VILLAGE ENERGY AUDIT
Skirwith and Kirkland, Cumbria

April 2012

Executive Summary

Calor Gas Ltd provided support to NEA in 2011/12 to develop a village energy audit programme to identify opportunities to improve the energy efficiency of nominated off-gas villages across England. The village energy audit programme is a component of the wider Calor funded Future of Rural Energy in Europe (FREE) programme.

It is recognised that it is often not financially viable to provide energy efficiency improvements to single households in remote rural off-gas communities.[1] Identifying multiple properties requiring improvements in one locality via an energy audit of a village makes a multiple intervention a more viable proposition for providers.

A total of eight village audits were progressed in eight regions of England. Each audit comprised SAP-based[2] energy audits of homes and a walk-through audit of a community building. Energy efficiency related information was more widely gathered across the village through a questionnaire. The programme of activity was undertaken and supported by NEA and locally based colleagues in partner organisations.

This report presents the findings from the village energy audit undertaken in Skirwith and Kirkland, in north west England.

Key findings from Skirwith and Kirkland, north west England

Skirwith village energy audit concluded the following key findings:

- From approximately 150 questionnaires that were distributed, 33 were returned, equating to a rate of return of 22%.
- Of the questionnaires returned 6 households are eligible for the CERT[3] super priority group and 2 are eligible for the CERT priority group.
- 64% of houses were built before 1930, suggesting a stock of predominantly solid walls and low thermal efficiency.
- From the questionnaires returned, there are 2 cavity fill opportunities and 22 solid wall opportunities. In addition, there is 1 loft completely uninsulated and 14 that would benefit from a loft top-up.
- The questionnaires revealed that 18% of households surveyed suffer from cold related health issues.
- 27% (9 households) of households would welcome a benefit entitlement check.

[1] CSE, Quantifying Rural Fuel Poverty, 2008
[2] Standard Assessment Procedure. This is a measurement of the thermal performance of a house. Reduced Data SAP (RdSAP) is also commonly used. A low SAP rating reflects a home that is expensive to heat.
[3] Carbon Emissions Reduction Target: an obligation on utility companies to reduce householder's energy consumption, particularly for vulnerable customers.

1. Background and introduction

An estimated 7 million households in the UK cannot afford to heat their homes to the standard required for heath and comfort.[4] They may have to choose between the misery of living in a cold, damp home, the anxiety of getting into debt with their fuel suppliers or economising on other essentials such as food and clothing. Off-gas households are particularly affected by fuel poverty as they do not have access to mains gas which is currently the cheapest mass market fuel for space and water heating in England. They are therefore likely to be reliant on more expensive fuel types.

Fuel poverty not only affects individual households but also the broader community. It can be caused by and result in poor housing stock and poor health and well-being. In terms of the broader community, it can result in less disposable income being spent in the local economy. Fuel poverty should be a shared concern and its alleviation can have far reaching benefits.

It is widely recognised that insulation and heating installers often do not find it financially viable to travel to remote rural areas to undertake single boiler or insulation installations meaning that rural households are subsequently denied access to energy efficiency measures that might otherwise help to alleviate fuel poverty. NEA believes that community level assessments of rural properties are a more viable proposition allowing for a group of homes within a rural setting to be surveyed and to subsequently benefit from heating and insulation measures as a group intervention. Group interventions are likely to be a more financially attractive option for service providers and allow for multiple measures to be installed at a cost effective price.

This report details the findings from the village energy audit of Skirwith and Kirkland, north west England. For this region, two villages in the same parish were chosen, in order to capture a large enough sample of homes. The report incorporates recommendations on potential energy efficiency and other interventions that may in turn help to reduce fuel poverty locally.

[4] Source: CSE/Consumer Focus NowCast for fuel poverty 2011

2. Overview of Skirwith and Kirkland

In order to work with a significant number of households in this very dispersed area, a section of the Parish of Culgaith was assessed. The villages of Skirwith and neighbouring hamlet of Kirkland were chosen. Comprising of the two villages of Skirwith and Kirkland, this area sits among the beautiful countryside of Cumbria. Hidden amongst this picturesque area however, are signs of extreme hardship and a local economy that is providing ever fewer employment opportunities.

Useful statistics about the area can be found on the Government's neighbourhood statistics website. [5] This shows statistics relating to the local neighbourhood. Government defines this as a Lower Super Output Area and includes roughly 1500 people and 400 households. The 2010 Indices of Multiple Deprivation show that although this neighbourhood commands relatively high incomes, its inhabitants also suffer from low employment levels and some of the worst barriers to housing and services in the country. This goes some way to explaining why the fuel poverty levels associated with this area reach 48.9% in some lower super output areas.[6]

3. Overview of the energy audit

The village energy audit of Skirwith and Kirkland was undertaken by an NEA project development coordinator with technical expertise on Saturday 22 October. Planning was undertaken by a Rural Community Council partner representative with assistance from the village hall committee and village residents.

The audit involved five domestic energy audits of a variety of housing types. Data was subsequently input into NHER Plan Assessor 4.5 to generate SAP ratings, estimated carbon emissions and estimated running costs for heating. Qualitative information was also gathered through semi structured interviews and anecdotal evidence about the cost of heating.

The local Rural Community Council representative and other local related organisations held an event at the village hall on the day of the audit. This coincided with professional photography initially arranged to promote a recently installed, trust funded ground source heat pump and PV panels. The promotional photography also included representatives from the FREE village energy audit team. Suggestions for improvement of the thermal efficiency of the village hall were also considered as part of the audit.

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[5] http://www.neighbourhood.statistics.gov.uk/dissemination/NeighbourhoodSummary.do?width=1024&a=7&i=1001&m=0&s=1329996964533&enc=1&profileSearchText=CA10+1RE&searchProfiles=

[6] DECC fuel poverty figures, released 2011.

4. SAP analysis and modelling

A SAP rating (Standard Assessment Procedure) is a widely accepted measure of the energy efficiency of a domestic property. Based on a scale of 1-100, 1 is the lowest mark. A SAP rating uses more detailed and accurate information that an RdSAP (reduced data SAP). When you sell or let a home, the rating you are given on the Energy Performance Cerificate is an RdSAP rating.

In order to determine the SAP rating of the domestic properties that took part in the energy audits, NEA used the detailed data derived from the audits to reconstruct the individual properties using the NHER Plan Assessor programme version 4.5. This can determine the actual cost and carbon figures for each dwelling as well as also deriving a SAP rating in draft format.

This then allowed NEA to model cost effective improvements. The modelling also enables those in slightly different construction types or with different heating regimes to better understand how their home performs

4.1. Assessed SAP results

The following SAP ratings, energy costs and carbon emission are calculated using the NHER Plan Assessor software. In some instances, the exact nature of more complex homes could not be reflected in this standard software. Where this has happens, it will be highlighted.

House type	Fuel type	Heating system	Wall/insulation type	SAP	Heating cost/carbon emissions per annum	Total cost/carbon emissions per annum
A. Mid terrace	Solid fuel	Room heater	Solid stone	**47**	£383 344kg CO_2	£1149 2846 kg CO_2
B. Detached	Oil	boiler	Solid stone with brick cavity extension	**26**	£3572 15,611 kg CO_2	£5376 21,943 kg CO_2
C. Detached	Oil	range	Solid stone with brick cavity extension	**26**	£2744 11,994 kg CO_2	£3900 15,893 kg CO_2
D. Detached	Electr city	Electric boiler	Solid stone with brick cavity extension	**33**	£927 7,923 kg CO_2	£1898 7,923 kg CO_2
E. Detached	Solid fuel	Parkray	Insulated brick cavity	**52**	£676 8,237 kg CO_2	£1421 11,759 kg CO_2

Commentary

A SAP rating of 55 is accepted as representing a home that has adequate levels of thermal efficiency, according to the main government-funded fuel poverty programme *Warm Front.* The findings above show that all these houses are below the Warm Front SAP eligibility criteria of 55. This suggests that the homes are unnecessarily expensive to heat.

This can mostly be attributed to the solid walls and use of oil boilers.

To avoid being considered in fuel poverty[7], the household income would need to be approximately[8]:

- Property A - £11,490: note that this is not likely to be maintaining adequate temperatures however, so income needed to maintain recommended temperatures would need to be higher
- Property B - £53,760
- Property C - £18,980
- Property C - £14,210

This difference in costs can be seen to represent the difference in necessary living costs for different house types, and can also be interpreted to reprensent the extent to which some people must adapt their behaviour to make their household budgets work.

Property A: The SAP rating and costs for property A could not be accurately reflected in the programme. This is because the programme cannot accept a solid fuel room heater as a primary source of heating and storage heating as secondary. It is also important to note that although the running costs appear low, it is likely that this property is under-heated, perhaps with consequences that are detrimental to the structure, and its occupants.

Property B: It is the solid walls and oil boiler that gives the property a low SAP rating and high heating costs. Interestingly, it is the windows and ill fitting, draughty new doors that the owner comments on as being his priority area to improve.

[7] Where a household must spend more than 10% of their income to maintain a healthy heating and living regime. This definition is currently under review

[8] For an accurate measurement, the total income includes housing subsidies and is calculated at a rate after tax.

Property C: Though the house shapes are different, property B and C give the same results. They both are a mix of solid stone walls with small cavity wall extensions, and oil boilers.

Property D: this is an intriguing mix of construction and heating types. It is unlikely that the SAP and fuel costs are accurately reflected in the programme. Part of the house is original stone, with a significant proportion of more modern cavity wall construction. The owner has been advised that the cavities cannot be filled, which suggests they are less than 50mm wide. However NEA notes that whilst these cavities cannot be filled with traditional materials, alternative methods exist and this can likely be done. The heating system is a mixture of on and off-peak electric heating, with open chimneys present but protected from draughts. Thermostats are present in the house but not always used.

Property E: the higher SAP rating and low running costs reflect a more modern home that is well insulated and heated by relatively low cost fuels. It is likely that the higher insulation standards in this property means that this home will be heated to a good standard at a lower cost, rather than the lower cost being a sign of under-heating.

4.2. Modelled SAP results

To ascertain what improvements could be made to the surveyed buildings, and to enable other residents to understand their properties, the original data has been further modelled to see the impact on SAP rating, energy costs and carbon emissions.

SAP modelling has included the potential for improving the fabric of a domestic property by upgrading the current insulation, and changing the property's heating system.

The most cost effective measure to be installed in a property is cavity wall and/or loft insulation. The two main areas of heat loss within a domestic property are the walls (up to 35%) and the roof (up to 25%). Insulation methods such as cavity wall and loft insulation can often be installed at a reduced cost by using funding available from utility initiatives (subsidised measures may be dependent upon the householder's eligibility). If we consider rural housing this tends to be older, larger properties which were constructed before building regulations were implemented to govern the standard of domestic construction. These properties were often constructed with solid walls i.e. without cavities that can be filled with insulation. They are therefore considered *hard to treat* (HTT). Insulating these solid walls can be done using either internal or external insulation, or perhaps a mixture of both. However, this is often deemed as not being cost effective by households due to the upfront capital investment required. In some

cases the capital investment can be up to ten times as much as it would cost to install cavity wall insulation. However, this can be an effective solution and is therefore explored in the modelled ratings outlined below.

When looking at cost effective methods of improving the SAP rating of a property through upgrading the current heating system there are a number of approaches which can be taken. A very cost effective approach is to install a high efficiency natural gas boiler in order to increase the efficiency of the heating system, obtaining quick cost and carbon savings and increasing the property's SAP rating. However, rural properties are often not on the mains gas network, so like with the insulation upgrade, the most cost-effective measure may again not be appropriate here. In turn they must use alternative fuels for heating which tend to have a higher cost per kilowatt hour[9], be prone to frequent price fluctuations and are sometimes more carbon intensive. Additional difficulties include problems of the delivery of certain fuels in severe weather conditions and less market regulation.

NEA has used modelled SAP data for the five dwellings surveyed to estimate cost savings which can be obtained by installing insulation, energy efficiency measures and using alternative heating fuels and systems. An overview of the different improvement measures that could be taken is provided in the following table.

4.2.1. Modelled SAP results – Improving building fabric

House type	Fuel	Current SAP/ Heating costs per annum	Current construction / insulation	Fabric improvement	Improved SAP	Improved heating cost per annum	Savings per annum (heating only)
a. Mid terrace	Solid fuel	**47** £383	Solid stone	Solid wall insulation to building regulations	69	£138	£245
b. Detached	Oil	**26** £3572	Solid stone with brick cavity extension	Solid wall insulation to building regulations on main house	40	£2482	£1090
c. Detached	oil	**26** £2744	Solid stone with brick cavity extension	Fill cavity extension	30	£2482	£263
d. Detached	electric	**33** £927	Solid stone with brick cavity extension	Fill hard to treat cavity Add external insulation	36 50	£849 £545	£78 £382
e. Detached	Solid fuel	**52** £676	Cavity build with insulated bricks	Fill cavity	56	£591	£85

[9] A kilowatt-hour (kWh) is a unit of energy equivalent to one kilowatt (1 kW) of power expended for one hour of time.

The information above shows the improved SAP ratings and predicted savings on heating costs when the walls are improved to building regulations. As expected, the savings are greatest where there is a larger wall area i.e. on the detached homes.

Due to the type of stonework on many of these properties and the fact that many of them are terraced properties, it is likely that some people will not choose external wall insulation. Internal insulation will be more feasible in the larger properties than the smaller ones. Using thinner materials is an option for the smaller properties though this will incur a higher cost.

4.2.2. Modelled SAP results – changing fuel type and heating system

The results below are based on the current insulation levels of individual properties as assessed by NEA. The information below details a variety of heating costs for a number of constructions in Skirwith and Kirkland.

Residents of Skirwith and Kirkland can use this table to see how improvements can be made, and to help them understand how their house might perform, even if it was not fully surveyed.

Note: The figures in bold in the following table show the existing system and the shaded squares give the lowest running costs. Note that the bold shows the existing system so may not reflect the most efficient system for that fuel type.

House type	**LPG** **SAP/Heating cost per annum**	**Solid fuel (back boiler with house coal) SAP/Heating cost per annum**	**Electricity (storage heating)** **SAP/Heating cost per annum**	**Oil** **SAP/Heating cost per annum**	**Renewable heating** **SAP/Heating cost per annum**
A mid terrace	39 / £548	**47/ £383** (solid fuel stove)	56 / £348	65/ £539	54 / £427 (ASHP)
B detached	8 / £3178	20 / £1874	16 / £2206	**26 / £3572**	40 / £1223 (GSHP)
C detached	10 / £2290	23 / £1555	21 / 1718	**26 / £2744**	20 / £1941 (ASHP)
D detached	17 / £1354	33 / £848	**33 / £927**	41 / £1401	27 / £1149 (ASHP)
E detached	32 / £1191	**52 / £676**	52 / £676	60 / £1010	48 / £818 (ASHP)

When using renewable heating technologies NEA has modelled the installations dependent upon property size. Should the property have a heat load suitable for an air source heat pump (ASHP), this has been used as the primary renewable heating technology. Should an ASHP not be suitable due to a bigger heat demand, a ground source heat pump (GSHP) has been specified. Renewable heat technologies are very sensitive to design, installation and use. It is vital that these factors are taken into consideration during the specification of systems.

It is interesting to note that the heating system which yields the highest SAP result is not always the heating system that predicts the lowest running costs.

It is also interesting to note that the renewable technologies rarely yield the best results. Among industry, local authorities, housing associations and other bodies however, there is currently concern about the way in which these technologies are reflected in SAP and RdSAP programmes. The software is currently under review.

Solid fuel back boilers yield good results in terms of running costs. The availability of fuel, convenience of using the system and flexibility in terms of payment methods should always be taken into account in considering these systems. Off-peak electric heating also yields good results. It should be noted that the figures are based on automatically charging, modern convector storage heaters. Interestingly, for the largest house, the ground source heat pump is the best option financially and in terms of environmental impact.

4.2.3. Integrating renewable technology into the existing properties

Performance of renewable technologies is very sensitive to location and use. The conservation of energy through insulation should always be considered before the generation of renewable heat or electricity. For interest, the SAP programme has given the following results:

House type	**Current SAP rating and total fuel cost per annum (£)**	**Improvement when installing Solar thermal**	**Improvement when installing Solar photovoltaic**	**Improvement when installing Micro-wind**
A mid terrace	47 / £1149	55 saving £137	60 Saving £196	48 Saving £12
B detached	26 / £5376	30 Saving £414 [1]	30 Saving £171	26 Saving £1
C detached	26 / £3900	28 Saving £96	32 Saving £181	27 Saving £11

D detached	33 / £1898	36 Saving £69	41 £197	34 Saving £13
E detached	52 / £1421	62 Saving £182	55 Saving £33	52 Saving £11

It is evident that all the installations of renewable technologies have less impact on heating costs than the insulation and heating systems improvements noted previously. There are however, environmental and stewardship benefits to be gained from these installations, for those who regard this as a priority. In terms of the hierarchy of interventions, though, it is always important to consider insulation and draught proofing before generation.

4.2.4. Resident feedback

NEA considers it important and interesting to investigate a number of additional themes as the opportunity for discussion with residents was available on the day of the audit. This is because:

- Understanding attitudes to renewables may help improve the systems and the application of them and ultimately increase the uptake of this more environmentally friendly technology.
- Understanding the relationship with fuel suppliers may help understand why brand loyalty is high among oil users[10] and why distrust toward utility companies can be high.[11] This may ultimately help us assist people to better engage in the competitive fuel markets.
- Giving people the opportunity to make additional comments will help us understand the wider context of people's lives, including other priorities and pressures. This helps to understand rural settlements better and therefore be able to work more effectively with them.

The themes that were investigated and are discussed in the full report are; attitudes to renewable technology and solid wall insulation, and relationship with fuel supplier.

This feedback has been integrated into the full report.

[10] Conclusions from previous NEA field work.
[11] Conclusions from NEA field work and consumer surveys

4.2.5. Potential improvement scenarios

Based on a practical judgement of potential cost effective solutions and qualitative feedback from householders, NEA has below provided different scenarios for recommended improvements to selected housing types.

House type	Current SAP	Current heating costs per annum	Current fuel type	Fuel / system replacement	Insulation improvement	New SAP	Heating cost per annum post improvement
A mid terrace	47	£383	Solid fuel	Replace storage heaters	Loft top up	63	£341 Saving £42 and more reliable heating
B detached	26	£3572	oil	-	Windows and loft	28	£3422 Saving £150
C detached	26	£2744	oil	-	Fill cavity extension and loft top up	31	£2426 Saving £318
D detached	33	£927	electricity	-	Fill cavity and loft top up	39	£788 Saving £139
E detached	52	£676 (water £122)	Solid fuel	Solar thermal	**-**	55	£81 Saving £41

Property A: the priority for this home is to improve the heating system, as it is currently not functioning properly. There are storage heaters in the home but most are broken. A solid fuel room heater is used as the main heating mostly because of its lower running costs. The recommendation here would be to replace the storage heaters with modern more effective ones. The room heater is retained as fuel can be sourced at a low cost and it can at some times of the year be used as a very cost effective main source of heating. In upgrading the storage heaters, improved ease of use, flexible payment methods and choice of tariffs should all be taken into account.

Property B: Windows are the main change highlighted in this property. This is because it was an express interest and intention of the owner to improve the windows, as a priority. It is interesting to note that the modelled cost saving to improving the windows, is £150, perhaps lower than expected. Draughts will be minimised which will improve comfort. Improved windows are often perceived to be a priority but with less carbon and financial saving than might be expected.

Property C: The modern extension of this property is built with an unfilled cavity extension. The loft is not completely filled with the recommended 270mm of insulation. These would therefore be the first things to address in the property. Windows were noted by the owner to be a concern, but as noted in property A, this is not a particularly effective way of lowering heating costs.

Property D: This property also has a large modern extension with unfilled cavity walls. The owners have been advised that the cavities cannot be filled. It is the opinion of NEA surveyors that this may be a cavity known as 'hard to treat.' These are generally cavities that are less then 50mm deep, resulting in them being excluded from traditional cavity fills. Because of the additional expertise and cost involved, these are often excluded from schemes. They are however, able to be filled by a number of non traditional insulation materials. It is estimated that there are between 3.9 and 5.8 million of hard to fill cavities in Great Britain.[12]

Property E: This is a property self-built to excellent standards. The solid fuel heating is a lifestyle choice by the occupants which would be reluctantly replaced. This has therefore not been recommended. The walls are built with a cavity that includes thermally insulated blocks. In theory, this could be filled and have a saving noted in table 7.1.2. Hard to fill cavities are discussed above. For the purpose of reflecting the different options available, installing solar thermal has been chosen for the above table. The occupants have friends and relatives who have installed solar technology and they report high levels of satisfaction levels. This could therefore be an acceptable step for them. It is worth noting that the savings in the above table do not include the current financial incentives on offer for installations.

[12] Inbuilt Ltd & Davis Langdon, *Study on hard to fill cavity walls in domestic dwellings in Great Britain, Oct 2010*

5. Questionnaire results: Potential energy efficiency and income maximisation improvements in Skirwith and Kirkland

Around 100 questionnaires were sent out to residents in Skirwith and Kirkland with the help of the local RCC and volunteers. 33 questionnaire responses were received, making a response rate of 33%.

Out of the 33 households responding, 31 are owner-occupied homes, 1 privately rented and 1 socially rented. There is a good spread of semi-detached and terraced properties; 5 bungalows, 6 terraced, 14 semi-detached and 8 detached. There were no flats.

In terms of the eligibility status of respondents for available schemes, according to their responses, 6 would be considered CERT priority and 2 CERT super priority customers meaning they could potentially take advantage of energy supplier Carbon Emissions Reduction Target (CERT) free measures such as loft or cavity wall insulation (where applicable).

Depending on criteria yet to be announced by Government later in 2012 these householders could also be eligible for the new and forthcoming Energy Company Obligation (ECO) programme which will provide energy efficiency measures to qualifying households. It is interesting to note by comparison, that in the north east village of St John's Chapel that returned a similar number of questionnaires, 25 householders suggested they filled the CERT priority group criteria and 4 the super priority.

The Government will be introducing a new Green Deal programme nationally in late 2012 to help able-to-pay households to access up-front finance to pay for energy efficiency improvements. In Skirwith and Kirkland, there is a higher proportion of potential Green Deal able-to-pay customers, with 76% of householders suggesting they would likely fall within this group. Householders NEA engaged however, did have an interest in energy efficiency, and 66% of questionnaires returned saying that they would consider low carbon technologies if making improvements to their homes.

Based on the questionnaires returned, there are a number of opportunities to improve the lives of people in Skirwith and Kirkland. Insulation and benefit entitlement check opportunities are presented below:

Opportunity	**CERT priority**	**CERT super priority/WF /ECO**FF[13]	**Possible able-to-pay**	**Total**
Number of lofts to be insulated	0	0	1	1
Number of cavities to be insulated	0	1	1	2
Number of possible solid wall insulation opportunities	3	1	19	23
Number of possible heating system replacement opportunities	0	2	3	5
Benefit entitlement checks	2	1	6	9

NOTE: Some solid wall opportunities are partial solid wall and cavity construction.

From the total of 33 households surveyed 21 **(64%)** live in properties constructed pre 1930, 9 **(23%)** live in properties constructed post 1930. 3 **(<1%)** did not answer.

In total from the questionnaires returned 1 household has no insulation at all and 18 require top-ups. 2 households have unfilled cavities and there are 23 opportunities for solid wall insulation.

6 households reported suffering cold-related health issues. This equates to 18%, compared to 43% reported in the north east.

9 households have indicated they would welcome a benefit eligibility check.

5.1. Bulk buying fuel

Of the five houses assessed by NEA, two use oil central heating as their primary source of fuel.

From the returned questionnaires 20 **(61%)** of households use oil central heating, **1** householder uses LPG (bulk), **8 (24%)** use electricity and **7** householders use solid fuel as their primary source of heating. Of the 20 households who use oil central heating, only 1 is currently part of a bulk buying scheme.

[13] Although we cannot be sure of future ECO criteria, we can assume this will be similar to the second iteration of Warm Front, which in turn was similar to the CERT super priority group

A possible approach for the village to take would be to look at implementing a bulk buying scheme in order to reduce their capital cost for oil deliveries and obtain a reduction with their heating bills. This would require a dedicated volunteer within the village to calculate the amount of oil required from each individual scheme member and order the delivery of the required amount for a particular day in conjunction with households. A possible approach which NEA would recommend would be to raise this point, or promote this approach within the local village hall and/or in local village scheduled meetings in the near future to obtain a householders view. A good starting point would be to contact the person who responded that they are already using such a scheme.

6. Village hall audit

The village hall is well used and is managed by an active committee. They recently secured funding from a utility company to install a ground source heat pump and solar PV panels. At the time of the visit, the PV panels were functioning with a large display board demonstrating how much electricity they were generating. The ground source heat pump had not yet been connected.

NEA held a discussion with one of the committee members about the possibility of insulating the hall floor. However, the quality of the timbers including their aesthetics and functionality for some of the hall's sporting activities, were considered beneficial to maintain.

Approximately 30 residents of the parish attended the open session, receiving advice from local service providers and with the opportunity to speak to the NEA surveyor.

6.1. Village hall recommendations

On the day of the drop-in event, NEA advised the hall's committee that the ground source heat pump would be eligible for the Renewable Heat Incentive (RHI)[14], as it is a non-domestic building. There will be some metering requirements aligned to this and at the time of the visit, no details were known about the current metering arrangements.

Additional information about RHI is available from the website of the Department of Energy and Climate Change website, www.decc.gov.uk.

[14] Renewable Heat Incentive – a government funded financial support scheme to assist those producing heat from renewable means

7. Village energy audit conclusions

Skirwith and Kirkland is a parish that comprises a spectrum of house types and occupancy types. For some people, the environmental agenda is a driver and existing knowledge of environmental issues and technological solutions is high. For others, there is a stronger financial imperative to make heating and insulation improvements.

Skirwith and Kirkland are supported by a number of local initiatives.[15] The village hall has an active committee with a keen interest in environmental ideals which it is already acting on. This could be a useful focal point for activity in the future.

The received questionnaires are predominantly from owner-occupied homes, with a high proportion of detached properties. It is important that those homes which are rented are more targeted for the uptake of measures. In addition, although the village hall is an excellent facility with dedicated volunteers to make it more energy efficient and environmentally friendly, it is important that people who would not use the hall are also engaged in this process and the benefits it can bring.

7.1. Village energy audit recommendations

To improve the uptake of existing energy efficiency offers and to improve the wellbeing of residents in Skirwith and Kirkland, the following recommendations are made:

- Target rented accommodation to further engage this sector in the process
- Investigate the hard to fill cavity and follow up if able. This will provide an excellent case study for the surrounding area and nationally.
- Provide further assistance to low-income and other more vulnerable households in need. If assistance is not available through CERT, consider alternative funding sources for improvements.
- Discuss the oil buying cooperative with the respondent who already uses it. Investigate the potential to expand this provision across the parish. Use the locally produced guidance to assist with this, found at http://www.cumbriaaction.org.uk/resources/guidance_sheets
- Work with a CERT provider to address the remaining lofts and cavities in the area.
- Investigate opportunities for a subsidised solid wall insulation project locally.

[15] At the time of writing, the Cumbria Warm Homes project and Energy Best Deal is operating in the area.

14. Acknowledgements

NEA is grateful for the support of Calor Gas Ltd, the Rural Community Council and other local representatives in the development and delivery of the village energy audit.