on support for low-cost energy efficiency schemes could potentially be pursued further in the next programming period if necessary.

In this programming period, MAs can still implement and apply the current OPs with a view to enabling access to funds for schemes delivering low-cost energy efficiency measures to vulnerable consumers, where appropriate. Irrespective of the level for which OPs are developed (national, regional and/or thematic), it is important that MAs recognise the potential of such energy efficiency schemes in achieving the wider policy and programme objectives. For instance, energy poverty has been recognised as a major problem in some Member States (e.g. in the UK and Ireland) and its alleviation has been covered by past and current OPs of the ESF. However, even if the development of such schemes (or, more generally, of projects that address energy poverty and vulnerable consumers), is not explicitly targeted by ESIF OPs, such programmes can, at a minimum, not restrict the access to funds for such schemes (e.g. through restrictive selection criteria, eligibility requirements, etc.). Past experience<sup>136</sup> and a review of some OPs from the current financing period, indicate that most OPs are intentionally designed to be broad, allowing for a wide variety of potentially eligible projects. This might be sufficient to ensure that funding is available to schemes delivering low-cost energy efficiency services to low-income households or vulnerable consumers.

**III. Communicate the possibilities for ESIF and Horizon 2020 funding to likely energy efficiency scheme owners**

In order to facilitate the receipt of relevant and eligible applications for schemes implementing energy efficiency measures in low-income households, policy makers and MAs should ensure that information about the available funding opportunities is accessible to potential scheme owners and funding beneficiaries. In addition to maintaining up-to-date information on the relevant information portals and helpdesks, it might be useful to publicise the availability of funding opportunities to likely owners of energy efficiency schemes focused on vulnerable consumers. For example, the likely owners of such schemes might be public and private institutions working in the social sector, making it valuable to organise targeted campaigns for staff in social Ministries, local public agencies with a social focus and/or NGOs and charities. Such an approach may reach potential fund beneficiaries that have ideas about energy efficiency schemes delivering low-cost measures to low-income households but which are not implementing them because of a lack of funding. Another option is to develop dedicated communication tools and documents about funding for low-cost energy efficiency measures and services to low-income households or vulnerable consumers on the existing information portals of the MAs.

**IV. Provide likely scheme owners and potential fund beneficiaries with technical assistance, guidance and support in preparing eligible applications and, where relevant, in implementing the energy efficiency schemes**

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<sup>136</sup> Ramboll and IEEP (2015), Energy efficiency in public and residential buildings, Final Report Work Package 8: Ex-post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF).

Apart from informing potential scheme owners about available funding opportunities, it is also important to provide them with technical assistance, guidance and/or support in the different stages of their scheme development and fund application process. Policy makers and MAs should have the necessary capacity and tools to provide help and support to energy efficiency scheme owners. The implementation of the successful schemes might be strengthened if the scheme owners are offered assistance throughout the whole duration of the funding of the scheme. The delivery of all of these services can be performed by specially trained staff members and through the available information portals of the MAs (see recommendations I and III).

- V. Develop relevant eligibility criteria and performance indicators that facilitate energy efficiency schemes delivering low-cost measures to low-income households

When developing calls for proposals on energy efficiency and social topics, it is recommended to ensure that eligibility criteria do not exclude or restrict schemes delivering low-cost energy efficiency measures to low-income households, or limit the accessibility of the scheme owners to the funding (e.g. through requirements for the legal status of the eligible fund beneficiaries). The same principle should be applied when designing performance indicators and evaluation criteria for schemes that receive EU funding. This can be achieved by developing relatively broad eligibility and evaluation criteria, or by designing flexible criteria.

#### **4.3.3 Recommendations for scheme owners**

Public authorities at different levels of governance in Member States, together with their related agencies and implementing institutions, may support national, regional and local energy and social objectives with energy efficiency schemes focused on low-cost measures and low-income households. The immediate benefits delivered by such schemes can complement the wider energy and social strategies and policies of Member States.

The experiences of the schemes studied suggest that the most appropriate method of delivering low-cost energy efficiency measures to low-income households is with little or no cost to the recipient households. It is of paramount importance, therefore, for the scheme owners to source low-cost funding. The EU funds identified in this study can provide such funding in the form of grants, possibly in combination with subsidised loans where appropriate. Public authorities, or other organisations which might be potential scheme owners and which develop energy efficiency schemes using the good practice checklist presented in Appendix 2, can benefit from EU funds by implementing the following recommendations.

1. Find out if there are EU funding opportunities available in the relevant geographical and/or thematic area

The first step in obtaining EU funding is to identify the opportunities available. For all funding opportunities, it is important to understand the objectives of the funds and their programmes in order to assess how an energy efficiency scheme for low-cost measures in low-income households might fit within and support these objectives. It is also crucial to gain an early understanding of the main functions and eligibility requirements of the fund, in order to establish whether or not a scheme will be

eligible. Despite some differences, the main steps and information sources to consult for both ESIF and Horizon 2020 are broadly similar and are outlined below.

In the case of **ESIF**, interested scheme owners should consult the relevant OPs to find out details about the objectives and general eligibility requirements of the funds in their Member State. In addition, it might be useful to develop a general understanding of the funds before examining the OPs in detail. In both cases, relevant information can be found on the Commission's websites and portals:

- For CF and ERDF: the main information source is the website of the European Commission's Directorate-General for Regional and Urban Policy (DG REGIO)<sup>137</sup>. It provides general information about ESIF, together with contact details and links to the responsible MAs in the different Member States, current and past OPs and funded projects, guidance for beneficiaries<sup>138</sup> in most EU languages, as well as an online checklist for applicants<sup>139</sup>. The information can be searched by ESIF thematic objectives, investment priorities and beneficiary profiles. For example, in order to find OPs relevant for energy efficiency, it is most useful to filter the search by thematic objectives. This approach finds all of the relevant OPs either by region or by thematic objective for the whole Member State.
- For ESF: the main information source is the website of the European Commission's Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL)<sup>140</sup>. It also provides contact details and links to the MAs responsible for the ESF in each Member State, contact points for support, current and past OPs and funded projects. Similarly to CF and ERDF, it is useful to filter the OPs search by thematic objectives.

In the case of **Horizon 2020**, interested fund beneficiaries should collect similar information as for ESIF. In addition, it is important to consult the launched calls for proposals in order to assess the scope for designing an eligible project. The best information source for these details is the Horizon 2020 Participant Portal maintained by the European Commission's Directorate-General for Research and Innovation (DG RTD)<sup>141</sup>. This portal contains information about funding opportunities (i.e. ongoing calls for proposals), guidance on obtaining funding, and tips on finding more information and support, and links to a detailed step-by-step online Horizon 2020 participant manual<sup>142</sup>.

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137 DG REGIO in your country, available at: [http://ec.europa.eu/regional\\_policy/en/atlas/](http://ec.europa.eu/regional_policy/en/atlas/) (last accessed 3 May 2016).

138 DG REGIO: Guidance for Beneficiaries of European Structural and Investment Funds and related EU instruments, available at: [http://ec.europa.eu/regional\\_policy/en/information/publications/guides/2014/guidance-for-beneficiaries-of-european-structural-and-investment-funds-and-related-eu-instruments](http://ec.europa.eu/regional_policy/en/information/publications/guides/2014/guidance-for-beneficiaries-of-european-structural-and-investment-funds-and-related-eu-instruments) (last accessed 3 May 2016).

139 DG REGIO: EU Funds Checklist, available at:

[http://ec.europa.eu/regional\\_policy/en/funding/checklist?search=1&tObjectiveId=4&prioritiesId=17&profilesId=1](http://ec.europa.eu/regional_policy/en/funding/checklist?search=1&tObjectiveId=4&prioritiesId=17&profilesId=1) (last accessed 3 May 2016).

140 DG EMPL: ESF Support in your country, available at: <http://ec.europa.eu/esf/main.jsp?catId=45&langId=en> (last accessed 3 May 2016).

141 DG RTD: Participant Portal, available at: <http://ec.europa.eu/research/participants/portal/desktop/en/home.html> (last accessed 3 May 2016).

142 Participant Portal H2020 Online Manual, available at: [http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index_en.htm) (last accessed 3 May 2016).



## 2. Seek support and guidance for the preparation of fund applications

Before applying for EU funding, it is essential to develop eligible schemes and funding applications. It is thus advisable to consult all of the information sources outlined above in order to understand the eligibility criteria for the funds and, if necessary, to seek further technical assistance, support and/or guidance during the preparation of the application. The main sources of help and advice for ESIF are: Europe Direct<sup>143</sup> (which can be consulted by phone and email in all EU languages); Europe Direct's information centres in all Member States (which can be found via the Europe Direct website<sup>144</sup>); and the respective MAs of the funds in the Member States. The main sources of help and support for Horizon 2020 are the fund's Helpdesk<sup>145</sup> and the National Contact Points<sup>146</sup> in each Member State.

## 3. Develop eligible funding applications and design successful energy efficiency schemes

When developing a funding application, an eligible proposal is the first requirement. The general guiding principle for all EU funds is that the application must meet the selection criteria, investment priorities and objectives of the OPs (ESIF) or the call for proposals (Horizon 2020). To secure EU funding for schemes delivering low-cost energy efficiency measures in low-income households, it is important to:

- Check in advance that the proposal meets all eligibility requirements and selection criteria – normally undertaken in the previous steps of preparation (see recommendations 1 and 2);
- Ensure the scheme can contribute to the objectives of the fund and the fund application clearly explains the scheme's contribution, e.g. how it contributes to the low-carbon economy by delivering energy savings, how it alleviates energy poverty or fosters social inclusion by creating employment opportunities for marginalised members of society (see the box below for some examples based on the current ESIF OPs);
- Ensure the scheme contributes to the fund's objectives by designing relevant energy efficiency schemes and following the checklist developed here (see Appendix 2). The application can be further enhanced, for instance, by comprehensive risk management strategies for any anticipated risks.

### Box 3 – Linking energy efficiency schemes to the objectives of the ESIF OPs

#### **Linking energy efficiency schemes that deliver low-cost measures to low-income households to the objectives of the current ESIF OPs:**

*The following examples should not be treated as an exhaustive list of all possibilities for linking energy efficiency schemes for low-income households or vulnerable*

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143 Europe Direct, available at: [http://europa.eu/contact/index\\_en.htm](http://europa.eu/contact/index_en.htm) (last accessed 3 May 2016).

144 Contact points in your country, available at: [http://europa.eu/contact/meet-us/index\\_en.htm](http://europa.eu/contact/meet-us/index_en.htm) (last accessed 3 May 2016).

145 Horizon 2020 Helpdesk, available at:

[http://ec.europa.eu/research/participants/portal/desktop/en/support/research\\_enquiry\\_service.html](http://ec.europa.eu/research/participants/portal/desktop/en/support/research_enquiry_service.html) (last accessed 3 May 2016).

146 National Contact Points, available at:

[http://ec.europa.eu/research/participants/portal/desktop/en/support/national\\_contact\\_points.html](http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html) (last accessed 3 May 2016).

*consumers with ESIF OPs but, rather, an illustration of how this can be achieved.*

**Example 1: Establishing links with the ESF OPs**

The ESF might not be the most obvious choice for funding energy efficiency schemes, however, if these schemes are designed with clear social benefits in mind, then funding support might be obtained (as in the case of the Stromspar Check scheme described in this study). The ESF OPs database<sup>147</sup> indicates that Romania has produced one single nation-wide OP for ESIF thematic objective 9 on social inclusion. Seven specific priorities are then defined within the OP, including 'Jobs for all', which is focused on developing additional skills for the long-term unemployed. In order to be eligible for funding, an energy efficiency scheme with low-cost measures targeted to low-income households would need to deliver energy efficiency services through specially trained advisors, recruiting long-term unemployed persons as advisors. The UK, by contrast, has developed separate OPs per region, yet an identical approach can be applied. Consulting the OP for Northern Ireland, for instance, suggests that energy efficiency schemes targeted at low-income households can support specific priority 'Enhancing job opportunities overall' by delivering measures with specially trained energy efficiency advisors who were previously unemployed.

**Example 2: Establishing links with ERDF OPs**

Similarly to the ESF, the ERDF OPs are organised differently by Member States. The database for the regional policy OPs<sup>148</sup> indicates that some countries develop thematic OPs, while others favour comprehensive regional OPs. It is, therefore, useful to filter the OPs by the most relevant thematic objective 4: low carbon economy. This gives, for example, the OP 'Regions in growth' in Bulgaria. One of the main priorities of this OP is 'energy efficiency measures in public and residential buildings'. However, this is fairly broadly defined and low-cost energy efficiency measures may be eligible for funding, especially if the benefits of the proposed schemes are clearly presented. Consulting the results for France, on the other hand, suggests that priorities under several ESIF thematic objectives are defined for over 20 French regions. For instance, a relevant priority under which low-cost energy efficiency schemes could possibly be funded in the Rhone-Alpes region is 'Enhance renewable energy production, energy efficiency in housing and tertiary buildings and sustainable multimodal mobility'.

4. Seek support during the implementation of the EU funded schemes, where possible

In order to ensure the smooth and successful use of EU funds, it may be beneficial to seek technical and other support during the implementation of the scheme, if this option is available. Opportunities for such support can be researched through the same information portals and sources as listed above (see recommendation 2).

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147 European Social Fund: Support in your country, available at: <http://ec.europa.eu/esf/main.jsp?catId=45&langId=en> (last accessed 4 May 2016).

148 DG REGIO. Regional Policy – In your country – Programmes, available at: [http://ec.europa.eu/regional\\_policy/en/atlas/programmes/](http://ec.europa.eu/regional_policy/en/atlas/programmes/) (last accessed 4 May 2016).

## 5 Using EU legislation to support low-cost energy efficiency measures in low-income households

Both the Energy Efficiency Directive and the Energy Performance of Buildings Directive contain provisions that can be used to support the delivery of low-cost energy efficiency measures in low-income households. The next sections explain the opportunities offered by the Directives to promote low-cost energy efficiency in low-income households.

This Chapter is primarily based on an analysis of the provisions of the Directives. The scheme documentation reviewed under this study did not provide information about the links between the schemes considered and overarching EU policies. To further investigate these links, Member States' National Energy Efficiency Action Plans (NEEAPs),<sup>149</sup> were surveyed, together with annual reports<sup>150</sup> and national building renovation strategies under the Energy Efficiency Directive, and, where available, the lists of financial support measures for funding energy efficiency under the Energy Performance of Buildings Directive. These documents contain several references to some of the low-cost energy efficiency schemes reviewed, providing short descriptions of the schemes without describing their connection with the Directives' provisions or their role in Member States' efforts to implement those provisions<sup>151</sup>.

There may be different reasons for the schemes' failure to feature more prominently in these documents, including:

- Some of the schemes are not owned by public authorities, who may therefore not be aware of their existence or the benefits they deliver;
- The schemes are relatively small in scale and, while they deliver benefits to the households targeted as well as to the broader community, their results are less ambitious than deeper interventions such as fully fledged building renovations or country-wide information campaigns – NEEAPs and related documents may simply focus more on large-scale actions rather than the schemes;
- The low-cost, small-scale nature of the schemes is such that the benefits they deliver are not large enough (or not monitored or measured accurately enough) to be counted towards the fulfillment of Member States' objectives under the Directives. As such, they constitute useful complements to the more ambitious interventions that remain necessary to achieve energy efficiency objectives.

Whether the explanation is lack of awareness by Member State authorities, the specific focus of NEEAPs and related documents, or the size of the benefits delivered, it is important to stress that schemes delivering low-cost energy efficiency measures to low-income households can play an important role in achieving energy savings while improving the welfare of vulnerable households and communities. They can thus constitute a useful addition to broader, more ambitious energy efficiency interventions. Member State authorities and other stakeholders should therefore

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149 Current 2014 NEEAPs and those for 2011 and 2007.

150 For 2016 as well as previous reporting years.

151 For example, Ireland's NEEAP has a section on the Better Energy Programme, which includes a short subsection on the Better Energy Warmer Homes scheme reviewed under this study. Similarly, the UK's NEEAP includes a short paragraph on the Nest scheme in Wales.

consider promoting these schemes in relevant plans and activities. Recommendations for doing this effectively are provided in the tables at the end of each section.

## 5.1 Investing in building renovations

The Energy Efficiency Directive requires Member States to adopt long-term strategies for mobilising investments in the renovation of buildings, including public and private residential buildings (depending on the administrative set-up of the Member State, social housing buildings may fall under the category of public residential buildings)<sup>152</sup>.

The strategies form part of broader NEEAPs, which were adopted in 2014 and must be reviewed and updated every three years<sup>153</sup>. The NEEAPs include lists of measures and instruments available in Member States to promote energy efficiency in buildings (including those of a financial nature)<sup>154</sup>.

The NEEAPs are available on the website of the DG ENER.<sup>155</sup> The European Commission is empowered to assess the NEEAPs and issue recommendations to the Member States<sup>156</sup> on specific national schemes and coordination with EU financial institutions<sup>157</sup>.

In general, Member States are encouraged to use building renovation strategies to promote cost-effective deep renovations that achieve significant energy savings. However, the Energy Efficiency Directive recognises that such deep renovations can be carried out in stages, and that other cost-effective approaches may also be used to target specific building types<sup>158</sup>. It indicates that strategies should consider wider benefits than energy savings alone<sup>159</sup>. Low-cost energy efficiency measures in low-income households – which as seen above can offer public health, job creation, and other benefits in addition to energy savings – would thus fit well with building renovation strategies.

For example, the Northern Exposure scheme (see text box in Section 3.3.1) delivered draught proofing, insulation of exposed pipes and metering to vulnerable households and those in receipt of specific social welfare benefits. The measures implemented under the scheme were mainly low in cost and small in scale, however, more costly retrofits were also provided where needed. The scheme thus illustrates a good practice example of the integrated, mutually supportive delivery of low-cost measures and deep retrofits under one initiative. Similarly, the Compagnons Bâtisseurs scheme (see text box in Section 3.4.1) combined the delivery of low-cost measures, such as the provision of meters and energy efficient appliances, with higher cost interventions, such as building insulation, confirming that low-cost energy efficiency improvement measures and deeper retrofits can be successfully combined.

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152 Article 4, Energy Efficiency Directive.

153 Article 4 and Article 24(2), Energy Efficiency Directive.

154 Article 10(2), Energy Performance of Buildings Directive.

155 <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive/national-energy-efficiency-action-plans>

156 Article 23(3), Energy Efficiency Directive.

157 Article 10(3), Energy Performance of Buildings Directive.

158 Recital 16 and Article 4, Energy Efficiency Directive.

159 Article 4(e), Energy Efficiency Directive.

Lithuania’s Multi-family Building Renovation Programme (see text box in Section 3.5.2) is an example of a lending mechanism that leveraged EU funds to provide low-interest loans to renovate residential multi-apartment buildings. In the case of low-income households, the loan could be (fully or partly) converted into a grant. Like the Northern Exposure and Compagnons Batisseurs schemes, this programme delivered a varied package of measures, including low-cost (e.g. re-commissioning and optimising of existing heating systems, insulating pipes) and more ambitious interventions (e.g. replacement of windows and roof insulation).

Beyond the schemes reviewed under this study, a review of Member States’ NEEAPs shows that measures targeted to low-income households can be integrated into national building renovation strategies. For example, the Belgian region of Wallonia included a subsidy programme in its building renovation strategy<sup>160</sup>. The programme contributes to financing energy efficiency improvement measures in low-income households by supporting actions such as the replacement of door frames or external doors, isolation works, and the installation of boilers. In the Brussels-Capital Region of Belgium, interest-free loans are available for low-income households that do not qualify for loans from commercial banks in order to finance energy efficiency investments<sup>161</sup>. A further example of how actions against energy poverty can be integrated into national building renovation strategies can be found in France. Its Habiter Mieux programme – which is partly financed by energy suppliers within the framework of the energy savings certificates – commits to renovate 300,000 dwellings by 2017, improving their energy performance by at least 25%, at a contained cost (EUR 17,000 on average).

**Table 12 – Recommendations for building renovations**

Stakeholder	Role	Recommendations
Member State authorities	Establishing and updating building renovation strategies	The establishment of a building renovation strategy <sup>162</sup> starts by assessing the context for the strategy, identifying existing barriers to the renovation market and understanding the broader policy context (the Energy Efficiency Directive, the Energy Performance of Buildings Directive, as well as national plans such as the NEEAPs) within which the strategy will fit. Bear in mind the need to carry out deep renovations in order to achieve ambitious energy efficiency targets, while considering the possibility of complementing long-term deep renovations with shorter-term low-cost measures to improve energy efficiency in more low-income households, without creating a lock-in effect

160 MEBAR (Primes pour les Menages à bas revenus).

161 Prêt Vert Bruxellois, [www.credal.be/pretvertbruxellois](http://www.credal.be/pretvertbruxellois)

162 In establishing building renovation strategies, Member State authorities and other stakeholders may find it useful to review the report Technical Guidance: Financing the energy renovation of buildings with Cohesion Policy funding, which can be accessed here: [https://ec.europa.eu/energy/sites/ener/files/documents/2014\\_guidance\\_energy\\_renovation\\_buildings.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/2014_guidance_energy_renovation_buildings.pdf)

Stakeholder	Role	Recommendations
		<p>Be aware that the Energy Efficiency Directive expressly recognises that strategies can pursue broader objectives than energy efficiency alone. When estimating the impact of initiatives included in the building renovation strategy, consider wider benefits than energy savings, such as improvements in public health and employment opportunities that the promotion of low-cost energy efficiency measures in low-income households offers</p> <p>The next step in the definition of a building renovation strategy is to identify the buildings to be targeted (e.g. those with the lowest efficiency as set out in energy performance certificates). In this regard, consider the relevance of social housing in the country's building stock, and the benefits that improving its energy efficiency through low-cost measures can provide</p> <p>The recipients eligible to receive the funding invested to implement the strategy should be identified. At this point, consider providing funding to the schemes delivering these measures, including through EU funds as explained in this study</p> <p>The types of measures to be promoted under the strategy should also be identified. Many of these (e.g. improving insulation, heating systems, etc.) can be delivered by schemes such as those reviewed in this study. Consider the possibility of relying on such schemes to deliver the measures</p>
Social housing bodies / scheme owners	Implementing low-cost energy efficiency measures in low-income households	<p>Review the Member State's NEEAP to identify actions and financing opportunities that may support the implementation of low-cost energy efficiency measures in low-income households</p> <p>Consider the opportunity to input into the process for updating the NEEAP (e.g. by responding to a possible public consultation, lobbying relevant officials) to promote the integration of the potential for low-cost energy efficiency measures in</p>

Stakeholder	Role	Recommendations
European Commission	Reviewing NEEAPs and issuing recommendations	low-income households Encourage Member States to consider the potential of low-cost energy efficiency measures in low-income households in their NEEAPs  Where NEEAPs include initiatives targeted at low-income households, recommend the implementation of the good practices identified in this study

## 5.2 Energy efficiency in social housing

Under the Energy Efficiency Directive, Member States must encourage public bodies and social housing bodies governed by public law to adopt energy efficiency plans containing energy saving objectives and actions. The use of energy services companies and energy performance contracting to finance relevant actions is recommended<sup>163</sup>. Public bodies that have adopted such plans are listed in NEEAPs<sup>164</sup>.

Initiatives to implement low-cost energy efficiency measures in low-income households could be included in the energy efficiency plans. However, the review of schemes under this study has not yielded good practices in this regard. An example of an energy efficiency initiative which specifically targets social housing and requires the establishment of an energy efficiency plan can be found in France's NEEAP. The country has set a target to renovate 800,000 of the most energy poor social dwellings by 2020. To this end, it has made available a fixed-rate subsidised loan which has permitted the renovation of about 100,000 social housing units<sup>165</sup>. Although the aggregate funding of the initiative is considerable (EUR 1.2 billion), the amount of money per housing unit is reasonably contained. In order to be eligible, borrowing institutions must commit to a five-year intervention plan reaching certain levels of energy savings.

**Table 13 – Recommendations for energy efficiency in social housing**

Stakeholder	Role	Recommendations
Member State authorities	Encouraging public bodies and social housing bodies to adopt relevant actions	Inform public bodies at different levels of governance, as well as social housing bodies, about the energy saving and wider benefits connected to low-cost energy efficiency measures in low-income households  Encourage those bodies to adopt energy efficiency action plans that include the provision of low-cost energy efficiency measures to low-income households
Public bodies / social	Adopting and implementing	Set up energy efficiency action

<sup>163</sup> Article 5(7), Energy Efficiency Directive.

<sup>164</sup> Annex XIV, Part 2, Point 3.1, Energy Efficiency Directive.

<sup>165</sup> Éco-prêt logement social.

Stakeholder	Role	Recommendations
housing bodies	energy efficiency action plans	<p>plans, including low-cost energy efficiency measures in low-income households, based on the best practices described in this report (see, in particular, the Habiter Mieux programme described in Section 5.1)</p> <p>Consider the role that energy service companies and energy performance contracting can play in financing those measures</p>
Scheme owners	Implementing low-cost energy efficiency measures in low-income households	<p>Check NEEAPs to identify public and social housing bodies that have adopted energy efficiency action plans; access the plan of the public body of interest, as it may offer opportunities to implement low-cost energy efficiency measures in low-income households</p> <p>Lobby / help public and social housing bodies to adopt energy efficiency action plans including low-cost energy efficiency measures for low-income households</p>

### 5.3 Including requirements with a social aim in EEOS

The Energy Efficiency Directive requires Member States to set up energy efficiency obligation schemes (EEOS) to ensure that energy distributors and/or energy sales companies achieve certain energy savings among final customers by 31 December 2020<sup>166</sup>. Within these schemes, they may include requirements pursuing a social aim – for example, requiring that energy efficiency measures are implemented with priority in households affected by energy poverty, or in social housing<sup>167</sup>. This provision can thus be used to engage energy distributors or energy sales companies in the delivery of low-cost energy efficiency measures to low-income households. For example, the scheme Pacte Energie Solidarité (see text box in Section 3.6.2) is mainly funded by energy suppliers within the framework of the French EEOS. The scheme provides low-income households with aid to support the installation of loft insulation at very low cost, and can deliver energy savings of between 25-30% on average across the households served.

A UK initiative is also worth mentioning here – the Energy Company Obligation (ECO). ECO is the largest domestic energy efficiency programme operating across Great

<sup>166</sup> Article 7(1), Energy Efficiency Directive. The energy savings target has to be at least equivalent to achieving new savings each year from 1 January 2014 to 31 December 2020 of 1,5 % of the annual energy sales to final customers of all energy distributors or all retail energy sales companies by volume, averaged over the most recent three-year period prior to 1 January 2013. It is for Member States to decide how savings are to be phased over the period. Member States may adopt policy measures alternative or additional to EEOS (see next section).

<sup>167</sup> Article 7(7)(a), Energy Efficiency Directive.



Britain. Under this programme, energy suppliers are required to meet carbon reduction targets by providing customer incentives to take steps to improve energy efficiency measures. The programme focuses on low-income households, among others, with three distinctive elements:

- A Carbon Emission Reduction Obligation target, which provides support for more expensive, less cost-effective energy efficiency measures;
- A Carbon Saving Communities Obligation target, which provides insulation measures to low-income areas;
- An Affordable Warmth target, which provides support for heating and insulation measures for the most vulnerable and those more likely to be in fuel poverty.

Initiatives like these could be replicated within the framework of EEOS, with a view to pursuing the social objectives mentioned in the Energy Efficiency Directive<sup>168</sup>. As the Directive does not set particular conditions for the inclusion of requirements with a social aim within EEOS, Member States have significant leeway in determining the exact content of social safeguards to include in their EEOS.

**Table 14 – Recommendations for the inclusion of requirements with a social aim in EEOS**

Stakeholder	Role	Recommendations
Member State authorities	Establishing EEOS	Use the opportunity in Article 7(7)(a) of the Energy Efficiency Directive to introduce requirements with a social aim in EEOS, for example to promote low-cost energy efficiency measures in low-income households
European Commission	Providing guidance on the Directive	Issue guidance to encourage Member States to include requirements with a social aim in EEOS and to advise them on how best to do so

## 5.4 Alternative policy measures to EEOS

According to Article 7(9) of the Energy Efficiency Directive, Member States may opt to take alternative policy measures to establishing EEOS, provided the same amount of energy savings are achieved by 31 December 2020<sup>169</sup>. The question of whether low-cost energy efficiency measures in low-income households can constitute alternative policy measures under Article 7(9) is important because a positive answer would imply that Member States could use these (in combination with more ambitious actions such as deep renovations) to achieve the energy savings target under Article 7. Conversely, if low-cost measures do not qualify under Article 7(9), Member States' attention will have to focus elsewhere in order to meet the energy savings requirement.

<sup>168</sup> Article 7(7)(a), Energy Efficiency Directive.

<sup>169</sup> Member States may also use a combination of EEOS and alternative policy measures. This is expressly allowed by the last sentence of Article 7(9), Energy Efficiency Directive.

The information reviewed here (scheme documentation or other documents, such as Member States' notifications under Article 7<sup>170</sup>, NEEAPs and annual reports) did not provide any example of Member States putting forward these schemes as alternative policy measures for the purposes of Article 7(9) of the Energy Efficiency Directive. The issue cannot be resolved based on the materials reviewed, therefore, but will be discussed in light of an analysis of the Directive's provisions.

This analysis should start by considering that the Directive's focus on the volume of energy savings creates a situation where low-cost energy efficiency measures for low-income households can only be considered as 'alternative policy measures' for the purposes of Article 7(9) if they produce energy savings (as opposed to other benefits, such as improved comfort).

Member States are free to choose the alternative policy measures to adopt, and Article 7(9) sets out a non-exhaustive list of possible alternative policy measures. Earlier in this report (Section 3.1.1), low-cost energy efficiency measures were grouped into three main categories: advice and information; energy efficiency services; and energy efficiency devices and kits. The first category of measures can certainly be promoted under Article 7(9), as training and energy advisory programmes are expressly mentioned as examples of possible alternative measures<sup>171</sup>. The other two categories of low-cost energy efficiency measures can also, in principle, be supported through Article 7(9), even though they are not included on the list.

Alternative policy measures, regardless of type, must comply with a number of criteria in order to be eligible under Article 7(9). The criteria that apply depend on the type of measure chosen. The Energy Efficiency Directive includes different sets of conditions for taxes, regulations and voluntary agreements and other policy measures mentioned in the non-exhaustive list<sup>172</sup>. As described, the list covers measures involving advice and information, making it clear which eligibility conditions apply. However, as other types of low-cost energy efficiency measures are not listed, it is less certain which set of conditions applies. It would be reasonable to argue that, even if not listed, they would also fall under 'other policy measures'.

In order to qualify under Article 7(9), therefore, all alternative policy measures, including any low-cost energy efficiency measures, should comply with the following criteria<sup>173</sup>:

- The measure must, alone or in combination with other measures and/or with EEOS, lead to the achievement of the overall level of energy savings required under Article 7 of the Energy Efficiency Directive<sup>174</sup>.
- The measure must provide for at least two intermediate periods until 31 December 2020. Intermediate periods serve to set interim energy savings targets and help to verify whether or not progress is satisfactory. As such, they

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170 <https://ec.europa.eu/energy/en/topics/energy-efficiency-directive/obligation-schemes-and-alternative-measures>

171 Article 7(9)(f), Energy Efficiency Directive.

172 See Article 7(11), Energy Efficiency Directive. Eligibility conditions are set out in Article 7(10), Energy Efficiency Directive.

173 Unless otherwise indicated, the list refers to relevant criteria set out in Article 7(10), Energy Efficiency Directive.

174 Article 7(9), Energy Efficiency Directive. Credit may only be given for savings exceeding those achieved through the implementation of the EU requirements referred to in Annex V, Point 2(a)(i) and Point (3)(a), Energy Efficiency Directive.

are linked to the requirement (third-last bullet point below) that appropriate action should be taken if expected savings are not being achieved.

The Directive does not set out any requirement for the length of the periods or the levels of savings to be achieved under each period, giving Member States considerable discretion in this regard. However, they must notify the Commission of the energy savings expected to be achieved over the whole and intermediate periods, and the duration of the obligation period and intermediate periods<sup>175</sup>.

- The responsibility of relevant parties must be defined<sup>176</sup>.
- Energy savings (to be) achieved are determined in a transparent manner, are expressed in either final or primary energy consumption<sup>177</sup>, and are calculated in accordance with the principles and methods provided by the Directive<sup>178</sup>.

It is worth noting that<sup>179</sup>:

- Surveys are only allowed as a method to calculate energy savings where the measures concern behavioural changes. They are not permitted in relation to the installation of physical measures.
  - It must be demonstrated that the activities of relevant parties were 'material' to the achievement of the claimed savings.
  - The calculation of energy savings must take into account the lifetime of savings.
  - Member States must ensure that the quality of products, services and installations is maintained. Where quality standards do not exist, Member States must work with relevant parties to introduce them.
- Results are monitored and appropriate measures envisaged if progress is not satisfactory.
  - A control system is established, including independent verification of a statistically significant proportion of energy efficiency improvement measures.
  - Data on the annual trend of energy savings are published each year.

Complying with the conditions described requires a relatively high level of technical capacity, resources and organisation. Schemes established to deliver low-cost energy efficiency measures in low-income households could qualify as alternative policy measures under Article 7(9), but would arguably need support from public authorities in order to fulfil the eligibility conditions described above. Such support could consist of, for example: technical assistance to estimate, monitor and verify energy savings; the establishment of an independent body to carry out the third-party control of

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175 This notification requirement is set out in Annex V, Part 4, Points (c) and (d), Energy Efficiency Directive.

176 The Directive distinguishes three types of relevant parties. 'Entrusted party' is defined as 'a legal entity with delegated power from a government or other public body to develop, manage or operate a financing scheme on behalf of the government or other public body'. 'Participating party' means 'an enterprise or public body that has committed itself to reaching certain objectives under a voluntary agreement, or is covered by a national regulatory policy instrument'. 'Implementing public authority' is defined as 'a body governed by public law, which is responsible for the carrying out or monitoring of energy or carbon taxation, financial schemes and instruments, fiscal incentives, standards and norms, energy labelling schemes, training or education' (Article 2(15) to (17), Energy Efficiency Directive). Which of these parties will be relevant in each case will depend on the choice and set-up of policy measures.

177 To be calculated using the conversion factors set out in Annex IV, Energy Efficiency Directive.

178 See Annex V, Energy Efficiency Directive. In particular, four common methods may be used for calculating energy savings: deemed savings, metered savings, scaled savings, and surveyed savings. See Annex V, Point 1, Energy Efficiency Directive.

179 The list refers to the most relevant provisions of Annex V, Points 1 and 2, Energy Efficiency Directive.

energy efficiency improvement measures for all relevant schemes and other policy measures, thus exploiting economies of scale; and the creation of simple centralised tools to record and publish data on energy savings.

**Table 15 – Recommendations for alternative policy measures**

Stakeholder	Role	Recommendations
Member State authorities	Determine alternative policy measures under Article 7(9) of the Energy Efficiency Directive	<p>Consider the possibility of including the promotion of low-cost energy efficiency measures in low-income households among policy measures alternative to EEOS</p> <p>Be aware that schemes delivering such low-cost measures will likely require technical, administrative and financial support in order to meet the conditions imposed by the Energy Efficiency Directive (Such support could include: technical assistance to estimate, monitor and verify energy savings; the establishment of an independent body to carry out the third-party control of energy efficiency improvement measures for all relevant schemes and other policy measures, thus exploiting economies of scale; and the creation of simple centralised tools to record and publish data on energy savings)</p>
European Commission	Propose legislation for period post-2020	<p>Consider relaxing the criteria that low-cost energy efficiency measures in low-income households would have to meet in order to qualify as alternative policy measures under Article 7(9) of the Energy Efficiency Directive</p> <p>Consider the desirability of helping scheme owners to meet administrative burdens by, for example, providing technical support, simplified tools or standard approaches for estimating and monitoring energy savings, etc.</p>

## 5.5 Energy consumption information in multi-apartment buildings

The Energy Efficiency Directive includes provisions to ensure that each customer's consumption of heating, cooling and hot water is specifically measured, even where their home is served by shared heating, cooling or hot water sources (e.g. a district

heating network or a common boiler)<sup>180</sup>. This is meant to empower consumers to control their own individual consumption of energy<sup>181</sup>.

This is particularly relevant in multi-apartment buildings in which heating, cooling or hot water are supplied from a central heating network or a central source serving multiple buildings<sup>182</sup>. Here, individual consumption meters must be installed by the end of 2016 to measure the consumption of each dwelling unit, if technically feasible and cost-efficient (see box below). Where the installation of individual meters is not technically feasible or cost-efficient, individual heat cost allocators must be installed at each radiator, if this is cost-efficient<sup>183</sup>.

Some of the schemes reviewed earlier in this report demonstrate that it is possible to provide meters to low-income households at low cost. Schemes that included the installation of meters or the provisions of metering-related services were the Multi-family Building Renovation Programme (see text box in Section 3.5.2), the Compagnons Bâtisseurs scheme (see text box in Section 3.4.1), the Smart-Up scheme (see text box in Section 3.3.1), and the Northern Exposure scheme (see text box in Section 3.3.1).

#### **Technical feasibility**

The Energy Efficiency Directive clarifies that the installation of individual meters is considered as technically feasible where it 'would not require changing the existing in-house piping for hot water heating in the building'<sup>184</sup>. By contrast, the installation of such meters would likely be technically complicated and costly where hot water used for heating enters and leaves the apartments at several points. In this case, individual heat cost allocators can be used to measure individual consumption.

#### **Cost-efficiency**

The Commission has provided guidance on assessing cost-efficiency<sup>185</sup>. It recommends comparing the costs of the installation and maintenance of the meters or heat cost allocators with the benefits for consumers and other parties (e.g. owners and users of the building), using (for example) the methodology provided in European standard EN 15459 EN 15459 ('Energy performance of buildings - economic evaluation - procedure for energy systems in buildings').

In assessing benefits, the energy savings resulting from behavioural changes that may be triggered by customers' better knowledge of their energy consumption should be taken into account. As some studies have shown, the energy savings caused by

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180 Article 9(3), Energy Efficiency Directive.

181 Recital 28, Energy Efficiency Directive.

182 The Energy Efficiency Directive does not define 'multi-apartment buildings'. The Commission has interpreted this term as meaning a building with at least two apartments. See Commission Staff Working Document, Guidance note on Directive 2012/27/EU on energy efficiency, Articles 9 - 11: Metering; billing information; cost of access to metering and billing information, SWD(2013) 448 final, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1464945714923&uri=CELEX:52013SC0448>

183 Article 9(3), Energy Efficiency Directive.

184 Recital 29, Energy Efficiency Directive.

185 See footnote 182.

behavioural changes can be substantial, often reaching up to 30%, compared to systems without individual meters where customers are billed based on flat rates<sup>186</sup>.

Additional benefits may also derive from improved household welfare (through a reduction of energy consumption and related bills) and better health conditions (through improved home temperature).

**Table 16 – Recommendations for energy consumption information in multi-apartment buildings**

Stakeholder	Role	Recommendations
Member State authorities	Ensuring meters / cost-allocators are installed in multi-apartment buildings	Consider implementing good practices in the provision of meters to low-income households at low cost. This can help to achieve compliance with the requirements of Article 9(3) of the Energy Efficiency Directive in a cost-efficient manner

## 5.6 Funding, information and exemplary projects to help households to use energy more efficiently

Member States must promote and facilitate efficient use of energy by domestic customers. Measures to this effect may include access to finance, grants or subsidies, information provision, and exemplary projects. Member States may roll out these initiatives separately or as part of a national strategy<sup>187</sup>.

### 5.6.1 Access to finance, grants or subsidies

Member States could use this provision to ease access to funding through schemes delivering low-cost energy efficiency measures to low-income households. This is explicitly recognised in the Energy Efficiency Directive, which mentions energy efficiency measures in housing as potential areas for funding. The Warm Zones scheme (see text box in Section 3.3.1) provides a good example of how low-cost energy efficiency schemes could be used to facilitate access to finance by low-income households. Under Warm Zones, local teams visited households street-by-street, prioritising the areas with the highest risk of energy poverty, and assessed households' energy poverty status. They then recommended grants or other financial incentives available under a range of national policies. In this way, the scheme helped households to access financial support for energy efficiency measures of which they were previously unaware.

The Directive expressly encourages Member States and regions to make full use of EU funds to trigger investments in energy efficiency improvement measures, as these can contribute to economic growth, employment, innovation and a reduction of energy

186 Gullev, L. & Poulsen, M., 'The installation of meters leads to permanent changes in consumer behaviour'. News from DBDH. Journal 3/2006 pp. 20-24. See also Clemens Felsmann, Juliane Schmidt, Technische Universität Dresden, January 2013, Auswirkungen der verbrauchsabhängigen Abrechnung in Abhängigkeit von der energetischen Gebäudequalität.

187 Article 12, Energy Efficiency Directive.

poverty in households<sup>188</sup>. Recommendations for accessing EU funds for low-cost energy efficiency schemes are presented in Chapter 4 of this report.

An example illustrating the use of EU funds to finance the provision of information to low-income households is the Smart-Up scheme (see text box in Section 3.3.1). This scheme focuses on helping households to take full advantage of smart meters and in-house displays to reach an average 10% energy savings target. Initiatives such as Smart-Up can help to leverage the benefits of existing energy efficiency measures (in this case, smart meters and in-house displays) by educating consumers to get the most from such devices.

In addition to money from EU funds, the Energy Efficiency Directive indicates other potential sources of funding for financing energy efficiency measures<sup>189</sup>:

- Financial contributions and fines from non-fulfilment of national provisions adopted to implement the Directive;
- Revenues obtained from the auctioning of emission allowances under the EU Emissions Trading Scheme<sup>190</sup>;
- Revenues from the annual emission allocations under the Effort Sharing Decision<sup>191</sup>.

### 5.6.2 Information provision

The provision of information on energy consumption and the efficient use of energy to low-income households can have multiple benefits, delivering energy savings while reducing energy bills for the household. A good practice example is the ACHIEVE scheme (see text box in Section 3.3.2), which identified nearly 2,000 households at risk of energy poverty and worked with them to reduce their energy costs. Under the scheme, homes were visited to diagnose energy and water consumption and habits, install the devices likely to generate the best savings, and give advice about efficient use of these resources. The scheme achieved about 923 kWh in energy savings, translating into savings of EUR 144 per household per year.

Another example of a scheme offering energy and water saving advice (together with low-cost devices) to low-income households is the EC-LINC scheme (see text box in Section 3.5.1). This scheme involved home visits, during which household members were informed about energy- and water-efficient behaviours. Energy consumption was assessed to produce a tailored report offering customised tips. In addition, low-cost devices such as low-energy lighting, switchable plug connectors, tap aerators and thermostatic radiator valves were provided at no charge.

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188 Recital 49, Energy Efficiency Directive.

189 See Recitals 50 and 51, Energy Efficiency Directive.

190 Article 10(3)(h), Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC. This provision expressly states that the proceeds from the auctioning of allowances can be used to finance 'measures intended to increase energy efficiency and insulation, or to provide financial support in order to address social aspects in lower and middle income households.'

191 Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the efforts of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

The government of the Netherlands has implemented a similar scheme, Temporary Subsidy Scheme on Energy Savings for Low-Income Households (TELI) (see text box in Section 3.6.1). This scheme subsidised energy audits and projects to provide in-home advice on low-cost energy savings measures to low-income households. Energy saving devices and measures were also provided, such as water-saving shower heads, CFLs, and insulation of pipes.

### 5.6.3 Exemplary projects

Exemplary projects could be very useful to demonstrate the potential of low-cost energy efficiency measures in a given Member State context (e.g. specific building stock, climatic conditions, etc.), potentially inspiring the private sector (e.g. charities) to undertake similar actions. While the schemes reviewed under this study did not provide insight in this regard, there are examples of support for exemplary projects in Member States' NEEAPs. In the Brussels-Capital Region of Belgium, for example, calls for projects are regularly launched to promote the construction or renovation of buildings, demonstrating the possibility of achieving excellent energy and environmental performance at reasonable cost. The projects selected receive public funding, and even though they do not necessarily target low-income households specifically, they illustrate the types of exemplary projects that can be promoted under the Directive.

**Table 17 – Recommendations for funding, information and exemplary projects**

Stakeholder	Role	Recommendations
Member State authorities	Promoting and facilitating the efficient use of energy by domestic consumers	Achieve compliance with Article 12 of the Energy Efficiency Directive by adopting initiatives that foster the provision of low-cost energy efficiency measures to low-income households. These could include facilitating access to funding (EU funds are available to complement national efforts), promoting schemes offering energy savings information to relevant households, and setting up exemplary projects to prove the benefits of low-cost energy efficiency measures

## 5.7 Awareness-raising and stakeholder engagement

Member States must raise awareness about energy efficiency and related financial and legal frameworks among all relevant market actors, including consumers and qualified and/or accredited experts<sup>192</sup>. Although the schemes studied here did not provide

<sup>192</sup> Article 17(1), Energy Efficiency Directive. See also Article 17(4), Energy Efficiency Directive and Article 20(1) and (2), Energy Performance of Buildings Directive. The term 'qualified and/or accredited experts' is not used in Article 17(1), Energy Efficiency Directive, which refers instead to 'installers of buildings elements as defined in Directive 2010/31/EU' (the Energy Performance of Buildings Directive). Reference is thus made, for example, to installers of technical equipment for the heating, cooling, ventilation, hot water and/or lighting of a building or building unit (combined reading of Article 2(9) and (3), Energy Performance of Buildings Directive). This section of the report will focus on heating and air-conditioning systems, which are types of technical equipment that have to be regularly inspected by qualified and/or accredited experts (combined reading of Article 14, 15 and 17, Energy Performance of Buildings Directive). Therefore, the term qualified and/or accredited experts is used.



specific examples in this regard, initiatives exist in Member States that illustrate potential activities that could be promoted at limited cost under this provision of the Directive. In Romania, for example, a project funded by the United Nations Development Programme – Global Environment Fund provides specialised training to architects, building engineers, and qualified auditors about energy efficiency in buildings, with a view to improving energy efficiency in low-income households.

According to the Directive, the Commission should encourage European social partners in their discussions on energy efficiency<sup>193</sup>, promote the exchange and wide dissemination of best practices in energy efficiency<sup>194</sup>, and assist Member States in staging relevant information campaigns, which may be co-financed through EU funds<sup>195</sup>. Care should be taken in designing these campaigns to avoid any stigmatisation of vulnerable households and to take into account their specific situation (e.g. the possibility that their access to the internet is limited, that their dwelling is rented rather than owned, etc.).

In line with this, Member States and the Commission should make efforts to communicate the potential of, and best practices in, the provision of low-cost energy efficiency improvements to low-income households. They should publicise information on the relevant EU funds and guidance on how these can be accessed to finance low-cost energy efficiency measures in low-income households.

The existence of schemes offering low-cost energy efficiency measures to low-income households could be better publicised. For example, schemes in place in each Member State could be surveyed, with relevant information (e.g. location, type of measures delivered, eligibility conditions, contacts) published online. Where relevant, this information should be given to qualified and/or accredited experts responsible for carrying out the periodic inspections of heating and air-conditioning systems required by the Energy Performance of Buildings Directive<sup>196</sup>, so that they can in turn inform low-income households where necessary improvements in their building systems are eligible for support by an existing scheme. This information could be provided when experts receive the guidance and training required under the Energy Performance of Buildings Directive<sup>197</sup>.

When sharing information about energy efficiency, attention should be paid to the multiple benefits it can deliver. This is particularly the case for energy efficiency improvements in low-income households, which can also help to alleviate energy poverty and create jobs. It will be important to inform and engage stakeholders beyond the energy sector, targeting for example actors in the public health, employment, and social security fields.

A best practice in this regard was illustrated in the SHINE scheme (see text box in Section 3.2.1), under which doctors assisting low-income patients affected by seasonal health problems referred them to the scheme, thereby enabling them to obtain the

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193 Article 17(3), Energy Efficiency Directive.

194 Article 17(5), Energy Efficiency Directive.

195 This assistance is provided at the Member State's request. See Article 20(2), second subparagraph, Energy Performance of Buildings Directive.

196 Articles 14 and 15, Energy Performance of Buildings Directive.

197 Article 20(3), Energy Performance of Buildings Directive.

household improvements provided by the initiative. In turn, SHINE would refer to health services those beneficiaries which were especially exposed to seasonal health problems. Synergies were thus exploited for the achievement of multiple benefits.

A similar initiative is the Beat the Cold scheme (see text box in Section 3.4.2), which aims to reduce fuel poverty and cold-related illness by giving households comprehensive information about saving energy, the measures and grants available to improve energy efficiency, behavioural changes that can reduce energy bills, and relevant services from other agencies (e.g. health and social care agencies). This approach helps to raise awareness among households and stakeholders in other fields (particularly health) about the multiple benefits of energy efficiency and the options available to finance energy efficiency improvement measures.

Synergies can also be built between energy efficiency and employment objectives. For example, unemployed people could be trained to provide advice and services on energy efficiency and thus acquire qualifications useful on the job market. The Stromspar Check scheme (see text box in Section 3.9.1) is a case in point. Established by the German Caritas Association and the German Climate and Energy Agency, it trained 4,000 unemployed people to become energy-efficiency checkers working under the scheme to deliver energy audits and install energy and water saving devices in low-income households.

A further illustration of how schemes to deliver low-cost energy efficiency measures can serve social objectives is provided by the scheme Energy advice to immigrant households in Meridiana (see Section 3.8.2). This initiative informed immigrants in the Spanish town of Meridiana about energy bills, energy saving measures, and the management of energy bills. In this way, the scheme can help beneficiaries to meet their energy costs, while at the same time achieving energy savings.

**Table 18 – Recommendations for awareness-raising and stakeholder engagement**

Stakeholder	Role	Recommendations
Member State authorities	Distributing information on financial and legal frameworks for energy efficiency	Publicise the availability of EU funds to finance energy efficiency, as well as best practices in delivering low-cost energy efficiency improvements to low-income households
European Commission	<p>Encouraging European social partners in their discussions on energy efficiency</p> <p>Promoting the exchange of information about best practices in energy efficiency</p>	<p>Survey schemes providing low-cost energy efficiency measures to low-income households and publish relevant information online, to allow potential beneficiaries and other stakeholders to more easily learn about them</p> <p>Provide information on available schemes to qualified and/or accredited experts performing periodic inspections of heating and air-conditioning systems, so that they may inform low-income households if schemes exist that may support necessary</p>

<b>Stakeholder</b>	<b>Role</b>	<b>Recommendations</b>
		improvements to their building systems  Engage stakeholders beyond the energy sector (e.g. in public health, employment and social security) by underlining the wider benefits that energy efficiency in low-income households can offer

## **Appendices**

Appendix 1: Scheme summaries

Appendix 2: Complete checklist for policy makers

Appendix 3: Main features of ESIF and Horizon 2020

## Appendix 1 – Scheme summaries

**Table 19 – Scheme summary information (\*Initial figures quoted in other currency and converted to EUR<sup>198</sup>)**

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
Better Energy Warmer Homes scheme	Ireland	Sustainable energy authority Ireland (SEAI, national government agency)	The 'Better Energy Warmer Homes Scheme', which is part of the wider 'Better Energy Programme' was established in 2000. Its main aim is to alleviate fuel poverty by providing grant support to low-income households for energy efficiency improvement measures.	2000-11	Draught proofing, insulation of exposed pipes, low energy lighting, advice (non-low cost: insulation)	In receipt of benefit or one-parent family.	National government	83,000 homes assisted since 2000	Annual budget for 2012 was EUR 56m
Warm Zones	UK	Warm Zones Ltd. (NGO)	Warm Zones adopt a concentrated, co-ordinated and comprehensive area based approach to delivering energy efficiency services. The aim is to tackle fuel poverty and improve the energy efficiency of the nation's housing stock. Each zone operates on an individual basis and is focused on a particular	2002 - present	Draught proofing, low energy lighting, advice, energy saving kits, other (non-low cost: insulation, heating, small-scale renewables)	Eligibility differs between different zones. All schemes identify vulnerable households via income level or benefit	EU, local/regional/national government, NGO, ECO, other private	Insulation measures delivered in 310,000 households by 2011	Varies by Zone. For example, Kirklees Warm Zone invested ~EUR 30m over 4 years

<sup>198</sup> Exchange rates used for currency conversion are: 1 GBP = 1.25 EUR; 1 AUD = 0.67 EUR; and 1 CAN = 0.68 EUR.

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			geographical area with individual ownership entities.						
Nest	Wales, UK	Welsh Government (regional government)	The main aim of Nest, which replaced the previous Home Energy Efficiency Schemes (HEES) in 2010, is to reduce fuel poverty in households in Wales. Nest targets fuel poverty through energy efficiency measures in the most energy inefficient low-income homes.	2011 - present	Draught proofing, insulation of exposed pipes, optimisation of existing systems, low energy lighting, advice (non-low cost: insulation, heating, small-scale renewables)	Low-income households in receipt of means-tested benefits, low energy efficiency of house (E,F,G)	Regional government, NGO, ECO	11,100 households received advice or third party support in 2014-15	~EUR 23m invested in 2014-15
Northern Exposure project	Northern Ireland, UK	North and West Belfast Fuel Poverty Community of Interest (NGO)	The main aim of the project was to reduce fuel poverty in North and West Belfast while sustaining a community development approach to creating affordable warmth. The project implements a multi-faceted programme of targeted action and capacity building in partnership with local communities and the wide range of	2010-12	Draught proofing, insulation of exposed pipes, metering, low energy lighting, advice, energy efficiency kits, other (non-low cost: insulation,	Households containing either someone over 60, a child under 16, someone with a disability / long-term illness or in receipt of other social welfare	Regional government, other public, other private	60 households recruited for the project. Warm Homes has delivered measures to over 60,000 homes.	No information

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			organisations and groups represented on the Belfast Fuel Poverty Community of Interest and the Northern Exposure Steering Group.		heating, other)	benefits			
Multi-family Building Development Programme	Lithuania	Housing and Urban Development Agency (HUDA, national government agency)	The programme implements the Lithuanian Housing strategy, whose objective is to ensure the effective use, maintenance, and modernisation of housing and the efficient consumption of energy. The programme seeks to renovate multi-apartment buildings built before 1993. In 2009, Lithuania established a lending mechanism ('JESSICA') for residential energy efficiency (EE) using funds from the European Regional Development Fund (ERDF). This allowed Lithuania to provide low-interest loans without burdening the state budget. Applicants and families on low incomes can	2005-present	Insulation of exposed pipes, optimisation of existing systems, re-commissioning of blocks, metering (non-low cost: insulation, heating, small-scale renewables)	Multi-apartment buildings where >50% of owners vote for modernisation, constructed before 1993, if at least 'C class' level of efficiency can be achieved	EU (ERDF), national government	479 multifamily buildings renovated 2005-12; a further 843 upgraded since 2013	EUR 227m (period 2009-2015)

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			convert up to 100% of the loan into a grant.						
Social assistance fund for energy management works (Les Fonds sociaux d'aide aux travaux de maîtrise de l'énergie (FSATME))	France	ADEME (national government agency)	The Social Aid Fund for Energy Management works (FSATME) intends to finance thermal improvement works in housing, particularly for disadvantaged families. Funds are created by communities with the support of energy suppliers and other entities. In particular, FSATME focuses on actions for which 'usual' solutions do not work, i.e. dealing with emergencies (e.g. heating failure, broken windows), and small works which are below the threshold of other related policy (e.g. below threshold of ANAH).	2002-present	Draught proofing, insulation of exposed pipes, other (non-low cost: insulation)	Low income, disadvantaged households	Local /regional / national government, other public, other private	No information	Majority of funds are in range of EUR 20,000-30,000 annually (full range ~EUR 12,000 to 1.6 m)
Compagnons Batisseurs	France	Compagnons Batisseurs (NGO)	Compagnons Batisseurs is a network for education in existence for over 50 years which aims to: improve habitations, further economic integration in the building sector and welcome volunteer support. The network	2009 - ?	Metering, other (non-low cost: insulation, heating)	Homes selected based on range of factors, including: high energy costs or unpaid	National government, NGO, other private	No information	No information



Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			started 30 pilot projects to solve fuel poverty situations by systematically integrating energy access, reduction of energy bills, comfort, and security through the provision of meters and energy efficient appliances.			bills, high energy consumption, demand for comfort, etc.			
Pacte Energie Solidarite	France	CertiNergy (private company)	Low-income households can apply to receive aid to support installation of loft insulation from CertiNergy. Through the scheme and funding provided the cost of work is reduced to EUR 1 for the first 70 sqm of roof and, beyond 70m2, EUR 10 per m <sup>2</sup>	2013 - present	(non-low cost: insulation) <sup>199</sup>	Household income and number of members	ECO	Assists around 10,000 households per annum	Average cost EUR 1,600 – 1,800 per household
Temporary Subsidy scheme on Energy savings for Low-Income households (TELI) (Tijdelijke)	Netherlands	Ministry of Housing, Spatial Planning and the Environment (national)	The government's low-income scheme, TELI, is focused on overcoming the information and monetary barriers to energy saving measures in low-income households. The scheme subsidises energy audits	2002-6	Draught proofing, insulation of exposed pipes low energy lighting, advice, other (non-	Households with a yearly income less than EUR 14,000	National government	65,000 households	EUR 7.6m

<sup>199</sup> Scheme was not found to deliver measures defined under this study as 'low-cost'. However, scheme delivered loft insulation which is low cost relative to deeper retrofit measures and as such the scheme was included in this review.

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
subsidierelivering energiebesparing huishoudens met lage inkomens)		government)	and projects carried out by local authorities, energy companies, and housing corporations to provide advice on low-cost energy saving measures through in-home visits.		low cost: insulation, small scale generation, other)				
Just Change	Melbourne, Australia	Just Change (NGO)	Just Change was a pilot programme targeting low-income rental households in metropolitan Melbourne aiming to overcome the specific barriers that prevent the adoption of energy efficiency measures in these households. The objective was to introduce energy efficiency measures in these households to reduce energy costs, lower emissions and increase comfort levels. The purpose was to identify barriers and opportunities to overcome these barriers, with a view to building these lessons into a future scaling-up of the programme.	2008-9	Draught proofing, low energy lighting, advice, energy saving kits, other (non-low cost: insulation)	The scheme targeted low-income rental households : householders holding a valid government concession card (a 'Health Care Card')	Regional/national government, NGO, other private	10	EUR 8,000 (not including volunteer labour cost)
Pilot project	Austria	Climate	Aim of the pilot was to	2012-14	Draught-	VERBUND /	EU	400	EUR 323,000

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
against fuel poverty		and Energy Funds, Austrian Research Promotion Agency (FFG), Caritas (NGO)	implement energy efficiency measures in at least 400 low-income households and to evaluate their usefulness. Households were assisted through three existing projects of the church-based charity Caritas (VERBUND-Stromhilfefonds der Caritas, Stromspar-Check, Grätzeletern). Central to the project was the improvement of energy efficiency in households and the reduction of burdens caused by fuel poverty. Based on the findings, a catalogue of measures and policy recommendations for government was developed.		proofing, optimisation of existing systems, low energy lighting, advice, energy efficiency kits, other (non-low cost: heating, other)	Energy check: those struggling with energy bills Neighbourhood parents: areas with old buildings and people living in difficult situations	(ERDF, under 'INTERREG'), national government, NGO, other private source	households in pilot (2,710 households assisted by VERBUND and energy check since 2009)	
Stromspar Check	Germany	Deutscher Caritasverband e. V. (NGO)	To help low-income households to save energy and water costs and to reduce their CO <sub>2</sub> emissions, the German Caritas Association and the German Climate and Energy Agency (eaD) initiated the project 'Stromspar-Check'. The	2009-present	Low energy lighting, advice, energy saving kits, other	Those in receipt of benefits. Households with a small pension or low income are also eligible.	EU (ESF), regional/national government, NGO, other public, other private	157,000 households have participated to end 2014	Total value of measures installed is EUR 10.7m

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			programme involves a free energy audit delivered by visiting the home. Based on the energy audit, energy saving devices are installed. Long-term unemployed people are trained as 'Energy Efficiency-Checkers' through the programme.						
Seasonal Health Intervention Network (SHINE)	Islington, London, UK	Islington Council (local government)	The Seasonal Health Interventions Network (SHINE) is a multidisciplinary project aimed at reducing excess winter deaths and hospital admissions from a number of angles. This project aims to bring together a wide range of interventions aimed at reducing seasonal health and wellbeing risks and deliver them to vulnerable residents. SHINE aims to tackle not only fuel poverty but other physiological, social and environmental factors.	2010 – present	Optimisation of existing systems, advice, other (non-low cost: Heating)	Persons aged over 75, those with respiratory or cardiovascular diseases / other health issues, children under five in low-income families	Local government, other public	Over 9,200 referrals to 2015	No information
Action in low-income Households to Improve	Bulgaria, France, Germany,	Intelligent Energy Europe	ACHIEVE is a pilot programme co-funded by the Intelligent Energy Europe Programme of	2011-14	Draught proofing, low energy lighting,	Households that have difficulties in affording	EU (Intelligent Energy Europe)	1,920 households visited across the	EUR 1.3m

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
energy Efficiency through Visits and Energy diagnosis (ACHIEVE)	Slovenia, UK		the EU. It identifies households that are most vulnerable to fuel poverty and works with them to implement suitable steps to reduce unnecessary energy use and costs. The pilot was focused on both research and delivery - as such it designed its service to vulnerable households based on a review of best practices across Europe.		advice, other	basic energy needs		seven pilot areas	
Energy Check for low-income households (EC-LINC)	Austria, Belgium, Germany, Hungary, UK	Intelligent Energy Europe	Tailored information and consultation is provided to low-income households on energy and water saving at home. No- and low-cost measures combined with advice services are designed to bring practical know-how on energy efficiency to fuel poor households. Via home visits, advice is provided on energy efficient behaviour, and low-cost devices are provided at no charge, together with an individual household report with a description	2011-14	Low energy lighting, advice, other (non-low cost: insulation, heating)	Households having financial difficulties whilst attempting to pay bills for reasonable energy consumption	EU (Intelligent Energy Europe)	Over 1,000 on-site consultations in low-income households	EUR 807,000

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
Students achieving valuable energy savings (SAVES)	UK, Cyprus, Greece, Lithuania, Sweden	Intelligent Energy Europe	of the potential savings and further tips for savings. SAVES provided quality engagement with students, enabling, empowering and motivating them to save energy. By developing student champions in each block of each dormitory, and by motivating the champions to encourage their peers to save energy, the programme creates a race between students in dormitories, each competing to save the most energy and win prizes.	2014-present	Metering, advice	Students living in dormitories	EU (Intelligent Energy Europe), NGO, other private	9,500 students engage with the project each academic year	EUR 1,020,000
Provision of advice in Meridiana	Barcelona, Spain	Ecoserveis (NGO)	Aim of this programme is to inform immigrants in Meridiana about electricity and gas supply in Spain. In different sessions, participants are informed about the following: understanding energy bills, learning about energy saving measures at home, and discovering mechanisms to overcome difficulties while paying energy	2007-present	Advice	Residents of target neighbourhood	NGO	100+ people have been reached	No information

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			bills. The workshops are held as regular two-hour sessions organised by the church in this neighbourhood.						
Energy Ambassadors	Bulgaria, Denmark, Greece, Spain, France, Italy, Romania, Sweden, UK	Prioriterr a, France (Lead organisation, private company)	EU-funded campaign aimed at tackling energy poverty and helping vulnerable groups to better manage their water and energy consumption through the intervention of social workers that have been trained on these issues. Social workers have incorporated energy advice into their daily work and vulnerable households are taught how, with simple actions, they can reduce their energy consumption significantly.	2009-11	Advice	Households receiving social worker visits.	EU (Intelligent Energy Europe), other public	18,000 people	EUR 930,000
Family Intelligent Energy Saving Targeted Action (FIESTA)	Italy, Spain, Croatia, Bulgaria, Cyprus	AREA (Co-ordinator, private company)	FIESTA aims to assist Southern European families with children to save energy at home, focusing both on their energy consumption behaviour and on their purchasing decisions. The project focuses both on cooling and heating solutions which offer	2014 – present	Advice	Families with children. Particular attention is paid to vulnerable consumers (e.g. low-income, living in	EU (Intelligent Energy Europe)	2,100 home energy audits (aim)	EUR 2.4m

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
			significant domestic saving potential. The scheme is being supported by 20 partners (five technical partners and 14 municipalities, plus one social housing agency) across five countries with a Mediterranean climate that require extensive use of air conditioning systems.			social housing)			
Beat the Cold	Staffordshire, UK	BEAT the COLD (NGO)	Beat the Cold aims to reduce the incidence of fuel poverty and cold-related illness in Stoke-on-Trent and Staffordshire. It brings together a diverse partnership of local authorities, voluntary and statutory agencies, fuel companies, health and social care agencies and community groups. It informs and advises households on energy saving and makes referrals to other services. It does so through telephone advice, events, talks and displays, its website and a winter leaflet.	1999 – present	Advice	Targets disadvantaged households which spend more than 10% of income on fuel	Local government, NGO, other public, other private	1,300 households contacted in year to end March 2014	Total expenditure in 2013/14 was EUR 239,000



Feasibility study to finance low cost energy efficiency measures in low-income households from EU funds

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
Smart-Up	UK, Malta, Italy, Spain, France	Alpheeis SAS (Coordinator, private company)	Smart-Up is an EU funded project that will encourage vulnerable consumers in those Member States that have embarked on the roll-out of smart meters to actively use their smart meters and in-house displays to achieve energy savings. The specific aims of the project are to: Increase active and effective use of smart meters / in-home displays by vulnerable consumers; Encourage vulnerable consumers to change behaviour in response to feedback information; Enable vulnerable consumers to make significant savings	2015 – present	Metering, advice	Groups suffering from fuel poverty	EU (Horizon 2020)	5,000 households (target)	EUR 790,000
Energy saving kits	British Columbia, Canada	BC Hydro (state-owned company)	The Low-Income Programme includes Energy Saving Kits alongside other retrofit programmes to low-income households. The Energy Saving Kit (ESK) component is a package of basic, low-cost energy savings measures believed to be easily	2007 – present	Draught proofing, insulation of exposed pipes, low energy lighting, advice, energy efficiency kits, other	Household must be below thresholds set by Statistics Canada's Low-income cut-offs	Regional government, other private	70,000 kits distributed to 2015	No information

Scheme name	Location	Owner	Brief description	Dates of operation	Measures delivered	Eligibility	Funding source*	Households assisted	Total expenditure
Seattle City Light Conservation Kits	Seattle, Washington, USA	Seattle City Light (private company)	installed by any homeowner or tenant. To reduce utility loads, Seattle City Light introduced the Conservation Kit programme, which distributed an energy and water efficiency kit to electric utility customers in the Seattle City Light service area. Seattle City Light supplied the Kit which included lighting efficiency products	2001-2	Low energy lighting, energy saving kits, other	All Seattle City Light residential customers. Planners adopted approaches to ensure distribution to low-income households.	Other private	179,000 households	~EUR 2m
EDF Energy Solidarity Kit	France	EDF (private company)	In partnership with other public stakeholders, EDF provides energy saving kits to the most fuel poor households as well as energy-saving advice.	2014 – present	Low energy lighting, advice, energy saving kits, other	Households with difficulty paying bills	Other private	300 households received the kits/advice in 2014	No information

\*Column lists all funding sources referenced in literature review as contributing to the scheme. These are not listed in order of size of contribution.

## Appendix 2 – Complete checklist for policy makers

### Key questions to consider for prospective policy makers

#### **Involvement of key institutions**

- Can productive working partnerships be formed with existing front-line services to help to identify, engage and deliver measures more easily?
- In particular are there organisations which are trusted or held in high regard by the target group which could help to maximise engagement?
- Do potential partners offer alternative energy-efficiency, energy support or wider support measures which could offer a more holistic and beneficial service to households?
- Do key partners have time to support the scheme? Have they committed to prioritise their support?
- Do key partners have the appropriate knowledge to deal with the request? What can be done to fill the knowledge gap?
- Are partners (or the services they provide) critical to achieving the main objectives of the scheme?
- Would partnerships with commercial organisations be possible and beneficial?
- Could involvement of any partners deter engagement of households in the scheme, either due to poor public perception or trust, or previous negative experiences?
- Are partners identified relevant to the successful delivery of the scheme? Do the benefits of including the partners outweigh the additional organisational costs?
- Have the boundaries of the scheme been clearly communicated to potential partners to ensure clarity of remit? Would a clear organisational framework setting out roles of different partners be conducive to success?
- Has the appropriate contact point in potential partners been identified?

#### **Funding source**

- Can close partnerships be established with potential funders to increase clarity and certainty around referrals and access to funding?
- How certain is the source of funding for the scheme over the medium to longer term?
- Would a volunteer model be a feasible and appropriate way to reduce administration costs? If so to what extent and is this sustainable in the longer term?

#### **Expertise/skills required**

- Do scheme owners have the necessary capacity to design, implement and manage the scheme? If a scheme involves a large number of partners, does the owner have the necessary skills and resource to maintain these relationships?
- Can communication skills training increase awareness of the situation of vulnerable households?
- Are training programmes for energy advisors adequate? Is further training or support guidance available for reference if required?
- Can training of advisors be tailored to their background and existing knowledge and expertise? Can front-line services inform the design of training itself to better reflect the situation of vulnerable households?
- What functions are required of households? Do they hold the necessary capacity to carry out these functions effectively?

#### **Underlying policy framework**

- Do any related policies or programmes exist from which investment could be leveraged to fund delivery of measures? Where the scheme

### Key questions to consider for prospective policy makers

intends to rely on external sources of funding, will this implicitly restrict eligibility for the scheme?

- Can synergies with other policies with respect to promotion and identifying target households be taken advantage of?
- Could the measures provided by the scheme complement and be offered through other, existing initiatives alongside direct provision?
- Would the proposed scheme overlap with existing offerings to target households?
- Does eligibility for the scheme align with existing support to vulnerable households which could make targeting households easier?
- How simple is it to understand and meet the requirements and objectives of any over-arching policies?
- Does the success of the scheme rely on successful delivery of another policy or programme?
- Does the legal framework underpinning the scheme minimise potential uncertainty around the long-term sustainability of the scheme?
- Will the sustainability of the scheme be influenced by political will? If so can bi-partisan political support be fostered to reduce long-term uncertainty regarding the scheme?

#### ***Type of measures delivered***

- Can measures be fully or part funded to overcome affordability barriers?
- Does the funding structure present barriers to households? Are risks around funding (in particular potential for spiralling costs) appropriately managed?
- Would it be suitable to provide information alongside measures to transfer knowledge to households?
- What is the likelihood that measures could cause disruption for the household? Can this disruption be mitigated, in particular through knowledge sharing?
- Will all measures provided be used by households? What is the risk that they may be uninstalled over time?
- Is it possible to tailor the measures provided according to household requirement to increase efficiency?
- Are measures provided applicable to both hot and cold climates?
- Can face-to-face contact or repeated interaction be harnessed to better understand the household circumstances and ensure measures are working as they should?
- Can all household members be engaged in the delivery of energy efficiency measures?
- Does funding cover all measures which might be applicable to these households? If not, is there a pertinent reason why measures are excluded?

#### ***Underlying housing characteristics***

- Does the scheme target the private rented sector? Has it acknowledged (and if possible mitigated) the specific issues preventing effective delivery in this area?
- Have measures introduced to overcome barriers been sense-checked to ensure these do not introduce further barriers to success?
- Can a mechanism be introduced to mitigate the issue of household turnover delaying or cancelling works?
- Is common consent required from more than one household to facilitate delivery?
- Do schemes target a specific set of housing characteristics? Does this prevent broadening out the scheme to other household types?
- Can economies of scale be taken advantage of in the identification of, engagement of, or delivery of measures to target households?

#### ***Demography of household members***

- Are eligibility criteria appropriate for targeting the most vulnerable? Will eligibility criteria exclude key categories of vulnerable households?
- Is the scheme universally accessible to all households, e.g. different languages, disabilities, etc.?
- Is engagement with the household designed to work around the household activities as far as possible (e.g. to avoid visits when

### Key questions to consider for prospective policy makers

households are not at home)?

- Is it possible to tailor the measures provided according to household requirement to increase effectiveness?
- Does the scheme depend on underlying awareness and interest of households?
- Are additional requirements for households to provide information minimised?
- How can the scheme deal with households who do not want to change behaviour or feel that this would not have an effect?
- Could existing support services provide a disincentive to engagement with the scheme?

#### ***How are measures delivered***

- Is information available which can be used to directly identify and engage target households?
- What form of marketing is likely to be most appropriate for the target group? Can multiple forms of engagement, high-intensity marketing or innovative techniques be used to good effect to help promote the scheme? Could the marketing approach used omit certain households?
- If self-referral is used, will this reach the most vulnerable households?
- Can a single point of contact be established for households, partner agencies and other stakeholders to consolidate responsibility for organising delivery and provide clarity for households?
- Is it possible for members of the target community to be involved in the delivery of measures themselves?
- Is the process for applying, arranging and delivering measures simple and clear from the household perspective? Is the scheme easy to access for households (in terms of first contact) where self-referral is required?
- Can targets be set for the delivery of measures in terms of length of time?
- Will households be provided with sufficient information regarding the service provided?
- Have flexibility and risk management processes been built into the approach to allow the scheme to adapt in the face of internal or external pressures?
- Is the scheme underpinned by an effective monitoring and evaluation framework that facilitates learning and improvements in the scheme over time? Is sufficient robust and credible information available with which the scheme can be effectively monitored and evaluated?

## Appendix 3 – Main features of ESIF and Horizon 2020

**Table 20 – Main features of the relevant ESIF<sup>200</sup>**

Main Features	Cohesion Fund (CF)	European Regional Development Fund (ERDF)	European Social Fund (ESF)
Objectives	The CF is especially focused on supporting infrastructure for sustainable development and energy offering environmental benefits. Support is available for thematic objective 4: ' <i>Supporting the shift towards a low-carbon economy</i> ' under which energy efficiency measures can be financed.	The financing of energy efficiency measures in the housing stock falls within the scope of the ERDF and is clearly targeted within thematic objective 4: ' <i>Supporting the shift towards a low-carbon economy</i> '. Additionally, the ERDF can support measures promoting social inclusion and vocational training, and hence energy efficiency measures targeted to low-income households or including dedicated energy efficiency training.	Although not directly targeted by the ESF, energy efficiency measures in low-income households can be financed within the scope of thematic objective 9: ' <i>Promoting social inclusion, combatting poverty and any discrimination</i> ' and thematic objective 10: ' <i>Investing in education, training and lifelong learning</i> '.
Funding available	The total amount available for the period 2014-2020 is around <b>EUR 63.4 billion</b> . The total amount available for the low-carbon economy objective is around <b>EUR 8 billion</b> .	The total amount available for the period 2014-2020 is around <b>EUR 196.6 billion</b> . The total amount available for the low-carbon economy objective is around <b>EUR 31.6 billion</b> . Additionally, roughly <b>EUR 11.9 billion</b> is available for supporting the social inclusion objective and <b>EUR 6.3 billion</b> for the education and training objective.  Under thematic concentration provisions, minimum allocation of funds for supporting	The total amount available for the period 2014-2020 is around <b>EUR 86.4 billion</b> . Approximately <b>EUR 21.2 billion</b> is available for supporting the social inclusion objective and <b>EUR 27.1 billion</b> for the education and training objective.  There are provisions requiring that at least 20% of the total ESF resources in each Member State are allocated to promoting social inclusion and combatting poverty (thematic objective 9).

200 Information sources: Common Provisions Regulation (Regulation (EU) No 1303/2013); CF Regulation (Regulation (EU) No 1300/2013); ERDF Regulation (Regulation (EU) No 1301/2013); ESF Regulation (Regulation (EU) No 1304/2013); A list of all thematic objectives is available here: [http://ec.europa.eu/regional\\_policy/en/policy/how/priorities](http://ec.europa.eu/regional_policy/en/policy/how/priorities); Estimates about the available funds in MFF 2014-2020 are available here: <https://cohesiondata.ec.europa.eu/> (last accessed 31 March 2016); ICF International, Hincio and CE Delft (2014) Technical Guidance: Financing the energy renovation of buildings with Cohesion Policy funding, Final report, A study prepared for the European Commission, DG Energy

Main Features	Cohesion Fund (CF)	European Regional Development Fund (ERDF)	European Social Fund (ESF)
		the low-carbon economy (investment priority 4) is: 20% of the ERDF funding for more developed regions; 15% in the case of transition regions and 12% in the case of less developed regions.	
Form of support and co-financing provisions	<p>Support under the ESIF can be in the form of grants, prizes, repayable assistance and financial instruments, or a combination of these. Eligible financial instruments are those set up at EU level (managed directly or indirectly by the Commission) and those set up at national, regional, transnational or cross-border level (managed by, or under the responsibility of, the MAs). Moreover, financial instruments should be implemented to support investments which are expected to be financially viable but do not raise sufficient funding from market sources. Therefore, the implementation of financial instruments must be based on an ex-ante assessment of the underlying market failures or sub-optimal investment situations. Additionally, grants cannot be used to reimburse support received from financial instruments, which in turn cannot be used to pre-finance grants.</p> <p>Generally, support received in the form of grants from EU funds cannot be combined with other EU grants for the same purpose. However, the use of financial instruments (e.g. renovation loans, micro-credits, guarantee funds) may be combined with other forms of support including grants, interest rate subsidies and guarantee fee subsidies as well as assistance from other ESIF priority or programme.</p>		
Eligibility requirements	<p><u>Eligible beneficiaries:</u> public or private bodies from Member States responsible for initiating and/or implementing the supported operation and/or the financial instrument, this includes Public-Private Partnerships and different funds.</p> <p><u>Eligible activities:</u> the operations that ESIF can support must be in line with the relevant OP in a Member State or region.</p>		
Implementation modalities	<p>The first step to implementing the ESIF is programming. Each Member State is required to prepare a Partnership Agreement with the Commission to outline strategic level funding priorities and the allocation of funds under each selected thematic objective. The MAs in each Member State then develop OPs which specify priorities for the selected thematic objectives and the amounts of ESIF and national co-funding. They are subject to approval by the Commission and then adopted by the Member State, at which point they govern the spending of ESIF within the relevant territory and thematic objectives. In the case of financial instruments an ex-ante assessment of the underlying market failures or sub-optimal investment situations must be performed and made available before the instrument is used. Furthermore, the implementation of financial instruments can be entrusted to the European Investment Bank (EIB), international or national financial institutions aimed at supporting the public interest.</p> <p>Once the OPs are ready, the potential beneficiaries can then apply for funding with the relevant MAs in order to receive support for eligible projects in line with the OPs.</p> <p>The implementation of the programmes is then monitored by monitoring committees set up by the Member States. Additionally, each</p>		

Main Features	Cohesion Fund (CF)	European Regional Development Fund (ERDF)	European Social Fund (ESF)
	Member State submits, to the Commission, an annual report on the implementation of the programmes in the previous financial year. In turn, the Commission prepares a summary report. Evaluations of ESIF and programmes are performed ex-ante, during implementation and ex-post.		
Other	Technical support regarding preparation, management, monitoring, evaluation, information and communication, networking, complaint resolution, and control and audit can be supported by ESIF at the initiative of the Member States. In addition, ESIF may be used by the Member State to reduce the administrative burden on beneficiaries. Technical assistance can be supported by the CF and ESF.		

**Table 21 – Main features of Horizon 2020<sup>201</sup>**

Main features	Horizon 2020
Objectives	The ' <i>Secure, clean and efficient energy</i> ' societal challenge aims to support the EU's transition to a reliable, affordable, sustainable and competitive energy system. Energy efficiency is one of the three main priorities of this challenge. It is expected that research, demonstration, and coordination and support activities within this area will focus on, among other things, buildings, industry, heating and cooling, consumers, and energy-related products and services.
Funding available	In the period 2016-2017 (i.e. under the current work programme) more than <b>EUR 1 billion</b> is available for the societal challenge ' <i>Secure, clean and efficient energy</i> '.
Forms of support and co-financing provisions	While primarily a grant-based programme, Horizon 2020 combines a range of support options: Grants - direct financial contribution of up to 100% of the direct costs and a lump-sum of 25% of the indirect costs of a project; Procurement - a contractor provides goods or services to the Commission; Prizes - financial contribution is given as a reward following a contest in a specific area; Financial instruments e.g. equity or quasi-equity investments, loans, guarantees or other risk-sharing instruments.  Generally, no activity supported by an EU funding programme in the form of grants can be financed by grants from other EU funds for the same purpose. Horizon 2020 grants can, however, be complemented with other financial

201 Information sources: <http://ec.europa.eu/programmes/horizon2020/en>; Participant Portal H2020 Online Manual available at: [http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index_en.htm) (last accessed 18 April 2016); Horizon 2020 Regulations (Regulation (EU) No 1291/2013 and Regulation (EU) No 1290/2013); European Commission Decision C(2016)1349 of 9 March 2016: Horizon 2020 Work Programme 2016-2017: 10. '*Secure, Clean and Efficient Energy*'; European Commission Decision C(2016)1349 of 9 March 2016: Horizon 2020 Work Programme 2016-2017: 20. General Annexes; Milieu (2015) Study on climate mainstreaming in the programming of centrally managed EU funds, Final report 10 September 2015



Main features	Horizon 2020
Eligibility requirements	<p>instruments and sources of finance.</p> <p><u>Eligible beneficiaries:</u> all legal entities that meet the requirements set out in the relevant calls for proposals. It is expected that Horizon 2020 will be implemented primarily through transnational collaborative projects and depending on the type of targeted actions the eligibility requirements stipulate participation of at least three entities from three EU Member States or Horizon 2020 associated countries. In the case of the European Joint Programme (EJP) Cofund actions the potential beneficiaries must be at least five legal entities from five different EU Member States or Horizon 2020 associated countries.</p> <p><u>Eligible activities:</u> the proposals must be in line with the topic description and requirements defined in the call for proposals. The energy efficiency calls launched and/or forthcoming in the current programming period can be found on the Participant Portal<sup>202</sup> of the fund. Generally, eligible activities under Horizon 2020 may include basic research, applied research, knowledge transfer or innovation, including non-technological, organisational, systems and public sector innovation. In the current work programme the energy efficiency calls are grouped around the following main themes: heating and cooling; engaging consumers towards sustainable energy; buildings; industry, services and products; innovative financing for energy efficiency investments.</p>
Implementation modalities	<p>The work programme prepared by the Commission is central to decision-making on the activities that are to be funded by Horizon 2020. It sets out the focus areas providing the main direction of the programming over overlapping three-year periods. The work programme has 18 thematic sections for each of the specific objectives of the fund describing the goals, respective calls for proposals and topics within each call.</p> <p>Potential beneficiaries are invited to submit an application through a call for proposals. In general, once a call for proposal is published, applicants are required to submit proposals within the deadline through the electronic submission system of the Participant Portal. Alongside the information provided on the Participant Portal, applicants may receive support from national organisations and authorities. In particular, the network of National Contact Points (NCPs) is the most significant structure providing guidance on the Horizon 2020 application process.</p> <p>Proposals are then evaluated by independent experts, identified from the Commission's database of independent experts for research and innovation. The European Commission, or an executive agency, is responsible for overseeing the implementation of projects. Project officers assess progress and monitor issues through regular periodic reports.</p>
Other	Horizon 2020 projects can also be complemented by public-private and public-public partnerships.

202 [http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index_en.htm) (last accessed 18 April 2016)

