

Financing and delivering UK public sector energy efficiency: Insights from the Public Sector Energy Efficiency Loans Scheme evaluation.

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ABSTRACT

This paper presents insights from an evaluation of the UK public sector energy efficiency loans scheme, funded by BEIS and delivered by Salix Finance Ltd¹. The scheme provides interest-free loans to public sector bodies to support the installation of energy efficiency measures via two funding models 1) Interest-free loans to fund energy efficiency measures repaid within five (eight for schools) years through bill savings 2) a 'recycling-fund': A ring-fenced interest-free loan which is match funded by participants. Once funds are repaid, they are recycled to fund other energy-efficiency installations within the organisation. From 2013-17, the scheme financed 3,470 projects across 564 organisations.

A mixed methods approach, informed by a theory of change, identified that the scheme has delivered bill savings and emissions reductions for the public sector. The evaluation identified several reasons why the scheme has delivered this including:

- a) its longstanding, broadly unchanged delivery model
- b) support offered by designated Client Support Officers', who build relationships with organisations' over time, helping understand local contexts and overcome barriers
- c) flexibility in terms of application time and the nature of the measures being funded
- d) use of a ring-fenced budget within the recycling-fund to drive repeat activity. Participants described how its 'use-it-or-lose-it' feature encouraged them to work hard to proactively find and deliver new projects over time.
- e) attractiveness of non-energy benefits delivered by some measures.

The evaluation also identified a range of wider lessons to help inform policy-makers seeking to maximise energy-efficiency take up using financial mechanisms.

Glossary of terms

BMS = Boilers and building management systems

CSOs = Client Support Officers

BEIS = Department for Business, Energy and Industrial Strategy

EPC Energy Performance Contracts

ESCOs = Energy Services Companies

FEI = Further Education Institutions

HVAC = Heating ventilation and air conditioning

HMT = Her Majesty's Treasury

HEI = Higher Education Institutions

LED = Light-emitting diodes

LA = Local Authority

M&V = Monitoring and verification activities

NHS = National Health Service

QEA = Quasi-experimental impact assessment

RF = Recycling Fund

SEELS = Salix Energy Efficiency Loans Scheme

Salix = Salix Finance Ltd

ToC = Theory of change

Introduction

The Public Sector Energy Efficiency Loans Scheme ('the scheme') provides interest free loans to public sector bodies² including Local Authorities (LA), National Health Service (NHS) / Foundation Trusts, Emergency Services, schools, further and higher education institutions (FEIs and HEIs respectively) to support the installation of energy efficiency measures. The scheme exists to provide access to finance, a well-known organisational barrier to improving energy efficiency, and underpins other policies to support the public sector in meeting carbon targets. The scheme is currently delivered by Salix Finance Ltd. (Salix)³. The scheme in England⁴ funds cost-effective single or multiple-measure projects from a list of over 100 approved technologies.

The scheme includes two forms of funding:

1. The Salix Energy Efficiency Loans Scheme (SEELS): Interest-free loans to fund the installation of an energy efficiency measure that is repaid within five (or eight for schools) years through the savings incurred to energy bills.
2. The Recycling Fund (RF): A ring-fenced, interest-free loan that is match funded by the participating organisation. Once loan funds are repaid, they are then recycled to fund other energy efficiency installations within the organisation. RF has been closed to new participants since 2011 although it still continues for organisations participating beforehand.

Evaluation context, scope and objectives

The Department for Business, Energy and Industrial Strategy (BEIS) commissioned a consortium of independent research organisations to conduct the evaluation of the scheme. The project was led by Winning Moves Ltd, working in partnership with CAG Consultants, University College London, and Hatch Regeneris.

The evaluation covered activities between financial years 2013 / 2014 and 2016 / 2017. The evaluation addressed a range of evaluation objectives, including:

1. Undertaking a robust assessment of net scheme impacts, in terms of energy consumption, bills and carbon emissions
2. Improving understanding of how the scheme's processes operate in practice and identify successes and barriers in the scheme's implementation
3. Assessing the cost-effectiveness of the scheme overall and the cost-effectiveness of different energy efficiency measures, for participants and the government.
4. Producing lessons from the scheme to inform policy makers involved in energy efficiency policies and financial mechanisms.

This paper focuses on objectives 2 and 4 as they provide useful insights to those interest in maximising energy efficiency take up in organisations using financial mechanisms, drawn principally from the interim evaluation report, published in July 2018 (Department for Business Energy and Industrial Strategy, 2018). The final evaluation report is expected to be published in 2020, which covers a broader range of evaluation objectives and questions.

Methodology

The approach to this evaluation was theory-based, using a theory of change (ToC) to inform the design and focus of the evaluation. The overall evaluation employed a phased, mixed-methods approach to answer the evaluation objectives, which included a quasi-experimental impact assessment (QEA),

² Excluding central government departments due to financial regulations.

³ <https://www.salixfinance.co.uk/>

⁴ Whilst Salix Finance operates across Great Britain, BEIS fund the scheme in England, which forms the scope of this evaluation.

qualitative and quantitative research with scheme participants and non-participants, and a cost effectiveness assessment. The evaluation was formed of three phases: A scoping phase; a first phase which piloted QEA methods and included qualitative interviews with public sector organisations; and a second phase which included further QEA and a survey of participants. This paper focuses on the scoping and first phases.

The scoping and method development phase, including development of the ToC took place between August 2017 and January 2018. A rapid scoping review was also undertaken to explore lessons from research and evaluations of similar schemes elsewhere in the UK and internationally, which informed the scope, objectives and methodology employed. Evidence which was drawn from included evaluations of the Scottish Governments Central Energy Efficiency Fund (AEA Energy and Environment, 2007), Welsh Invest to Save fund (Pringle et al., 2014), UK CRC Energy Efficiency Scheme (CAG Consultants, 2014) and Portuguese Less Carbon Climate Fund (Energy Cities, 2014).

The first phase, which ran between December 2017 and March 2018 included 81 qualitative in-depth interviews with scheme participants, non-participants and Salix Finance representatives; and piloting of a Quasi Experimental Analysis as a potential methodology for impact assessment. Interviews were conducted by telephone, lasting between 30-40 minutes, using a topic guide organised around key themes directly relating to the evaluation objectives and questions.

For the interim report, an analysis framework based on the ToC was developed and used to collate and co-ordinate the findings from each work element in each phase. Furthermore, a synthesis was conducted through an iterative process with the consortium and BEIS to work through limitations and areas of conflicting evidence to shape the narrative from the key findings.

Key limitations

The evaluation was limited by a range of factors.

The approach for the scoping and first phases of this evaluation principally comprised qualitative research methods, which constrained the extent to which the evaluation objectives could be addressed.

The emergency services were not sampled for the qualitative work due to the small population size. Therefore, the extent to which findings are applicable to this group are not known.

There is a possibility of sample bias, particularly amongst non-participants as it is expected that the respondents will be from organisations who are more active in energy management and are therefore more likely to have volunteered to participate in the research. This was mitigated for by purposively sampling target numbers of participant and non-participant groups and persistence in recruitment, giving target respondents good and equal opportunities to respond. Notwithstanding this, the extent of this issue is unknown, and so it is uncertain how this has affected the findings presented in this paper⁵.

Scheme development and theory of change (ToC)

The scheme started as a pilot in 2004 with a number of LAs testing the RF, the pilot was then broadened to include HEI, NHS and Emergency Services in 2006. In 2007, the full scheme was launched for these groups and in 2009 the SEELS scheme was launched. At the time of the evaluation, over 100 eligible technologies were supported by the scheme including lighting (and also street lighting), insulation, heating ventilation and air conditioning (HVAC), boilers and building management systems (BMS)⁶. While the scheme focuses on these 'proven' energy efficiency technologies, it is possible for customers to propose new technologies for funding. In these cases, Salix Finance undertake an assessment of the technology and add it to the eligible list if there is a strong enough evidence base.

Figure 1 shows the interim theory of change (ToC), which was developed, reviewed and refined during the evaluation. The ToC is a conceptual model which describes how the scheme is expected to work and bring about desired outcomes and impacts. The ToC is laid out in a hierarchical fashion, but in practice

⁵ Further limitations, particularly related to the QEA are presented in the interim report (Department for Business Energy and Industrial Strategy, 2018).

⁶ The full list of eligible technologies is available on the Salix Finance website: <https://www.salixfinance.co.uk/knowledge-share/eligible-technologies>

there are multiple feedback loops, and these are acknowledged in the diagram. More specifically it describes scheme:

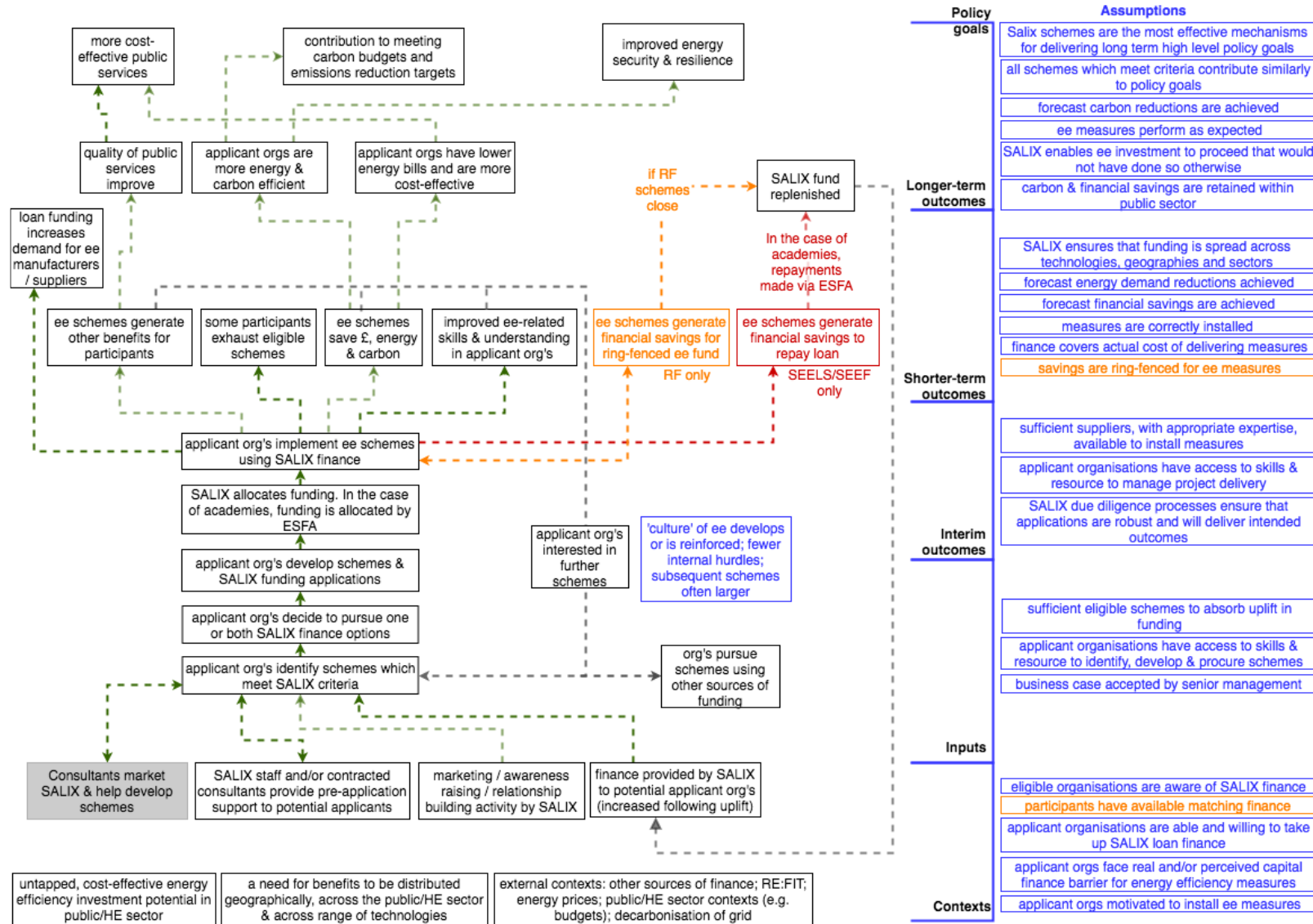
- Contexts, such as the presence of untapped, cost effective energy efficiency potential, alternative existing sources of finance and a need for benefits to be distributed across the sector and across technologies.
- Inputs, such as scheme funding and loans, Salix staff support and awareness raising
- Activities and interim outcomes, for example, eligible organisations identify projects which meet scheme criteria and loan repayment thresholds⁷ apply. Salix reviews applications and allocates funding⁸ and applicants implement projects, which generate financial savings. For SEELS, savings can be used to repay the loan and in the case of RF are ring-fenced into a 'recycling fund' to enable funding of further projects in future.
- Shorter-term outcomes, including schemes saving money, energy and carbon, improved energy efficiency related skills and understanding within participating organisations and co-benefits.
- Longer-term outcomes such as improved energy and cost efficiency, leading to more cost-effective public services, contributing to meeting emissions reduction targets and improved energy security and resilience.

The ToC also includes key assumptions which are thought to have critical bearing on outcomes and impacts. The ToC underpinned the evaluation, and the evaluation questions and supplementary research questions were designed to explore and test it, in particular gathering evidence to test the identified assumptions.

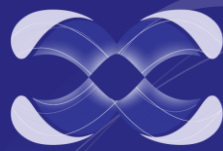
⁷ Scheme loan repayment periods for SEELS is 5 years for all organisation types apart from schools, where it is 8 years (owing to reduced occupancy due to term times). For the Recycling Fund, the scheme repayment period is also 5 years, although Salix has enabled these participants to extend the repayment criteria of the match funded proportion of the costs.

⁸ In the case of academies, allocation of funding is undertaken by the Education and Skills Funding Agency (ESFA).

Figure 1: Public Sector Energy Efficiency Loan Scheme Evaluation Interim Theory of Change⁹



⁹ Key: Blue text = assumptions. Orange text relates to RF only, red text relates to SEELS only.

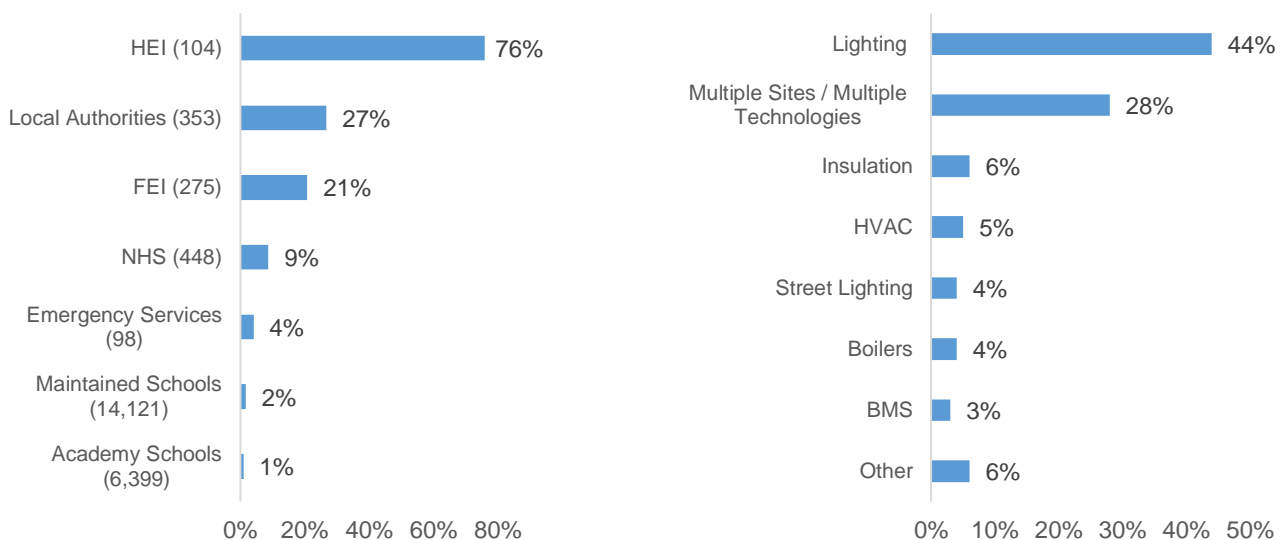


Results

Scheme activity

Between financial years 2013/14 and 2016/17, 3,470 projects were funded by the scheme across 564 organisations, with a total spend of £235m (RF £51m, SEELS £184m). Within this, a sub-set of organisations used the scheme extensively¹⁰, whereas 324 (57%) organisations implemented just one project. Whilst the number of participating organisations annually remained relatively constant, there was a trend towards delivering fewer but larger projects over time. Furthermore, participation varies considerably by organisation type, which is broadly skewed towards organisations with larger estates (Figure 2). These trends were described to be influenced by a range of factors, including a 2015 funding uplift¹¹; scheme design which encourages working with existing participants with greater potential to act, as well as overcoming initial barriers, such as convincing senior decision makers, which ease after having proven the case for action.

Figure 2: Proportion of projects by organisation (N=21,798*) and technology type (n=3,470) 2012/13 – 2016/17 (%) SEELS and RF



* = Figures in parentheses within the chart are population figures for each organisation type.

By far the most popular technology was lighting (the ‘multiple technologies’ category is also dominated by lighting¹²), which contrasts with other research that suggests cost effective energy efficiency potential is available from a broader range of measures, including space heating and building fabric measures (Department for Business Energy and Industrial Strategy, 2016). The qualitative research showed that the dominance of lighting reflects the perception of these projects as being straightforward to deliver, low risk, with good payback,

¹⁰ 15 organisations have completed more than 50 projects each and 116 have done more than 10 projects each.

¹¹ In the 2015 Spending Review (SR15), HM Treasury (HMT) approved a £255.3 million funding uplift for the scheme in England, spread over five financial years (2016/17 – 2020/21).

¹² Analysis of scheme application forms showed that 28% were categorised as ‘Multiple Technologies’. This is the descriptive term used by Salix in their administration data. From a ‘free text’ description of the project, it is sometimes possible to determine which technologies have been installed. This is generally a mix of the technology types presented here – although they predominantly include lighting.

and producing co-benefits, including lower maintenance and improved productivity. By contrast, several participants noted issues in designing, procuring and delivering non-lighting projects in a timely fashion.

SEELS catered to a broad range of participants (247 schools; 70 academies; 56 FEIs, 24 NHS, 36 LAs; 25 HEIs and 2 Emergency Services have taken up the scheme) , whereas the RF is dominated by HEIs and LAs (27 and 48 have taken up the scheme respectively along with 4 NHS and 2 Emergency Services). SEELS has relatively low levels of repeat activity (2.2 projects per organisation), whereas the RF is dominated by HEIs and LAs and is characterised by high levels of repeat activity (>20 projects per organisation). The ‘use it or lose it’ aspect of the RF meant that those with access to it prioritised RF activity first, before moving onto SEELS for other, often larger-scale projects if needed. SEELS was appreciated for its relative simplicity, although it was less likely to encourage further activity over time.

There were a range of reasons for and barriers to participation, which broadly split into financial and non-financial issues. Financial drivers included a desire to achieve energy bill savings, seeing the scheme as an attractive source of finance, the lack of interest attached to loans and also the ability to use scheme funding to leverage other finance, thereby improving the business case for a larger project. Non-financial drivers included using the scheme to help deliver energy efficiency elements of planned refurbishment, delivering carbon savings and the ability to demonstrate leadership through implementing projects. Furthermore, trust in the scheme due to its government backing and co-benefits, such as improved engagement with energy efficiency and enhanced productivity were also considered important. Regarding barriers, some organisations were hard to convince to take on ‘on-balance sheet’ debt, particularly if they were financially constrained. This was particularly an issue for the NHS and FEIs, which both had sector-specific rules or performance monitoring which discouraged loans. Some also noted the scheme’s requirement for direct debits in order to make repayments, which was a particular issue for schools. Non-financial barriers included procurement challenges, estate changes and/or rationalisation and capacity and skills constraints, the latter of which was more predominant amongst interviewed non-participants and schools. In addition, lack of participation by schools appeared to be due to awareness, delivery access issues and lower operating hours limiting payback calculations (e.g. due to school holidays).

Exploring activities with non-participants highlighted that many of them were undertaking energy efficiency projects. However, it appeared that for many non-participants, activities seemed to be undertaken at a smaller scale / over longer periods than for participants. Commonly referred to sources of alternative finance included internal capital funds, Public Works Loan Board (LAs only), grants and Energy Performance Contracts (EPCs¹³). Whilst most interviewees were aware of EPCs, actual use of them appeared to be limited. Many noted that they were wary of going down this road for a variety of reasons, including profit-making from savings, needing to sign up to long-term contracts (including restrictive clauses) and concerns with regards to service quality, particularly with regards to maintenance.

Scheme delivery and experience

Salix Finance employed sector and regional teams, with Client Support Officers (CSOs) who are assigned participant organisations to develop and deliver projects. The model of delivery prioritises delivery of large-scale, cost effective projects, whilst ensuring equitable access by running specific sector-based funds, for example for schools and academies.

Most participants described having good experiences working with the scheme and generally regarded scheme managers positively. Participants particularly appreciated the CSO delivery model, describing that having key, named contacts who understood their work helped them progress, what was often described as highly context-specific, energy efficiency opportunities. Some respondents from schools and FEIs noted that starting to

¹³ An energy performance contract is a contract under which energy efficiency measures are: provided; verified and monitored; and paid for by reference to a contractually agreed level of energy efficiency improvement or other agreed criterion such as financial savings. EPC delivery contractors are commonly referred to as Energy Services Companies (ESCOs).

work with the scheme had involved a steep learning curve and their confidence and ambitions had subsequently improved (which had led them to then do more).

The flexibility of the scheme, in terms of application times and nature of measures being funded was also perceived as positive. Furthermore, the assurance function provided by assessing application projects was valued, on the basis it provided confidence to proceed, particularly amongst organisations with less energy efficiency delivery experience. The project application process was broadly seen as being straightforward and rigorous, but not perceived to be unnecessarily challenging. Meeting loan repayment periods, particularly for standalone 'invest to save' energy efficiency projects was described as a key financial barrier. Calling for longer repayment periods was a key theme, particularly amongst those who had completed many scheme projects. Many described that as it became more challenging to meet repayment criteria they were 'topping up' business cases with their own funding to meet eligibility requirements.

Outcomes and scheme contribution

Specific details regarding outcomes and scheme contribution have been completed and due to be published in the final evaluation report¹⁴.

Co-benefits and unintended outcomes

Whilst few scheme participants reported undertaking specific energy monitoring and verification (M&V) activities, most participants stated the scheme met their expectations in terms of energy and associated bill savings. Participants also reported experiencing a range of co-benefits and unintended outcomes. For example, scheme funding enabled leverage of internal and external funds to support energy efficiency work for necessary ancillary works (e.g. roof/ceiling works for lighting projects). Furthermore, individuals involved with the scheme reported that scheme activities helped build greater confidence and ambition to 'do more' over time. Further co-benefits included reputation benefits, enhancing team skills and experience, and technology specific benefits, for example, improved internal environment resulting from LED lighting and heating/cooling related projects. LED lighting projects were also associated with reduced maintenance and 'hassle' costs, which had knock on benefits by freeing up time and resources, as well as reducing downtime¹⁵.

Wider lessons from the evaluation

Suggested changes to the existing scheme

While the scheme was highly regarded in the main, those participating in the research were asked for their suggestions to improve the scheme.

Changes to repayment criteria: Many respondents, in particular long-standing scheme customers wanted payback periods to be increased who described that they found it difficult to identify new projects which meet the payback criterion, as cost-effective potential was 'drying up'.

Scheme awareness: Some respondents noted that awareness of the scheme among finance departments and financial directors was still quite low. As this was often where challenges lay in taking the scheme forward, further direct engagement with finance departments was thought to be helpful.

¹⁴ If the final evaluation report has been prior to the conference, this paper will be revised to include the findings in the next iteration.

¹⁵ Inactive time whilst buildings or equipment were being fixed or maintained.

Suggestions for this included explaining the scheme and its benefits, discussing issues and allaying concerns. Related to this, a few respondents also mentioned that use of the word ‘loans’ may be perceptually difficult for some, so avoiding the term was a good idea.

Off-balance sheet finance: Some respondents also noted developing financial mechanisms which provided the same benefits as the current scheme (i.e. interest-free) but were not identified on balance sheets. This was more a more prevalent issue among NHS respondents and those organisations experiencing financial difficulties. Further details on how this could be designed or delivered were not elucidated however.

Additional advice and support: Finally, a range of respondents, in particular LAs, suggested the provision of independent, free advice would be helpful, some of them referring back to support provided previously by the Carbon Trust. Additional support should also have a focus on helping organisations with smaller estates (e.g. schools) to participate, for example assisting them to overcome capacity and skills constraints. Some also discussed working more with existing frameworks (e.g. RE:FIT¹⁶) and providing help/support as part of assisting procurement and delivery.

Design and delivery of financial mechanisms to help address outstanding energy efficiency potential:

The following aspects were identified as being important in the design and delivery of financial mechanisms to help address outstanding energy efficiency potential.

0% interest: The interest free aspect of the finance was highlighted as crucial, from a cost effectiveness perspective, and perhaps more importantly, psychologically as it was perceived to make the scheme considerably easier to ‘sell’, for example to senior management and finance teams.

On balance sheet debt: Some organisations are likely to be more difficult to convince to take on ‘on-balance sheet’ debt, particularly if they were financially constrained or affected by sector specific rules. EPCs were identified as a possible alternative financial mechanism but were viewed with suspicion by some who had considered them.

Government backing and ease of use: The Government backed nature of the scheme was also considered to be crucial to ensuring trust in the scheme as well as the ease of use ‘low hassle’ nature of the scheme discussed by participants.

‘Use it or lose it’: The ‘use it or lose it’ aspect of the recycling fund, appears to encourage considerably greater levels of activity compared to SEELS.

Design and delivery of energy efficiency policy

The following features were considered important in the context of broader design and delivery of energy efficiency policy.

Simplicity and stability: The relative simplicity of the scheme, as well as its stability of delivery over time appears to have been crucial to its success. The positive reputation of Salix as scheme managers appears to be associated with this. Furthermore, Salix finance and some participants described that the relative certainty of funding in future years provided by the 2015 funding uplift provided them with greater confidence to work more strategically.

Flexibility: The targeted and flexible nature of support offered by scheme managers appeared helpful, particularly when working with large and more experienced participants. Participants noted that Salix CSOs and other staff would proactively help with making the case for projects to go ahead, for example, engaging with finance staff on particularly large projects was considered important in getting agreement for more ambitious or complex projects.

¹⁶ <https://localpartnerships.org.uk/our-expertise/re-fit/>

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