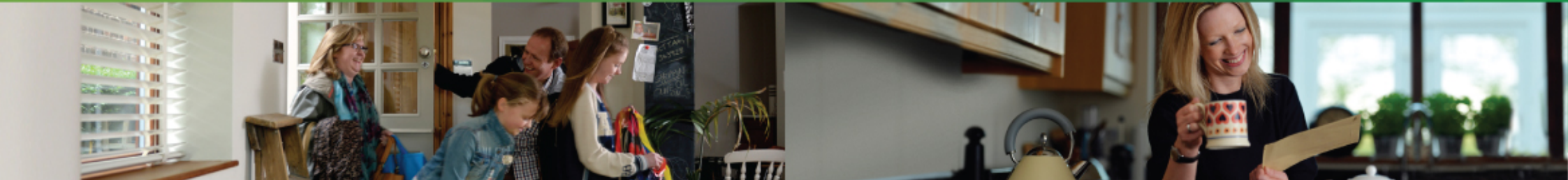


# Solutions for off-gas properties

Tom Vosper



# About Climate Energy



Climate Energy is one of the UK's largest independent energy efficiency companies. The Climate Energy Group includes:

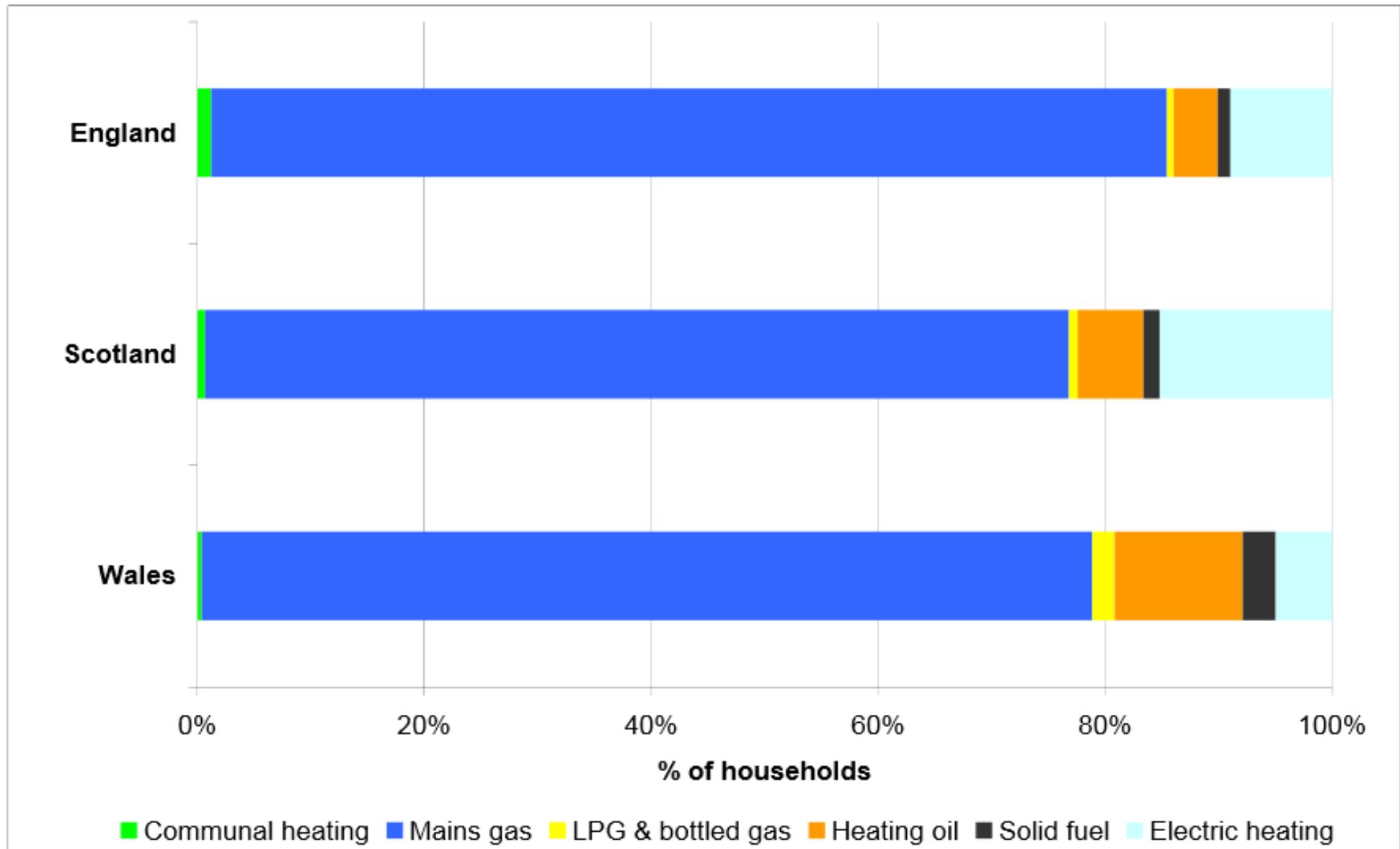
- **Climate Energy Ltd** – accredited Green Deal and ECO Provider
- **Climate Energy Homes** – Low carbon new build system
- **Climate Energy Solutions** – MCS accredited insulation, heating & renewables installer
- **Climate Energy Business Solutions** – Providing independent low carbon and sustainable energy services and project funding solutions



# Local Council Partnerships

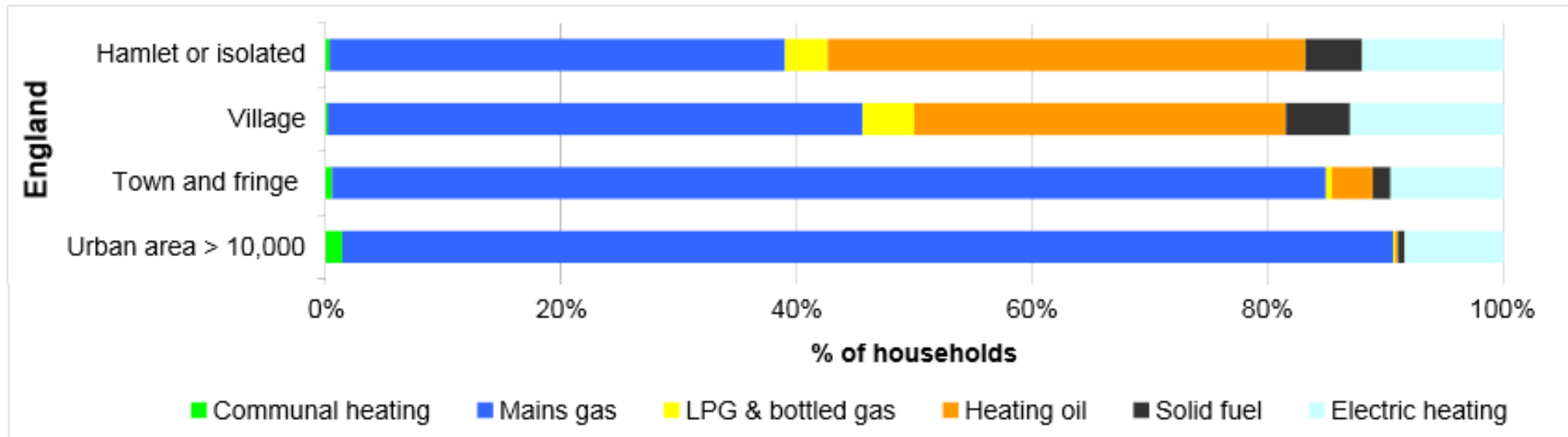
	Cambridgeshire County Council	     
	Suffolk County Council	      
	The London Borough of Richmond upon Thames	
	The London Borough of Sutton	
	The Royal London Borough of Greenwich	
	North Somerset Council	
	South Gloucestershire Council	
	Bristol City Council	
	Central Bedfordshire Council	
Climate Energy is a framework supplier of energy efficiency measures to Solent Green Deal.		
Climate Energy is a framework supplier of energy efficiency measures to Kent and Medway council.		 

# Main heating fuels in Britain



Source: Consumer Focus' 2011 "Off-gas consumers" report

# Main heating fuels in Britain (2)



# Challenges for off-gas homes

- No direct access to the cheapest heating option
- Often exposed locations - higher convective losses and no “heat island”
- Normally high cost of connection to gas (if it’s possible)
- Off-gas properties are far more likely to suffer from fuel poverty

## Standard off-gas heating systems

Heating type	Pros (compared with gas)	Cons (compared with gas)
Oil & LPG boilers	-	Expensive fuel
Electric storage heaters	Zero maintenance cost Night rate can cut non-heating costs if used wisely	Generally poor control Expensive Uplift on day rate tariff
Peak electric heaters	Zero maintenance	Most expensive

# Possible solutions

- Insulation, insulation, insulation!
- Improve air tightness but consider ventilation requirement
- Behaviour change
- Heat pump - GS / AS
- District/communal heating (biomass)
- Solar thermal
- Solar PV (perhaps with EMD)
- Individual biomass boiler
- Voltage Optimisation

# Spire Homes – Derwent Drive

- Six 3-storey blocks of flats (54 units in total)
- All heated by electric storage heaters
- Reasonable energy efficiency already (LI, CWI, DG)
- Off the gas network but only just (half km to gas pipe with sufficient capacity)



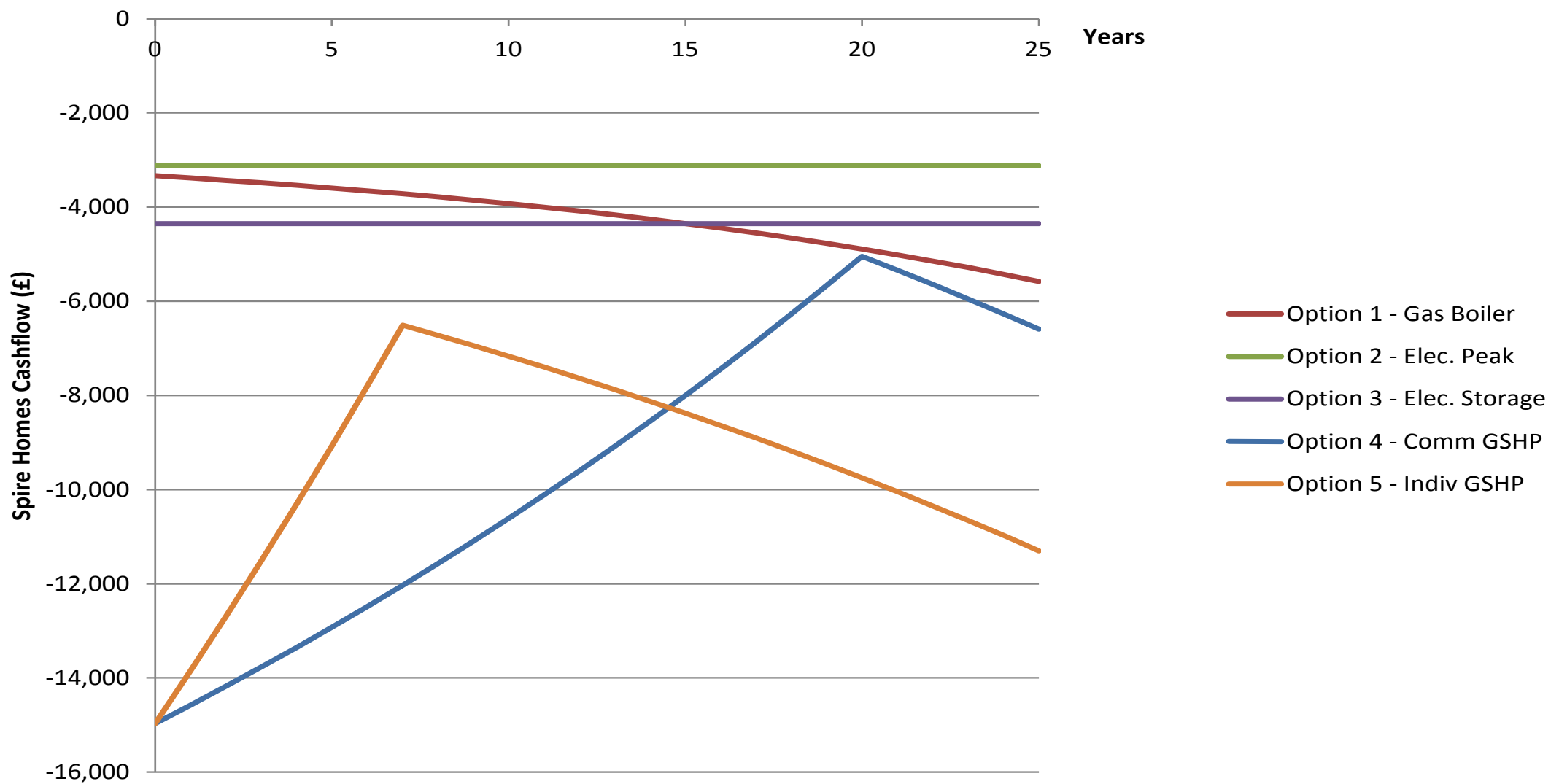


# Spire Homes – Derwent Drive

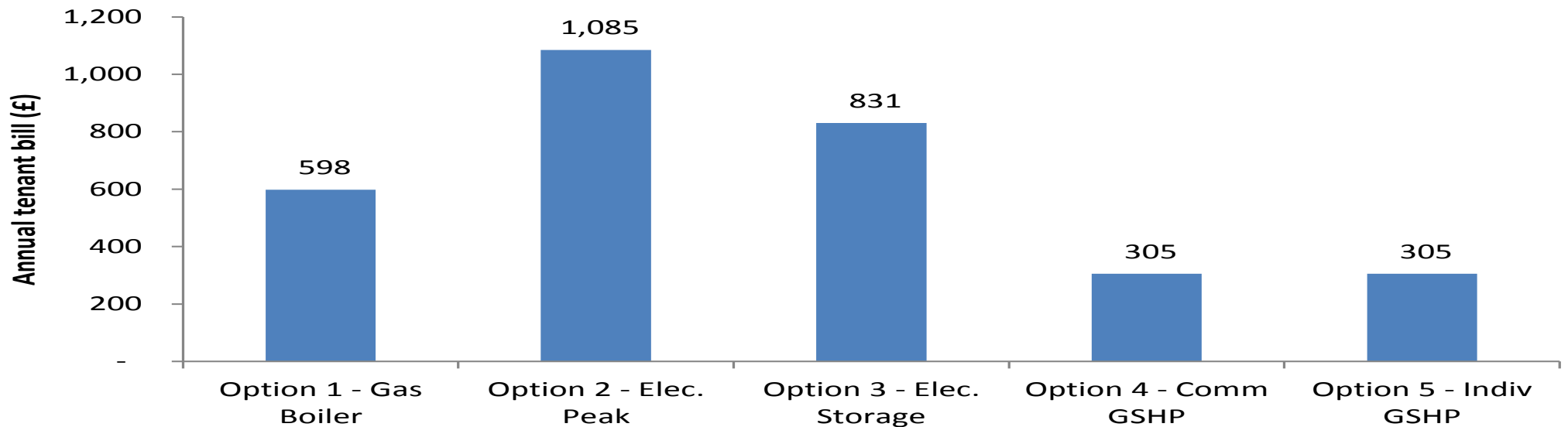
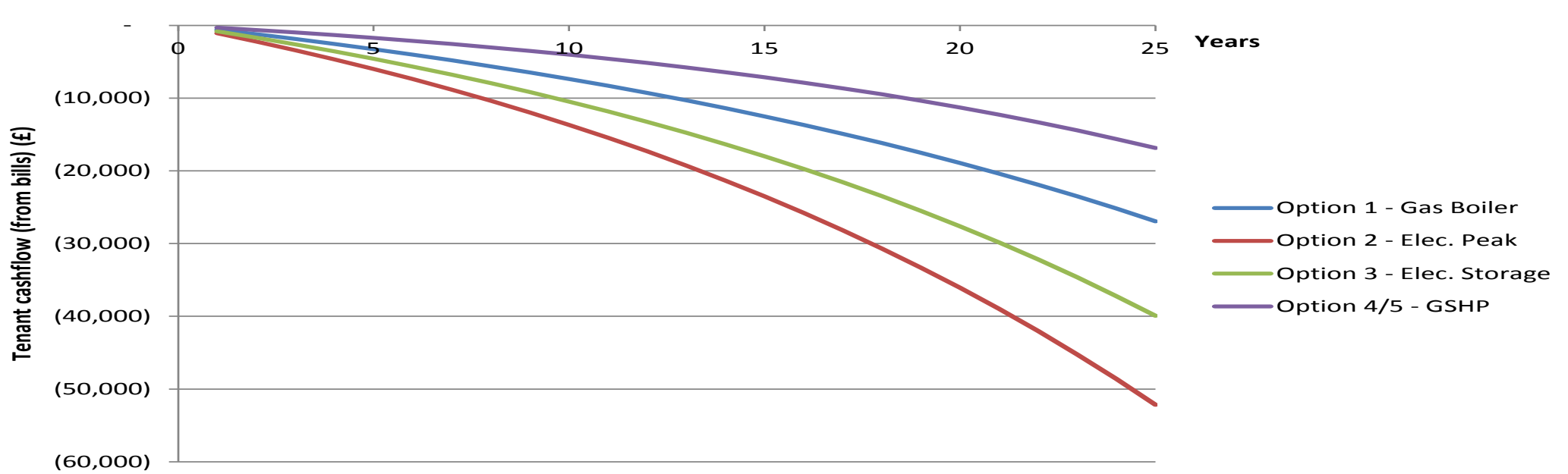
- Surveyed the site & spoke at length to TLO to gather local knowledge
- Discussed with client and ended with a cut-down list of option:
  1. Extend gas network and install gas combination boilers
  2. Installation of peak electric radiators
  3. Replacement of storage heaters with newer models
  4. Individual GSHP with communal ground loop – non-domestic RHI
  5. Individual GSHP with separate ground loops – domestic RHI
- Appraised each option from a technical, financial, environmental, legislative & logistical perspective
- Appraised each option from a Spire Homes and a tenant perspective



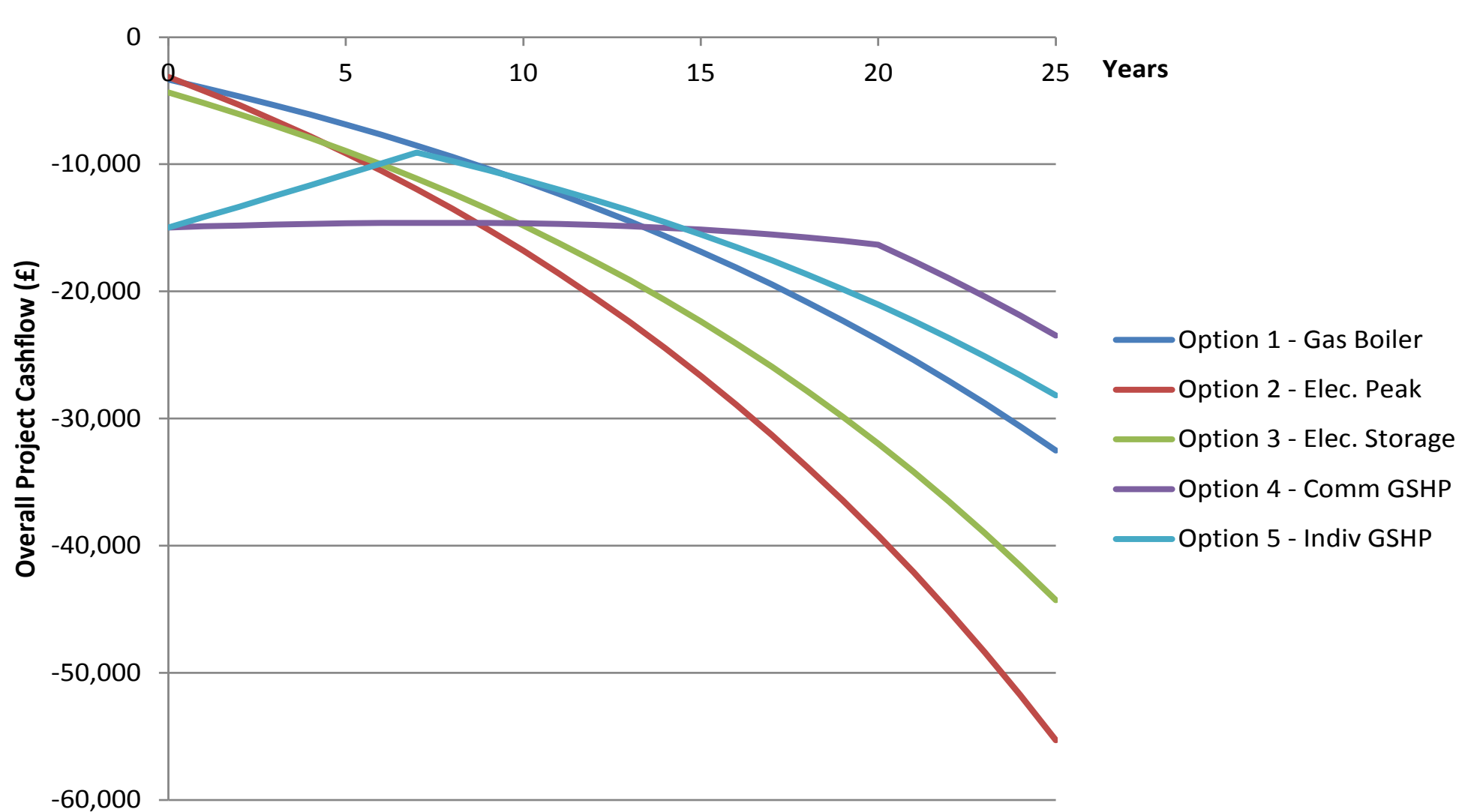
# Financial comparisons: Spire Homes Economic Perspective



# Financial comparisons: Tenant Perspective



# Financial comparisons: Overall project



# TCHG ASHP installations

Completed around 30 individual ASHP installations on a rural housing estate

## Lessons:

- Pre-project consideration of tenant energy use (insulation, emitters, tariffs, behaviour...)
- Early resident engagement to explain the “new” system and set expectations
- Careful noise assessment is critical and liaison with residents and installer for external unit siting
- Planning approval
- High quality training and handover to tenant



# TCHG Solar PV

## Results:

- 132 Houses + 4 blocks with 93 flats - Total 391kWp
- Total cost ~£1.2m
- Projected annual income from FiT including export tariff ~£120k
- Resident bill savings £20 - £180 pa per dwelling
- Lifetime CO2 savings in excess of 4300 tonnes



# Domestic VO trials

## Aims:

- Alleviate uncertainty around domestic VO
- Lack of independent study on savings
- Compare the units available on the market

## Results:

- Understanding product differences and property fit
- Calculated savings of between 3% and 8% per year on resident bills equivalent to between £10 and £60, average of about £30.
- Tenant perceived savings of £100 - £200 including behaviour change



# Final comments

	Fits well with	Comments
Insulation & draft proofing	Everything!	
Heat pump - GS / AS	ST & PV	Check heat emitters, existing tariffs & behaviour. Explain differences.
District/communal heating (biomass led)	ST	Tenant views. Actual heat loads. Tariff setting. Metering & billing issues.
Individual biomass boiler	ST	Space. EPC heat loads.
Solar thermal	HPs	
Solar PV (with EMD?)	HPs	
Voltage Optimisation	-	

Every property is different and tenants can be even more different! So don't take a one size fits all approach - come and talk to us instead to see how we can help.



# Thank you

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