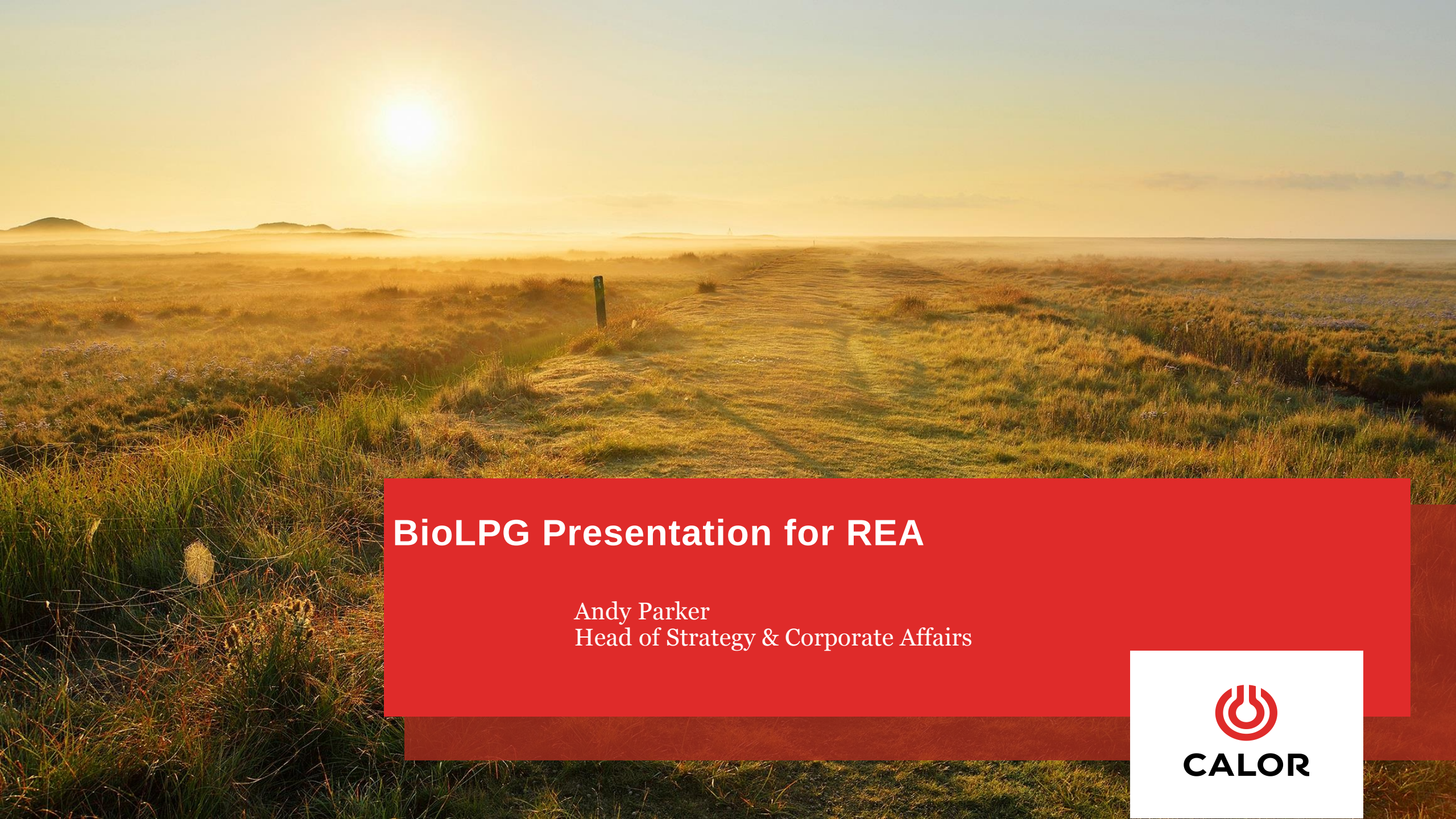


BioLPG Presentation for REA

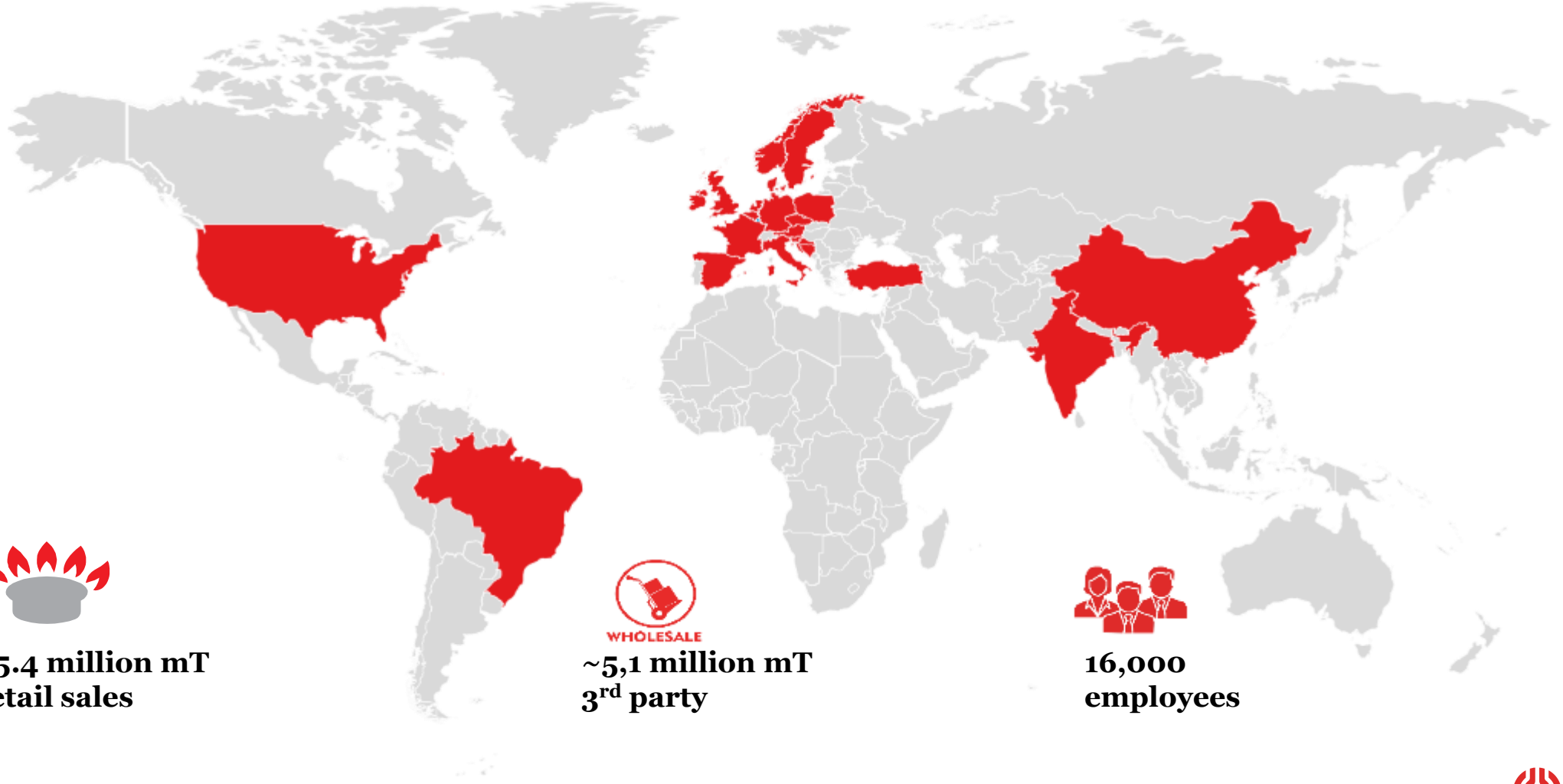
Andy Parker
Head of Strategy & Corporate Affairs

CALOR

Calor GB – part of SHV Energy

SHV Energy : Our global brands

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

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B100 Target

BioLPG has an important role in this transition. It is a versatile, viable and feasible drop-in solution significantly reducing CO2 emissions, today and into the future.

The infrastructure is in place due to its drop in nature replacement of LPG. No changes to boilers, transport or storage facilities is required for the industry.

100% of our energy products will be from renewable sources by 2040.

Not just Calor, but the whole LPG industry

- The UK LPG Trade association (Liquid Gas UK) has aligned to the 2040 ambition.
- All of UK's LPG will be renewable, bioLPG by 2040.

BioLPG – available now and scaling for the future

- Available in UK now
- Drop-in replacement for LPG - can be used in any ratio up to 100%, without any infrastructure changes
- Investing in new supply sources (Sky NRG as an example)

2020 volumes of around 30kT, approx 30% of domestic energy demand

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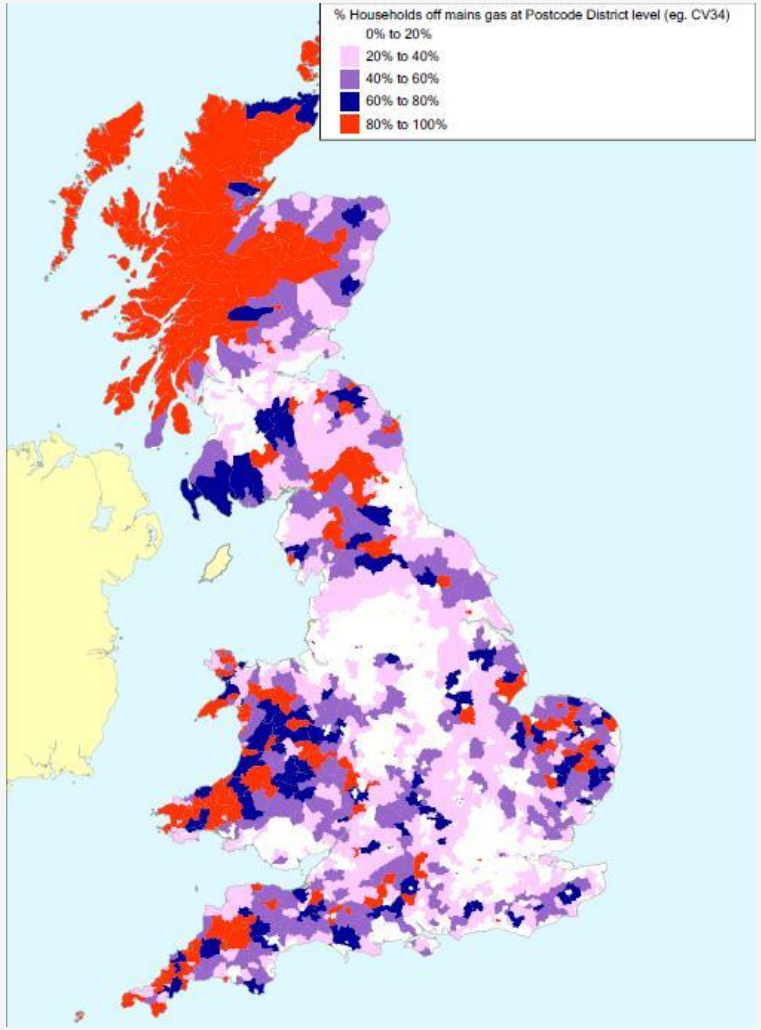
Rural Off-Gas Grid Britain Overview



- 2 million rural properties off-gas grid
- c4.6m people
- Range of fuels:
  - Heating oil, solid fuel,
  - 28% - electricity
  - 10% - solid fuel
  - 7% LPG
- High proportion - Hard to treat
- Little new build
  - 25,000 in a good year

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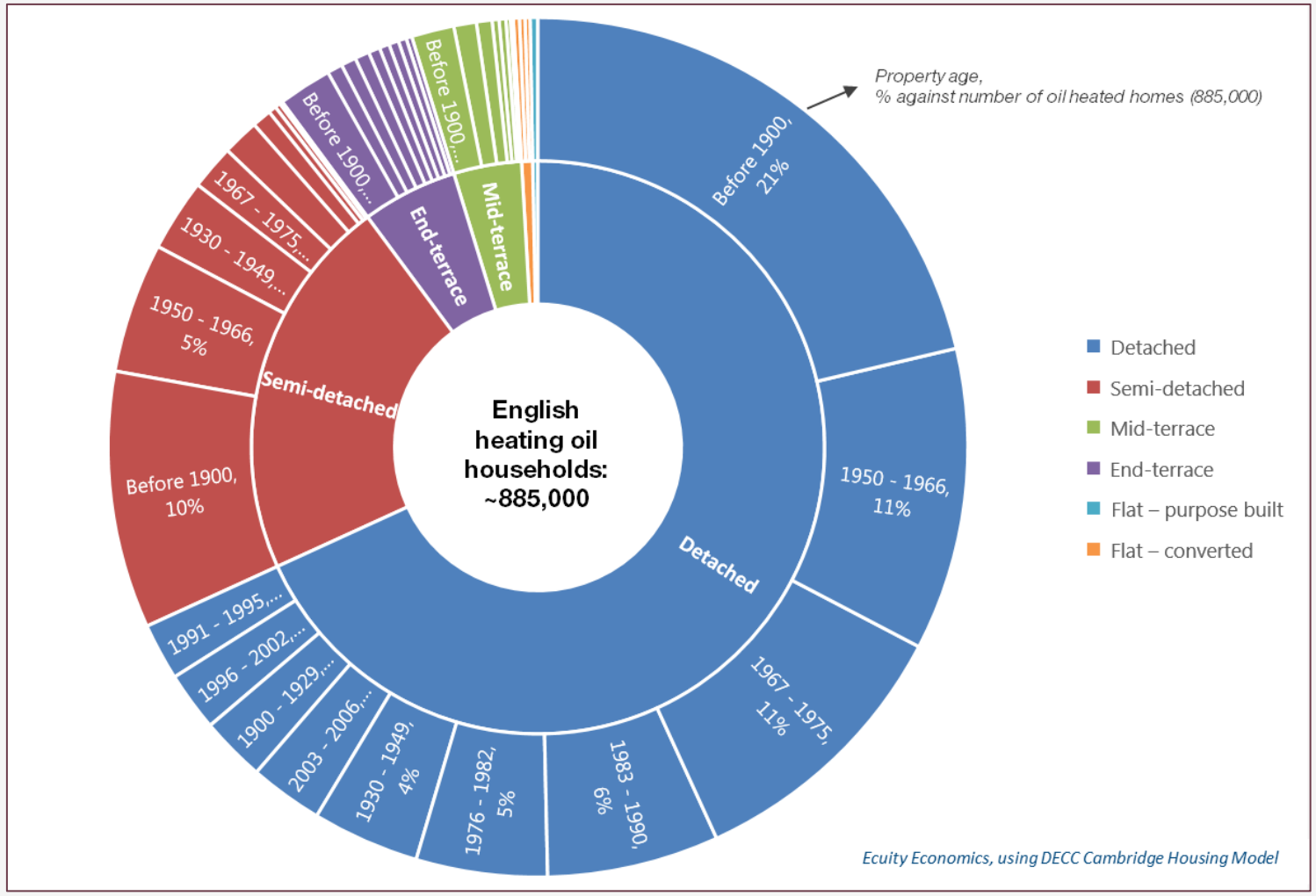
Off gas grid -
By Age and Type of Dwelling



Style of properties

78% are detached properties

Age of properties

47% built before 1949

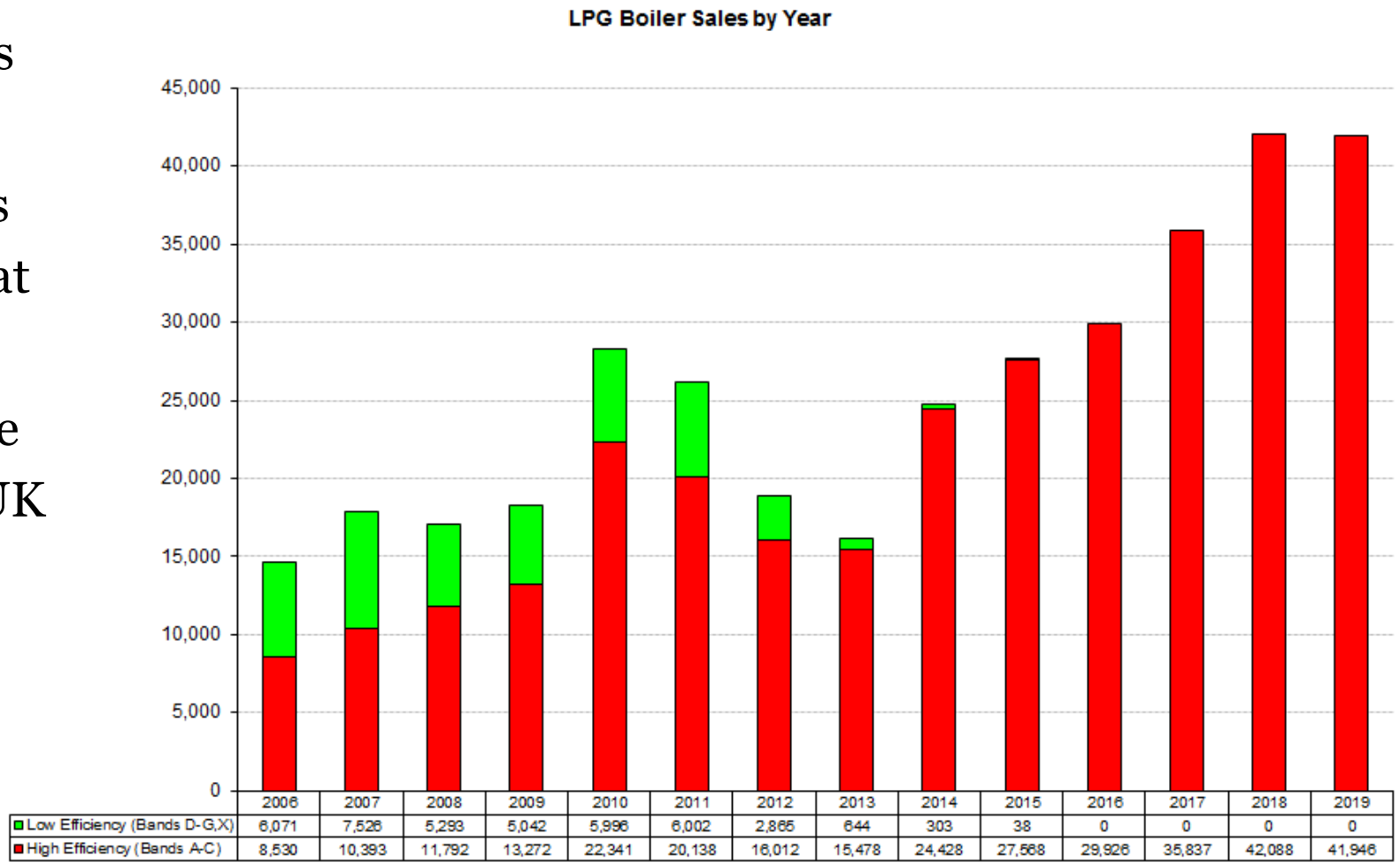
Sales of ~~LPG~~ BioLPG boilers at record levels

The last two years have been the highest level of LPG boiler sales on record.

Everyone one of these boilers is future proofed to take bioLPG at 100% blend.

Over the past 5 years there have been 177,000 LPG sold in the UK – all ready for renewable fuel.

We have a great starting point with our infrastructure.



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Low Efficiency (Bands D-G,X)	6,071	7,526	5,293	5,042	5,996	6,002	2,865	644	303	38	0	0	0	0
High Efficiency (Bands A-C)	8,530	10,393	11,792	13,272	22,341	20,138	16,012	15,478	24,428	27,568	29,926	35,837	42,088	41,946

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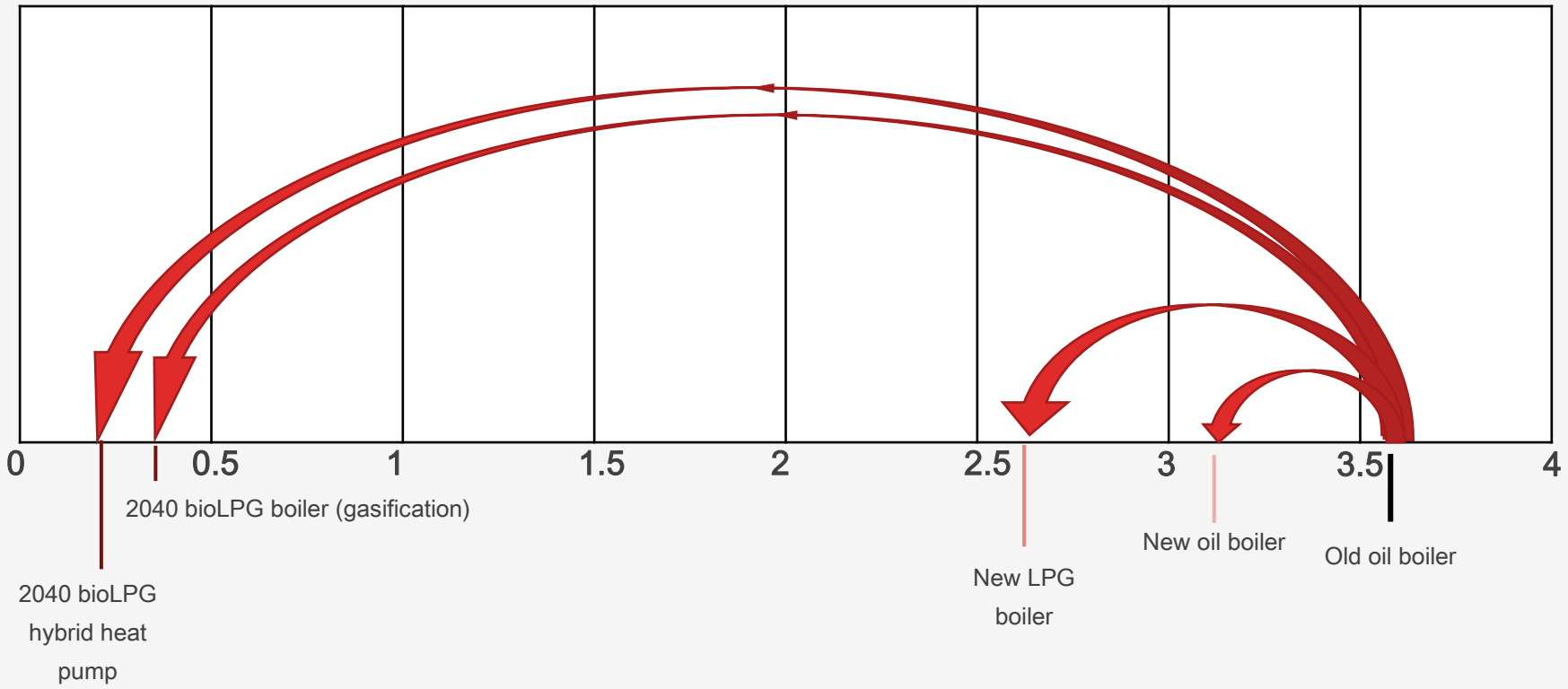
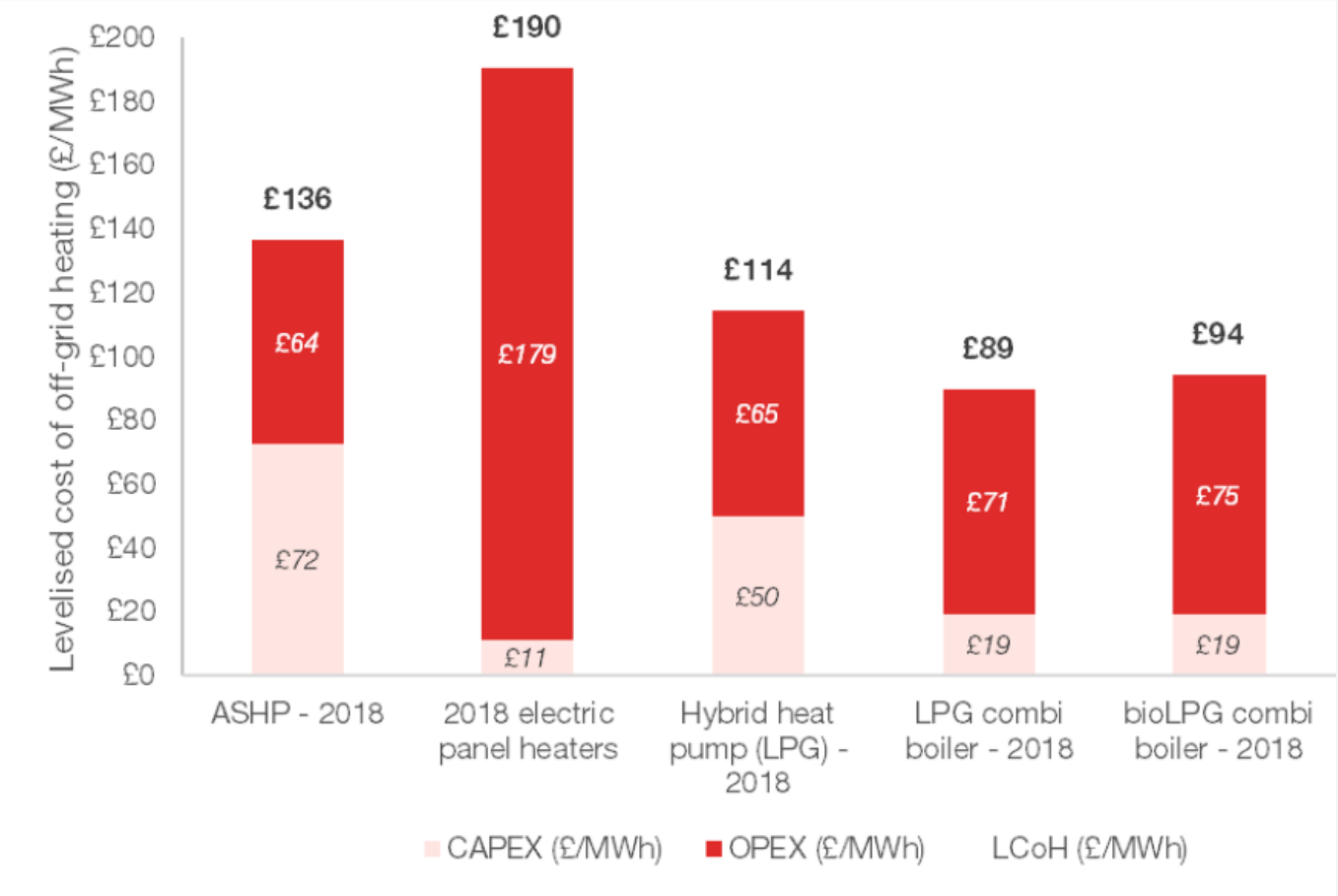
BioLPG can deliver significant carbon savings



Annual emissions per household (tCO_2e/year)

Levelised Cost Comparison



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

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Some rural homes will be challenging to decarbonise

- 2 million rural homes. Some are heated with electricity, but most consume either oil, solid fuels (i.e. coal), biomass or LPG
- Technical decarbonisation challenges include: space constraints, uninsulated solid or stone-walls, poor connections to the energy system due to rurality
- Consumer challenges include: apathy, fuel poverty and cost concerns, preference for the status quo

Options are needed for these properties

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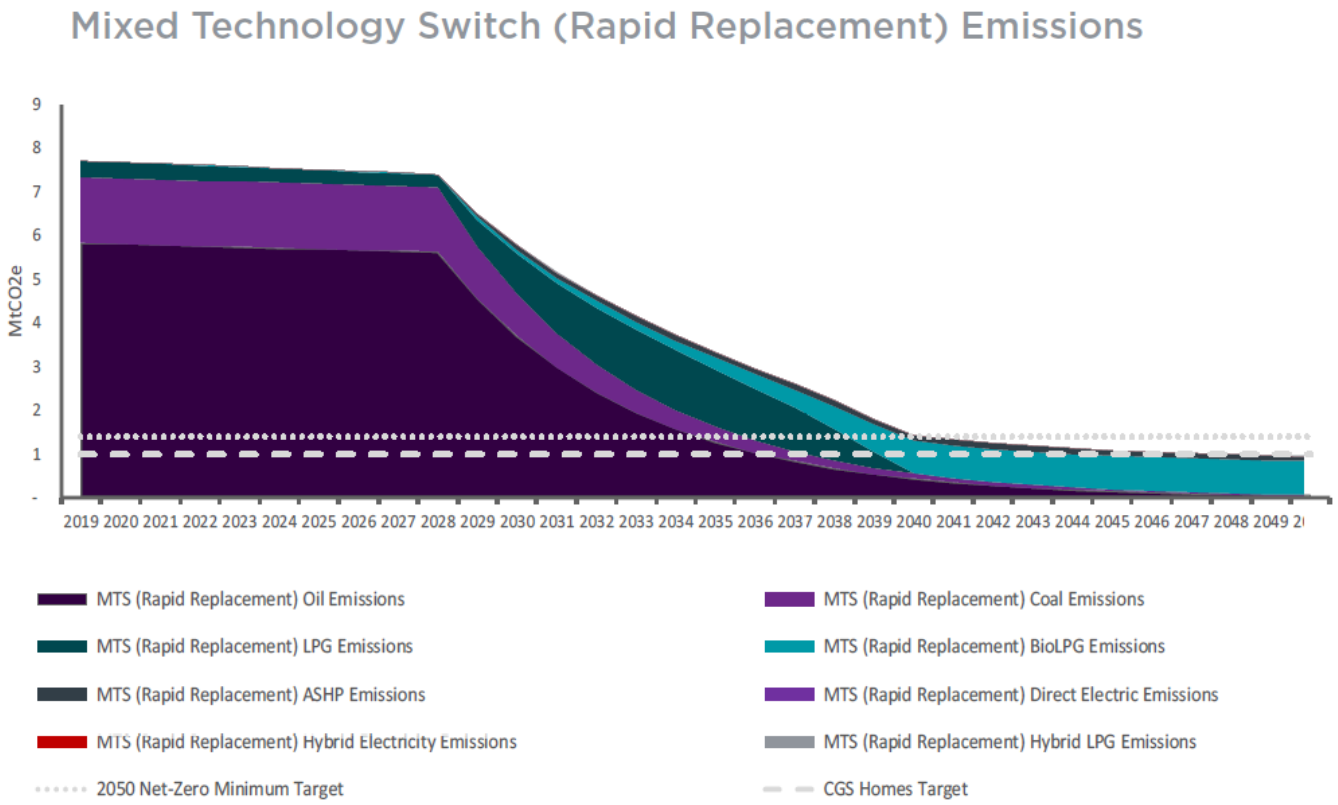
A mixed technology approach to heat decarbonisation is more cost effective

- More cost-effective to support a mixed technology approach to heat decarbonisation
- Forthcoming LGUK report: shows a 37% cost increase for large off-grid homes in a blanket electrification scenario



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BioLPG boilers can address these properties: CCC report on hard-to-decarbonise homes

	Fuel demand for heating in 2050[1] (TWh)			
Heat fuel	**Baseline (No EE)**	**Central**	**No Hydrogen**	**Hydrogen-led (Main case)**
Gas	352.6	19.8	20.3	17.5
Oil	42.8	0.0	0.0	0.67
Electricity	22.4	68.4	76.0	27.0
Hydrogen	-	40.3	-	203.3
BioLPG	-	6.5	6.4	7.0
TOTAL	**417.8**	**135.0**	**102.8**	**255.5**

CCC (2019) Analysis on abating direct emissions from 'hard-to-decarbonise' homes

- CCC see a long-term role for bioLPG in boilers, and paired with hybrid heat pumps
- BioLPG can be used seamlessly in existing heating systems (boilers, storage tanks etc)
- Hybrids benefit from lower capital costs (compared to ASHP/GSHP), greater familiarity, and often improved efficiencies, and reduced space requirements

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Calor's view of rural heat decarbonisation

1. Some homes are hard-to-decarbonise – range of solutions needed for rural homes

2. The most cost-effective route to decarbonisation is a mixed technology approach – including bioLPG boilers, heat pumps, hybrids (£6bn less than pure electric)

3. Currently on-grid biogas (biomethane) and hydrogen is supported by Government policy, bioLPG use for heating is not