Cynulliad Cenedlaethol Cymru | National Assembly for Wales
Y Pwyllgor Newid Hinsawdd, Amgylchedd a Materion Gwledig
Climate Change, Environment and Rural Affairs Committee
Ymchwiliad i Dlodi Tanwydd | Inquiry into Fuel Poverty
FP 22
Ymateb gan : Calor
Evidence from : Calor

About Calor

Calor welcomes the opportunity to respond to the Climate Change, Environment and Rural Affairs Committee: Fuel Poverty Consultation, particularly ahead of the publication of the Welsh Government's new 2020 Fuel Poverty Strategy. Calor is Wales' leading supplier of Liquefied Petroleum Gas (LPG) and BioLPG, and our customers are homes and businesses located in rural communities. Calor is proactively working to deliver affordable heating and tackle the twin challenges of rural fuel poverty and heat decarbonisation.

Calor is already making the transition away from fossil fuels a reality. Starting in 2018, Calor was the first supplier of BioLPG to Wales. BioLPG is a low carbon, renewable and direct substitute for conventional LPG and is part of our commitment to reducing our carbon footprint and to provide only renewable fuels to customers by 2040; this is also a wider LPG industry position, supported by Liquid Gas UK members.

Calor fully supports the transition away from fossil fuels and prioritising the switch away from the highest carbon fuels such as coal and oil. This is why we believe the UK's future off gas grid heat strategy must recognise BioLPG –as a vital tool for decarbonisation. We already supply enough BioLPG to meet the equivalent of a third of the UK's domestic central heating demand. Unlike coal and oil, BioLPG has a proven renewable future, which is why we are devoting significant resources to further innovation and diversification. In May this year, our parent company SHV announced a multi- million pound venture with the airline KLM and SkyNRG to manufacture BioLPG entirely from waste materials.

While BioLPG can reduce carbon emissions by up to 90% as it's also chemically identical to conventional LPG, so it is a future proof solution for existing LPG

users as it is a drop-in replacement for all existing LPG heating systems. Our modelling shows that over 180,000 rural off gas grid homes across the UK could be heated using BioLPG by 2030 at comparable prices to today if additional domestic sources of supply are developed, helping the Welsh Government to achieve its 2050 Net Zero legal obligation and keep rural energy bills low.

At the same time, it is vital that the policies the Welsh Government pursues are flexible, affordable for consumers and help to reduce levels of rural fuel poverty. The Committee on Climate Change's report on Net Zero is a plan on how Net Zero could be achieved, but governments across the UK will need to decide how this is done, based on a range of social and economic challenges inherent to the task.

1. The scale and impacts of fuel poverty in Wales

Calor has long highlighted the inadequate provision of support to rural homes to tackle fuel poverty and address poor energy efficiency levels. The scale of fuel poverty in rural areas has multiple drivers and is evidenced by the relatively higher fuel poverty gaps experienced by rural homes as demonstrated by Figure 1.

17% of Welsh properties are off the gas grid and rely on LPG, oil or electricity for heating which are on average more expensive than on-grid energy costs. Rural homes also tend to be older and stone- built which means they are more difficult and costly to retrofit; in Wales, a third of housing stock was built before 1919.

Research by National Energy Action and the Campaign to Protect Rural England found that rural areas are five years behind urban areas in terms of the energy efficiency of their homes. This will need to change if future fuel poverty strategies are to eliminate fuel poverty.

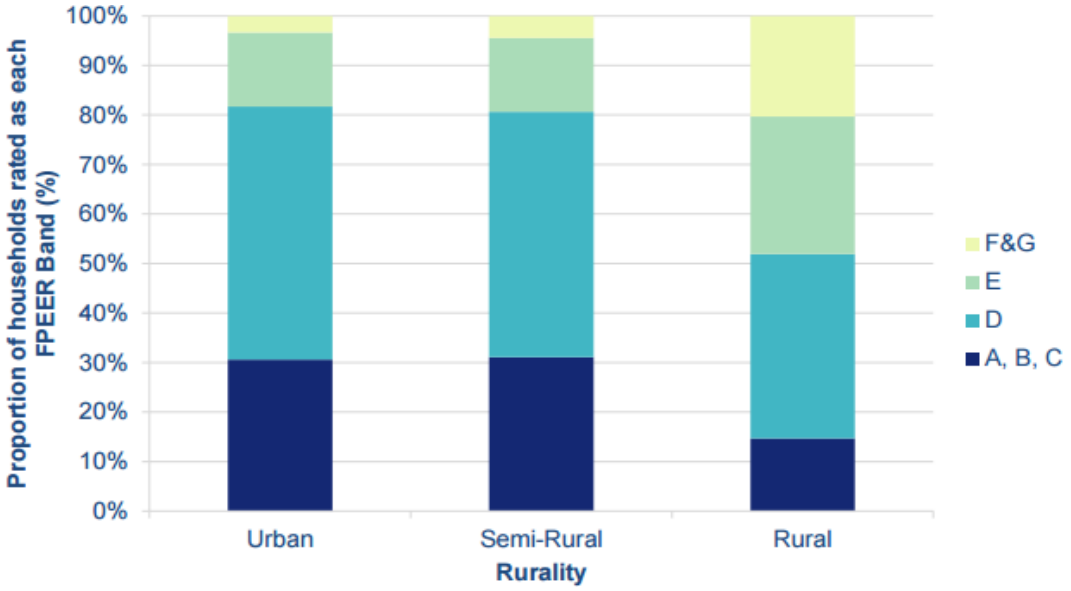


Figure 1 – Proportion of households rated as each FPEER Band (%)

2. Why the Welsh Government failed to meet its statutory target of eradicating fuel poverty in Wales by 2018

Governments across the UK have systematically failed to achieve targets to eradicate fuel poverty. There are various drivers for this, including poor delivery of government funded energy efficiency schemes.

Energy Efficiency schemes

Energy efficiency schemes, such as the Energy Company Obligation, have failed to properly target rural homes which has led to an historic under delivery on homes that have required upgrades the most – statistics from Ofgem show that only 2% of measures delivered by ECO have benefited rural homes, despite these homes paying into the scheme via their electricity bills.

While ECO3 is now targeting fuel poor homes, the current level of dedicated rural support currently stands at only 15%. Off-grid under-delivery can only really be addressed if obligated suppliers are better able to target these homes. In our response to the UK government's recent consultation on ECO3, we argued for this dedicated level of support to be expanded incrementally over the period of ECO3 from 15% in 2018 to 25% by 2022 so that the energy efficiency performance of the UK's rural housing stock can

catch-up with urban delivery. As the scheme currently stands, most off- grid remote rural homes will continue to be missed by ECO3.

Rural/Urban Classification

When it comes to targeting rural fuel poverty a key challenge is with the available data. One of the reasons why deployment of measures through previous energy efficiency schemes in rural areas has been so woeful is that no metrics exist to differentiate between rural off-gas grid, rural on-gas grid and urban off-gas grid households. The same problem exists with data on deployment of Arbed and Nest, as well as Welsh Government fuel poverty statistics.

UK Government defines 'rural' as a settlement of up to 10,000 households, suggesting a community still on-gas, potentially on the urban fringe. This same definition is used in Wales under Nest. Whilst the ECO limit remains at 10,000, smaller rural off-gas grid communities will continue to be missed whilst delivery is focused into larger 'rural' on-gas grid communities which are easier and cheaper to both find and deliver measures into.

The Welsh Government should ensure that going forward data is collected by delivery organisations to allow measures delivered into rural off-gas grid households to be tracked. This would help ensure those who are most at risk of fuel poverty and live in the hardest to treat housing receive a fair distribution of government support.

3. **How Welsh Government action to date has helped to combat fuel poverty, in particular, the impact of the Warm Homes Programme (including Nest and Arbed) and the Welsh Housing Quality Standard?**

It is undoubtable that Welsh Government action to date has helped to combat some fuel poverty in Wales. The percentage of households in fuel poverty has decreased from 26% in 2008 to 12% in 2018. However, 14% of houses in rural locations are fuel poor compared to 10% of houses in urban locations.

Calor supports the Warm Homes Programme – Nest and Arbed have retrofitted more than 54,800 homes by fitting energy efficiency measures which has gone some way to combat fuel poverty. We would like to highlight, however,

the importance of differentiating between rural and urban solutions to fuel poverty. With rural properties often being older, stone-built and off-grid, many of the retrofitting measures offered by Arbed and Nest are not appropriate solutions to improving fuel poverty and energy efficiency in these homes.

4. **How the Welsh Government's successor to the fuel poverty strategy (due for consultation in Autumn 2019) should differ from its 2010 strategy**

Any future fuel poverty strategy needs to ensure that energy efficiency schemes are better tailored to support rural off-gas grid householders; at present it is not clear within the existing strategy how this will be achieved alongside other aims to decarbonise heat.

We note new, more efficient oil boilers continue to be fitted to combat fuel poverty in Wales. However, in addition to producing more carbon, NOx, SOx and particulate than LPG boilers, oil boilers do not have a route to decarbonise. It's possible an oil boiler installed now may need to be replaced before the end of its life to meet net zero targets. We appreciate the Welsh Government's approach is driven by the relatively low running costs of oil compared to other fuels, but this is a result of a perverse tax regime which means kerosene has an effective zero rate of duty despite its poorer environmental performance compared to LPG. The installation of new more efficient oil boilers under the Warm Homes Programme would not appear to be the best use of scarce Welsh Government resources and could increase disruption and inconvenience for consumers. Gas boilers, by comparison, can have BioLPG 'dropped in' at a later date with no change to the heating infrastructure, providing a clear route to decarbonise with minimal additional expense or disruption.

Calor supports the definition of fuel poverty being more narrowly defined to enable government support schemes, such as Arbed and Nest, to be properly targeted towards those households who are most vulnerable and suffering financial hardship. A household in Wales is currently defined as being in fuel poverty if they "spend 10% or more of their income on energy costs".

Calor supports the UK government's intention to replace the existing fuel poverty definition in England with the Low Income, Low Energy Efficiency

model. This should identify homes with low energy performance as measured by Fuel Poverty Energy Efficiency Rating (bands, D, E, F and G) as fuel poor. We recognise that a large proportion of these homes will be situated off the gas grid, as these homes tend to be older, stone-built and more difficult to retrofit. However, by better targeting energy efficiency schemes, such as ECO, at these homes, this definition will target homes in greater need of energy efficiency measures, helping governments to meet future fuel poverty reduction targets.

5. **What steps the Welsh Government should take to ensure that new-build homes, as well as existing homes, are highly energy efficient to prevent them causing fuel poverty in the future.**

Existing homes

Calor believe that the successor to the Welsh Government's fuel poverty strategy needs to be complementary to their target to reach Net Zero by 2050. Heat decarbonisation will require both changes to the supply of energy, and significant infrastructure investment. Some of this infrastructure change will take place in homes, businesses, farms and industrial sites. It is important therefore that costs to consumers are minimised, particularly to those in fuel poverty. Government should support a range of low-carbon technologies and avoid picking winners, especially if some of these are potentially very costly for consumers. Minimising hassle, investment and energy costs will be key to securing consumer support for heat decarbonisation.

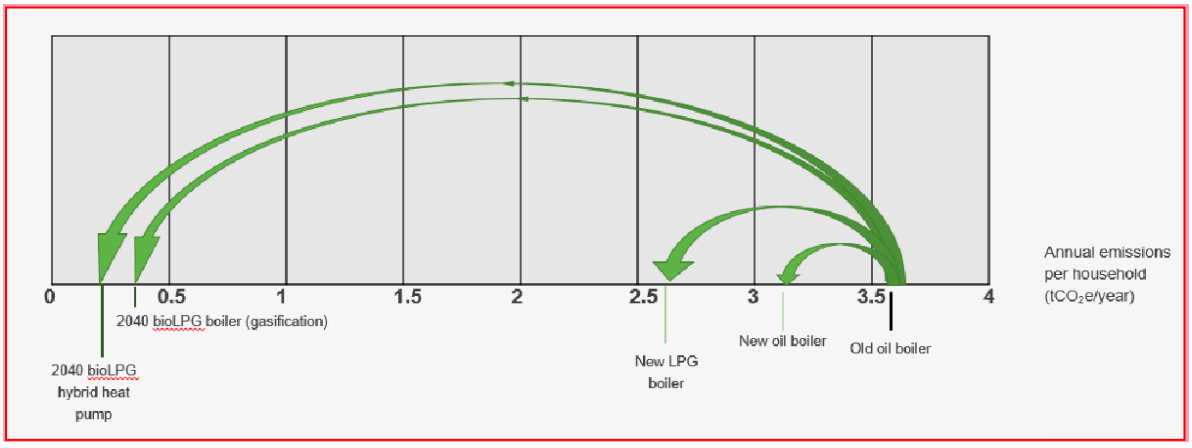
The Committee on Fuel Poverty has advised the UK Government that a significant proportion of off- grid homes using oil are in fuel poverty and won't be able to afford the upfront capital investment required to change their heating systems to certain low-carbon technologies such as heat pumps which are often prohibitively expensive. BioLPG is an attractive alternative drop-in fuel which can operate in existing LPG-boilers, using existing storage tanks and delivered using the existing supply chain. It is also a potential low-cost alternative for existing heating oil and coal users and an option that Arbed and Nest should consider when advising customers and retrofitting houses.

Figure 2 below illustrates the annual GHG emissions of a rural off-gas grid house, with a typical annual heat demand. The analysis considers the relative emissions of a range of heating technologies suitable for rural off-gas grid properties. As a starting point, the incumbent, old oil boiler produces just over 3.6 tonnes CO2e – given an assumed 76% efficiency rating (equivalent to SEDBUK band E).

A range of gas technologies can reduce emissions significantly in the near term. Switching to a new LPG boiler reduces emissions by close to 30%, whilst operating an LPG hybrid heat pump brings 43% annual savings.

For deep decarbonisation, a switch to a biogas supply would be needed. For existing LPG customers, BioLPG can provide a drop-in fuel alternative with no additional action required from the consumer. BioLPG can deliver up to 90% reduction in emissions against conventional LPG, and 85% against kerosene – though carbon factors are dependent on feedstock and production process. While hybrid heat pumps using alternative fuels such as BioLPG provide carbon savings over existing fossil systems they aren't as significant as with using a pure BioLPG boiler, which also benefits from significantly lower upfront capex cost.

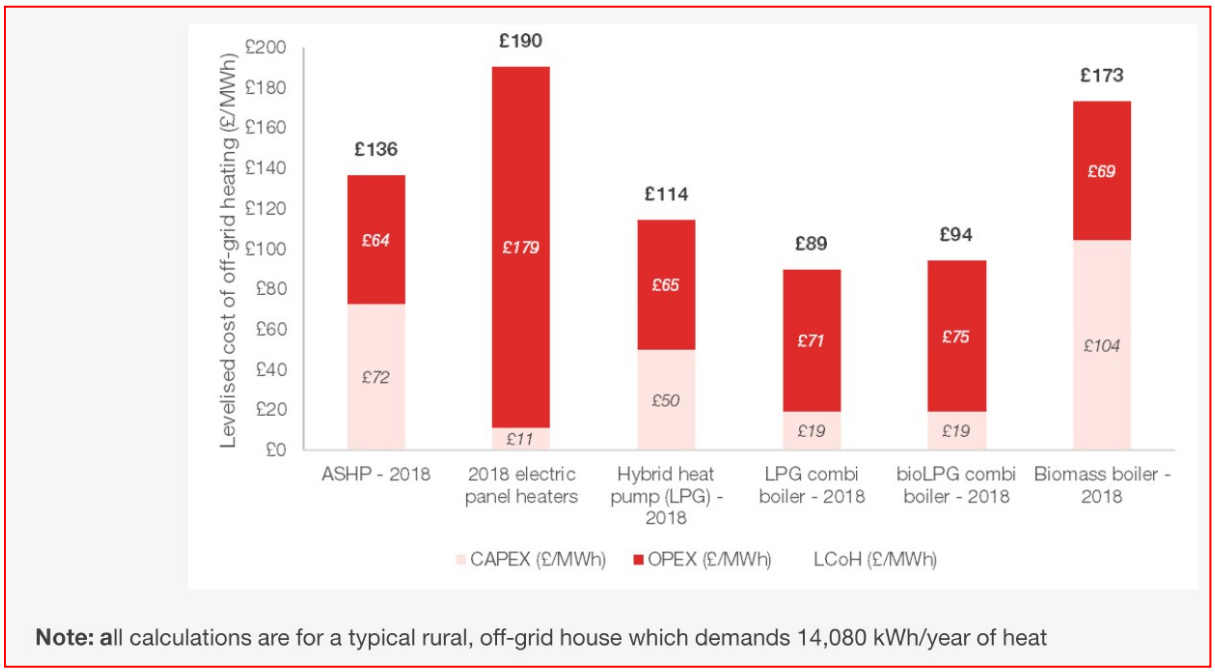
Figure 2 – annual GHG emissions of a rural off-gas grid house, with a typical annual heat demand



Running costs are only part of the cost of energy for households, with upfront capital investment also an important consideration. Here, Figure 3 includes capital costs of heating systems – annualised over an assumed lifetime (15 years), at the social discount rate (3.5%) for a typical household (with a 10,000 kWh/year heating demand).

Figure 2 shows that the central estimate for the BioLPG cost-down assumptions included for the heat pump. This suggests that consumers – especially in rural, off-grid areas where fuel poverty is more severe – should be given the choice between a high upfront cost ASHP and low upfront cost BioLPG boiler – both of which deliver substantial carbon emission reductions.

Figure 3 – levelized cost of off-grid heating (£MWh)



Note: all calculations are for a typical rural, off-grid house which demands 14,080 kWh/year of heat

Energy Performance Certificates

While the Low Income Low Energy Efficiency (LILEE) metric, that Calor supports, does not use EPC methodology, and nor does the Welsh Government's current fuel poverty definition, potential future regulations on energy efficiency in the able to pay or private homeowner market might – an eventuality for which they were not designed. This has the potential to significantly disadvantage off-grid homeowners as they will need to pay more to reach the same notional EPC score. This is because the principal Energy Efficiency rating on the EPC is based on running costs (£s). The lower the energy cost, the higher the rating. As such they are unreliable as a measure of 'energy efficiency' in off-gas grid areas. This is because all energies used to heat properties in off-gas grid areas (heating oil, electricity, solid fuel and LPG) are typically more expensive than natural gas meaning that any building's EPC will automatically score a lower score – typically at least

one if not two grades lower i.e. an ‘F’ (rural) rather than a ‘D’ (urban).

There is a simple solution. The responsibility for EPCs lies with the UK Government, but vocal support across the UK is needed for change to happen. We aren’t asking government to lose the information on the EPC that gives homeowners advice on the expected running costs of their property. This should be retained. We are just asking government to change the Energy Efficiency Rating so that it is based on kWh/m2/year and truly reflects the energy efficiency of a property.

The Arbed and Nest retrofitting schemes currently use EPCs as a main determinant in eligibility criteria, alongside a means test. Should EPCs metric change to kWh/m2/year, as Calor suggests, then Arbed and Nest would then better target properties with the worst energy efficiency.

New Build Homes

Building regulations to date have pushed housing developers to improve their standards greatly, so that modern homes have a much lower energy demand, particularly when it comes to heating. Energy demand in UK homes now is only increasing for electrical appliances; lighting and heating demand is reducing.

For new homes in rural locations, the Freedom Project, run by Wales and West Utilities is a great starting point to examine practical ways to deal with the challenge of meeting heat demand whilst maximising the use of renewable energy generation. This project is looking at how energy storage, demand side response and green gases can be deployed to heat homes in the future in the most efficient and low carbon manner. However, we would caution against extrapolating too much from such a small pilot and think further pilots need to be undertaken to improve the evidence base. For example, the Freedom Project included only one property using a hybrid heat pump in this trial and the heat was supplemented by a wood burning stove whose use was not recorded. This means it’s impossible to know how much of the heat input was delivered the heat pump, LPG boiler or wood burning stove. Calor continues to work with the team to look at solutions specifically for off gas grid homes and investigate future piloting opportunities for heat pumps.

However, we advise caution before setting even higher standards as this could

have a negative impact on rural affordable housing provision as the cost of housebuilding increases. In terms of zero-energy, this target requires proper definition as current standards are already 23% higher for some homes than the level the Department for Communities and Local Government deemed to be 'cost optimal' in a 2013 report.

The UK Government's announcement of a Future Homes Standard is due for consultation alongside its review of Part L of building standards later this year. The former Chancellor's announcement at the Spring Statement outlines that the Future Homes Standard will seek "*to ensure that all new homes are built with world-leading levels of energy efficiency and low-carbon heating*."

The media has interpreted this as all gas boilers will be banned, largely due to recommendations made within the Committee on Climate Change's report UK Housing, Fit for the Future' published prior to the Spring Statement that has recommended that all gas connections should be banned from new builds from 2025 onwards if we are to meet future emissions targets.

Calor would urge the Welsh Government not to arbitrarily ban gas connections in new-build off-grid homes as this could have the unintended consequence of significantly increasing build costs for SME builders who service this part of the housing market. A recent report from Briary Energy commissioned by Calor shows that the average additional costs of building a house on LPG in comparison to mains gas are less than £1,000 per plot. In contrast, developers selecting air source heat pumps could see an increase in build costs of between £5,000 to £8,000 per plot, depending on the development size.

LPG central heating systems should continue to be supported for new build homes away from the gas grid as a cost-effective and affordable decarbonisation pathway is provided by BioLPG. Furthermore, maintaining a flexible future approach for green gas solutions will require less reinforcement to rural, local electricity grids that are currently unsuitable for widespread heat pump adoption.