Rural Services Network
Uniting Rural Communities to Tackle Climate Change

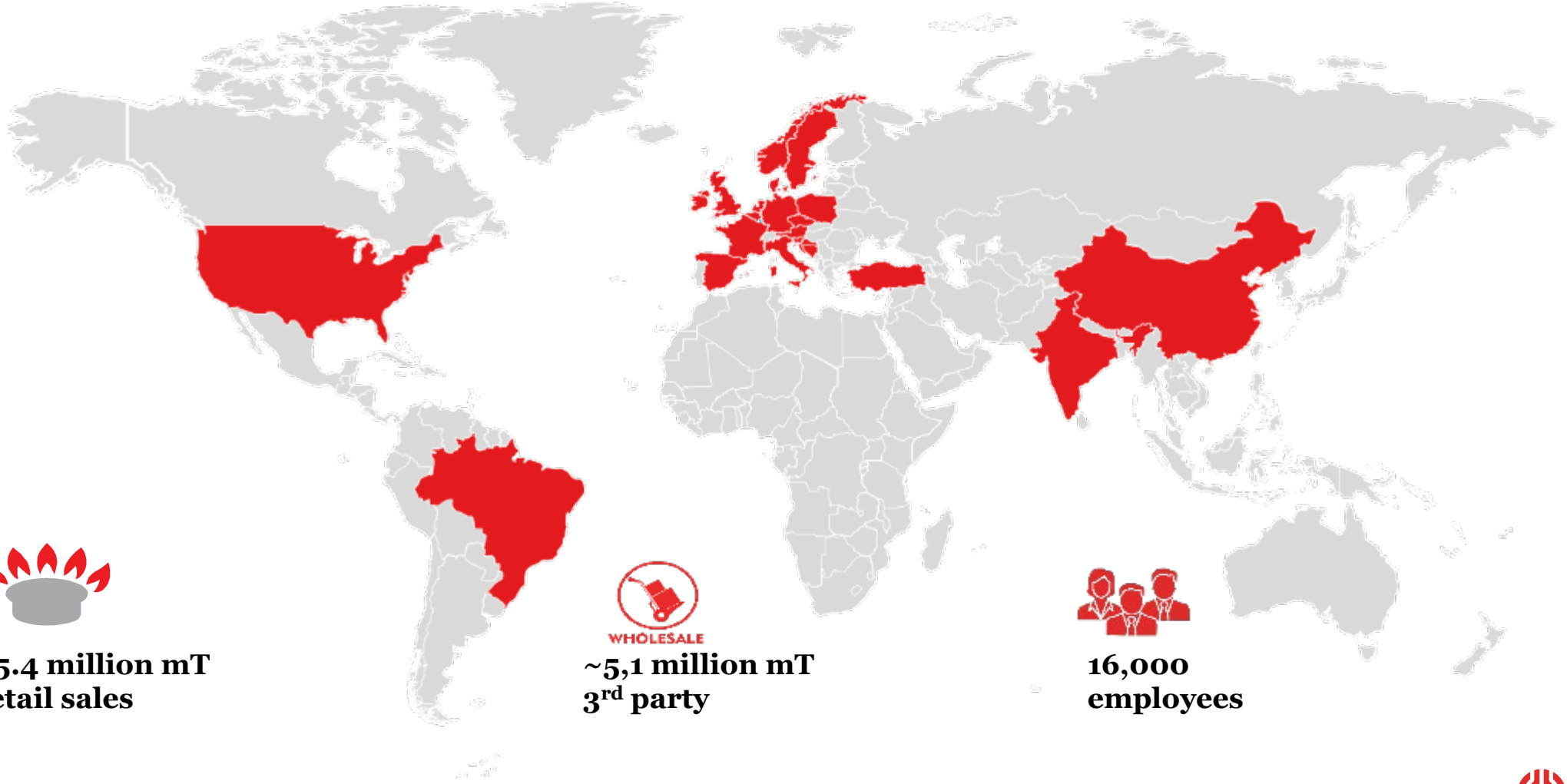
Duncan Carter – Corporate Affairs Manager

12 October 2021

CALOR
BioLPG

SHV Energy : A global energy company

PRIMAGAS SUPERGASBRAS PRIMAGAZ IPRAGAZ CALOR LIQUIGAS GASPOL 喜威 SUPERGAS LIQUIVEX PRIMAGAS PRIMA LNG BUTAN PLIN PINNACLE BALCAS



~5.4 million mT
retail sales

WHOLESALE
~5,1 million mT
3rd party

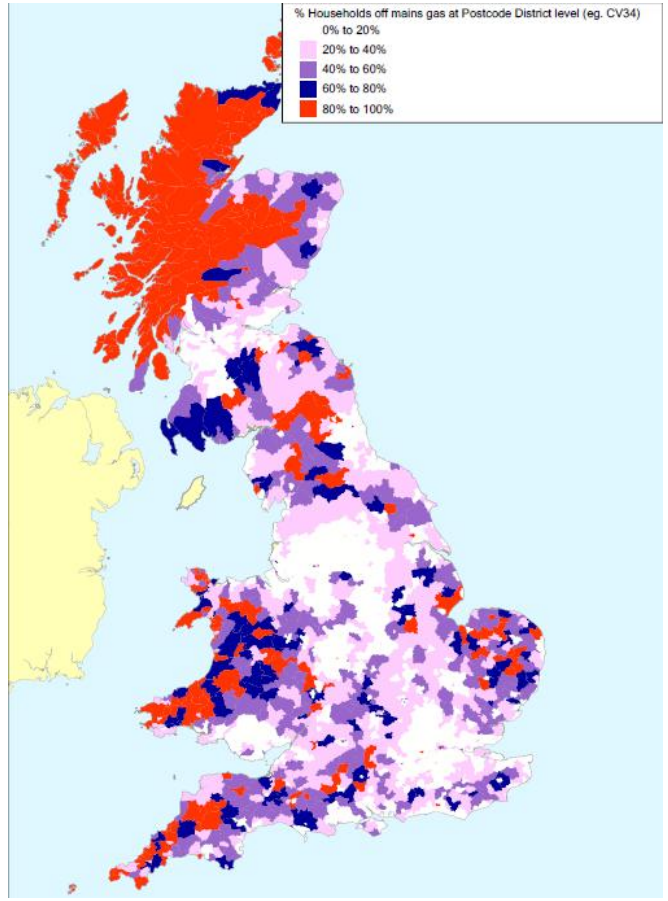
16,000
employees

Source: SHV Energy 2017 report

CALOR

Decarbonising off-grid heating – meeting the challenge

- There are 2 million rural properties off-gas grid. c4.6m people
- They use a range of fuels: heating oil, solid fuel, LPG and direct electric
- High proportion of ‘hard-to-treat’ homes: uninsulated solid or stone-walls
- Higher levels of fuel poverty, isolation, and poor connectivity
- A mixed technology approach with a range of low-carbon heating choices is needed

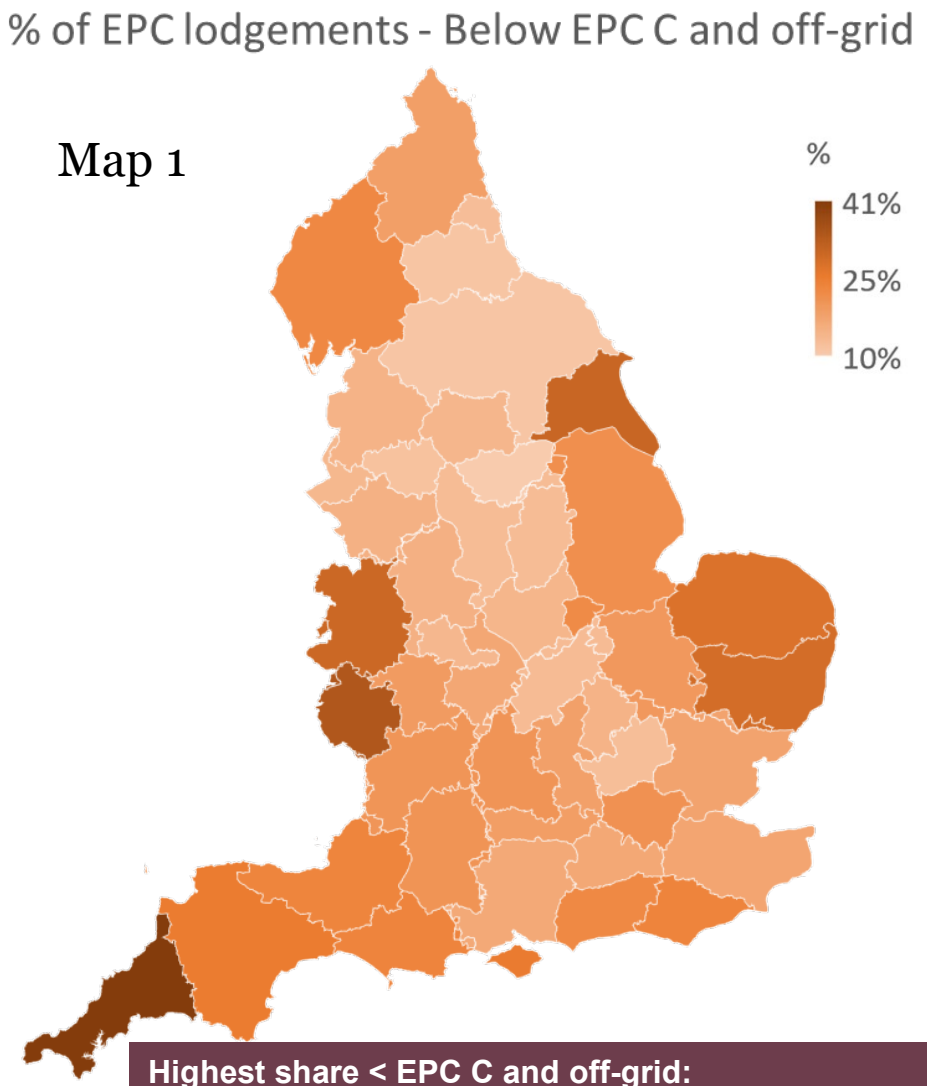


Options are needed for these properties – we might not need to “rip out” every home’s gas boiler

CALOR

Rural homes are ‘lagging in lagging’

- Only 3% of rural homes at EPC Band C and above.
- Electricity network constraints are a factor
- 20-50% of properties are unsuitable for electric heat pump installation



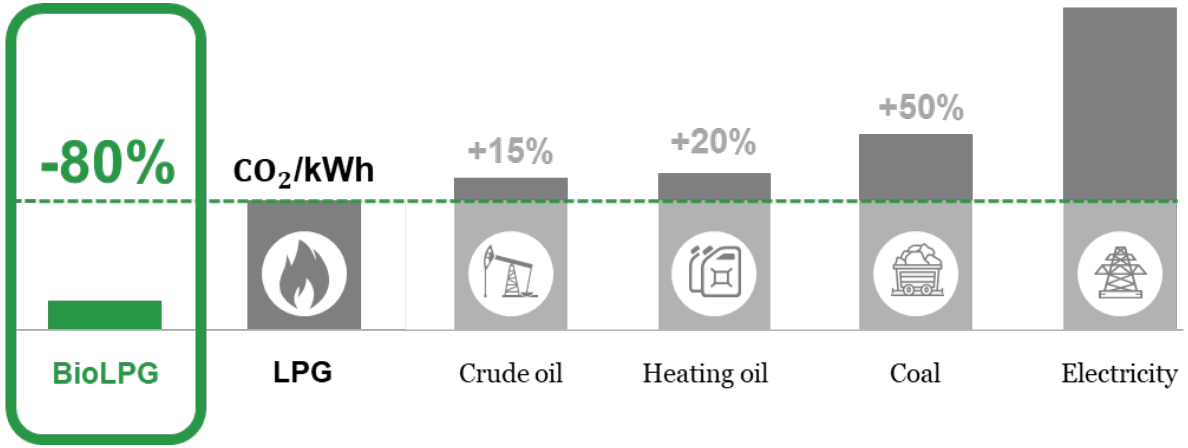
Highest share < EPC C and off-grid:

1. Cornwall
2. Herefordshire
3. East Riding of Yorkshire
4. Shropshire
5. Suffolk

Green gas BioLPG can help

- A propane molecule (C_3H_8) derived from non fossil sources
- Direct drop in replacement for LPG: no changes to boilers or delivery infrastructure
- Currently a coproduct of biodiesel and Sustainable Aviation Fuel production (HVO)
- Perfect partner with heat pump in hybrid system
- Modelled by CCC and National Grid

LPG industry commitment to 100% BioLPG by 2040



CALOR

Rural homes to go first

Government pursuing ‘rural first’ approach to fossil fuel phase out starting 2026 off grid vs. 2035

BUT…

1. Rural households won’t benefit from economies of scale and supply chain efficiencies from HP mass rollout

2. Government support green gas for heating on grid (biomethane, H2),but nothing for BioLPG

3. Absence of consumer testing: Electrification of heat demonstration project excludes retrofit costs >£5k

CALOR

Or ‘heat pump’ ready first?

Better? “start with the easiest not the hardest” to create the volume (Greg @ Octopus)

A ‘heat pump ready’ first, not rural first will:

1. Allow supply chain efficiencies and installer skill base to increase before tackling harder, more expensive homes

2. Be fairer on rural communities

3. Increase the chance of 600k HPs by 2028 happening

CALOR

Homes BioLPG could help – lowest technology cost analysis

Mrs Smith lives in a detached home, with no major renovations that was built pre-1918. She heats the home with an old oil boiler that needs replacing.

Mrs Smith's home is representative of the most common archetype (16%) currently using heating oil in England.

Mrs Smith's home is large, with a floor area of **198m²**

Which typical energy efficiency improvements could be made to this Mrs Smith's homes?

1. **Loft insulation**
2. **Solid wall insulation**
3. **Double-glazing**
4. **PVC door**

It would cost an estimated **£31,690** to make all these improvements with a heat pump.

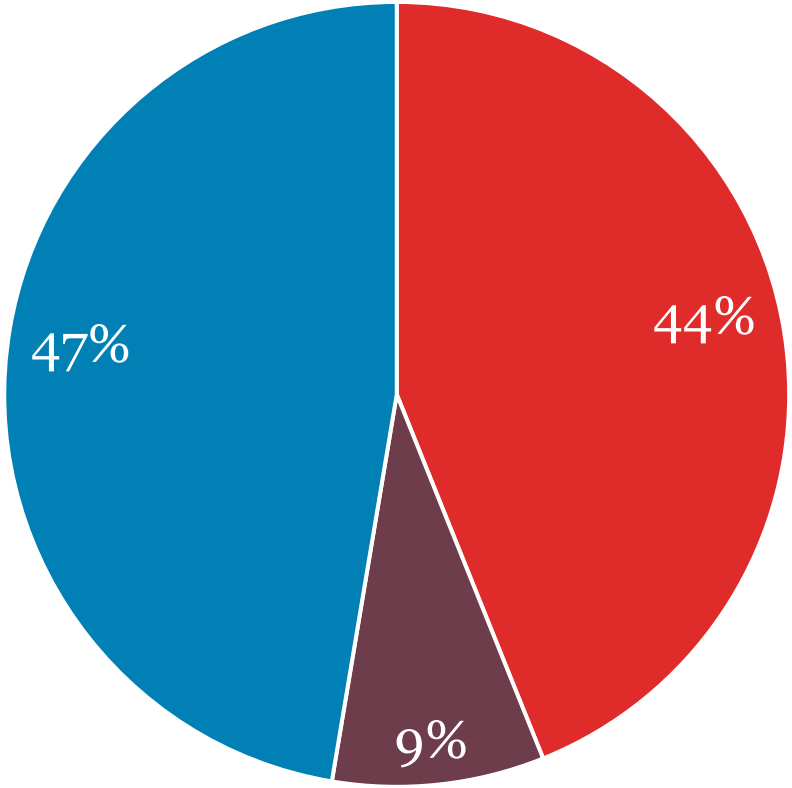
It could take more than **2-3 weeks** of research, supplier contact, preparation, installation and clean-up time to install an ASHP and SWI in Mrs Smith's home

*utilised English Housing Survey to develop over 50 rural housing archetypes
https://www.ecuity.com/wp-content/uploads/2020/12/Ecuity_Off-Grid-Heat-Decarbonisation-Pathways-compressed-1.pdf

CALOR

Heat pumps cost effective for the majority - 56% of oil heated homes

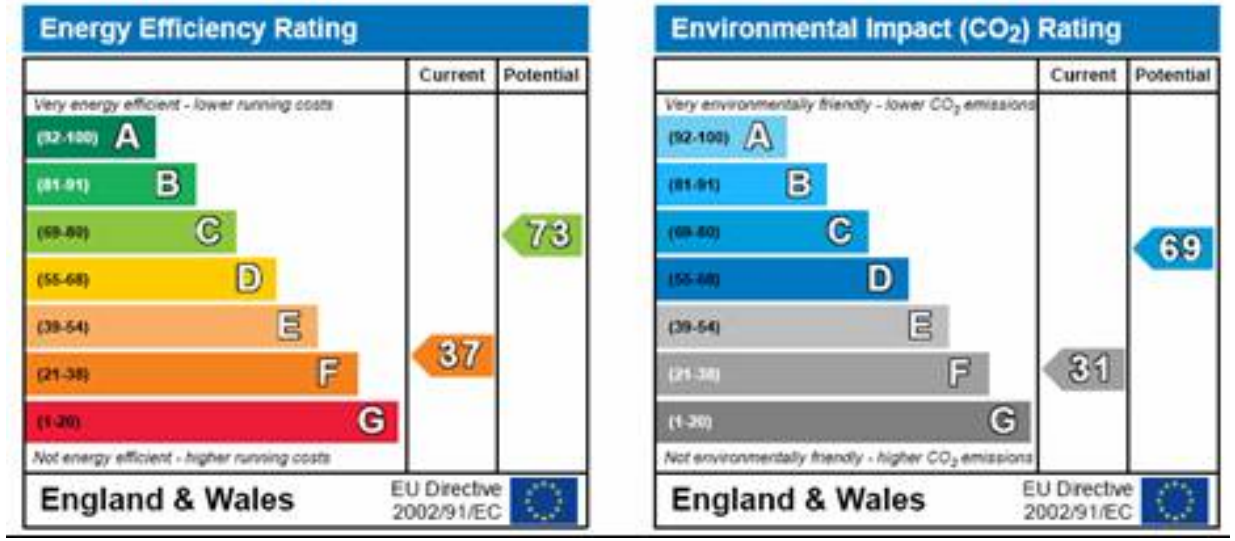
But 59% of these households may not be able to afford the upfront costs



CALOR

Regulatory and policy support needed

- Industry commitment not met by support from Government
- BioLPG must be included in SAP
- French and German regulation already recognises BioLPG
- EU has recognised LPG alongside natural gas in the Energy Taxation Directive acknowledging this transition role

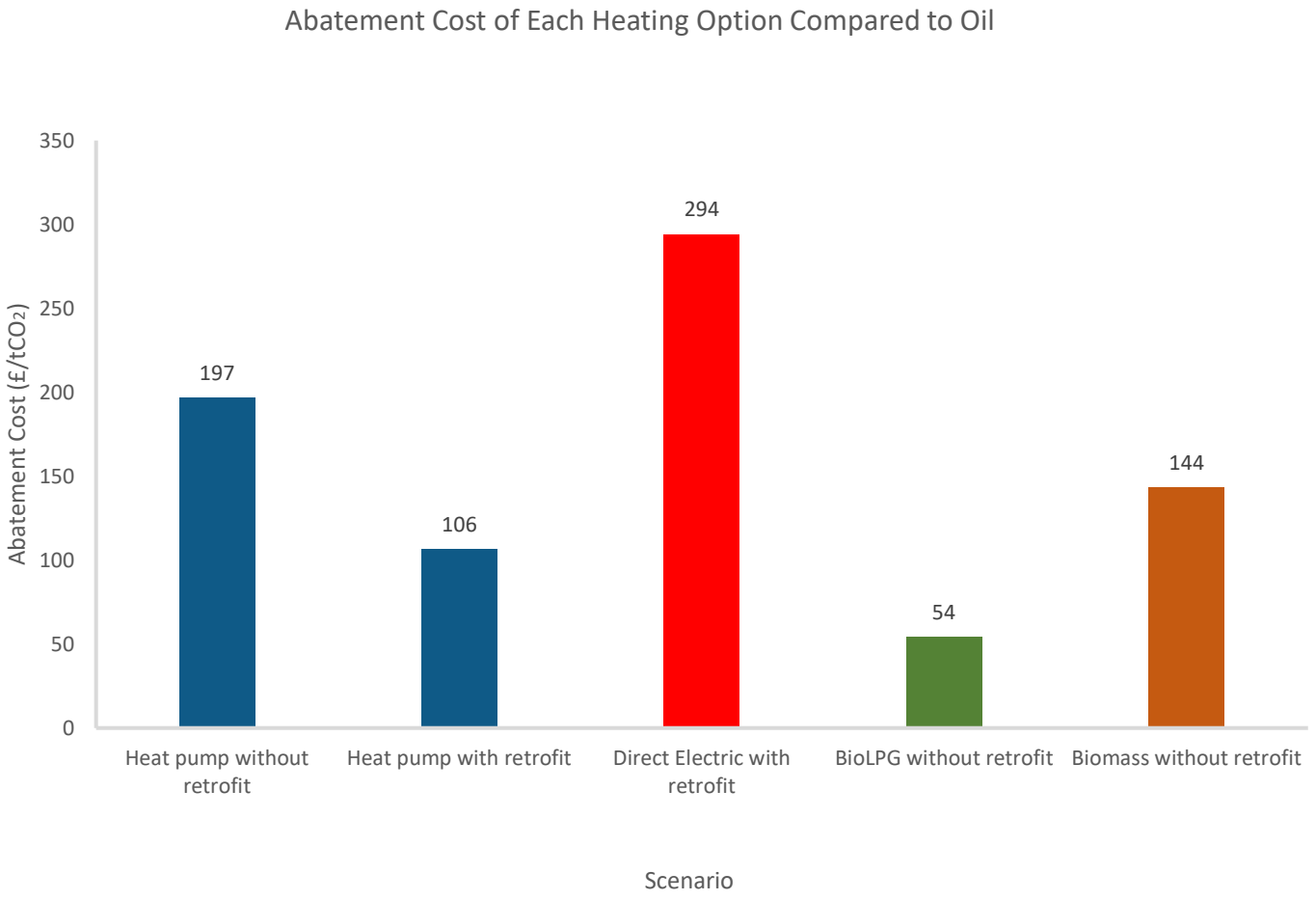


CALOR

UK's limited biomass stocks should be targeted at off-grid heating

- Biomass should be used where alternatives are high cost and/or increase costs on those least able to pay

- Our analysis shows that in some hard-to-treat homes, bioLPG can produce significantly lower abatement costs than alternatives
- Synergy with SAF development as aviation has limited decarbonisation options; with bioLPG as a co-product



CALOR

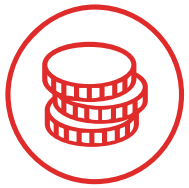
The future of heat in off-gas grid UK

Diverse and decarbonised

BioLPG is not the single answer, but neither is electrification or any other technology.

Choice, not mandate

Options that are suitable for homeowners dependant on their situation (financial, physical and property)



Affordable and achievable

To achieve conversion for all homes in 30 years needs financial support, available equipment and a workforce to deliver – which needs a range of solutions.

Equal status

This is not a test bed to trial systems for the rest of the UK.

2 millions diverse homes are not “no regret” or “low hanging fruit” – we need to get them right for the policy to work for everyone.

CALOR

Thank you.

Duncan Carter – Corporate Affairs Manager
dcarter@calor.co.uk
12 October 2021

CALOR
BioLPG