

# Understanding Consumer Heat Preferences

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## Heat in Homes: customer choice on fuel and technologies

Study for Scotia Gas Networks

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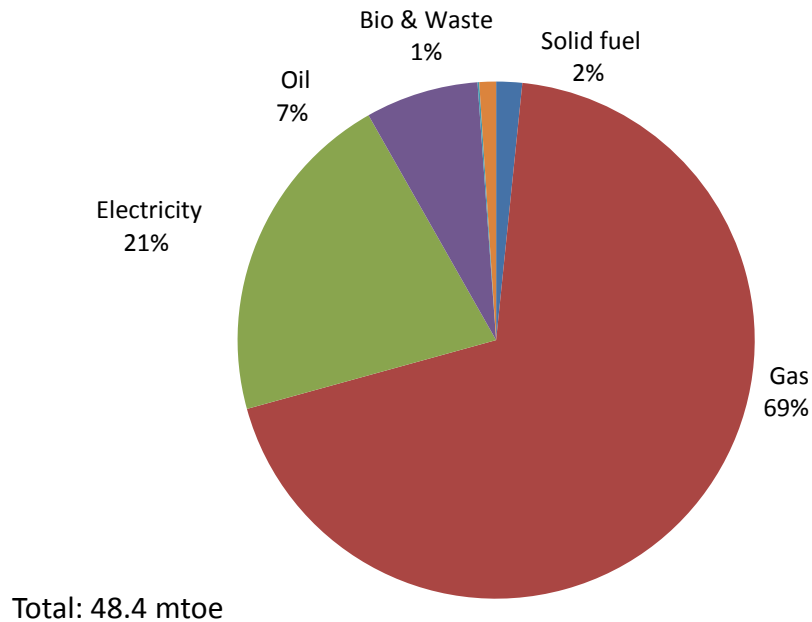
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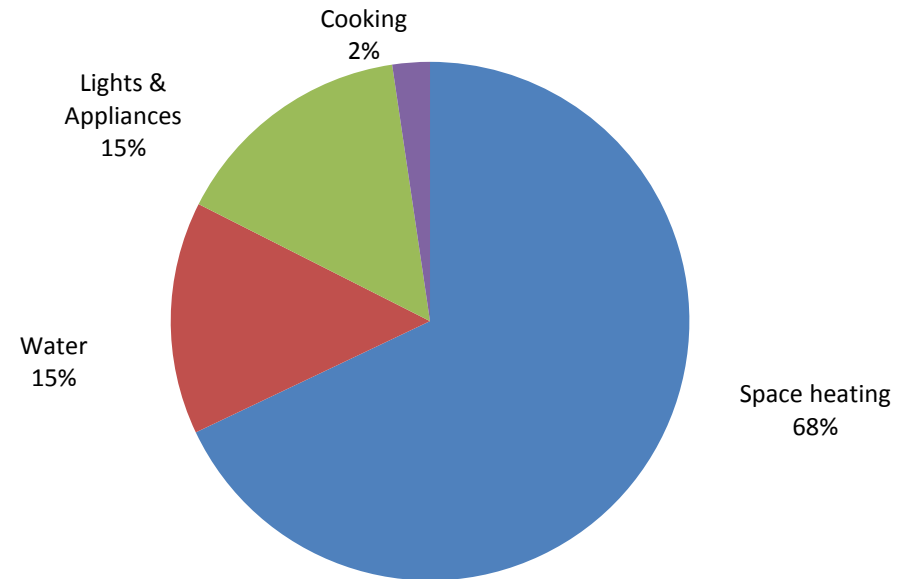
# The Research Considered

- Current heat provision in the domestic sector
- Consumer choice – fuels and technologies
- Conclusions and implications for research

# Gas is the dominant fuel for heating in the domestic sector



2001-10 average for gas 68.1%

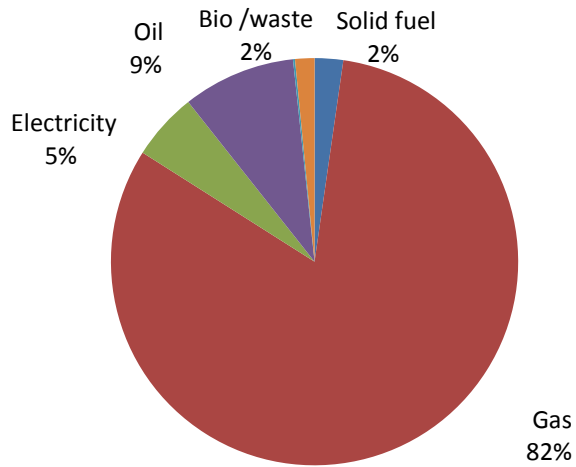


10 year av: Space heating (67.7%);

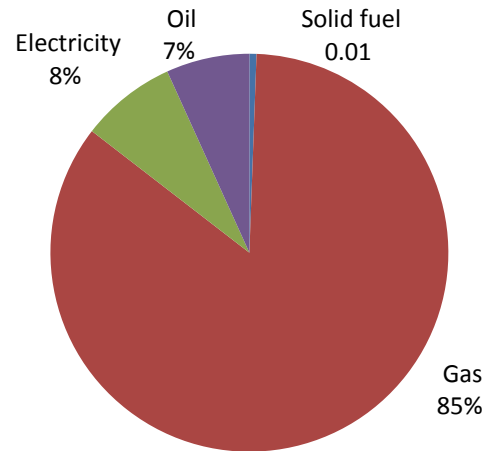
UK Domestic Energy Consumption 2010 by Fuel and End Use Source: DECC - ECUK 2012 (table 3.7)

# 2010 End use by fuel

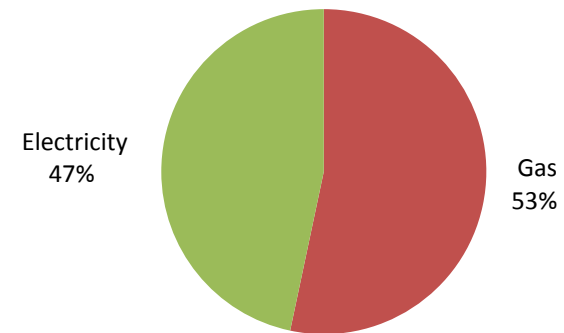
## Space Heating



## Hot Water

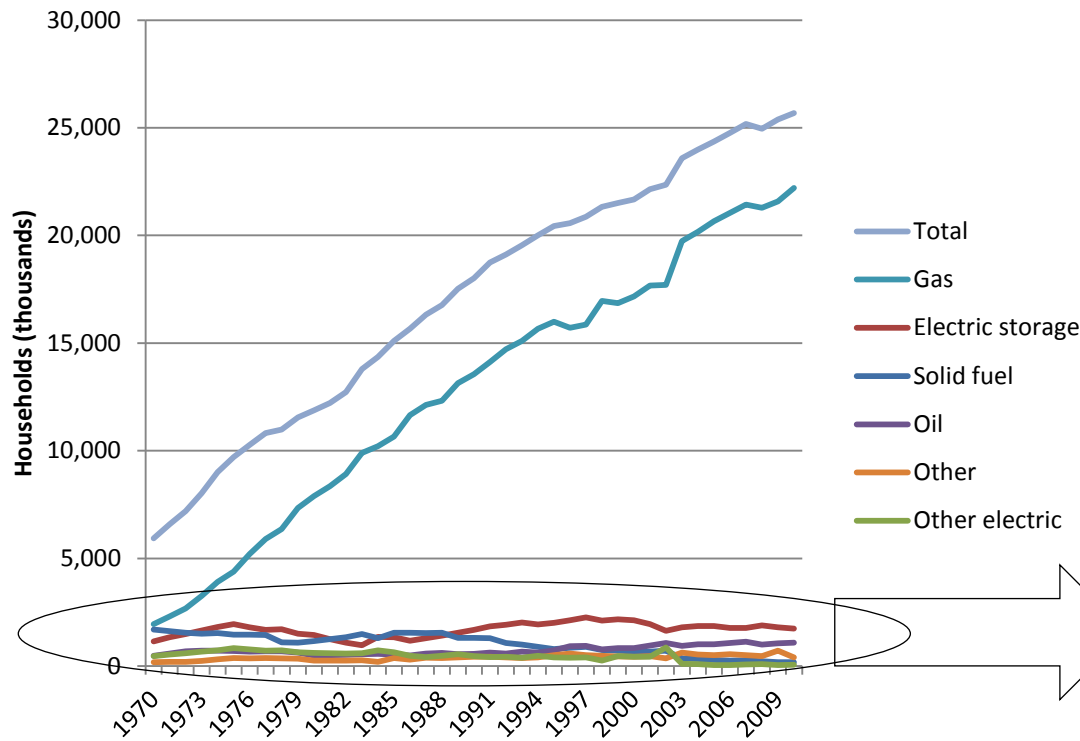


## Cooking

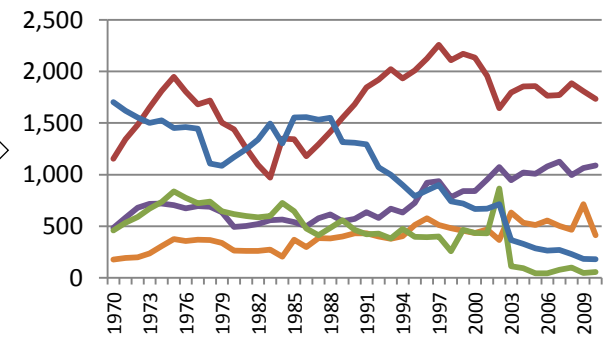


Source: DECC ECUK 2012 (table 3.7)

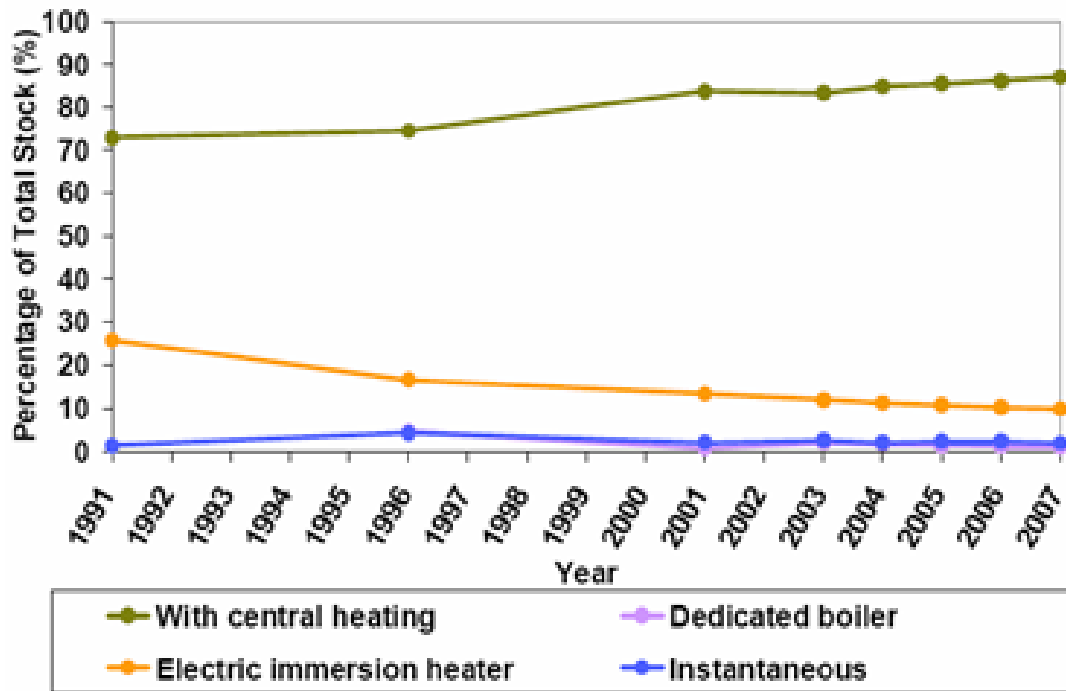
# A range of technologies are available, but wet based central heating dominates



Primary heating system	Percentage of total stock (%)
Boiler system with radiators	86.8
Storage radiators	7.0
Warm air systems	1.1
Room heater	3.3
Other systems	0.1
Communal	1.5
Potable heaters only	0.2



# Hot water is linked



Water Heating System	Percentage of Total Stock
With central heating	86.9
Dedicated boiler	1.2
Electric immersion heater	9.9
Instantaneous	2.0

Figure 10: Timeline of water heating systems – England

Source: BRE (2007:14)

# A wide range of factors currently influence fuel and technology choices

- A number of underlying and interacting issues:
  - Structural (access to the gas network, tenure, household size, dwelling characteristics, etc)
  - Economic (income, energy costs, etc)
  - Social (status, meaning, identity) inc everyday consumption practices & habit
- Research is currently limited, especially in on-gas households
- But.....

# We do know some important drivers

- People like systems that are:
  - Easy to control & maintain
  - Reliable and familiar
  - Can meet the desired levels of comfort as and when required
- Capital and running costs are important
- Gas currently ticks these boxes
- And is supported by mature market – suppliers, boilers, installation and maintenance sector



# People are important

- Consumers don't demonstrate rational choice
- Cost, hassle factors, lack of interest, lack of knowledge all play a part
- Some purchases are distress purchases
- Intervention and trigger points may not work for heat
- Combined impact = high level of inertia in domestic heat – a 'default to gas'

# Consumer preferences could have a significant impact on renewable heat

Technology	Issues found	Additional barriers to uptake
<b>All</b>	<ul style="list-style-type: none"> <li>disappointment in the level of fuel savings achieved</li> <li>issues with the amount of disruption caused during installation</li> </ul>	<ul style="list-style-type: none"> <li>high upfront capital costs and long payback periods and a risk of projected declines in cost not being achieved</li> <li>hidden and missing costs</li> <li>lack of awareness or understanding of different options</li> <li>lack of suitability, particularly in terms of energy efficiency of housing</li> <li>consumer confidence to new technologies</li> <li>lack of credible installers and suppliers and other supply chain constraints</li> <li>hassle factors associated with having work done, or for ongoing operation</li> <li>concerns about ease and costs of maintenance</li> </ul>
<b>Heat pumps</b>	<ul style="list-style-type: none"> <li>concerns over running costs, although this in part may reflect the switch to one heating fuel or heating the whole home</li> <li>mixed views on their ease of use and ability to control</li> <li>concern over noise for ASHPs</li> <li>lower temperatures than desired</li> </ul>	<ul style="list-style-type: none"> <li>uncertainty over improvements in COPs</li> <li>poor installation standards</li> <li>high levels of maintenance</li> <li>the need for high levels of energy efficiency</li> <li>the potential need for new heat distribution</li> <li>the need to dig up gardens for GSHPs</li> <li>failure to meet hot water demands</li> </ul>
<b>Biomass</b>	<ul style="list-style-type: none"> <li>difficulties in control</li> <li>securing reliable fuel suppliers</li> <li>perceived concerns over maintenance and hassle for fuel and cleaning</li> </ul>	<ul style="list-style-type: none"> <li>space requirements for fuel and equipment</li> <li>uncertainty on future fuel prices</li> <li>sustainability of fuels</li> <li>air quality issues</li> </ul>
<b>Solar Thermal</b>	<ul style="list-style-type: none"> <li>mixed views on their visual appearance</li> <li>actual and perceived integration problems</li> </ul>	<ul style="list-style-type: none"> <li>limited suitability – roofs and integration</li> </ul>

- Costs – capital, running and hidden
- Hassle
- Knowledge and understanding – for choice, operation, maintenance
- Perceptions – visual, noise, social, confidence, etc
- Supply chain & skills
- Suitability

# Research findings

- To decarbonise heat we need to better understand and work with consumer preferences; as well as address barriers to gas alternatives
- Consumers will need to be directly involved and convinced about the need to change
- Research currently limited in terms of technology, behaviour and practices in relation to heat; on-gas is a major gap
- There is no single route, need attention across different areas
  - demand first, including the efficient gas options
  - network solutions – bio/hydrogen and heat networks
  - building solutions – heat pumps, biomass, solar thermal, etc
  - people