



Future of Rural Energy (FREE) England

Year 1 Report



About FREE

FREE is a rural energy advisorship programme, aimed purely at off-grid communities across England. The programme will bring practical, independent advice and information to residents regarding fuel choices, energy efficient technologies and carbon reduction measures. It will help individual households to focus on reducing their energy consumption and fuel costs, and also encourage local communities to work together to promote best-practice in energy efficiency and carbon reduction.

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1. Executive Summary

FREE is a three year £1 million initiative funded by Calor to help tackle fuel poverty and promote effective energy efficiency advice and behaviours in off-gas grid communities across Britain. Findings from the first year of the **FREE** initiative have confirmed:

- The dual issues of energy efficiency and fuel poverty in rural areas are complex and **often misunderstood by central Government**.
- There is a discernible **lack of both credible independent information and formal assistance schemes** relevant to householders in off-gas grid Britain. CERT, CESP and Warm Front have not been effective in reaching rural areas.
- **Rural fuel poverty does not always neatly align with social poverty** as is generally the case in urban areas, but is more closely associated with the quality of housing stock and/or the household demographic.
- It is **difficult to successfully engage with rural communities** who are often sparsely located, with community boundaries which do not always adhere to Government statistical geographic output areas.
- **Local knowledge is vital** in determining where and how to effectively focus activity.
- **Working directly at a local level and applying bespoke solutions** to fit specific community and householder needs, rather than applying a one-size-fits-all approach, provides the most effective assistance to those most in need.
- **There does exist some 'low hanging fruit'** in terms of low cost practical solutions which can be applied in spite of the challenges that rural housing and demographics present.
- **A holistic approach is vital** which encompasses social as well as technical solutions.
- **Electricity switching and benefit uptake are lower in rural areas** than in urban, leading to lower disposable incomes.
 - In contrast with urban areas, **many rural households have never changed their electricity supplier** and as such are on expensive tariffs.
 - **Benefit uptake in rural areas is often lower than in urban areas** with rural people either not being aware of their entitlement or perceiving a stigma to be attached to claiming benefits.
- **Simple educational initiatives** around benefits and energy options can make a real difference increasing household disposable income and reducing fuel bills.
- **Simple energy efficiency measures can be taken**, such as improving draught-proofing, managing energy demand and usage more effectively, and installing simple insulation measures such as loft insulation where appropriate.
- **Properly educating residents about appropriate rural energy efficiency measures** is vital in ensuring that if/when capital works are undertaken, the correct choices for the house type, energy option, and lifestyle, are being made.

1.1 Rural fuel poverty – What does it look like?

The results of the first year of the **FREE** initiative have provided, for the first time, a picture of what rural fuel poverty looks like across different English regions. It is evident that the extent and characteristics of rural fuel poverty differ both between, and even within, regions, and that assistance programmes must be tailored to suit local demand and issues.

1.1.1 Shared Characteristics:

FREE has identified that there are common rural fuel poverty characteristics, however the extent to which these are applicable varies both between regions, and within regions.

- **Dispersed/hidden nature** - Due to isolated physical location of households, or their reluctance to admit there is a problem, area based deprivation indicators do not easily identify rural fuel poverty.
- **Under occupancy** - Retired couples or single people with fixed incomes who remain in the large family home, but cannot afford to adequately heat the space. They are often unable or unwilling to downsize and stay within the same community.
- **Housing stock** - A high proportion of rural homes are classified as hard to treat, with solid walls and/or floors, therefore unsuitable for lower-cost simple insulation methods such as cavity wall insulation. In addition many rural homes are listed buildings and/or in designated Conservation areas therefore subject to planning restrictions which can restrict and sometimes negate the installation of energy efficiency measures. Suitable energy efficiency measures are often expensive.
- **Private rented housing/tied accommodation** - Anecdotal information suggests that people in private rented accommodation are worried that if their properties are improved the landlords will increase the rents - so the tenants may save on fuel costs but face higher rent costs. There are also issues where tenants are unwilling to complain about their heating for fear of losing their home.
- **Lack of benefit take-up** - Local authorities have expressed concern that take up of benefits in rural areas is lower than would be expected - either because people are not aware of what they are entitled to claim or they are reluctant to be means-tested. This is related to a much wider debate in rural areas about access to many kinds of information, advice and services.
- **Lack of electricity switching** - Switching rates for electricity supplier are far lower in rural areas than in urban areas, with the consequence that many rural households are on expensive tariffs and paying more than they could be for their electricity.

1.1.2 Regional Differences:

However, whilst these are general characteristics, in order to demonstrate the varied nature of rural fuel poverty across the 8 English regions, the particular fuel poverty characteristics of two regions are highlighted here:

North East

Many households in the North East live in rented accommodation often on tenanted estates, owned by a central landowner. Many homes do not have wet central heating systems installed. A recurring theme uncovered is that tenants often have poor heating systems, poorly insulated buildings and are paying high electricity bills but are nervous about complaining to their landlords for fear of losing both their homes and livelihoods; people would rather live in cold homes and compromise their health than report their poor living conditions. Renewables have been installed in a number of areas in the North East however in many cases have proved unsuccessful resulting in skepticism as to their effectiveness and practicality.



South East

Initial research in the SE highlighted that little is known about rural fuel poverty. Rural communities in the South East identified as suffering from a high incidence of fuel poverty are deemed to be 'nice' villages - apparently affluent with no obvious social deprivation. However, many homes in the rural SE are older, larger properties, deemed hard to treat due to solid walls and/or floors. Many are listed buildings and/or in designated Conservation areas and subject to planning restrictions which can restrict and sometimes negate the installation of some energy efficiency measures. Under-occupancy is also an issue whereby those on fixed incomes struggle to maintain and heat a property which is far too large for their requirements. These are the 'hidden' fuel poor, not easily identified through area based deprivation indicators, and also who, even if identified, are reluctant to admit the problem.

1.2 Key outputs – Year 1

In order to address the problem of a lack of specialist resource, knowledge and activity regarding rural energy efficiency solutions the **FREE** initiative has:

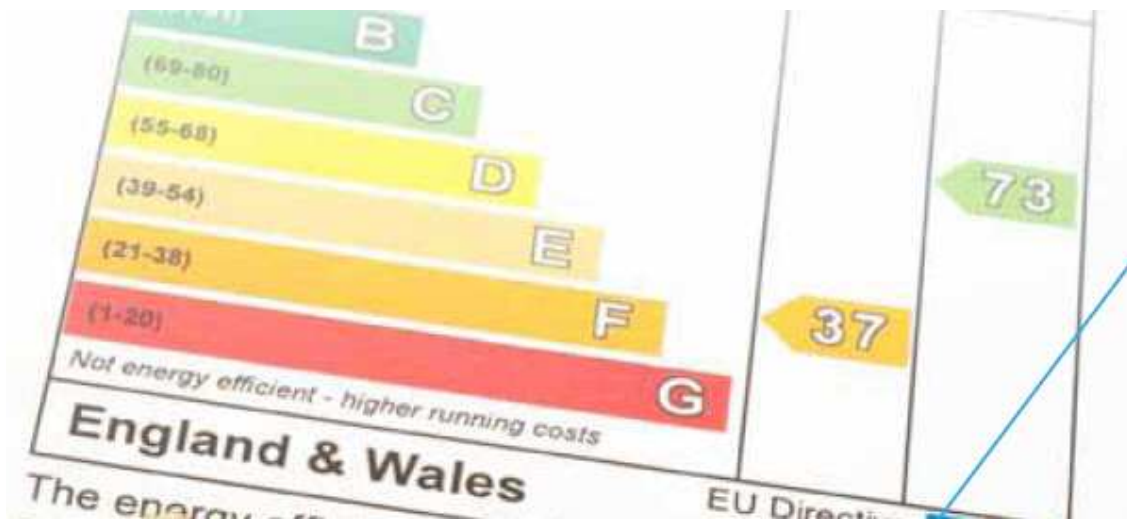
- **Developed a suite of bespoke energy efficiency resources and materials** specifically designed to offer bespoke advice and technical solutions relevant to a range of typical rural housing types, locations and lifestyles, including a consumer advice booklet, online information, and technical pack for energy advisors. These materials are unique and the first of their kind designed specifically for rural householders.
- **Designed and implemented a programme of events and roadshows** across 8 English regions, specifically targeted at rural communities most at risk of fuel poverty. Which have delivered:
 - Information and advice for households and communities on how to improve their efficient use of energy and reduce their carbon footprint.
 - Information and advice on various available grant schemes to improve insulation and heating systems, and the eligibility criteria for applying.
 - Balanced information on the fuel options and various energy efficient technologies available.
- **Undertaken a first of its kind, off-mains gas mapping exercise** in order to target the initiative most effectively. In conjunction with the Centre for Sustainable Energy (CSE) and the Commission for Rural Communities (CRC), FREE cross-matched Government fuel poverty data with off-mains gas geographical areas and highlighted for the first time the extent and distribution of fuel poverty in off-mains gas England.



1.3 Conclusion

The **FREE** initiative is about getting bespoke advice and help to the people that need it most. In a climate of rising household bills and economic uncertainty, many people are worried about the cost of energy as well as the environmental impact of their energy use. With off-gas grid customers, this can be exacerbated due to their more complex fuel options, housing types and social demographic. Their circumstances may not always equate to social poverty - many of these households would be deemed well off - but they face equally serious issues with energy efficiency and cost.

The **FREE** initiative is helping off-gas grid households to understand the full range of options open to them with regard to cost savings, new technologies, income maximisation and carbon reduction methods and encouraging local communities to work together to promote best practice.



2. Additional Information

2.1 Background to FREE:

FREE was developed when Calor identified the need for a bespoke programme to bring independent energy efficiency advice and practical fuel poverty and carbon reduction measures directly to rural householders. Calor brought together a network of expert partners and specialist advisors to facilitate the delivery of **FREE**, comprising the national fuel poverty charity, National Energy Action (NEA), the Rural Community Action Network (RCAN), the Energy Saving Trust (EST), and the Commission for Rural Communities (CRC).



In developing the **FREE** initiative Calor identified that:

- Whilst there is a wealth of general energy efficiency information and advice, very little material exists that is specifically designed to cater for rural housing types, energy options and social demographics.
- In fact a number of misconceptions prevail regarding efficient rural energy solutions, particularly concerning Renewables which to date have largely been offered as the solution to rural carbon reduction and fuel poverty.
- However the nature of both the housing stock and capacity of rural electricity, combined with the high cost of installation, often limits the range of renewable technologies that can effectively be deployed in rural areas.
- Furthermore recent reports from both the EST and Joseph Rowntree Foundation have highlighted concerns around the reliability of some Renewable technologies in terms of performance, cost effectiveness, and correct operation.
- This fundamental lack of knowledge about rural energy issues has led to a discernible scarcity of formal rural energy assistance information and packages, both in terms of funding and activity, with Government schemes primarily being targeted at and delivered within urban areas where large scale 'easy wins' can be achieved for a relatively low capital investment.

The lack of both credible independent information and formal assistance schemes relevant to householders in off-gas grid Britain was one of the key motivations behind the development of Calor's **FREE** initiative.

2.2 Fuel Poverty and the Nature of Rural England

2.2.1 Rural England's housing stock and energy options

Around 2 million English homes, comprising 4.6 million people, do not have access to the mains gas grid. This rural population contains around twice the percentage of retired people than the general population. The most popular heating fuels for rural homes are heating oil (c.55%) and to a lesser extent electricity (c.18%), solid fuel (c.11%) and LPG (c.10%).

The nature of the building stock, and the fuel options available in rural areas limit the range of low-carbon energy technologies that can be employed. The building of new properties in rural areas, with mandatory energy efficiency standards, is relatively limited. Therefore, reducing rural carbon emissions is predominantly about cutting emissions from the standing housing stock. Similarly the more expensive nature of delivering any service into rural areas (including energy) means that lowering fuel bills primarily requires an improvement in the energy efficiency of the heating system and building fabric.

Off-gas grid communities are, by their very nature, often comprise a collection of relatively isolated buildings located over a wide geographical area. Rural standing buildings tend to be older and possibly stone-built, very often with solid floors and walls. Such properties are classed as hard to treat and traditional cost effective energy efficiency measures, such as cavity wall and loft insulation, cannot be employed. Electrically-based low carbon energy options are limited by the high CO₂ emission levels and restricted capacity of electricity in Britain; much of the electricity in rural areas is only single phase, limiting the power available for electric powered heating systems such as heat pumps.



2.2.2 Fuel Poverty in England

Fuel poverty is defined as having to spend more than 10% of net household income on energy bills (heating and electricity). It is caused by a combination of three main factors: the energy efficiency of the home, the amount of disposable household income level, and the cost of domestic energy.

The UK Government is committed to tackling Fuel Poverty; the 2001 Fuel Poverty Strategy set the dual objectives of eradicating Fuel Poverty as far as reasonably practicable in vulnerable households by 2010, and in all households by 2016. However the 2012 target was missed by a considerable margin and the overall fuel poverty target and definition are currently under independent review through the Professor John Hills Fuel Poverty Review.

With fuel poverty having increased year on year since 2004, and with increasing energy costs and the economic downturn putting pressure on household incomes, achieving the 2016 target is looking, at best, unlikely. The most recently available Government fuel poverty statistics released in 2010¹, show that 3.3 million households were in fuel poverty in 2008, with that number projected to increase to 4.0 million by 2010.

Fuel poverty is a problem across Great Britain, but particularly in rural areas. The DCLG English House Condition Survey (updated November 2008) concluded that there are nearly three times as many households in fuel poverty in rural areas and that the numbers are increasing compared to urban areas. However, in spite of this, rural areas, and particularly those located off the mains gas grid, have seen little dedicated support or activity to alleviate the problem.

However, rural households continue to face pressure to contribute to the Government's fuel poverty and carbon reduction targets, but with no realistic plan or support specifically developed for the countryside. Similarly Government funded fuel poverty and energy efficiency assistance programmes have traditionally been neither aimed at, nor able to reach, the majority of rural homes.

The current CERT (Carbon Emission Reduction Target) programme which obligates energy suppliers to provide energy efficiency measures to eligible homes has been primarily marketed to, and delivered within, urban areas, where the majority of homes are eligible for relatively low cost improvements such as cavity wall insulation, and the CERT companies can make a large volume of improvements in a small geographical area, therefore maximising efficiencies.

CESP (Community Energy Saving Programme), a community-based partnership involving Local Authorities and energy suppliers, has also traditionally not been effective for rural communities. CESP is delivered in areas of low income as identified by the Income Domain of the Indices of Multiple Deprivation, and accordingly CESP delivery areas have been overwhelmingly urban. Additionally, the house-by-house, street-by-street characteristic of CESP delivery is not well-suited to the dispersed nature of rural communities.

Finally, the Warm Front programme provides both heating and insulation measures within a strict eligibility criteria. However a 2010 a Centre for Sustainable Energy report stated that the correlation between Warm Front grants delivered between 2000 and 2008 and levels of fuel poverty was strongest in urban areas and weakest in hamlets.

In addition, if assistance is available at a local level, many rural fuel poor households find that they fall outside the scope of the available grant programmes due to their personal circumstances, house type or location, or that the grant level is not sufficient to enable the necessary improvements to the fabric of the home to be made.

¹ Annual Report On Fuel Poverty Statistics 2010
<http://www.decc.gov.uk/assets/decc/Statistics/fuelpoverty/610-annual-fuel-poverty-statistics-2010.pdf>
FREE Year 1 Report – June 2011

2.2.3 Off-Mains Gas Fuel Poverty Mapping (see appendix 1)

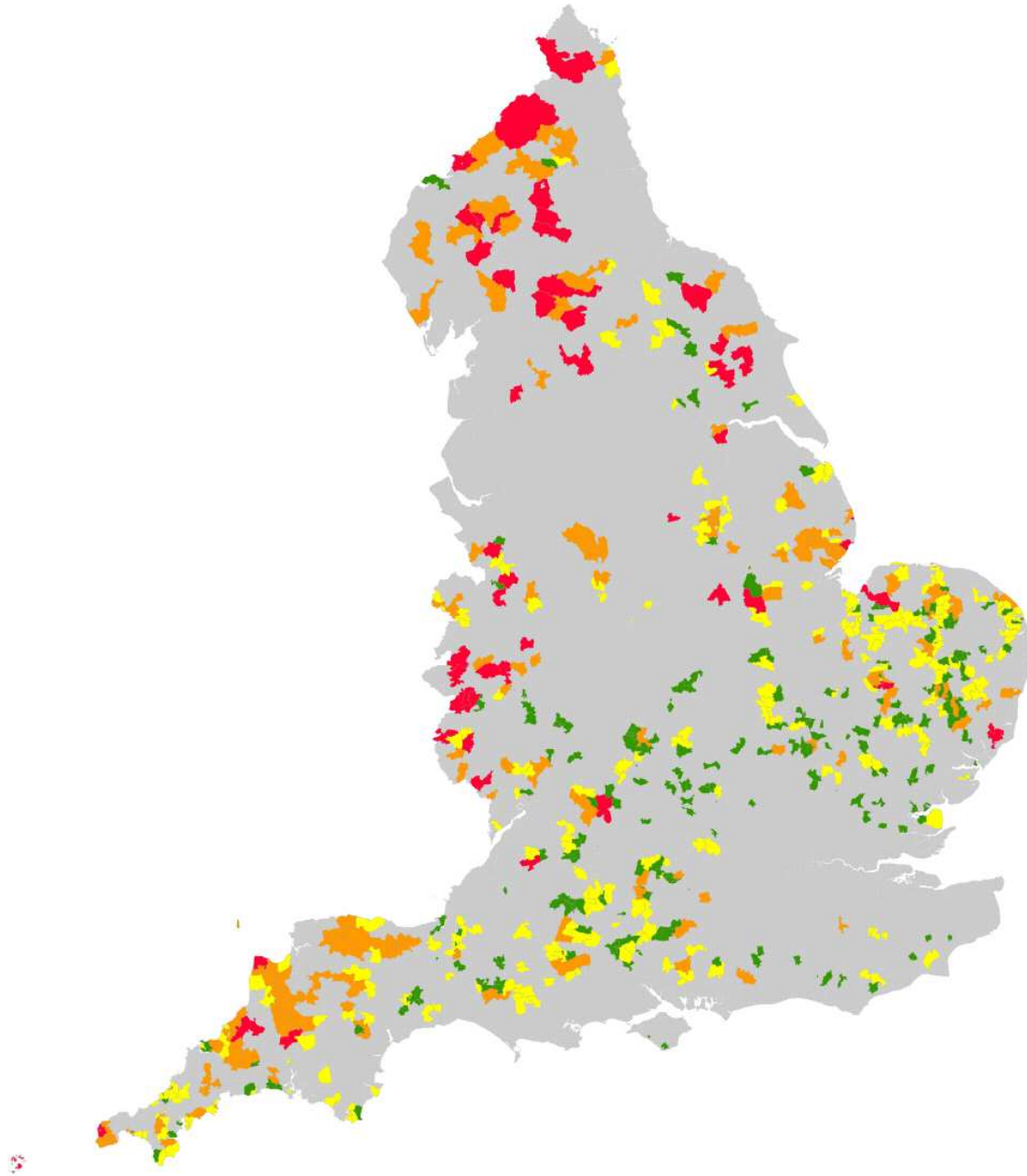
In order to design and implement the most effective initiative that would bring the most value to rural communities, it was necessary to ascertain the extent and distribution of the problem of fuel poverty in areas without access to the mains gas network. Working with the CRC and Centre for Sustainable Energy (CSE) Calor undertook a mapping exercise using data taken from the English Housing Condition Survey 2007. This was modelled by the CSE to Lower Super Output Area and cross-matched at this geographic output level with Calor's Non Mains Gas database. Only 100% non-mains gas LSOA's were mapped.

The mapping demonstrated that fuel poverty exists to a certain extent across all English regions, with particularly high concentrations within the East, North East and East Midlands and North West regions.

Rank	% Fuel Poor	Village/Ward	County	FREE Region
1	14.12%	Eriswell and The Rows	Suffolk	Eastern
2	13.68%	Eriswell and The Rows	Suffolk	Eastern
3	9.54%	Cheviot	Northumberland	North East
4	9.35%	Welbeck	Nottinghamshire	East Midlands
5	9.15%	Askham	Cumbria	North West
6	8.98%	Mortimer	Herefordshire	West Midlands
7	8.94%	Wormsley Ridge	Herefordshire	West Midlands
8	8.75%	Kemp Valley	Shropshire	West Midlands
9	8.75%	Upper Corvedale	Shropshire	West Midlands
10	8.72%	Dales	North Yorkshire	Yorkshire & Humber

The mapping is extremely significant as it is the first time that fuel poverty has been mapped within exclusively non-mains gas areas.

Households in Fuel Poverty in Off Mains Gas Areas (England)



% Fuel Poor Households within LSOA (Lower Super Output Area)

0% to 6%

6% to 7%

7% to 8%

8%+

LSOA's partially or completely on mains gas

2.2.4 Regional Fuel Poverty Characteristics

The fuel poverty mapping and the bespoke nature of deployment of the **FREE** initiative has demonstrated that whilst urban fuel poverty generally aligns itself with broader issues of social poverty and deprivation, rural fuel poverty, particularly in areas off the mains gas grid, is a far more complex issue which requires thorough investigation and analysis and bespoke solutions.

FREE has identified that there are common rural fuel poverty characteristics, however the extent to which these are applicable varies both between regions, and within regions.

The **FREE** initiative has also highlighted differences between regions, and demonstrated the need for bespoke solutions in order to tackle the individual issues that each region faces, as well as the broader fuel poverty characteristics they all share.

2.3 Implementation

During year one of this unique and bespoke rural energy advisorship initiative, Calor and its partners worked directly with rural communities across 8 English regions (North East, North West, Yorkshire and the Humber, West Midlands, East Midlands, East, South East and South West), helping individual households to focus on their energy consumption and encouraging local communities to work together to promote best practice in energy efficiency and carbon reduction. Calor provided funding of £25,000 to each region to employ Rural Energy Officers to facilitate delivery of the **FREE** initiative at a local level in priority off-mains communities, and also funded 20 days of technical support per region from NEA fuel poverty specialists.

The **FREE** initiative combined a practical event-based programme of energy efficiency advice roadshows with relevant bespoke supporting materials including the first dedicated off-mains gas energy efficiency website and advice pack for Rural Energy Officers. Specifically designed to support those working within rural communities, the pack and website offer bespoke advice and technical solutions relevant to a range of typical rural housing types, locations and lifestyles. This was complemented by a bespoke rural consumer-facing energy efficiency booklet developed in conjunction with the Energy Saving Trust detailing simple, practical measures to reduce energy consumption in rural homes.

The **FREE** initiative is about getting bespoke advice and help to the people that need it most. Through materials and practical advice, it is helping off-gas grid households to understand the full range of options open to them with regard to cost savings, new technologies, income maximisation and carbon reduction methods and encouraging local communities to work together to promote best practice.



2.4 Partners and Advocates

The **FREE** initiative has been instrumental in engendering numerous key and influential relationships with important and influential stakeholders - within Government, with NGOs and the third sector, and at a local level within rural areas.



2.4.1 Calor and Rural England

Calor began operating in 1935 with the aim of bringing clean, efficient and modern energy solutions to homes and businesses across Great Britain. 2010 marked the Company's 75th year, and Calor continues to play a vital role in meeting rural energy requirements, supplying bulk and bottled LPG (Liquefied Petroleum Gas) to homes and businesses located off the mains gas grid 365 days a year. As Britain's leading supplier of domestic LPG, Calor has developed an excellent understanding of the unique energy challenges that rural householders face.

Calor supports the Government's efforts to tackle climate change. As an energy provider Calor takes its environmental responsibilities very seriously and wants rural property owners to have a strong voice in the energy efficiency debate - and the same opportunity to reduce their carbon emissions and fuel costs as exists in urban on-grid areas.

LPG is the lowest carbon-emitting fossil fuel available in rural areas, and is a flexible fuel designed to meet the needs of the rural homes and businesses. Calor's innovative technological advances offer affordable, common sense solutions that can make a realistic and long-term difference to climate change in Britain, today and in the future. Simply installing an LPG condensing boiler can significantly improve energy efficiency, reduce carbon emissions and cut a home's energy bills by up to 30%. Moreover, by combining an LPG condensing boiler with solar thermal water heating, energy bills will reduce yet further and improve the home's sustainability, without excessive installation or maintenance costs. Calor is working in partnership with companies such as the UK fuel cell manufacturer Ceres Power, and innovative boiler manufacturer Baxi, to bring the next generation of home energy solutions to the rural market in the form of micro Combine Heat and Power (mCHP). mCHP is the process of generating both electrical power and heat from a single source. It is a low carbon solution which is particularly effective at delivering secure low carbon electricity in to rural areas - even very remote ones.

Calor is also partnering with various other renewable technologies including Solar Thermal, Solar Photovoltaic and Biomass. Calor is also in the early stages of development of a bio-propane product which would be classed as 100% renewable.



Campaigning for Warm Homes

2.4.2 National Energy Action (NEA)

A national charity working, for over 25 years, to eradicate fuel poverty, NEA develops and promotes energy efficiency services working in partnership with central and local government, fuel utilities, housing providers, consumer groups and voluntary organisations. NEA campaigns for greater investment in energy efficiency to help those who are poor or vulnerable. NEA achieves its objectives through:

- Research and analysis into the causes and extent of fuel poverty and the development of policies which will address the problem.
- Providing advice and guidance to installers on good practice in delivering energy efficiency services to low-income householders.
- Developing national qualifications and managing their implementation to improve standards of practical work and the quality of energy advice
- Producing educational resources to teach people about the importance of energy efficiency.
- Managing demonstration projects in inner cities and rural areas which show innovative ways of tackling fuel poverty and bring the wider benefits of energy efficiency to local communities, such as the **FREE** initiative.



2.4.3 Rural Community Action Network

RCAN is the collective name for the 38 Rural Community Councils (RCCs) throughout England, their eight regional bodies, and their national body, ACRE.

- Action with Communities in Rural England (ACRE) - ACRE is the national umbrella body of the Rural Community Action Network (RCAN), which operates at national, regional and local level in support of rural communities across the country. ACRE aims to promote a healthy, vibrant and sustainable rural community sector.
- Rural Community Councils (RCCs) - RCCs are charitable local development agencies, generally based at county level, which support and enable initiatives in rural communities such as the **FREE** initiative.



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