

Decarbonising Heat

**Whole System trade-offs and
Customer choices**

April 2022 – Mark Livingstone



The Market and Policy Environment for Heat

UK Gas prices have created frightening new precedents of late



UK Policy for Heat over the same 10 years

2013 Future of Heat Strategy; Green Deal

Clean Heat Grant

Renewable Heat Incentive

2020 Low Carbon Heat Roadmap; Future Homes Standard

2021 Heat and Buildings Strategy

600k Heat Pump goal by 2028

Zero VAT HP; Boiler upgrade scheme

2035 7-11m Heat Pumps installed

A Goal without a Plan is just a Wish

Customer Choices scale up for different net zero changes

Increasing need for customer choices!

Power Generation

impacts consumer bills,
little choice although
can select green tariffs



Industry

impacts product quality
and cost (eg. green
steel).



Transport

impacts future vehicle
choices, convenience,
potentially cost of
ownership.



Heat

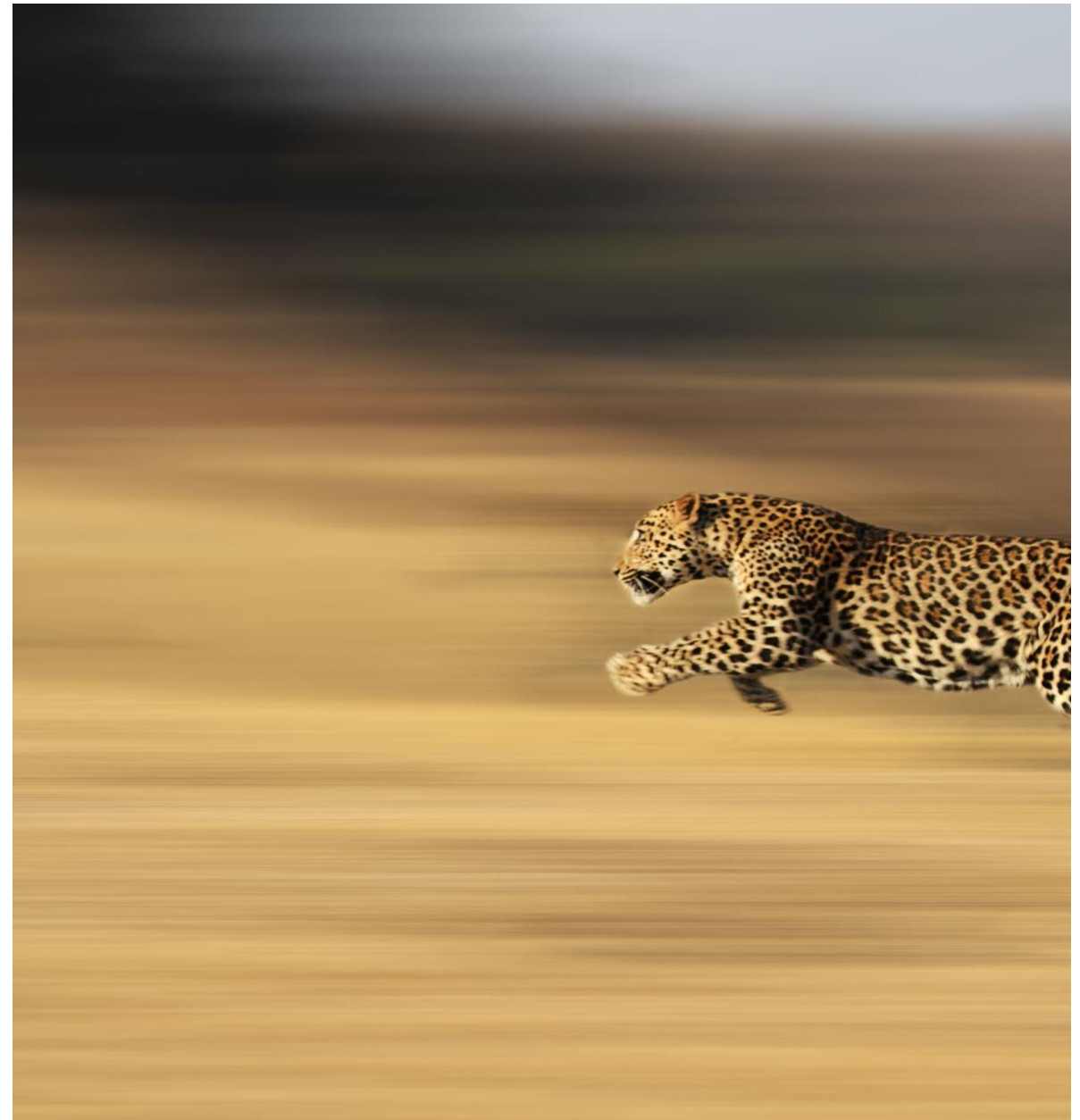
significant investment,
disruption, impact on
people's homes.



We have a **problem**



We have struggled as a country to turn **policy intent** for low carbon heat into **consumer action**



Why? One hypothesis ...

Choices for customers are not clear enough or attractive enough



Low *awareness*



Lack of *advocacy*



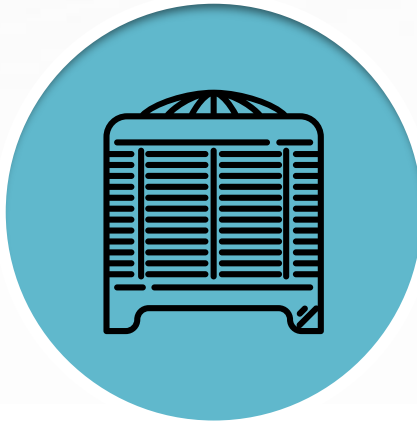
Too much focus on the
heating technology

Solution #1

Recognise the importance of a whole system approach and options



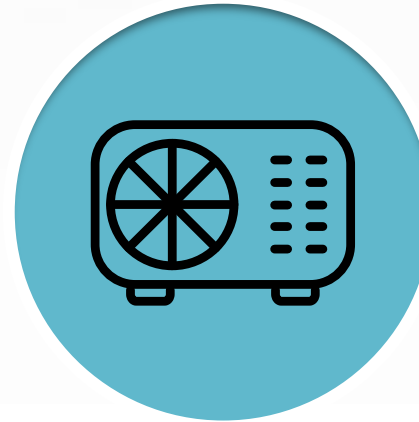
Benefits



Heat pumps



Hydrogen
boilers



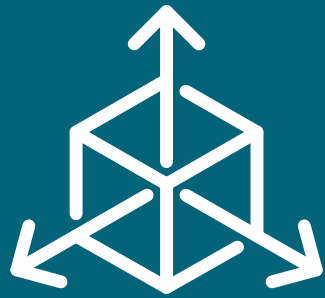
Hybrid Heating
Systems



Options

Solution #2

Clarify customer preferences for low carbon heating solutions



Explore
dimensions
impacting
choice

Dimension	Choice elements
Long term disruption	<ul style="list-style-type: none">• Building alterations / loss of space• Noise• Maintenance considerations
Short term disruption	<ul style="list-style-type: none">• Retrofit requirements• Installation time and process
Cost	<ul style="list-style-type: none">• Upfront cost• Running cost
Comfort	<ul style="list-style-type: none">• Provision of instant hot water• Controllability• Heating ramp up rates

And ... better understand **cost sensitivities** to appreciate *technical* feasibility vs *cost* feasibility

Solution #3

Build a greater understanding of customer adoption of low carbon heating



HOW to
achieve
targets?



What
improves
adoption?



Experience
EE and EV



Approach
for low
carbon heat



Looking
forward from
today

Questions?

