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Support needs of those in fuel poverty

Research report

Ipsos MORI and Bill Sheldrick

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Executive summary

This report presents findings from a research study conducted by Ipsos MORI and Bill Sheldrick, aimed at identifying the characteristics of fuel poor households in Scotland that might be most in need of support, and the types of support that would benefit them most. The research comprised three main components: a rapid review of evidence on fuel poverty and associated schemes/policies; secondary analysis of relevant data from the Scottish Household Survey (SHS); and primary qualitative research among people in fuel poverty. The research was designed and conducted between October and December 2017.

Background

Scotland is at a significant strategic juncture with regard to policies on energy efficiency and fuel poverty. In January 2017, the Scottish Government published a consultation paper outlining its proposed Scottish Energy Efficiency Programme, referring to energy efficiency as a national infrastructure priority. Subsequently, in November 2017, it published its Consultation on a Fuel Poverty Strategy for Scotland, which included a proposed new definition of fuel poverty.

The CFU's Work Plan for 2017-18 prioritised ensuring that *"consumers' real life experience is reflected in [any] new definition [of fuel poverty], so it is an effective tool for targeting support at those in need."* Reflecting this, the organisation commissioned Ipsos MORI and Bill Sheldrick to carry out research aimed at furthering understanding of the support needs of those in fuel poverty, and informing its work in this area going forward.

Analysis of data from the Scottish Household Survey

The secondary analysis aimed to assess the differences in the characteristics of fuel poor people who require support with their energy costs and those who do not, by considering their subjective evaluations of their circumstances – both in terms of how they are managing financially and how easy or difficult it is to heat their homes – and their socio-demographic profile.

The analysis found that people in fuel poverty were much more likely to be struggling financially or to have difficulties heating their home than those who were not. However, the majority of the fuel poor still felt that they were managing financially (84%) and did not have a problem heating their home (78%).

Overall, the fuel poor who said they were managing financially and had no heating problems tended to be older owner-occupiers living in detached or semi-detached homes. This was mirrored by the profile of those who were not managing financially or who had heating problems (and who, by extension, were more likely to require support): those of working age, those living in social housing and those living in tenements or other flats (whether owned or rented).

Qualitative findings: The lived experience of fuel poverty

The qualitative research sought to explore the experiences of the fuel poor in greater detail with a view to elucidating their support needs. Participants were first asked how easy or difficult they found it to afford their household bills generally and what challenges, if any, they faced in this regard. For the most part, they said they were "managing". However, it became clear that in many cases "managing" was the result of very careful financial planning and/or was shorthand for only just being able to make ends meet.

Fuel bills were identified spontaneously as presenting particular challenges for participants— even some of those who initially said they found it relatively easy to manage. There was repeated reference to the high and rising cost of fuel, and also to how difficult it can be to keep track of one's usage. People who had electric rather than gas heating, and/or who lived in rural areas, expressed particular concern about these issues.

Generally, participants were very prudent in their use of fuel. While almost all used their heating on a daily basis they typically did so for a limited number of hours, or heated only those rooms they used most often. This prudence rarely extended to going entirely without heating, however, with participants commonly stating that they tended to prioritise their fuel bills over other areas of expenditure - typically, sacrificing leisure activities or holidays, though the worst-off (mainly participants who were unemployed, working part time or studying) said they had sometimes cut back on, or gone without, food.

Participants who were finding it difficult to afford their fuel bills were asked to what extent they had ever actively taken steps to try to reduce these. Most had not taken any such steps. All participants were subsequently asked about the extent to which they had engaged in three specific types of behaviour that might help to reduce their fuel bills: household budgeting; home energy efficiency improvements; and switching tariff and/or provider.

Most participants reported that they did not use a household budget to plan their spending. For the most part this was because they considered that they were already doing all they could to "live within their means". Often, however, such comments were not reflected in their self-reported behaviours in relation to their fuel bills, with the majority having not switched provider in the last three years. This was often because they felt they were currently on the best deal, either because they had made comparisons with other providers, or because they believed any savings they would make by switching would not be worthwhile. In some such cases, however, it was evident that the participants had limited or no awareness of providers other than the 'Big Six'.

Others who had not switched explained this in terms of the good service they were receiving from their existing supplier. Others still expressed a lack of awareness or understanding of how they might go about switching. Among people living in privately rented and local authority housing some further barriers to switching emerged, including a mistaken belief that their choice of supplier was at the discretion of their landlord.

Participants who *had* switched providers reported mixed experiences of the process. Some were very positive, referencing the considerable savings they had made and the effortless nature of the process. Others were more negative; in some cases believing that they had actually paid more as a result of switching due to unanticipated fees associated with the changeover.

Participants were generally aware that making home energy efficiency improvements was a potential means of reducing their fuel bills. Reflecting this, most of those who were owner-occupiers had put some form of EE measures in place; most frequently double glazing, loft insulation or cavity wall insulation. While some had paid for these measures themselves, it was equally common for them to have accessed government grants to assist with the costs – though it was notable that most of those who had done so (generally people over the age of 65) were among those who reported finding their bills "easy" or "OK" to afford rather than those reporting difficulties.

Participants who had put EE measures in place tended to offer somewhat lukewarm appraisals of these; typically expressing uncertainty, and in some cases outright scepticism, about the impact the measures had had on the warmth of their homes and on their fuel costs.

In terms of those who had *not* put in place EE measures, this often reflected their belief that their house was already appropriately insulated. Such judgements were rarely based on any sort of expert evaluation, however, but rather on assumptions or anecdotal information.

Around half of the participants had sought or received advice or support in relation to their fuel bills. This included some (around half) but not all of the small group of individuals who were facing the greatest difficulties. Specific types of advice or support mentioned spontaneously were informal help from family or friends, financial support from Government, and advice from suppliers. There was also some mention of advice from agencies concerned with promoting energy efficiency in the home – one person cited Warmworks and another the Energy Saving Trust (EST). Almost all of those who had received some type of formal support or advice described the experience in positive terms. Of those respondents who had *not* sought or received support, several said they would not know where to go or who to approach, and could not name any organisations that provided such support. Significantly, these were all people who reported the greatest difficulties affording their bills.

Most participants, regardless of their previous experience of support-seeking, said they would welcome support, advice or guidance in relation to their fuel bills. Most commonly, they were keen to receive advice on how to reduce their bills, either by accessing cheaper tariffs with their current supplier, switching supplier or receiving guidance on how to use their heating more efficiently. Participants who reported struggling financially cited additional support needs; most commonly direct financial support to make their bills more affordable. Further, people living in rural areas, particularly those without access to mains gas, stated they would welcome advice or guidance on accessing an alternative type of fuel to that they were using.

Overall, participants' preferred methods of receiving or accessing support was online or through the post. Television advertising was also commonly mentioned, with participants commenting that this would likely reach a wide audience, including those who are elderly or otherwise less likely to be able to access support in person.

Energy Assessments of Dwellings

All 25 of the qualitative participants were offered a detailed energy assessment free of charge. In the event seven assessments were carried out. The results echoed the findings from published SHS results. The potential to reduce fuel bills through various heating and insulation programmes still appears to have considerable potential. For example, there is scope to upgrade older heating systems, such as older electric storage heaters, or install wall insulation in solid wall properties, such as homes with solid stone walls. These are common features of dwellings in rural, off-gas grid areas. Other measures that are routinely recommended in EPCs in rural areas include the installation of solar hot water systems (if the dwelling has roof) and the erection of wind turbines. However, the high cost and low returns of these measures will continue to discourage uptake.

The results of the home energy assessments suggest that improvements to the energy efficiency of dwellings has the potential to help reduce fuel poverty. However, they also indicate that such measures, by themselves, are unlikely to be sufficient to eliminate fuel poverty completely. Household income and fuel prices will remain as key drivers.

Conclusions and recommendations

The research pointed to a number of ways in which the fuel poor facing the greatest difficulties might best be supported going forward. In particular, it highlighted a need for:

- improved provision of impartial advice on how to reduce fuel bills through switching to a cheaper tariff, switching supplier or using energy more efficiently
- renewed efforts to address the misconception that switching tends to have a limited impact on billing amounts – whilst at the same time encouraging suppliers to be fully transparent about any fees associated with switching
- the continued rollout of smart metering
- the promotion of increased switching and efficient use of energy among social housing tenants in particular – coupled with continued investment in the social housing stock to ensure that as many homes as possible have modern, efficient heating systems that enable tenants to minimise their outgoings
- ensuring suppliers and other agencies are working to raise awareness of existing forms of financial support
- the pursuit of additional benefit maximisation strategies – for example, the development of fuel credits, either in the form of payments to fuel poor households or credits that can be used to reduce household fuel expenditure on fuel.

1. Introduction

Background to the research

Scotland is at a significant strategic juncture with regard to deciding on its policies on energy efficiency and fuel poverty. During 2017, the Scottish Government published 11 papers relating to these topics (the full list is included in Appendix 1). These included its proposed Scottish Energy Efficiency Programme (January 2017)¹, which referred to energy efficiency as a national infrastructure priority, and latterly its Consultation on a Fuel Poverty Strategy for Scotland² (November 2017) which included a proposed new definition of fuel poverty.

The current definition of fuel poverty, originally published in 2002, states that: *"A household is in fuel poverty if, in order to maintain a satisfactory heating regime, it would be required to spend more than 10% of its income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use."*³ This definition came with two important riders:

1. that "the definition of a 'satisfactory heating regime' would use the levels recommended by the World Health Organisation. For elderly and infirm households, this is 23° C in the living room and 18° C in other rooms, to be achieved for 16 hours in every 24. For other households, it is 21° C in the living room and 18° C in other rooms for a period of nine hours in every 24 (or 16 in 24 over the weekend); with two hours being in the morning and seven hours in the evening."
2. "'Household income' would be defined as income before housing costs, to mirror the definition used in the UK Households Below Average Income (HBAI) Statistics"⁴.

The proposed revision to the fuel poverty definition currently reads: "Households in Scotland are in fuel poverty if: they need to spend more than 10% of their after housing cost (AHC) income on heating and electricity in order to attain a healthy indoor environment that is commensurate with their vulnerability status; and if these housing and fuel costs were deducted, they would have less than 90% of Scotland's Minimum Income Standard (MIS1)(*) as their residual income from which to pay for all the other core necessities commensurate with a decent standard of living."⁵ The revision also includes a change in the temperature standard for the elderly and infirm. "increasing the bedroom temperature from 18°C to 20°C and maintaining the living room temperature of 23°C."⁶

The proposed revised definition and prior, related Scottish Government publications and activity have and will continue to generate discussion across a wide array of organisations and individuals. The future of energy efficiency policies, strategies, programmes and priorities in Scotland is thus there to be debated and shaped.

¹ Energy Efficiency – Scotland's Energy Efficiency Programme (SEEP): National Infrastructure Priority for Energy Efficiency, January 2017 available at https://consult.gov.scot/energy-and-climate-change-directorate/scotlands-energy-efficiency-programme/user_uploads/00513248.pdf-1

² Consultation on a Fuel Poverty Strategy for Scotland, November 2017, available at <http://www.gov.scot/Publications/2017/11/6179>

³ The Scottish Fuel Poverty Statement 2002, available at <http://www.gov.scot/Publications/2002/08/15258/9951>

⁴ *ibid* 3

⁵ *Op cit* 2

⁶ *Ibid* 5

A significant component of these debates is the question of who is likely to fall within and outwith any new definition of fuel poverty and, relatedly, how these groups can best be supported going forward. Indeed, in its *Work Plan for 2017-18*, the Consumer Futures Unit (CFU) of Citizens Advice Scotland's prioritised ensuring that *"consumers' real life experience is reflected in [any] new definition [of fuel poverty], so it is an effective tool for targeting support at those in need."*

What help currently exists for the Fuel Poor?

In 2016, the CFU carried out a review of the wide range of energy efficiency/fuel poverty programmes, grants and assistance that existed at some point in Scotland during the period from 2008 to 2016 (see Appendix 2). What appears to be a diverse array of schemes, grants, support and initiatives, disguises a significant problem with the pursuit of energy efficiency and fuel poverty objectives. Only three of the initiatives cited in the review operated over the whole of the 2008 to 2017 period – the Climate Challenge Fund, Winter Fuel payments and Cold Weather payments. Two of the schemes did not operate in Scotland (the Big Energy Saving Network and the Warmzone initiatives). Of the remainder, many had been ephemeral in nature, lasting a year or two before being ended or replaced by another scheme, making longer term planning difficult.

Table 1 provides a summary update of the CFU review, setting out only those energy efficiency and fuel poverty schemes, grants, support and initiatives operating in Scotland as of December 2017.

Table 1: Scottish Energy Efficiency and Fuel Poverty Schemes current at December 2017

| Supplier Obligations | Other UK-wide energy efficiency schemes | Scotland-specific schemes | UK-wide cash benefits schemes | Renewable energy schemes |
|------------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Energy Company Obligation 2T | | Home Energy Efficiency Programmes for Scotland: Area Based Schemes (HEEPS: ABS) Home Energy Scotland Loan ⁷ HEEPS Equity Loan Pilot Scheme HEEPS: Warmer Homes Scotland Scheme Scotland's Energy Efficiency Programme (SEEP) Pilot 2 Climate Challenge Fund | Warm Home Discount Winter Fuel Payments Cold Weather Payments | Feed-in-Tariffs (FiTs) Renewable Heat Incentive (RHI) Community and Renewables Energy Scheme (CARES) |

The current initiatives can be categorised into four groups (though some initiatives fall into more than one group):

- investment in insulation and heating

⁷ Replaced HEEPS: Loans Scheme and the Home Energy Scotland Renewables Loans

- community empowerment
- financial assistance
- investment in renewable technologies

In addition to these initiatives, there are various telephone help lines, energy advice services, local advice agencies, and internet-based information services providing more information, assistance, advice, and advocacy services on energy efficiency, fuel poverty, fuel debt and hardship.

Appendix 3 provides more information on the aims, delivery mechanisms and eligibility criteria for all of the various initiatives identified above. What emerges is that the plethora of initiatives have different aims and objectives, different target groups, and different eligibility criteria. Some provide financial assistance in terms of money; another provides credits towards fuel bills. Some provide grants for improvement works; others provide loans; while still others provide financial recompense against a property owner investing their own money. Some are quite specific in their eligibility criteria; others have a more universal approach.

Further, while some of these initiatives are focused on vulnerable households, or on a specific demographic, none are specifically concerned with identifying and targeting fuel poor household as defined in the 2002 Scottish Fuel Poverty definition. Instead, in those initiatives where tackling fuel poverty is an objective, proxies are used. In the FPSWG report (2016) it was argued that *“the [existing] definition is more a measure of fuel efficient homes rather than a measure of fuel poverty as it affects health, [leading to] a predominant focus on energy efficiency measures”*. It was also highlighted that [only] *“42% of the fuel poor are income poor, while 58% of the fuel poor are not income poor”*.⁸

In the past, determining eligibility for assistance from Scottish fuel poverty programmes has similarly relied on proxies. These have most commonly been:

- age of occupants
- location in an area of deprivation
- type/age of building
- rural location
- receipt of passport state benefits
- type of heating system
- modelled energy costs needed to attain a satisfactory heating regime.

⁸ The 2017 Scottish Fuel Poverty Definition Review Panel (2017) *A new definition of fuel poverty in Scotland – A review of the evidence*, Scottish Government, Edinburgh, pp23

Whilst these are all significant correlates of fuel poverty in Scotland, the strength of correlation seldom exceeds low-to-moderate⁹. For example, there is no statistically significant relationship between income as measured for the Scottish Index of Multiple Deprivation (SIMD) and the distribution of fuel poverty at small area level based on Scottish House Condition survey data¹⁰. Furthermore, data for 2015 suggest that, of all households in receipt of those passport benefits which can trigger eligibility for state-funded fuel poverty assistance, only 20% are both fuel poor and income poor. By contrast, more than half of these households (54%) are neither fuel nor income poor. Thus, increasingly, proxies seem less than fit for the purpose of deciding who is eligible for state assistance via subsidised fuel poverty schemes: just because you are fuel poor or on low income does not mean that there is any requisite financial assistance or heating and insulation grant available for you.

It is against this backdrop that the CFU commissioned Ipsos MORI and Bill Sheldrick to carry out research aimed at furthering understanding of the fuel poor and their support needs specifically, to inform its work in this area going forward.

Research aims and objectives

The objectives of the research were four-fold:

1. To assess the differences in the characteristics of fuel poor people who say they require support with their energy costs and those who do not
2. To explore the reasons why some people who are currently defined as being in fuel poverty do not say their energy bills are unaffordable
3. To explore the attitudes of consumers to available fuel poverty support and the issues around seeking or accessing it
4. If possible, to analyse the results in the context of any Scottish Government proposals to alter the definition of fuel poverty to determine the potential impact on consumers who feel that they require support

Methodology

The research comprised three consecutive phases:

- a rapid review of evidence on fuel poverty and associated schemes/policies
- secondary analysis of data from the Scottish Household Survey (SHS)
- primary research among people in fuel poverty.

⁹ Mould, R., Baker, K.J., & Emmanuel, R., 2014. Behind the Definition of Fuel Poverty: Understanding differences between the Fuel Spend of Rural and Urban Homes. *Queens Political Review*, Vol. II, 2014, Issue 2, pp. 7-24.

¹⁰ Mould, R. & Baker, K. J. (2017b). Documenting fuel poverty from the householders' perspective. *Energy Research & Social Science*, in press.

Rapid evidence review

The purpose of the evidence review was to inform the design of subsequent phases and provide context for the research findings. It considered:

- the nature and range of support that has aimed to reduce fuel poverty.
- debates in the literature relating to the definition of fuel poverty (excluding any work published by the expert panel).
- the technical aspects of the fuel poverty definition (such as the assumptions in the heating regime, the SAP model of energy)
- literature from other key organisations – such as Energy Action Scotland (EAS), the Energy Saving Trust (EST), and the Scottish Government (SG) – on policy statements relating to action to support those in fuel poverty.

Secondary analysis of SHS data

The SHS (which incorporates the former Scottish House Condition Survey) provides the official estimates of Fuel Poverty in Scotland, as well as collecting data on a range of relevant information on both households and dwellings.

The main aim of the secondary analysis was to give an assessment of the difference in the characteristics of fuel poor people who (subjectively) were experiencing difficulties with their bills and/or heating, and those who were not (*Objective 1*); and thereby to provide an initial analysis of possible reasons why people currently defined as being fuel poor do not say their energy bills are unaffordable (*Objective 2*). Secondary analysis was conducted on a total of 7,998 cases from the 2013, 2014 and 2015 waves of the SHS combined.

As a first step in the analysis, the SHS Fuel Poverty measure was combined to create three different classifications of households:

- Whether in fuel poverty by whether managing financially
- Whether in fuel poverty by whether their heating was ‘a bit of a problem/a serious problem’
- Whether in fuel poverty by both whether they were managing financially *and* whether their heating was ‘a bit of a problem/a serious problem’

These three classifications were then analysed by a range of household and dwelling characteristics to identify contributory factors. The characteristics were: tenure, type of household (pensioner, family, single adult etc.), receipt of means-tested benefit, working status of householders, age of householders, household income level, type of dwelling, main fuel type of heating, Energy Performance Certificate (EPC) banding, and whether on or off the gas grid.

Primary research among those in fuel poverty

The main purpose of the qualitative research was to gain insight into the lived experience of the fuel poor – including their subjective evaluations of their circumstances (*Objectives 2 and, to an extent, 3*); and their attitudes towards available fuel poverty support, issues around seeking or accessing it and their support needs (*Objective 3*).

Twenty-five in depth interviews were conducted among this group. As this was a relatively hard to reach audience, the sample was purposively identified through the 2014 and 2015 Scottish Household Survey recontact database – which comprised people who have previously taken part in the SHS and agreed to be recontacted for further research.

As policy levers aimed at reducing fuel poverty in Scotland have hitherto focused primarily on improving the energy efficiency of the housing stock, participants were purposively selected based on their already having energy-efficient homes (as recorded in the physical survey component of the SHS), thus allowing for the identification of other factors that might be contributing to their situations and for which they may require support. Additionally, socio-demographic quotas were set to ensure the sample included individuals in a range of circumstances; specifically, in terms of urbanity/rurality, tenure, income and age.

The final, achieved sample included:

- 14 females and 11 males
- 15 people living in urban areas and 10 living in rural areas¹¹
- Nine participants living in bungalows/detached houses; nine living in other types of houses and seven living in tenements or flats

The interviews were structured around a discussion guide designed by Ipsos MORI and Bill Sheldrick in consultation with the CFU. Question areas covered included:

- the extent to which participants experience challenges paying for fuel and how they felt about this;
- perceived causes of these challenges – specifically the relative impact of prices, wages, energy efficiency etc.
- perceived impact of challenges – including in terms of both personal finances and health and wellbeing
- coping strategies – including the extent to which participants traded-off different bills/expenses
- general attitudes towards, and experience of, seeking support
- support needs

The interviews were recorded and transcribed for subsequent review and analysis.

All participants were given £25 as a ‘thank you’ for their time and to cover any expenses incurred.

All 25 of the qualitative participants were offered a detailed energy assessment free of charge. Ten of the households accepted the offer, and seven assessments were completed successfully¹², with EPC produced in each case using

¹¹ For the purposes of this report urban and rural participants were defined according to the Scottish Government's two-fold Urban Rural classification <http://www.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification>

¹² Two of the households did not respond to various attempts to contact them by phone or email; one household after initially agreeing, cancelled because of other events that were happening at the time.

approved software.¹³ The reports on the individual properties (which were all given a name in keeping with their geographical approximation) are set out in Annex 4. The results provide insight on potential avenues for improving the energy efficiency of homes to reduce fuel costs.

Interpreting qualitative findings

Unlike survey research, qualitative social research does not aim to produce a quantifiable or generalisable summary of population attitudes, but to identify and explore the different issues and themes relating to the subject being researched. The assumption is that issues and themes affecting participants are a reflection of issues and themes in the wider population concerned. Although the extent to which they apply to the wider population, or specific sub-groups, cannot be quantified, the value of qualitative research is in identifying the range of different issues involved and the way in which these impact on people.

Structure of the report

The following chapter of the report sets out the findings of the analysis of SHS data aimed at identifying differences in the characteristics of fuel poor people who require support with the fuel costs and those who do not. Chapter 3 presents the findings of the qualitative analysis, looking in more detail at the lived experience of fuel poverty in order to identify support needs. Chapter 4 presents a number of conclusions and recommendations for improved support for those in fuel poverty, based on the research findings.

Acknowledgements

Ipsos MORI would like to thank Craig Salter, David Moyes and Kate Morrison at CAS for their guidance and assistance in undertaking the research, and also the 25 members of the public who took part in an interview.

¹³ RdSAP 2012 v9.93 was introduced on November 19th, 2017 – all EPCs issued on or after that date must be assessed with this version of the software.

2. Who are the fuel poor?

Findings from the Scottish Household Survey

Introduction

The Scottish Household Survey (SHS) provides official estimates of Fuel Poverty in Scotland and thus is a key source of data to explore the characteristics of those living in fuel poverty. The secondary analysis aimed to answer objective one of the research: *to assess the differences in the characteristics of fuel poor people who say they require support with energy costs and those who do not.*

While the SHS does not directly ask respondents whether they require support, it does ask how they are managing financially¹⁴ and for their subjective views on their heating (*"During the winter months, do you generally find that your heating keeps you warm enough at home, or not?"* and *"How much of a problem is this, if at all, to you?"*). Using these two variables as proxy measures of whether an individual required support, three analysis classifications were created which were used to explore the characteristics of those who were fuel poor:

1. A variable classifying respondents as either 'managing' or 'struggling' financially
2. A variable classifying respondents who viewed heating their house in the winter months as either 'not a problem/not much of a problem' or 'a bit of a problem/a serious problem'
3. A variable classifying a combination of both financial and heating problems among respondents with the following four categories: 'not struggling/no heating problem'; 'not struggling/heating problem'; 'struggling/no heating problem'; and 'struggling/ heating problem'.

In addition, the three-category fuel poverty indicator was collapsed to create a new two category variable classifying all respondents as either fuel poor or not. Overall, around a third (34%) of respondents in the sample were classified as fuel poor¹⁵.

Analysis classifications

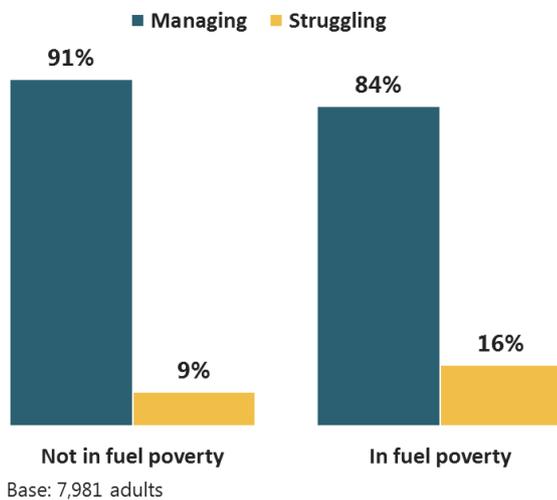
The first step in the analysis was to explore the relationship between the three new analysis variables and fuel poverty. Figure 2.1 below shows the relationship between managing financially and fuel poverty. As might be expected, those living in fuel poverty were almost twice as likely to be 'struggling' financially as those who were not. However, what was perhaps more notable was that even among those classified as fuel poor, the vast majority still thought of themselves as

¹⁴ "Taking everything together, which of the phrases on this card best describes how you and your household are managing financially these days?" Response options range from "Manage very well" to "Are in deep financial trouble"

¹⁵ This figure is based on the old fuel poverty estimates.

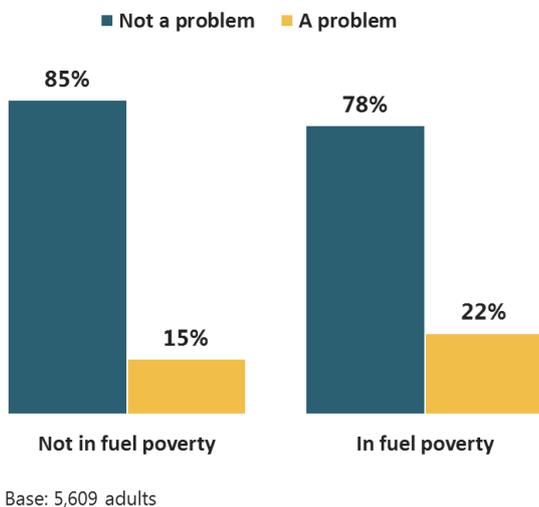
'managing' financially. On the face of it, this may lend some support to the conclusion of the Scottish Fuel Poverty Strategic Working Group final report that the established definition of fuel poverty may be too broad⁶.

Figure 2.1 Managing financially by fuel poverty

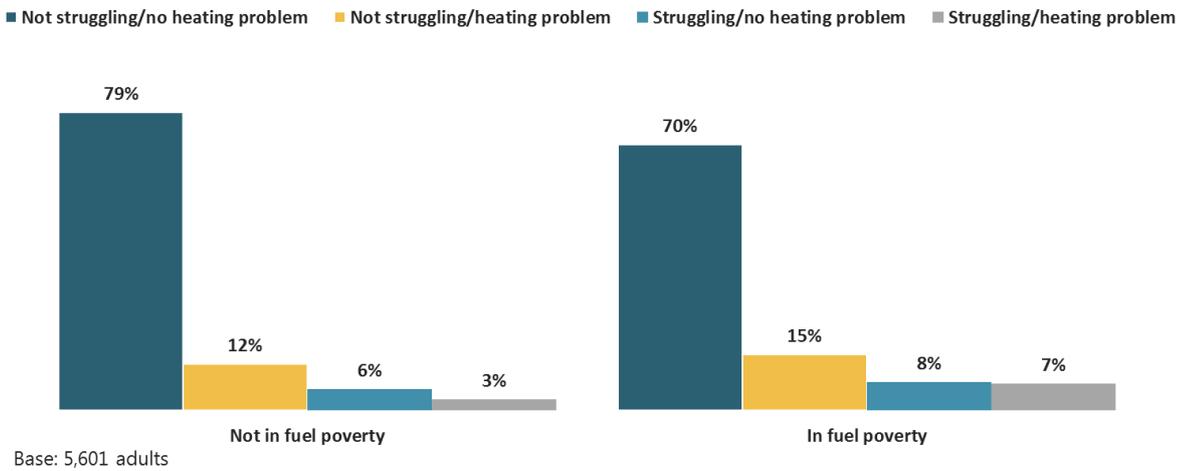


A similar, though less pronounced, pattern emerged when subjective views of heating were analysed by fuel poverty. Those living in fuel poverty were more likely to say they had a problem heating their house in winter than those who were not, but the majority of this group still felt that heating their home was not, or not much of, a problem (Figure 2.2).

Figure 2.2 Heating problems by fuel poverty



The final breakdown explored was the combined financial and heating problems variable by fuel poverty. Those in fuel poverty were more than twice as likely to be struggling financially *and* have heating problems than those who were not (Figure 2.3). However, as a whole, there was not a great deal of variation in the distribution of these four categories by fuel poverty.

Figure 2.3 Whether financial and heating problems by whether classified as living in fuel poverty

It is clear then that, while those in fuel poverty are more likely to be struggling financially or with heating their home (and by extension more likely to require support), there is still a large majority that report not having either financial or heating problem. This raises the question, why do some individuals living in fuel poverty report that they are managing while others do not? The next stage of analysis was to investigate how the characteristics of fuel poor individuals who said they did not have financial or heating problems differed from those who said they did.

Analysis of characteristics of those in fuel poverty

The following variables were included in the analysis of characteristics of the fuel poor:

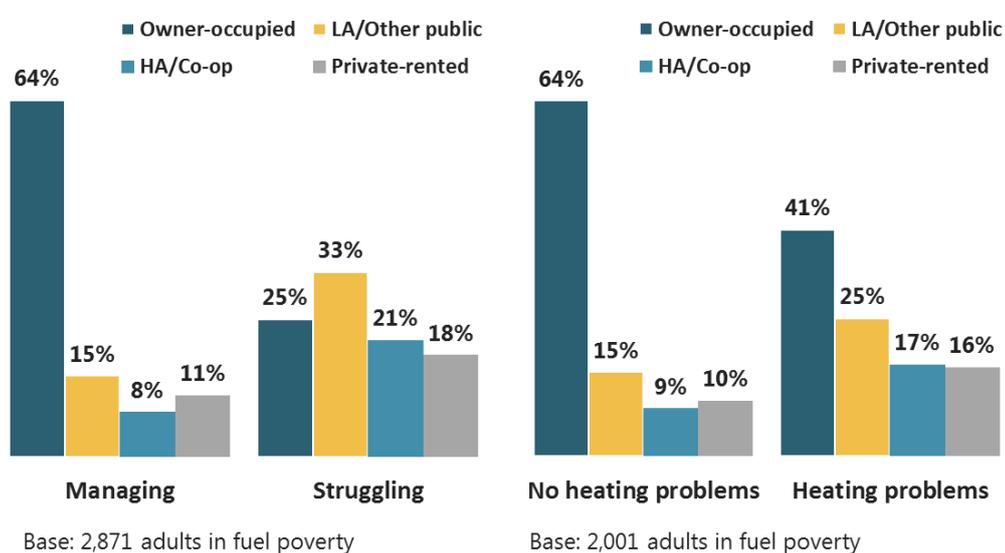
- tenure
- type of household (pensioner, family, single adult etc.)
- whether in receipt of means-tested benefit
- working status of householders
- age of householders
- type of dwelling
- main fuel type of heating
- whether have central heating
- Energy Performance Certificate (EPC) banding
- Whether on or off the gas grid

Overall, the variables that best predicted whether a fuel poor individual was managing financially or had heating problems tended to be those related to income or proxies for income. In addition, the age of the householder was also strongly correlated. However, characteristics related to the energy use/needs of the respondent's property and energy efficiency were not. The following sections cover only those characteristics that showed a relationship with managing financially or experiencing heating problems.

Tenure

Those who were classified as fuel poor but reported that they were 'managing' financially were over two times more likely to be owner occupiers than those who were fuel poor but not 'managing' financially. In contrast, those who said they were struggling were more than twice as likely to live in social housing (administered by either their local authority or a housing association) (Figure 2.4).

Figure 2.4 Financial and heating problems by tenure



Those who said they had a problem heating their home in winter were, again, more likely to live in social housing and less likely to be owner-occupiers. However, the relationship between housing tenure and heating problems was not as strong as that between tenure and financial problems. It is worth noting that owner-occupiers are the only group who are more likely to have heating problems than to be struggling financially, suggesting that, for this group, their fuel poverty classification stems more from the size, or energy efficiency, of their home, than from their ability to pay for fuel.

Type of household

Those managing financially were more likely than those who were struggling to be older small families (i.e. pensioner couples) and single pensioners (Table 2.1). Conversely, those struggling were more likely to be single adults, single parents, and families. Again, a very similar pattern emerged in relation to the correlation between type of household and perceptions of heating problems.

Given that recent analysis by the Scottish Government showed that the elderly were the *most* at risk of fuel poverty, with 49% of households¹⁶ with at least one pensioner classified as fuel poor, this is perhaps surprising. There are several possible explanations, however. For instance, it could be attributed to attitudinal differences between generations (a 'make do' attitude among older people) or the elderly could already be receiving more assistance than working age households.

Table 2.1 Household type by financial and heating problems

| | Managing | Struggling | No heating problem | Heating problem |
|------------------|-------------|-------------|--------------------|-----------------|
| Single adult | 20% | 41% | 19% | 32% |
| Small adult | 12% | 14% | 12% | 11% |
| Single parent | 4% | 11% | 4% | 8% |
| Small family | 5% | 10% | 5% | 8% |
| Large family | 4% | 8% | 4% | 8% |
| Large adult | 7% | 7% | 8% | 7% |
| Older smaller | 21% | 3% | 21% | 11% |
| Single pensioner | 28% | 7% | 28% | 16% |
| Total | 100% | 100% | 100% | 100% |

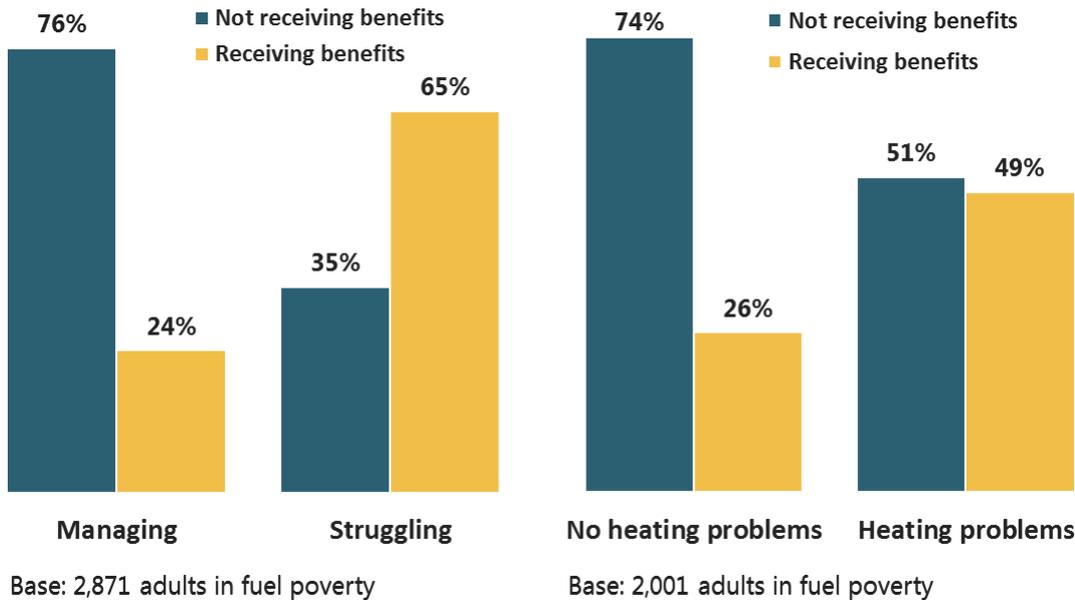
Whether in receipt of means tested benefits

Those struggling financially were more than twice as likely to be receiving means tested benefits (65% of those struggling financially received benefits, compared with 24% of those managing) and as with the previous measures investigated, this pattern was replicated in terms of heating problems (Figure 2.5).

While those struggling financially were more likely to receive benefits than those with heating problems, there was very little difference in the proportion of those receiving benefits between those who were managing financially and those who did not have heating problems.

Figure 2.5 Whether receiving benefits by financial and heating problems

¹⁶ <http://www.gov.scot/resource/0039/00398798.pdf>



Household working status

There was no strong relationship between working status and managing financially. Indeed, those struggling financially (as noted above in the discussion of household type) were more likely to live in single person households than those managing financially, whether they worked or not. In terms of heating problems, those who did not have heating problems were more likely than those who did to be in a couple with neither party in work.

Table 2.2 Working status by financial and heating problems

| | Managing | Struggling | No heating problem | Heating problem |
|----------------------|----------|------------|--------------------|-----------------|
| Single working adult | 16% | 21% | 15% | 18% |
| Non-working single | 45% | 54% | 45% | 51% |
| Working couple | 8% | 3% | 7% | 8% |
| Couple, one works | 10% | 11% | 11% | 10% |
| Couple, neither work | 22% | 11% | 23% | 13% |
| Total | 100% | 100% | 100% | 100% |

Age of householder

Given the previous finding that households managing financially were generally older than those struggling, it is perhaps unsurprising that this group was also much more likely to be aged over 65. Those who said they were managing were almost four times as likely to be over 65 as those struggling (49% of those managing financially, compared with 11% of those struggling). The same pattern held true for heating problems, although to a lesser degree: 27% of those who had problems heating their home were over 65, compared with 49% who did not.

As with household type, it is again interesting to note that while younger age groups were more likely to have financial problems, those aged 65 and over were more likely to have heating problems (Table 2.3).

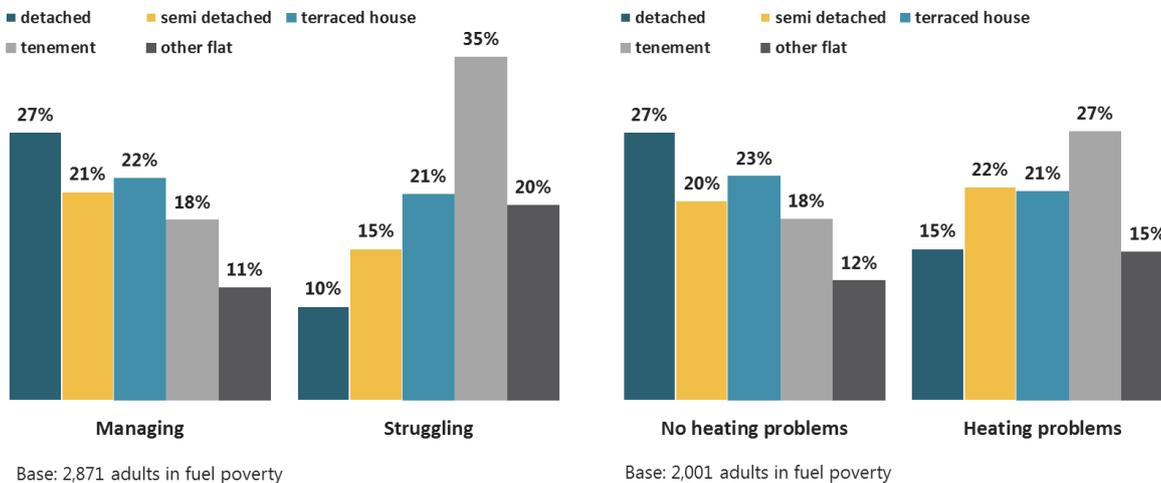
Table 2.3 Age of householder by financial and heating problems

| | Managing | Struggling | No heating problem | Heating problem |
|--------------|-------------|-------------|--------------------|-----------------|
| 16-24 | 5% | 6% | 4% | 6% |
| 25-34 | 6% | 13% | 6% | 10% |
| 35-44 | 8% | 19% | 8% | 14% |
| 45-54 | 11% | 30% | 12% | 25% |
| 55-64 | 21% | 23% | 21% | 19% |
| 65-74 | 25% | 8% | 26% | 15% |
| 75-84 | 19% | 3% | 18% | 10% |
| 85+ | 5% | 0% | 5% | 2% |
| Total | 100% | 100% | 100% | 100% |

Type of dwelling

Those who were managing financially were nearly three times as likely as those who were struggling to live in a detached house, while those who were struggling were twice as likely to live in a tenement or other flat. The differences between those who had heating problems and those who did not were less notable. However, those with no heating problems were more likely to live in a detached house, while those with heating problems were more likely to live in a tenement (Figure 2.6). That said, those living in tenements were more likely to have financial problems than heating problems.

Figure 2.6 Dwelling type by financial and heating problems



Primary fuel source

Those who struggled financially were more likely than those who managed to have mains gas as their primary fuel source. However, in contrast, those who had heating problems were *less* likely to use mains gas and more likely to use electricity as their main source of fuel (Table 2.4).

Table 2.4 Primary fuel source by financial and heating problems

| | Managing | Struggling | No heating problem | Heating problem |
|------------------|----------|------------|--------------------|-----------------|
| Mains gas | 66% | 72% | 69% | 57% |

| | | | | |
|----------------------------|------|------|------|------|
| Electricity | 21% | 22% | 18% | 33% |
| LPG bulk or bottled | 2% | 1% | 2% | 2% |
| Oil | 9% | 4% | 8% | 4% |
| Solid fuel(s) | 2% | 2% | 2% | 2% |
| Communal Heating | 1% | 0% | 1% | 1% |
| Total | 100% | 100% | 100% | 100% |

Discussion

Overall, those 'fuel poor' respondents who said they were managing financially and had no heating problems (and therefore were less likely to require support) appeared to be older owner-occupiers, living in detached or semi-detached homes. This was mirrored by the profile of those who were not managing financially and did have heating problems: This group were more likely to be of working age, and living in social housing and tenements or other flats.

These findings raise a number of questions. First, tenure and dwelling type tend to be proxies for income. An analysis carried out by the Scottish Government¹⁷ identified a group termed 'fuel poor, but not income poor'. It may be that the foregoing analysis has identified the same type of individuals and they are not in fact in need of support. If this is the case, the proposed changes to the fuel poverty measurement will take this into account.

Second, it is worth bearing in mind that, while it appears that the older people are 'managing' financially and relatively having few problems heating their home, this could be attributed to their perception of what managing means. Individuals have different priorities and varying thresholds for what they consider to be a financial or heating problem, with older people in particular often exhibiting more of a stoical outlook or willingness to 'make do'. It could be these attitudinal differences have a part to play in determining the characteristics of those who need and/or access support for fuel poverty and those who do not.

¹⁷ <http://www.gov.scot/resource/0039/00398798.pdf>

3. The lived experience of fuel poverty: qualitative findings

This chapter builds on the data analysis by looking in more detail at the day-to-day lived experience of fuel poverty, as evidenced by the qualitative research – including the main challenges participants faced in heating their homes and the types of support from which they might benefit most.

General affordability of household bills

To begin assessing participants' circumstances and support needs, they were first asked how easy or difficult they found it to afford their household bills generally and what challenges, if any, they faced in this respect.

For the most part, they said they were “managing”, with only a few stating explicitly that they were experiencing difficulties. However, and consistent with a hypothesis put forward in the previous chapter, it became clear that “managing” meant very different things to different people and in many cases was the result of very careful financial planning and/or was shorthand for only just being able to make ends meet. Reflecting this, there was a general lack of financial resilience among participants, with some commenting that they would struggle if faced with unexpected expenses or a drop in their income.

“If I'm off work maybe, for a week or anything like that, you don't get your full wage, so I try and pay as much to everything [as I can], so that I don't kind of fall too far behind on it.”

(25-34 years old, bungalow/detached house, urban area)

“At the end of the year there is always an excess of what we have used beyond what we pay in the direct debit, and that's challenging. Sometimes it can be two, three hundred pounds, more than what we had contracted to pay.”

(65+ years old, other housing type, rural area)

“I'm quite good at budgeting, so I manage [to afford the bills] okay. It's only an unexpected bill that would cause me a little bit of a problem.”

(55-64 years old, other housing type, urban area)

“They deduct money off my payments for sewage and Council Tax, I can hardly feed myself let alone anyone else. You have to just cut down to the basics if you know what I mean. I'd like to buy new clothes I can't afford to – I just get them from a charity shop.”

(55-64 years old, flat, urban area)

Fuel bills were identified spontaneously as presenting particular challenges for participants– even some of those who initially said they found it relatively easy to afford their household expenses. There was repeated reference to the high and

rising cost of fuel, and also to how difficult it can be to keep track of one's usage in order to anticipate billing amounts. Reflecting findings from the SHS data analysis, people who had electric rather than gas heating, and/or who lived in rural areas, expressed particular concern about these issues.

"[I'm managing] ok, but it's getting harder as gas and electricity are going up all the time."

(55-64 years old, flat, urban area)

"I just find a lot of the energy things just go up and up to be quite honest. Then you read that a lot of the companies are making big profits, so you say, 'well why put your energy bills up'?"

(65+ years old, bungalow/other detached, urban area)

"I am finding it reasonably easy, but my main worry is my electricity bill... you don't always know how much you're spending type thing and you worry about the bills coming in."

(16-24 years old, bungalow/other detached, rural area)

"It's in the back of my mind; you don't want huge bills, additional to my standing order coming in... we get our meter read once a year but, unless you phone in to the mainland, you have no way of telling how much you're spending, how fast. That is a concern, it really is."

(55-64 years old, bungalow/other detached, rural area)

It was notable that several of the participants who had electric heating did so, not through choice, but because gas was not available in their respective areas or because they were renting their home so had little choice over their heating system. That said, a couple of those with a pre-payment meter said they liked this system as it made it easy to "keep an eye on" how much fuel they were using.

Generally, participants were very prudent in their use of fuel. While almost all used their heating on a daily basis they typically did so for a limited number of hours, or heated only those rooms they used most often.

"We don't have it on as much we would like...I monitor with what the settings are, I will turn it down if the temperature goes up or what have you. I would rather have the storage heater charging up a wee bit higher than having the blower heater on, because that just runs away with the electricity."

(35-54 years old, bungalow/other detached, rural area)

"There are two bedrooms that only have panel electric heating and I rarely use that, and then the storage heater is in the hall and in the living room. The house is small so it heats up fairly quickly...but the whole system isn't a great system."

(65+ years old, bungalow/other detached, rural area)

This prudence rarely extended to going entirely without heating, however. Indeed, and consistent with recent survey work by Ipsos MORI for CFU, participants commonly described prioritising their fuel bills over other areas of expenditure – as one person put it: *"You can kind of economise with a lot of things but you just need heating"*. Typically, this meant

sacrificing leisure activities (such as nights out) or holidays, though the worst-off – mainly participants who were unemployed, working part time or studying – said they had sometimes cut back on, or gone without, food.

"I do have to economise in other things, thinking, well the electricity is on now all winter, that has to come first sort of thing."

(55-64 years old, bungalow/other detached, rural area)

"I don't really go out for dinner with somebody at night. I mean if I had free reign, I would like to do a bit more, go to the theatre and watch films."

(55-64 years old, other housing type, urban area)

"It's not easy. Like I actually wouldn't be able to afford [fuel]. I think I ran out of money last week so had to phone my dad and say can I borrow £30 for food, because I had completely ran out of money so I couldn't even afford to eat."

(16-24 years old, flat, urban area)

Coping strategies

Participants who were finding it difficult to afford their fuel bills were asked to what extent they had ever actively taken steps to try to reduce these. Most had not taken any such steps and indeed, when asked about this, tended to downplay the difficulties they had previously mentioned or to stress that they were 'coping'. This appeared to reflect a sense of shame or embarrassment at their predicament.

"I wouldn't say...I think I manage well, I wouldn't say I have difficulties as such."

(65+ years old, bungalow/other detached, rural area)

The minority who had taken some steps, mentioned using comparison websites or shopping for energy providers and regularly switching.

"I spend a lot of time shopping around [for energy providers], get a good deal every year."

(35-54 years old, other housing type, urban area)

"I've used the 'Compare the Market' thing. I've actually changed suppliers heaps of times for my gas and electric."

(35-54 years old, other housing type, rural area)

All participants were subsequently asked about the extent to which they had engaged in three specific types of behaviour that might help to reduce their fuel bills: household budgeting; home energy efficiency improvements; and switching tariff and/or provider.

Household budgeting

Most participants reported that they did not use a household budget to plan their spending. For the most part this was because they considered that they were already doing all they could to “live within their means”; for example, by spending as little as possible on groceries and social and leisure activities.

“I just try and spend the least amount possible on food if I can.”

(16-24 years old, flat, urban area)

“I mean I would say I live quite, I wouldn’t say frugally, but quite within my means, I don’t drink and I don’t smoke.”

(55-64 years old, other housing type, urban area)

A few participants stressed that, even though they did not budget “as such”, they did keep track of the cost of their regular bills, with some putting aside money each month for unexpected bills; a measure that helped them feel more in control of their finances.

“I don’t have a budget written down as such, but I know my standing orders, and I know what is left for my Tesco shop or Co-op shop.”

(55-64 years old, bungalow/detached house, rural area)

“I know what I spend each month and then, you know, I try to put a wee bit away in a small savings account for bigger bills that are unexpected, like my car repairs or something like that.”

(55-64 years old, other housing type, urban area)

Often, however, it transpired that participants’ claims about keeping track of bills or living as economically as possible were not reflected in their self-reported behaviours in respect of their fuel bills, as is discussed more fully below.

Switching Energy Providers

The majority of participants had not switched energy providers in the last three years cited various reasons for this. Some felt they were currently on the best deal, either because they had made comparisons with other providers, or because they believed any savings they would make by switching would not be worthwhile. In some such cases, however, it was evident that the participants had limited or no awareness of providers other than the ‘Big Six’. Indeed, one participant pointed out that it was difficult to find out about smaller providers as they did not advertise on the main price comparison websites.

“I always enquire, especially the gas, so we’re on the cheapest tariff.”

(65+ years old, other housing type, urban area)

"Well, I've checked a few and looked into fuels and all the rest of it, but you're not going to save that much."

(55-64 years old, other housing type, urban area)

"All the big companies are all bound to more or less charge you the same, you know within a few pounds or whatever, so I don't really think it would make much difference to me."

(55-64 years old, flat, rural area)

"I find that all these websites are only comparing certain companies, so you're not getting a true reflection of what is available. There are companies out there that can't be bothered to advertise or pay companies like Uswitch to advertise for them. You can't find them unless you go onto a Google search."

(35-54 years old, other housing type, urban area)

Others who had not switched explained this in terms of the good service they were receiving from, or their positive relationship with, their existing supplier, which they often regarded as more important than being on the cheapest tariff. In some such cases participants clearly regarded their supplier as 'trusted advisor', commenting that they could call the company for guidance on any issues they may have with their heating and on different tariff options. One participant in a remote area felt that his current supplier had a good appreciation of his community's distinct circumstances and needs, and was concerned that changing supplier might compromise this dependable provision.

"I've always had a good rapport with them, and any problems that I've had if I've phoned them they always have been very helpful and tried to suggest what is the best option. They have given me plenty of options to choose from."

(35-54 years old, other housing type, urban area)

"I sometimes think that Scottish Electric really understand Shetland conditions sort of thing. We get a really good service. I mean in desperately bad weather we will have power cuts, but they try and get us back on as soon as they can."

(55-64 years old, bungalow/detached house, rural area)

There were other participants who, despite being keen, or at least open, to switching supplier had not done so due a lack of awareness or understanding of how they might go about this, or to other, circumstantial factors – for example a participant who was in arrears (and unemployed) believed this precluded him from switching,

"I've never really dealt with this kind of thing before so I'm not sure how I would even go about it in the first place."

(16-24 years old, flat, urban area)

"Basically, I just wouldn't know where to go. See with all the different tariffs and such like I'm totally confused, I don't really understand tariffs."

(55-64 years old, bungalow/detached house, rural area)

"I would change, I would try to find something a bit cheaper but at the moment I've got no chance of changing because they wouldn't let me because I owe them money."

(55-64 years old, flat, urban area)

Among those in privately rented and local authority housing some further perceived barriers to switching emerged, including a misconception that their choice of supplier was at the discretion of their landlord so outwith their control. Those with pre-payment meters (predominantly those in council-owned properties), commented that changing provider would necessitate buying and activating new keys for their meter; something they regarded either as a "hassle" or an expense they could ill afford.

"When we signed up with the letting agency, they kind of gave us information to say that they set up the energy costs and that if we were to try and change (the supplier), it would have to go through them first."

(16-24 years old, flat, urban area)

"With a pre-payment meter if you do change you've got to wait and get new keys...and then you've got to go down to the shop and they have to activate them, and then you've got to come back to the house and put it into the machine before you can go back out and top it up, so it is a bit of a hassle."

(35-54 years old, other housing type, rural area)

Participants who *had* switched providers reported mixed experiences of the process. Some were very positive, referencing the considerable, and in some cases vital, savings they had made and the effortless nature of the process. This perspective was mostly advanced by a small minority of people who exhibited an atypically detailed knowledge and grasp of the process and benefits of switching, such as the need to change after twelve months, and of providers beyond the 'Big Six'.

"If we'd have left it as we were on it, it would have been £180 a month. And now it's down to just over £100."

(65+ years old, other housing type, urban area)

"I went to a comparison website and the company I'm with now, PFP, were cheaper than any others, Scottish Gas, any of the big providers."

(65+ years old, bungalow/detached house, rural area)

Others who had switched in the past felt it had not been worthwhile, however. Indeed, several were openly negative about their experiences, in some cases believing that they had paid more as a result of switching due to fees associated with the changeover which they said they had not been made aware of in advance. One person reported that after she changed she was contacted by two providers that both claimed to be supplying her at the same time, which confused her

and resulted ultimately in her deciding to move to a different company altogether. Negative experiences such as this typically served to make participants very hostile to the idea of ever switching again.

"When you switch [the new supplier] tell you all sorts on the phone, but it's never what it seems."

(55-64 years old, flat, urban area)

"When I did change I found that my gas wasn't lasting, and I phoned up and asked why it was so high, why it was taking so much money each day, and he said it was because I was paying for the changeover, and once it was paid for, I would see the benefit, which I have now, but I've had to suffer for that when I did change over. That's why I won't change again."

(35-54 years old, other housing type, urban area)

"Well, two companies were saying that they were supplying me at the same time and that was for my electricity. Then I didn't seem to know who was supplying me, so I ended up telling them both that I didn't want to be with any of them and went with a different company."

(35-54 years old, other housing type, rural area)

Home energy efficiency measures

Participants were generally aware that making home energy efficiency improvements was a potential means of reducing their fuel bills. Reflecting this, most of those who were owner-occupiers had had some form of EE measures put in place; most frequently double glazing, loft insulation or cavity wall insulation. While some had paid for these measures themselves, it was equally common for them to have accessed government grants to assist with the costs. In most such cases the participants had been contacted directly about the schemes by their provider, local authority or a government agency so had not had to proactively source the support themselves; something which they clearly appreciated. Still, it was notable that most of those who had accessed the schemes were people over the age of 65 who reported finding their bills "easy" or "OK" to afford rather than those facing the greatest difficulties, consistent with the quantitative analysis.

"The loft was done under a free scheme. Two or three years ago they were doing it all around this area. My loft was insulated anyway but they put an extra insulation in."

(55-64 years old, bungalow/detached house, urban area)

"People over 60...Over a certain age got [a grant for loft and wall insulation] – it was a government scheme. They contacted us and we saw it advertised and we applied for it."

(65+ years old, other housing type, urban area)

Participants who had had EE measures put in place tended to offer somewhat lukewarm appraisals of these; typically expressing uncertainty, and in some cases outright scepticism, about the impact the measures had had on the warmth of their homes and on their fuel costs.

"I would say it has been helpful but it's difficult to say how much."

(65+ years old, bungalow/detached house, rural area)

"It feels warmer, but not hugely".

(65+ years old, bungalow/detached house, rural area)

"I'm not sure the cavity insulation has made a difference."

(35-54 years old, other housing type, rural area)

In terms of those who had *not* put in place EE measures, this often reflected their belief that their house was already appropriately insulated. These judgements were rarely grounded in any sort of expert evaluation, however, but rather in assumptions or anecdotal information.

"It's a modern house."

(65+ years old, other housing type, urban area)

"I mean [the house] is quite high spec, there is a kind of loft and people have gone up there for various things, to stick the aerial or whatever, [and] have said it's really deep insulation on the top of the loft."

(55-64 years old, other housing type, urban area)

Other participants who had not put measures in place reported being keen to do so and to find out what their options were in this regard, but said they did not know where to look for this information.

"I mean I am open to any options like anything that could be [an] improvement, I'm totally open to it but I don't actually know what else I could do."

(55-64 years old, bungalow/detached house, rural area)

Experience of support seeking

Around half of the participant had sought or received advice or support in relation to their fuel bills. This included some but not all of those who were facing the greatest difficulties.

Specific types of advice or support mentioned spontaneously were informal help from family or friends, including advice on reducing bills or help paying for bills; financial support from Government (there was specific mention of Winter Fuel Payment); and advice (both solicited and unsolicited) from suppliers relating to tariffs and eligibility for government grants. There was also mention of advice from agencies concerned with promoting energy efficiency in the home – one person cited Warmworks and another the Energy Saving Trust (EST) (a couple of others could not recall the name of the organisation). One participant had sought support from organisations providing more general financial advice, namely Money Matter and Financial Fitness.

Almost all of those who had received some type of formal support or advice described the experience in positive terms.

"If I'm stuck or anything, if I phone my suppliers they are very, very helpful...maybe it could be that they cut my payments, you know; so they are quite helpful that way."

(35-54 years old, bungalow/other detached, urban area)

"I think when I registered with the supplier they asked a specific question from them if I had a disability, and then they were alert to the fact that that was the case, so they would tend to let me know, I think, if there is [financial support available]."

(55+ years old, other housing type, urban area)

[Financial Fitness] were helpful; my payments got reduced, that was a couple of years ago. I wouldn't say anything bad about them – really nice people they phoned up the company to see if they could get the payment reduced."

(55-64 years old, flat, urban area)

A participant with a disability described having previously benefited from "a scheme" through which she received a discount on her fuel bill (perhaps the Warm Home Discount Scheme). She was unsure if the discount was still available and whether there were other similar schemes for people with a disability.

"I did get extra help towards my bills...you know, they pay so much per year towards the bills, but I don't think that scheme exists anymore and there doesn't seem to be anything else to replace it."

(55-64 years old, other housing type, urban area)

Of those respondents who had *not* sought or received support, several said they would not know where to go or who to approach, and could not name any organisations that provided such support. Significantly, these were all people who reported the greatest difficulties affording their bills.

Support needs

Most participants, regardless of their previous experience of support-seeking, said they would welcome support, advice or guidance, in relation to their fuel bills. Most commonly, they were keen to receive advice on how to reduce their bills, either by accessing cheaper tariffs with their current supplier, switching to a different supplier or receiving guidance on how to use their heating more efficiently.

"I need to make an appointment [with an organisation] and just ask [for help]. Take in my old bills and they could check the tariffs. I just don't understand [the tariffs]."

(55-64 years old, bungalow/detached house, urban area)

"Someone coming in and looking at how you use your heating, and how long you have it on for. Just little tips and advice that can make a difference to your bill and to how warm you are in your house."

(55-64 years old, non-detached house, urban area)

"I don't know how to use the timer. The guy put it on and said, 'don't touch it, don't switch it off'. That means when I'm out overnight the heating will still be on and I'm not in the house to get the use of that."

(55-64 years old, flat, urban area)

In terms of who might provide such support, there was a perceived need for this to be an independent and neutral body, with some suggesting the Scottish Government or a non-government organisation, such as Citizens Advice Scotland (CAS). This reflected a perception that existing sources of information, including price comparison websites, were often biased towards the 'Big Six' suppliers.

"It would have to be neutral...not coming from somebody from an agency with a stake in things, because that's what confuses people these days, we don't know that things aren't biased."

(65+ years old, bungalow/detached house, rural area)

"Have an independent search comparison site that everybody is on that you can go to, because it's a big con the way you get on all these sites and none of them that I've seen are independent. You're only getting a limited amount of suppliers on them... All these sites just benefit the 'Big Six'."

(35-54 years old, other non-detached, urban area)

Despite this emphasis on the importance of independent advice, there were participants who felt it was the responsibility of their supplier, rather than an 'external' body, to advise them on whether they could be benefitting from a cheaper tariff. These participants felt that suppliers should actively encourage their customers to change tariff, if they could be on a cheaper deal.

"I think that the supplier should be aware of your needs and then if there was a way of reducing your bills, then they should let you know."

(55-64 years old, non-detached house, urban area)

"[Energy] companies aren't good at offering you better deals. Nobody says, 'you're on this tariff and you actually would be better on this one'. They're not in the habit of helping you save money."

(35-54 years old, other non-detached, rural area)

Additional support needs of those struggling financially and those in rural areas

Participants who reported struggling financially – those who were unemployed, working part time or studying – cited additional support needs, beyond those already discussed. As well as support and advice in lowering their bills, they felt

that they would benefit from direct financial support, to make their bills more affordable. There was specific suggestion of monthly or seasonal bill discounts, and increased benefit payments.

"Probably a monthly discount on bills [would be the most helpful], because it targets [the problem] precisely."

(55-64 years old, bungalow/detached house, rural area)

"Well, everybody is wishing for their [benefit payments] to get put up a wee bit so that you can get some more [heating]."

(35-54 years old, bungalow/detached house, urban area)

As is evident in these quotations, awareness of existing discount schemes appeared to be low. Further, some participants who *were* aware of the schemes and had applied were still awaiting the outcome of their application or a payment so rationing their energy use in the interim.

"Well, the one-off payment that I was receiving and that I'm no longer receiving was helpful in the winter. You want to keep warm, but if you're constantly thinking about the bill you reduce the amount that you actually use."

(55-64 years old, bungalow/detached house, urban area)

People living in rural areas had some additional support needs, with a number of them stating they would welcome advice or guidance on accessing an alternative type of fuel to that they were using. These were mostly people who did not have access to mains gas, and were therefore limited to electricity (and often expensive storage heating), or solid fuel.

"I think access to different kinds of heat, like gas, for example. We don't have access to gas in one tiny little area here"

(65+ years old, bungalow/detached house, rural area)

Raising awareness of support that is available

As previously mentioned, not all participants were aware of the support available to those facing difficulties with their fuel bills. Accordingly, some contended that the Scottish and/or UK Governments should be doing more to inform the public in this regard, not least in relation to financial support and energy efficiency grants.

"I'm 100 per cent convinced that [the availability of grants] is not widely known... Maybe there is something in the government putting out more information...making them aware of grants that are available."

(16-24 years old, flat, urban area)

"Maybe the government could make more people aware of what things you can do. I don't think there's much advertisement to say, 'oh you can do this or you can try that or you can get help from here or there; if you think you're in need of help, this is available for you'."

(35-54 years old, other non-detached, urban area)

Preferred means of accessing or receiving support

Overall, participants' preferred methods of receiving or accessing support, was online or through the post. They regarded these methods as the most convenient, as they could read the information at a time that suited them. One participant also stated that having written information to refer back to when needed was useful.

"Online is always handy. Just pretty much everyone has access to it. It's quick to get to."

(55-64 years old, bungalow/detached house, urban area)

"I think it needs to be postal. With email, everyone gets so many it will probably be dumped into trash and they might not see it. And people don't want to be bothered with a phone call at night when they're at home."

(35-54 years old, detached house, rural area)

"If it is written down and stored, you can refer back and read it a few times until you really get to understand it. I have nothing against speaking to people on the phone, but once they have gone off you think, 'I should have asked that or I should have whatever.'"

(55-64 years old, bungalow/detached house, rural area)

Television advertising was also commonly suggested, with participants commenting that this would likely reach a wide audience, including those who are elderly or otherwise less likely to be able to access support in person. There was also a perception that TV advertising was particularly impactful.

"A lot of people can't get out to go to these places [like CABx], so advertising on the telly would be another [option]."

(35-54 years old, other non-detached, rural area)

"TV advertising, because I always notice TV advertising. It does always work."

(16-24 years old, flat, urban area)

One young participant suggested that to reach a younger audience – and specifically students who do not have much experience of paying fuel bills – organisations should target "Fresher Fairs" or other university fairs. Through these events, they could provide students with information and guidance on how to reduce their fuel bills and use their heating efficiently.

"Through the university and freshers' week you get information bags ... so maybe that could be an avenue to get into contact with young people who are starting out in new accommodation. They have

no idea about these kind of things, or they are overpaying things and they don't know."

(16-24 years old, flat, urban area)

4. Energy assessments of dwellings

All 25 of the qualitative participants were offered a detailed energy assessment free of charge. Ten accepted the offer, and seven assessments were completed successfully¹⁸, with an EPC produced in each case using approved software.¹⁹ The reports on the individual properties (which were all given a name in keeping with their geographical approximation) are set out in Annex 4. The results provide insight on potential avenues for improving the energy efficiency of homes to reduce fuel costs.

A summary of the information taken from the respective Energy Performance Certificates (EPC) for the seven properties is presented in Table 4.1. Two of the gas heated properties achieve a SAP Band C rating; four achieve SAP Band D, and one Band E. If these properties were owned by social landlords, all but two would achieve the relevant EESSH standard²⁰ for their given heating and built form. The EPC estimated total fuel costs²¹ here ranged from £789 to £1080 (i.e. between £15.17 and £20.77 per week) for those using mains gas for heating; from £1172 to £1187 (i.e. between £22.54 and £22.83 per week) for those using oil for heating; and, from £1552 to £1775 (i.e. between £29.85 and £34.13 per week) for those using electricity for heating. The dwelling achieving the highest SAP score (i.e. Urban East) does not have the lowest estimated fuel bill²²; the dwelling achieving the lowest SAP score (i.e. Island North) does not have the highest estimated fuel bill. For all of these properties there was potential to reduce their fuel costs and to increase their SAP scores.

¹⁸ Two of the households did not respond to various attempts to contact them by phone or email; one household after initially agreeing, cancelled because of other events that were happening at the time.

¹⁹ RdSAP 2012 v9.93 was introduced on November 19th, 2017 – all EPCs issued on or after that date must be assessed with this version of the software.

²⁰ Energy Efficiency Standard for Social Housing. See <https://www.scottishhousingregulator.gov.uk/energy-efficiency-standard-social-housing-eessh>

²¹ The total fuel costs that appear on the EPC are in fact NOT the total household fuel costs, but the modelled fuel space heating, hot water and lighting fuel costs. They are derived from standard occupancy assumptions about the number of occupants and the use and extent of the heating system in the home. The standard heating pattern in the SAP calculation assumes the whole dwelling is heated to a demand temperature of 21°C in the main living area and 18°C in the rest of the dwelling over nine hours in two heating periods Monday to Friday and 16 hours in 1 period at the weekend. These estimated fuel costs take account of local climatic variables, but are based on average fuel prices that are updated every six months. Unlike the SAP rating, the EPC fuel costs will vary as you move the same dwelling around the country.

²² The SAP rating is derived from a function that divides the SAP calculated fuel costs by the total floor area of the dwelling, effectively, the SAT rating is based on £ per m² of a dwelling – simply put, it is assumed that a bigger dwelling will have a larger fuel bill than a smaller dwelling. A large fuel cost does not, in itself, mean that a dwelling is energy inefficient. By dividing the fuel bill by floor area, the SAP calculation is effectively making the rating insensitive to floor area. So, even with a high SAP score, a dwelling's fuel costs may not be affordable for the occupants.

Table 4.1 EPC Summary Results for the 7 Properties Surveyed

| Dwelling surveyed | Built form | Beds | Heating | SAP score | EPC band | Space Heating Cost (£/year) | Total Fuel Cost ²³ (£/year) | Space heating demand (kWh/year) | Hot water demand (kWh/year) |
|-------------------|-------------------|------|---------------------------|-----------|----------|-----------------------------|----------------------------------------|---------------------------------|-----------------------------|
| Central belt | detached bungalow | 3 | gas condensing combi | 64 | D | £865 | £1,080 | 12,566 | 2,197 |
| Cowal peninsula | end terrace house | 3 | gas condensing combi | 69 | C | £591 | £789 | 10,456 | 2,272 |
| Crinan canal | detached house | 3 | electric storage heating | 59 | D | £1,440 | £1,775 | 16,392 | 2,291 |
| Urban East | mid terrace house | 4 | gas condensing combi | 71 | C | £688 | £863 | 10,566 | 2,355 |
| Inverness-shire | detached bungalow | 3 | oil non condensing boiler | 57 | D | £949 | £1,187 | 16,718 | 2,970 |
| Aberdeen-shire | detached bungalow | 3 | oil condensing boiler | 60 | D | £937 | £1,172 | 16,487 | 3,712 |
| Island North | detached bungalow | 3 | electric storage heating | 51 | E | £1,273 | £1,552 | 13,703 | 2,194 |

The improvement recommendations from the EPC surveys for all of the surveyed properties are set out in Annexe 4 and a summary is presented in Table 4.2. Across the seven dwellings, only two measures were recommended for all of the dwellings: fitting floor insulation and installing a solar hot water system. Installing photovoltaic panels was recommended for six of the seven properties; the other property already had a PV system installed. Low energy lighting was recommended in five of the seven properties: the other two already were using low energy lighting throughout the properties. Upgrading to the new high heat retention electric storage heaters was recommended for both of the properties reliant on electric storage heating. A boiler upgrade was recommended for only one of the five properties with wet central heating systems – the other four already had condensing boilers. Erecting wind turbines was recommended for the four properties classified as ‘rural’. Wall insulation was only recommended for one property, and that was external or internal wall insulation for an older sandstone-walled property – the other properties were either modern timber-framed constructions or already had cavity wall insulation installed. Topping up of the loft insulation was only recommended for one property (for most of the others, the loft insulation was already 250mm or more). There were several instances where the EPC did not recommend improvements that the EPC assessor would have recommended. These improvements were included in the modelling of the impact of single improvements.

²³ This covers the cost of space heating, hot water and lighting.

Table 4.2: Summary of Improvements Recommended by EPC or Assessor for Dwellings surveyed

| | Centr al Belt | Cowal Peninsul a | Crina n Canal | Urba n East | Inverness - shire | Aberdeen -shire | Islan d Nort h |
|------------------------------------------------------------------|------------------|------------------------|---------------------|-------------------|----------------------|--------------------|-------------------------|
| Single improvement | | | | | | | |
| 150mm floor insulation | R | R | R | R | R | R | R |
| 100% low energy lighting | R | R | R | | R | | R |
| replace storage heaters with High Heat Retention Storage Heaters | | | R | | | | R |
| fit solar hot water system | R | R | R | R | R | R | R |
| fit insulated doors | | | R | | | | |
| fit photovoltaic system | R | R | R | R | R | | R |
| install wind turbine | | | R | | R | R | R |
| boiler upgrade | | | | | R | | |
| external wall insulation | | | | | | R | |
| top up loft insulation | | AbNR | | | | | R |
| upgrade heating controls | AbNR | | | AbN R | | R | |

R = recommended on the EPC

AbNR = assessed but not recommended on EPC

A summary of the heating-related and/or insulation improvement with the largest impact on reducing the estimated annual fuel expenditure for each of these properties is set out in Table 4.3. Floor insulation was identified as the heating-related and/or insulation measure with the largest impact in four of the properties; upgrading to the new high heat retention electric storage heaters was recommended for two properties; and wall insulation was recommended for one property. The impact of these single improvements ranged from reducing the annual fuel bill by between £62 and £342 (i.e. a mean saving of between £1.19 and £6.58 per week). The two properties where upgrading to the new high heat retention electric storage heaters was recommended demonstrated the largest savings on fuel expenditure of over £6 per week.

Table 4.3: Summary of assessed heating and/or insulation measures with largest impact on annual fuel bill

| Dwelling surveyed | Before SAP score | Improvement measure | After SAP score | Space heating Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) | Mean Fuel Cost Saving (£/week) |
|-------------------|------------------|------------------------------------------------------------------|-----------------|-----------------------------|------------------------------|---------------------------|--------------------------------|
| Central Belt | 64 | 150mm floor insulation | 69 | 712 | 927 | 153 | 2.94 |
| Cowal Peninsula | 69 | 150mm floor insulation | 71 | 528 | 726 | 63 | 1.21 |
| Crinan Canal | 59 | replace storage heaters with High Heat Retention Storage Heaters | 66 | 1098 | 1433 | 342 | 6.58 |
| Urban East | 71 | 150mm floor insulation | 73 | 626 | 801 | 62 | 1.19 |
| Inverness-shire | 57 | 150mm floor insulation | 63 | 776 | 1014 | 173 | 3.33 |
| Aberdeen-shire | 60 | 100mm external wall insulation | 72 | 703 | 938 | 233 | 4.48 |
| Island North | 50 | replace storage heaters with High Heat Retention Storage Heaters | 59 | 968 | 1247 | 319 | 6.13 |

One combined package of energy efficiency measures was assessed for each of the seven properties (see Table 4.4). The impact of these combined packages ranged from reducing the annual fuel bill by between £90 and £543 (i.e. a mean saving of between £1.73 and £10.44 per week). The two properties where the upgrading to the new high heat retention electric storage heaters were recommended and the one where wall insulation was recommended were the three demonstrating the largest savings on fuel expenditure. The weekly fuel savings for all three were estimated at over £7 per week, and in the case of Island North, over £10 a week.

Table 4.4: Summary of assessed heating and / or insulation impact on fuel bill

| Dwelling surveyed | Before SAP score | improvement measure | After SAP score | Space heating Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) | mean Fuel Cost Saving (£/week) |
|-------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------|------------------------------|---------------------------|--------------------------------|
| Central Belt | 64 | fit controls, 100% low energy lighting and 150mm floor insulation | 71 | 691 | 859 | 221 | 4.25 |
| Cowal Peninsula | 69 | top up loft insulation to at least 270mm, fit 150mm floor insulation and 100% low energy lighting | 73 | 512 | 674 | 115 | 2.21 |
| Crinan Canal | 59 | replace storage heaters with High Heat Retention Storage Heaters, 150mm floor insulation and 100% low energy lighting | 69 | 1062 | 1397 | 378 | 7.27 |
| Urban East | 71 | fit room thermostat and 150mm floor insulation | 74 | 598 | 773 | 90 | 1.73 |
| Inverness-shire | 57 | install oil condensing boiler, 150mm floor insulation and 100% low energy lighting | 66 | 723 | 928 | 259 | 4.98 |
| Aberdeen-shire | 60 | add 100mm of external wall insulation, 150mm floor insulation and fit room thermostat | 79 | 551 | 786 | 385 | 7.40 |
| Island North | 50 | replace storage heaters with High Heat Retention Storage Heaters, top up loft insulation to at least 270mm, fit 150mm floor insulation and 100% low energy lighting | 67 | 802 | 1023 | 543 | 10.44 |

Discussion

The Scottish Government's consultation on a Fuel Poverty Strategy and the background papers seeks to widen the fuel poverty debate from a narrow focus on heating and insulation improvements to include greater consideration of social justice, for example:

*"There is a growing need to reframe how fuel poverty is defined in Scotland, with greater prominence being accorded to issues of energy injustice and inequality. Over and above the classic metrics of income and required energy cost, a new definition should capture the lived experiences of people affected by fuel poverty, especially those for whom energy costs incur enduring hardship and adversity"*²⁴

²⁴ A new definition of fuel poverty in Scotland p39

“We concluded that some of the adverse outcomes associated with fuel poverty were at risk of being de-emphasised in the increasing policy focus on energy efficiency and building fabric.”²⁵

The opportunity to reduce fuel bills through heating and insulation programmes still appears to have considerable potential where there is scope to upgrade older electric storage heating systems and install wall insulation, for example, in stone and solid wall properties. These are certainly features of dwellings in rural, off-gas grid areas. Reducing fuel bills or reducing fuel poverty is not the primary purpose of the EPC or its recommendations. That the EPCs recommend installing solar hot water systems if the dwelling has a roof, despite the high cost and very low returns, and/or erecting a wind turbine for rural properties, appears to be redundant for the fuel poor. For these dwellings, which already achieve a reasonably good SAP score, the EPC recommendations for practical improvements to reduce fuel costs further were very limited in scope.

Improving the energy efficiency of dwellings will help reduce fuel poverty but may not be sufficient to eliminate it. The estimated annual fuel bill savings for the individual measures recommended on the EPCs here ranged between £63 and £342, the equivalent of a change in the 10% income threshold for fuel poverty for the household involved of between £630 and £3420. The fuel bill reductions for the packages of improvements, estimated at between £90 and £543 per year here, would have a bigger impact on fuel poverty as they represent the equivalent of between £900 and £5,430 household income (regardless of whether their incomes are calculated before or after housing costs). The upgrading of storage heating and the wall insulation may be very effective in helping to remove households from fuel poverty – these represented less than 50% of the households assessed here. The more common measures, i.e. floor insulation and low energy lighting, will not remove many households from fuel poverty – they do not have a great impact on household fuel bills.

The results from the EPC surveys of the small number of dwellings within this study support a more rounded alternative to dealing with fuel poverty, characterised, not just by a focus on heating and insulation standards, but on the need to address the other contributors to fuel poverty, such as fuel prices and incomes to pay for fuel.

What can be done on fuel prices? One possibility, debated during the run up to the May 2017 election and since, is the imposition of price caps on fuel suppliers. Another approach is to supply energy at lower prices. At the SNP's 2017 annual conference, the First Minister announced the Scottish Government's intention to set up a publicly-owned, not-for-profit energy company by 2021 to sell energy to customers at "as close to cost price as possible".²⁶ The intention of such a fuel supplier would be to compete directly with current suppliers, to offer consumers, particularly those on low incomes, more supplier choice and, by inference, lower fuel prices. Offering lower prices, however, does not necessarily mean consumers will take them up. The latest energy consumer market engagement survey reported that around half (48%) of all consumers have not switched tariffs in three or more years, "with membership more common amongst younger and older people (16-34s and 65+s), C2DEs, lower income households and infrequent/non-users of the internet"²⁷. So older people and lower income households, two groups considered to be more at risk from fuel poverty, are amongst those less likely to seek out better fuel prices by switching.

²⁵ A new definition of fuel poverty in Scotland p9

²⁶ See <http://www.bbc.co.uk/news/uk-scotland-scotland-politics-41560397>

²⁷ https://www.ofgem.gov.uk/system/files/docs/2017/10/consumer_engagement_survey_2017_report.pdf (see p8)

In terms of increasing household incomes, benefit maximisation efforts have been an effective strategy for low income and vulnerable households, but one with an in-built diminishing return as more households receive all the benefits to which they are entitled. Further constraints arise as benefit programs are consolidated or eliminated. The UK once had a system of various heating-related benefits within the welfare benefit system²⁸, but these all ended when the different allowances were absorbed into the then-new Income Support benefit in 1988. While Income Support included a notional amount within its make up to pay for fuel costs, the actual cost of heating a home was not factored into the equation; you got the same regardless of insulation levels or heating system of your home. Universal Credit continues to ignore variations in how much it actually costs to heat home.

Currently, there is no financial support specifically targeted at assisting all low income or vulnerable households, or even all welfare benefit recipients in the UK. The Winter Fuel Payment is universally available but only to householders born before 1952. The Cold Weather Payment is an exceptional needs payment that is only triggered by prolonged spells of cold weather in a local area, so may not be paid out in any particular area in any given year. The Warm Home Discount is available to all elderly in receipt of a pension credit, but eligibility to others is restricted on an annual, limited first-come first-served basis (see Appendix 3).

By contrast, the Republic of Ireland has a structure of both supplementary fuel payments and free fuel credits. Their Fuel Allowance is a means-tested supplementary payment of €22.50 per week, paid across 27 weeks in 2017/18 (from October to the first week of April), and is in addition to the other social welfare payments eligible households receive. It is intended to assist with meeting their heating needs during the winter months. It is not paid the other 25 weeks of the year. The allowance is paid via a bank or post office account, with the option to get the total 27-week allowance of €607.50 paid in two lump sums. The Household Benefits Package includes either a monthly cash electricity or natural gas allowance available to everyone aged over 70, and to people under age 70 in certain circumstances. Currently, it is worth €35 a month (equal to €1.15 per day), and is paid across the whole year. While this allowance may be paid via a bank or post office account, it may also be credited directly against a household's electricity or gas bill. A recipient can build up a credit on their gas or electricity account during the summer months, to set against their fuel use in the winter. You cannot get both a Fuel Allowance and the Household Benefits Package.

The Scottish Government has shown previously it can diverge from UK policies on, for example, prescription charges and university tuition fees. In December 2017, the Scottish Government announced variations in tax rates and tax bands for Scottish taxpayers. As it consults on its fuel poverty strategy, one option for it to consider would be the development of a subsidy for fuel poor households. Such a subsidy could take the form of a voucher that could be set against a fuel bill or used to top up a prepayment meter. An alternative may be a credit scheme akin to the Warm Home Discount, but with wider availability in Scotland, whereby the credit is applied directly to an eligible household's fuel supplier.

The results of this analysis echo the findings from published SHS results that show that changes to energy efficiency do have an impact on fuel poverty, but that this impact may be limited by changes in income levels and fuel prices. Is it time to separate the pursuit of improvements in the energy efficiency of the dwelling stock from the elimination of fuel poverty? This is not to argue that policies, programmes, and investments to improve the energy efficiency characteristics of the dwelling stock are not important – for example, improving energy efficiency of the Scottish dwelling stock remains an integral component of reducing carbon emissions and tackling climate change; improvements to energy efficiency will

²⁸ The fuel related additions included extra allowances for benefit recipients living in homes that were deemed difficult to heat or exceptionally difficult to heat, for those living in homes with a central heating system, and for those living on specifically designated estates with electric heating systems.

mitigate against the impact of rising fuel prices. Rather, it is a recognition that pursuing the elimination of fuel poverty through improvements in energy efficiency will not eliminate fuel poverty without other initiatives.

5. Conclusions and recommendations

The research confirmed that people categorised as fuel poor under the existing 2002 definition comprise a large and demographically diverse grouping; some of whom appear to be managing relatively well financially – ‘the fuel poor, rather than income poor’ in the Scottish Government’s terminology – and others who are facing hardship (and by extension may be deemed in need of support). The former group appear to be older owner-occupiers, living in detached or semi-detached homes, while the latter are more commonly of working age, and living in social housing and tenements or other flats.

That not all of those defined as fuel poor may be in need of support will be addressed to some extent by the Government’s proposed changes to the fuel poverty measurement. Still, it is important to bear in mind that ‘managing’ financially is a subjective concept, so although older respondents in particular reported having relatively few problems getting by or heating their home, this could to some extent reflect a stoical outlook on their part or a willingness to ‘make do’. In other words, attitudinal differences not just more objective measures, may have a part to play in determining the characteristics of those who need and/or access support for fuel poverty and those who do not.

This hypothesis was corroborated to an extent by the qualitative research: participants tended to say that they were managing but this often appeared to be the result of very careful financial planning or meant only just being able to make ends meet. Further, those only just able to make ends meet, along with participants who were facing more significant difficulties, had not always pursued strategies that might potentially help make their fuel bills more affordable, including household budgeting, switching tariffs and/or supplier, and implementing home energy efficiency measures. To some extent this appeared to reflect a lack of awareness of the options available and/or how to go about making changes but, equally, a level of scepticism about the likely impact of changes and/or distrust of suppliers, and price comparison/switching services (albeit some participants did speak very positively about their suppliers, regarding them as ‘trusted advisors’).

The qualitative research also revealed that those who were only just able to make ends meet or facing more pronounced difficulties had not sought or received support in equal measure. Again, this to some extent appeared to reflect limited awareness of the options available, both in terms of types and sources of support.

The results of the home energy assessments suggest that improvements to the energy efficiency of dwellings has the potential to help reduce fuel poverty. However, they also indicate that such measures, by themselves, are unlikely to be sufficient to eliminate fuel poverty completely. Household income and fuel prices will remain as key drivers.

Implicit in the foregoing and throughout the report are a number of ways in which the fuel poor facing the greatest difficulties might best be supported going forward. These can be divided into two main themes: advice on reducing fuel bills and financial support.

Advice on reducing fuel bills

Advice on how to reduce fuel bills – through switching to a cheaper tariff, switching supplier or using energy more efficiently – was the main form of support the qualitative participants appeared to need and, indeed, want. Of course, meeting this need will mean simultaneously addressing apparent distrust of suppliers and other bodies that provide advice. Raising awareness of the independent price comparison service currently offered by CAS (which includes smaller

cheaper suppliers), and more generally redoubling efforts to highlight the role of trusted third party organisations that are active in providing energy advice to consumers would seem important steps accordingly.

As part of any strategy to increase switching specifically, it will be important to address the misconception that this measure tends to have a limited impact on billing amounts. At the same time, suppliers must be encouraged to be fully transparent about any fees associated with switching in order that financially vulnerable groups are not faced with unexpected expenses, particularly at a time when they are, paradoxically, anticipating a reduction in their bills.

In terms of advice on using energy more efficiently, there was a clear appetite among some of the qualitative participants to be able to monitor their usage more closely. This provides a case for the continued rollout of smart meters, and for suppliers to proactively draw customers' attention to these – though, again, supplier provided information might best be supplemented with independent third party material to ensure smart metering 'lands' with those who distrust suppliers.

Given the findings of the data analysis that it was the fuel poor living in social housing and flats or tenements who tended to face the greatest difficulties with their heating a strategy aimed at promoting switching and efficient use of energy among this group specifically would seem worthwhile. Local authorities and housing associations have an obvious role to play in this regard, perhaps working in partnership with organisations like the EST, as several of them currently do. At the same time, the Scottish Government, local authorities and housing associations must continue to invest in the housing stock through initiatives like SEEP, to ensure that as many as homes as possible have modern, efficient heating systems that enable tenants to minimise their outgoings.

Financial support

Given the significance of household income and fuel prices in contributing to fuel poverty, the research points to a need for benefit maximisation strategies. It was clear that not all of the fuel poor participants who might benefit most from existing financial support, whether in the form of grants or discount schemes, were aware or in receipt of these so renewed consideration must be given to how this might be addressed. Similarly, efforts should continue to ensure that particularly vulnerable subgroups of consumers, including people with a disability, are made aware of any additional financial support available to them such as the Warm Home Discount Scheme. Of course, ensuring that more households are able to benefit from the Warm Home Discount Scheme would also be a helpful step and one that will be possible in the future given the devolution of benefits payments.

Given that participants commonly expected their energy supplier would or should draw their attention to any discount schemes for which they might be eligible, an obvious first step in terms of increasing uptake of these would be to ensure this is actually happening. A review of suppliers' practice in this regard, if not already undertaken, may be worthwhile with a view to ensuring a consistent approach across companies, informed by 'best practice'. Of course, all agencies working with the fuel poor, not least local authorities and housing associations, along with organisation like CAS, similarly have a role to play in drawing consumers' attention to available grants and schemes.

For those people who have applied and qualified for financial support, there may also work to do in terms of ensuring that they receive their payments promptly. This would avoid their facing periods of hardship in the interim, particularly during the colder winter months, as a couple of the qualitative participants had been.

More generally, the research provides a case for new benefit strategies, beyond those already in existence. The Scottish Government has made statements to effect that it is contemplating becoming a fuel supplier. With their assuming income

generating powers, and the 2017 Scottish Budget announcing their departure from following the UK government household taxation policies, one option would be for them to look at developing fuel credits, either in the form of payments to fuel poor households or credits that can be used to reduce household fuel expenditure on fuel.

Appendix 1

Scottish Government published papers on energy efficiency and fuel poverty

In 2017 alone, the Scottish Government has published 11 papers relating to the topics of energy efficiency and fuel poverty:

- Scottish Energy Strategy: The Future of Energy in Scotland, January 2017²⁹
- Energy Efficiency – Scotland’s Energy Efficiency Programme (SEEP): National Infrastructure Priority for Energy Efficiency, January 2017³⁰
- Consultation on Heat and Energy Efficiency Strategies, and Regulation of District Heating, January 2017³¹
- The Scottish Government’s response to reports by the Scottish Fuel Poverty Strategies Working Group and the Scottish Rural Fuel Poverty Task Force, March 2017³²
- Energy efficiency and condition in standards in private rented housing: A Scottish Energy Efficiency Programme Consultation, April 2017³³
- Consultation on a Fuel Poverty Strategy for Scotland, November 2017³⁴
- A new definition of fuel poverty in Scotland: A review of recent evidence, November 2017³⁵
- Consultation on Scotland’s Energy Efficiency Programme: Analysis of Responses, November 2017³⁶
- Consultation on Heat and Energy Efficiency Strategies, and Regulation of District Heating: Analysis of Responses, November 2017³⁷
- Energy efficiency and condition in standards in private rented housing: Analysis of Responses, November 2017³⁸
- Scottish House Condition Survey: Key Findings 2016, December 2017³⁹

It has also published other papers on other aspects of energy policy.

²⁹ Available at <http://www.gov.scot/Publications/2017/01/3414/downloads>

³⁰ Op cit 1

³¹ Available at <http://www.gov.scot/Publications/2017/01/9139>

³² Available at <http://www.gov.scot/Publications/2017/03/1009>

³³ Available at <http://www.gov.scot/Publications/2017/04/2510>

³⁴ Op cit 2

³⁵ Available at <http://www.gov.scot/Publications/2017/11/7715>

³⁶ Available at <http://www.gov.scot/Publications/2017/11/6738>

³⁷ Available at <http://www.gov.scot/Publications/2017/11/4994>

³⁸ Available at <http://www.gov.scot/Publications/2017/11/6863>

³⁹ Available at <http://www.gov.scot/Publications/2017/12/5401>

Appendix 2

Energy Efficiency and Fuel Poverty Programmes Identified by CFU in its 2016 paper: Taking the temperature: A review of energy efficiency and fuel poverty schemes in Scotland

Schemes included in the review^{40, 41}

| Supplier Obligations | Other UK-wide energy efficiency schemes | Scotland-specific schemes | UK-wide cash benefits schemes | Renewable energy schemes |
|-----------------------------------------------|-----------------------------------------|---------------------------------------------------------------------------------|-------------------------------|------------------------------------------------|
| Carbon Emissions Reduction Target (CERT) | Green Deal | Home Insulation Scheme (HIS) | Warm Home Discount | Feed-in-Tariffs (FiTs) |
| Community Energy Savings Programme (CESP) | Big Energy Saving Network | Universal Home Insulation Scheme (UHS) | Winter Fuel Payments | Renewable Heat Premium Payments (RHPP) |
| Energy Company Obligation (ECO) ⁴² | Warmzone | Energy Assistance Scheme (EAS) | Cold Weather Payments | Renewable Heat Incentive (RHI) |
| | | Energy Assistance Package (EAP) | | Energy Savings Scotland Home Renewables Grant |
| | | Boiler Scrappage Scheme | | Home Energy Scotland Renewables Loans |
| | | Home Energy Efficiency Programmes for Scotland: Area Based Schemes (HEEPS: ABS) | | Community and Renewables Energy Scheme (CARES) |
| | | HEEPS: Cashback Scheme | | |
| | | Green Homes Cashback Scheme | | |
| | | HEEPS: Loans Scheme | | |
| | | HEEPS: Warmer Homes Scotland Scheme | | |
| | | Scotland's Energy Efficiency Programme (SEEP) ⁴³ | | |
| | | Climate Challenge Fund | | |

⁴⁰ Consumer Futures Unit (2016) *Taking the temperature: A review of energy efficiency and fuel poverty schemes in Scotland*, Consumers Future Unit Publication Series 2016:2, Citizens Advice Scotland, Edinburgh, pp50, Table 3.1

⁴¹ It might be argued that this table omits one from the Scotland-specific schemes, the Central Heating Program which ran from 2001-2009. In 2008, this program was in its final year of operation as it was being wound up.

⁴² In 2016, ECO would actually have been ECO2. While ECO was originally meant to run from 2013 to 2017, major changes were introduced to the scheme in December 2014, so that formally ECO ran from 2013 to 2015 to be replaced by a new scheme (ECO2) with separate targets for 2015 to 2017. There were distinct differences between the two phases of ECO.

⁴³ This was actually just the first pilot programme of the SEEP, with the scheme not intended to launch fully until 2018.

Appendix 3

Summary of Aims, Delivery and Eligibility of Scottish Energy Efficiency and Fuel poverty Initiatives operating in Scotland as of December 2017⁴⁴

| INVESTMENT IN INSULATION AND HEATING | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HEEPS: ABS | | |
| <p>Aims</p> <p>To deliver physical energy efficiency measures to maximise CO2 savings in given areas. Has an objective to cover all of Scotland over 10 year lifespan. Budget for 2017/18 is £47 million.</p> | <p>Delivery</p> <p>predominantly through grants to local authorities to deliver directly or through contractors heating and/or insulation improvements to private sector households with the aspiration that it would be coupled with ECO funding to improve social housing within the targeted areas</p> | <p>Eligibility</p> <p>Aspiration that it will be targeted on low income areas, e.g. Areas that score poorly on Index of Multiple Deprivation.</p> <p>"No data is available on the extent to which the scheme has benefited different social economic groups. However, the fuel poverty criteria in the scheme funding allocations, in so far as fuel poverty data allows, should have resulted in some targeting of the fuel poor."⁴⁵</p> |
| Home Energy Scotland Loan (includes Gas Infill Loans) | | |
| <p>Aims</p> <p>To provide loans to install measures including solid wall insulation, double glazing, new boilers and renewables. Budget for 2017/18 is £34million.</p> | <p>Delivery</p> <p>Interest free, unsecured loans of up to £32,500 to owner occupier households and private landlords to install measures such as solid wall insulation, double glazing or new boilers.</p> | <p>Eligibility</p> <p>owner occupier households and private landlords, subject to affordability and credit checks. Length of payback dependent on amount borrowed. No targeting of the fuel poor.</p> |
| Energy Company Obligation (ECO) | | |
| <p>Aims</p> | <p>Delivery</p> | <p>Eligibility</p> |

⁴⁴ Appendix 3 draws on an internal CFU paper, Fuel Poverty Support Categories: Types of Support Based on Existing Schemes by Craig Salter that started to be prepared in 2016. It has been amended and revised here.

⁴⁵ Consumer Futures Unit (2016) *Taking the temperature: A review of energy efficiency and fuel poverty schemes in Scotland*, Consumers Future Unit Publication Series 2016:2, Citizens Advice Scotland, Edinburgh, pp88

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>To reduce carbon emissions through regulatory obligations placed on energy supply companies by the energy regulator</p> | <p>Each energy supply company has defined carbon emissions target to achieve during the lifetime of the obligations. The funding for the initiatives undertaken to realise the emission target reductions comes via levies within gas and electricity consumer fuel bills. Energy supply companies are free to decide their own specific programmes to achieve their targets within the rules governing the obligations. The process is overseen by the energy regulator.</p> | <p>Dependent on the obligation.</p> |
| <p>HEEPS Equity Loan Pilot Scheme</p> | | |
| <p>Aims</p> <p>To provide loans to install measures including solid wall insulation, double glazing, new boilers and renewables. Budget for 2017/18 is £10million</p> | <p>Delivery</p> <p>loans of up to 50% of property subject to a £40,000 maximum to owner occupier households and private landlord in Glasgow, Argyll and Bute and Perthshire council areas to install measures such as solid wall insulation, double glazing or new boilers.</p> | <p>Eligibility</p> <p>Loan is secured on the property. No repayment until property is sold or last applicant dies. No targeting of the fuel poor</p> |
| <p>HEEPS: Warmer Homes Scotland Scheme</p> | | |
| <p>Aims</p> <p>To assist vulnerable households living in fuel poverty access to additional energy efficiency measures, energy advice and benefit advice. Budget for 2017/18 is £19million</p> | <p>Delivery</p> <p>Open to homeowners and private rented tenants on low incomes. Assessors recommend suitable measures, and in most cases the costs will be met by SG. Where measures are more expensive, there will be a need for consumer contributions.</p> | <p>Eligibility</p> <p>Dwelling must be the main residence of the household, in which they have lived for at least 12 months, and have a SAP rating of 54 or lower. Households must meet specific criteria and be in receipt of certain passported benefits: e.g. disability or over 75 – Households deemed to be vulnerable.</p> |
| <p>Scottish Energy Efficiency Programme Phase 1 Pilot and Phase 2 Pilot</p> | | |
| <p>Aims</p> | <p>Delivery</p> | <p>Eligibility</p> |

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| To invest in Scottish building stock as part of national infrastructure priority. Phase 1 from October 2016 to December 2017 had a budget of £9.1million. Phase 2 opened for bids in August 2017 to be completed by August 2019 with a budget of £4.4million | local authorities and/or their partners submit proposals pilot projects to assist the development of SEEP, contribute to the design of future programmes aimed at tackling fuel poverty and reducing greenhouse gas emissions and inform how future SEEP funding is best deployed. | Local authorities via a bidding process |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|

COMMUNITY EMPOWERMENT

Climate Challenge Fund

| | | |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Aims</p> <p>To support community led initiatives to take action on climate change.</p> | <p>Delivery</p> <p>Provides community groups with up to £150,000 per year per organisation to run projects aimed at reducing carbon emissions, e.g. energy efficiency to community buildings, low carbon travel, schemes to tackle waste, and home energy advice.</p> | <p>Eligibility</p> <p>Community groups targeting community benefits. Targeted at carbon emissions. No specific fuel poverty target.</p> |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|

Community and Renewables Energy Scheme (CARES)

| | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <p>Aims</p> <p>To provide loan funding towards supporting the development of community engagement renewable energy projects of up to 5MW, particularly where there is a need for a financial outlay prior to planning consent is given.</p> | <p>Delivery</p> <p>A Start Up grant of up to £10,000 is available to assist for feasibility studies and consultation. Loan of up to £150,000 are available to cover up to 90% of agreed costs, with an interest rate of 10%. Other infrastructure and innovation grants have been available under this programme, and may be available in the future, but are currently closed to new applications.</p> | <p>Eligibility</p> <p>Community groups and organisations</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|

FINANCIAL ASSISTANCE

Warm Home Discount

| | | |
|-------------|-----------------|--------------------|
| Aims | Delivery | Eligibility |
|-------------|-----------------|--------------------|

| | | |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| to assist elderly and vulnerable households meet their fuel bills | Annual payment of £140 to two groups of vulnerable households credited (usually directly against their electricity account) | <p>Core group of elderly consumers in receipt of pension credit receive payment automatically.</p> <p>Broader group, typically low income consumers with disabilities or young children (although suppliers have discretion over makeup of this group) must apply each year and payments made on a first come, first served basis to a limited number of households.</p> |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Winter Fuel Payments

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <p>Aims</p> <p>General financial assistance where at least one householder is over the national female pension age (currently born before 5 August 1953)</p> | <p>Delivery</p> <p>Household can receive between £200 and £300 depending on age and circumstances. You may have to claim first year but subsequently it is an automatic payment</p> | <p>Eligibility</p> <p>Universal payment paid solely on criteria of age</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|

Cold Weather Payments

| | | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Aims</p> <p>To provide low income households financial support during extended periods of cold weather.</p> | <p>Delivery</p> <p>£25 per week is paid to households on defined benefits during 7-day periods between November and March where the mean temperature as measured at a specific local weather station is 0°C or colder</p> | <p>Eligibility</p> <p>Any household on a defined benefit living in the geographic area covered by the specific weather station</p> |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|

INVESTMENT IN RENEWABLE TECHNOLOGIES

Feed-in-Tariffs (FiTs)

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Aims</p> <p>To support organisations, businesses, communities and individuals to generate low-carbon electricity via specific technologies such as</p> | <p>Delivery</p> <p>Organisations, businesses, communities and individuals pay to install the approved technology via approved installers, and in return receive payments for the amount of</p> | <p>Eligibility</p> <p>Determined by the technology and the installer, and an organisation, business, community or individual willing to make the investment to begin with.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| photovoltaic panels, wind turbines, hydro turbines, anaerobic digestion (biogas energy) and micro combined heat and power | electricity generated. These payments are fixed for an agreed number of years | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Renewable Heat Incentive (RHI) | | |
| <p>Aims</p> <p>To support businesses, communities and individuals to encourage the uptake of specific renewable technologies to assist with meeting the national renewables target by 2020. Eligible technologies are air source heat pumps, ground source heat pumps, biomass burning central heating systems, and solar hot water systems.</p> | <p>Delivery</p> <p>Businesses, communities and individuals are compensated for the difference between installing and operating the renewable system compared with the previous installed fossil fuel based system. Payments are made for 7 years. RHI is a government grant and not funded through levies on the fuel bill.</p> | <p>Eligibility</p> <p>Determined by the technology installed, the technology replaced, and the installer, and the business, community or individual willing to make the investment to begin with.</p> |

Appendix 4

Energy assessment of seven properties

'Central Belt' property

This 3-bedroom, detached bungalow utilises a condensing mains gas combi boiler for space and water heating controlled by a programmer / timeclock, with TRVs on the radiators, but no room thermostat. Electric underfloor heating mats have recently been fitted beneath the bathroom and kitchen floor tiles. The dwelling was built in the 1980s. The walls are of a timber frame construction, and there is 270mm of loft insulation in the roof void, although 35% of the loft is boarded. It is fully double glazed with post 2003 wood framed windows. The EPC recommended improvements for this property are illustrated in Figure A4.1.

Figure A4.1: EPC Recommended Improvements for 'Central Belt' property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|---------------------------------------------|-----------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Floor insulation (suspended floor) | £800 - £1,200 | £153 | C 69 | D 68 |
| 2 Low energy lighting for all fixed outlets | £45 | £38 | C 70 | C 69 |
| 3 Solar water heating | £4,000 - £6,000 | £32 | C 71 | C 71 |
| 4 Solar photovoltaic panels, 2.5 kWp | £5,000 - £8,000 | £252 | B 81 | C 80 |

Interestingly, the EPC does not recommend fitting a room thermostat here. The impact of the recommended improvements is presented on the EPC as a cumulative impact, and not as single measures. More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.1.

Table A4.1: 'Central Belt' property: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|-------------------------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 64 | 865 | 105 | 110 | 1080 | - |
| fit room thermostat | 65 | 829 | 105 | 110 | 1044 | 36 |
| 100% low energy lighting | 65 | 874 | 105 | 63 | 1042 | 38 |
| 150mm floor insulation | 69 | 712 | 105 | 110 | 927 | 153 |
| fit solar hot water system | 65 | 865 | 73 | 110 | 1048 | 32 |
| fit photovoltaic system | 74 | 865 | 105 | 110 | 1080 | 252 |
| fit controls, 100% low energy lighting and 150mm floor insulation | 71 | 691 | 105 | 63 | 859 | 221 |

Fitting the photovoltaic system has the biggest effect on the SAP rating, increasing it to SAP 74 and demonstrating an estimated annual saving on other household fuel costs⁴⁶ of £252, but as can be seen in Figure 4.5, its associated installation costs are significant. Floor insulation has the next biggest single effect on both the SAP rating and fuel costs savings. The low cost measures of fitting low energy lighting throughout the dwelling and adding a room thermostat to the heating controls are low impact measures, but importantly low cost – both improve the rating, save money and pay for themselves in a very short period. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of a room thermostat, 100% low energy lighting and floor insulation has a payback period of between 4 and 6 years.

Cowal Peninsula property

This 3-bedroom, end terrace house utilises a condensing mains gas combi boiler for space and water heating controlled by a programmer / timeclock and room thermostat, with TRVs on the radiators. No other fixed or portable heating was found in the dwelling. The dwelling was built in the 1950s. The walls are of a cavity construction and have been filled with insulation. There is 100mm of loft insulation in the roof void. It is fully double glazed with wood framed windows of an unknown date. The EPC recommended improvements for this property are illustrated in Figure A4.2.

Figure A4.2: EPC Recommended Improvements for 'Cowal Peninsula' property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|---------------------------------------------|-----------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Floor insulation (suspended floor) | £800 - £1,200 | £62 | C 71 | C 70 |
| 2 Low energy lighting for all fixed outlets | £30 | £31 | C 73 | C 71 |
| 3 Solar water heating | £4,000 - £6,000 | £29 | C 74 | C 72 |
| 4 Solar photovoltaic panels, 2.5 kWp | £5,000 - £8,000 | £262 | B 84 | B 82 |

The EPC does not recommend increasing the loft insulation here. More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.2.

Table A4.2: Cowal Peninsula: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|-----------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 69 | 591 | 103 | 95 | 789 | - |
| top up loft insulation to at least 270mm | 70 | 571 | 103 | 95 | 769 | 20 |
| 150mm floor insulation | 71 | 528 | 103 | 95 | 726 | 63 |
| 100% low energy lighting | 70 | 596 | 103 | 59 | 758 | 31 |
| fit solar hot water system | 71 | 591 | 74 | 95 | 760 | 29 |
| fit photovoltaic system | 82 | 591 | 103 | 95 | 789 | 262 |
| top up loft insulation to at least 270mm, fit 150mm | 73 | 512 | 103 | 59 | 674 | 115 |

⁴⁶ SAP only calculates the space and water heating costs and lighting costs.

| | | | | | | |
|-----------------------------------------------|--|--|--|--|--|--|
| floor insulation and 100% low energy lighting | | | | | | |
|-----------------------------------------------|--|--|--|--|--|--|

Fitting the photovoltaic system has the biggest effect on the SAP rating, increasing it to SAP 82 and demonstrating an estimated annual saving on other household fuel costs of £262, but as can be seen in Figure 4.6, its associated installation costs are significant. Floor insulation has the next biggest single effect on both the SAP rating and fuel costs savings. Fitting low energy lighting throughout the dwelling and topping up the loft insulation low impact measures, but both improve the SAP rating. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of topping up the loft insulation, 100% low energy lighting and floor insulation has a payback period of between 10 and 15 years.

Crinan Canal property

This 3-bedroom, detached house utilises a combination of electric storage heaters and various direct acting electric heaters for space and a dual electric immerse for water heating. No other fixed or portable heating was found in the dwelling. The dwelling was built in 2002. The walls are of a timber frame construction, and there is 270mm of loft insulation in the roof void. It is fully double glazed with pre-2003 wood framed windows. The EPC recommended improvements for this property are illustrated in Figure A4.3.

Figure A4.3: EPC Recommended Improvements for 'Crinan Canal' property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|---------------------------------------------|-------------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Floor insulation (suspended floor) | £800 - £1,200 | £71 | D 60 | E 41 |
| 2 Low energy lighting for all fixed outlets | £50 | £50 | D 62 | E 41 |
| 3 High heat retention storage heaters | £2,400 - £3,600 | £325 | C 69 | E 48 |
| 4 Solar water heating | £4,000 - £6,000 | £55 | C 70 | E 51 |
| 5 High performance external doors | £2,000 | £45 | C 72 | E 53 |
| 6 Solar photovoltaic panels, 2.5 kWp | £5,000 - £8,000 | £268 | C 79 | D 59 |
| 7 Wind turbine | £15,000 - £25,000 | £602 | A 95 | C 73 |

More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.3.

Installing the wind turbine has the biggest effect on the fuel bill saving with an estimated reduction on household electric costs of £602, but the impact without knowing any details about the wind turbine results only in a small effect on the SAP rating in RdSAP. Fitting the photovoltaic system has the biggest effect on the SAP rating, increasing it to SAP 68, followed closely by replacing the current storage heaters with the new high heat retention storage heaters, which achieves SAP 66. The high heat retention storage heaters also demonstrate an estimated annual saving on household fuel costs of £342. As can be seen in Figure 4.7, the installation costs associated with these 3 measures are all significant, though the new storage heaters are about half the cost of the PV system, and 6 to 7 times cheaper than erecting a wind turbine. Floor insulation and fitting insulated doors (as this dwelling has 4) each have low impact on the SAP rating, some impact on the

fuel bill, but come at a price. Fitting low energy lighting throughout the dwelling is a cost effective low impact measure that improves the SAP rating, reduces the fuel bill, and comes with a good financial return. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of by replacing the current storage heaters with the new high heat retention storage heaters, 100% low energy lighting and floor insulation has a payback period of between 8 and 13 years.

Table A4.3: Crinan Canal: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|-----------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 59 | 1440 | 172 | 163 | 1775 | - |
| 150mm floor insulation | 60 | 1365 | 172 | 163 | 1700 | 75 |
| 100% low energy lighting | 60 | 1461 | 172 | 92 | 1725 | 50 |
| replace storage heaters with High Heat Retention Storage Heaters | 66 | 1098 | 172 | 163 | 1433 | 342 |
| fit solar hot water system | 60 | 1448 | 111 | 163 | 1722 | 53 |
| fit insulated doors | 61 | 1356 | 172 | 163 | 1691 | 84 |
| fit photovoltaic system | 68 | 1440 | 172 | 163 | 1775 | 268 |
| install wind turbine | 61 | 1440 | 172 | 163 | 1775 | 602 |
| replace storage heaters with High Heat Retention Storage Heaters, 150mm floor insulation and 100% low energy lighting | 69 | 1062 | 172 | 163 | 1397 | 378 |

Urban East property

This 4-bedroom, mid-terrace utilises a condensing mains gas combi boiler for space and water heating controlled by a programmer / timeclock, with TRVs on the radiators, but no room thermostat. There is a gas focal point fire in the lounge. The dwelling was built in the 1950s. The walls are of a cavity construction and have been filled with insulation. There is 270mm of loft insulation in the roof void, although 40% of the loft is boarded with insulation below the boards. It is fully double glazed uPVC framed windows with 12mm gaps. The EPC recommended improvements for this property are illustrated in Figure A4.4.

Figure A4.4: EPC Recommended Improvements for 'Urban East' property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|--------------------------------------|-----------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Floor insulation (suspended floor) | £800 - £1,200 | £59 | C 73 | C 70 |
| 2 Solar water heating | £4,000 - £6,000 | £30 | C 74 | C 72 |
| 3 Solar photovoltaic panels, 2.5 kWp | £5,000 - £8,000 | £261 | B 83 | C 80 |

Interestingly, the EPC does not recommend fitting a room thermostat here. More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.4.

Table A4.4: 'Urban East' property: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 71 | 688 | 107 | 68 | 863 | - |
| fit room thermostat | 72 | 656 | 107 | 68 | 831 | 32 |
| 150mm floor insulation | 73 | 626 | 107 | 68 | 801 | 62 |
| fit solar hot water system | 72 | 688 | 77 | 68 | 833 | 30 |
| fit photovoltaic system | 82 | 688 | 107 | 68 | 863 | 261 |
| fit room thermostat and 150mm floor insulation | 74 | 598 | 107 | 68 | 773 | 90 |

Fitting the photovoltaic system has the biggest effect on the SAP rating, increasing it to SAP 62 and demonstrating an estimated annual saving on other household fuel costs of £261, but as can be seen in Figure 4.8, its associated installation costs are significant. Floor insulation has the next biggest single effect on both the SAP rating and fuel costs savings. Adding a room thermostat to the heating controls is a low impact measure, but also low cost – it improves the rating, saves money and pays for itself in a very short period. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of fitting a room thermostat and floor insulation has a payback period of between 9 and 14 years.

Inverness-shire property

This 3-bedroom, detached bungalow utilises an oil system boiler for space and water heating controlled by a programmer / timeclock and room thermostat with TRVs on the radiators. There is also a focal point open fire in the lounge. The dwelling was built in the late 1970s – early 1980s. The walls are of a cavity construction and have been filled with insulation. There is 250mm of loft insulation in the roof void, although 18% of the loft is boarded. It is fully double glazed with post-2003 uPVC framed windows. The EPC recommended improvements for this property are illustrated in Figure A4.5.

Figure A4.5: EPC Recommended Improvements for 'Inverness-shire' property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|---------------------------------------------|-------------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Floor insulation (suspended floor) | £800 - £1,200 | £169 | D 63 | D 55 |
| 2 Low energy lighting for all fixed outlets | £10 | £18 | D 64 | D 55 |
| 3 Replace boiler with new condensing boiler | £2,200 - £3,000 | £69 | D 66 | D 59 |
| 4 Solar water heating | £4,000 - £6,000 | £37 | D 68 | D 61 |
| 5 Solar photovoltaic panels, 2.5 kWp | £5,000 - £8,000 | £243 | C 76 | C 69 |
| 6 Wind turbine | £15,000 - £25,000 | £561 | A 93 | B 83 |

More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.5.

Table A4.5: 'Inverness-shire' property: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|------------------------------------------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 57 | 949 | 142 | 96 | 1187 | - |
| 150mm floor insulation | 63 | 776 | 142 | 96 | 1014 | 173 |
| 100% low energy lighting | 57 | 953 | 142 | 74 | 1169 | 18 |
| install oil condensing system boiler | 60 | 885 | 131 | 96 | 1112 | 75 |
| fit solar hot water system | 59 | 955 | 94 | 96 | 1145 | 42 |
| fit photovoltaic system | 67 | 949 | 142 | 96 | 1187 | 243 |
| install wind turbine | 60 | 949 | 142 | 96 | 1187 | 561 |
| install oil condensing boiler, 150mm floor insulation and 100% low energy lighting | 66 | 723 | 131 | 74 | 928 | 259 |

Installing the wind turbine has the biggest effect on the fuel bill saving with an estimated reduction on household electric costs of £561, but the impact without knowing any details about the wind turbine results only in a small effect on the SAP rating in RdSAP. Fitting the photovoltaic system has the biggest effect on the SAP rating, increasing it to SAP 67, and demonstrates an estimated annual saving on household fuel costs of £243. Floor insulation and upgrading the boiler each have a modest impact on the SAP rating, some impact on the fuel bill, but also come at a price. Fitting low energy lighting throughout the dwelling is a cost effective low impact measure that improves the SAP rating, reduces the fuel bill, and comes with a good financial return. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of upgrading the oil boiler, 100% low energy lighting and floor insulation has a payback period of between 11 and 16 years.

Aberdeen-shire property

This 3-bedroom, detached bungalow utilises a condensing oil combi boiler for space and water heating controlled by a programmer / timeclock and with TRVs on the radiators. There is no room thermostat. There is also a focal point open fire in the lounge. The dwelling was built before 1919, with a flat roofed kitchen extension added in the 1980s. The walls are of a 600mm sandstone construction and without insulation. There is 300mm of loft insulation in the roof void, although 15% of the loft is boarded with insulation below the boards. It is fully double glazed with pre-2003 uPVC framed windows with 12mm gaps. The dwelling has a photovoltaic array of 12 panels orientated south. The EPC recommended improvements for this property are illustrated in Figure A4.6.

Figure A4.6: EPC Recommended Improvements for Aberdeen-shire property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|----------------------------------------|-------------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Internal or external wall insulation | £4,000 - £14,000 | £257 | C 73 | D 55 |
| 2 Floor insulation (suspended floor) | £800 - £1,200 | £36 | C 75 | D 58 |
| 3 Floor insulation (solid floor) | £4,000 - £6,000 | £80 | C 79 | D 63 |
| 4 Upgrade heating controls | £350 - £450 | £32 | C 80 | D 65 |
| 5 Solar water heating | £4,000 - £6,000 | £31 | B 82 | D 68 |
| 6 Wind turbine | £15,000 - £25,000 | £561 | A 101 | B 85 |

More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.6.

Table A4.6: 'Aberdeen-shire' property: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|---------------------------------------------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 60 | 937 | 167 | 67 | 1172 | - |
| 100mm external wall insulation | 72 | 703 | 168 | 67 | 938 | 233 |
| 150mm floor insulation | 66 | 832 | 167 | 67 | 1066 | 105 |
| fit room thermostat | 63 | 889 | 167 | 67 | 1123 | 48 |
| fit solar hot water system | 62 | 937 | 137 | 67 | 1141 | 30 |
| install wind turbine | 60 | 937 | 167 | 67 | 1171 | 561 |
| add 100mm of external wall insulation, 150mm floor insulation and fit room thermostat | 79 | 551 | 168 | 67 | 786 | 385 |

Installing the wind turbine has the biggest effect on the fuel bill saving with an estimated reduction on household electric costs of £561, but the impact without knowing any details about the wind turbine results only in a small effect on the SAP rating in RdSAP. Insulating the stone walls has the biggest effect on the SAP rating, increasing it to SAP 72, and demonstrates an estimated annual saving on household fuel costs of £233. Floor insulation also impacts both the SAP rating and the fuel bill. Both insulation measures come at a price. Adding a room thermostat to the heating controls is a low impact measure, but also low cost – it improves the rating, saves money and pays for itself in a very short period. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of installing external wall insulation and floor insulation and fit a room thermostat, has a payback period of between 12 and 40 years.

Island North property

This 3-bedroom, detached house utilises electric storage heaters for space heating and a dual electric immerse for water heating. The household has removed the heaters in the bedrooms and other rooms. The dwelling was built in late 1970s – early 1980s. The walls are of a timber frame construction, and there is 150mm of loft insulation in the roof void. It is fully double glazed with wood framed windows of an unknown install date. This dwelling is fitted with a dri-master anti-condensation mechanical ventilation system which has an impact on reducing its energy rating. The EPC recommended improvements for this property are illustrated in Figure A4.7.

Figure A4.7: EPC Recommended Improvements for 'Island North' property

| Recommended measures | Indicative cost | Typical saving per year | Rating after improvement | |
|---------------------------------------------|-------------------|-------------------------|--------------------------|-------------|
| | | | Energy | Environment |
| 1 Increase loft insulation to 270 mm | £100 - £350 | £61 | E 52 | F 34 |
| 2 Floor insulation (suspended floor) | £800 - £1,200 | £199 | D 59 | E 41 |
| 3 Low energy lighting for all fixed outlets | £40 | £41 | D 61 | E 41 |
| 4 High heat retention storage heaters | £1,600 - £2,400 | £238 | D 67 | E 47 |
| 5 Solar water heating | £4,000 - £6,000 | £55 | C 70 | E 52 |
| 6 Solar photovoltaic panels, 2.5 kWp | £5,000 - £8,000 | £251 | B 81 | D 61 |
| 7 Wind turbine | £15,000 - £25,000 | £602 | A 105 | B 82 |

More detailed results for various single improvements for this property, and one package of measures, are presented in Table A4.7.

Installing the wind turbine has the biggest effect on the fuel bill saving with an estimated reduction on household electric costs of £602, but the impact without knowing any details about the wind turbine results only in a small effect on the SAP rating in RdSAP. Fitting the photovoltaic system has the biggest effect on the SAP rating, increasing it to SAP 68, followed next by replacing the current storage heaters with the new high heat retention storage heaters, which achieves SAP 59. The high heat retention storage heaters also demonstrate an estimated annual saving on household fuel costs of £319. As can be seen in Figure 4.11, the installation costs associated with these 3 measures are all significant, though the new storage heaters are about a third of the cost of the PV system, and 10 times cheaper than erecting a wind turbine. Floor insulation has an impact on the SAP rating, and the reduction on the fuel bill than does the topping up of the loft space insulation, but it also costs more. Fitting low energy lighting throughout the dwelling is a cost effective low impact measure that improves the SAP rating, reduces the fuel bill, and comes with a good financial return. Solar hot water systems are very expensive, with little increase in the SAP score or saving in fuel costs in this dwelling. The package of by replacing the current storage heaters with the new high heat retention storage heaters, 100% low energy lighting, topping up the loft insulation and floor insulation has a payback period of between 4.7 and 7.3 years.

Table A4.7: 'Island North' property: Impact of Improvements

| IMPROVEMENT MEASURE | SAP score | Space Heating Cost (£/year) | Hot Water Cost (£/year) | Lighting Cost (£/year) | Total SAP Fuel Cost (£/year) | Fuel Cost Saving (£/year) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|-------------------------|------------------------|------------------------------|---------------------------|
| base - as assessed on EPC | 50 | 1287 | 163 | 116 | 1552 | - |
| top up loft insulation to at least 270mm | 52 | 1226 | 163 | 116 | 1505 | 61 |
| 150mm floor insulation | 57 | 1085 | 163 | 116 | 1364 | 202 |
| 100% low energy lighting | 52 | 1304 | 163 | 58 | 1525 | 41 |
| replace storage heaters with High Heat Retention Storage Heaters | 59 | 968 | 163 | 116 | 1247 | 319 |
| fit solar hot water system | 52 | 1296 | 105 | 116 | 1517 | 49 |
| fit photovoltaic system | 68 | 1287 | 163 | 116 | 1566 | 268 |
| install wind turbine | 54 | 1287 | 163 | 116 | 1566 | 602 |
| replace storage heaters with High Heat Retention Storage Heaters, top up loft insulation to at least 270mm, fit 150mm floor insulation and 100% low energy lighting | 67 | 802 | 163 | 58 | 1023 | 543 |

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