

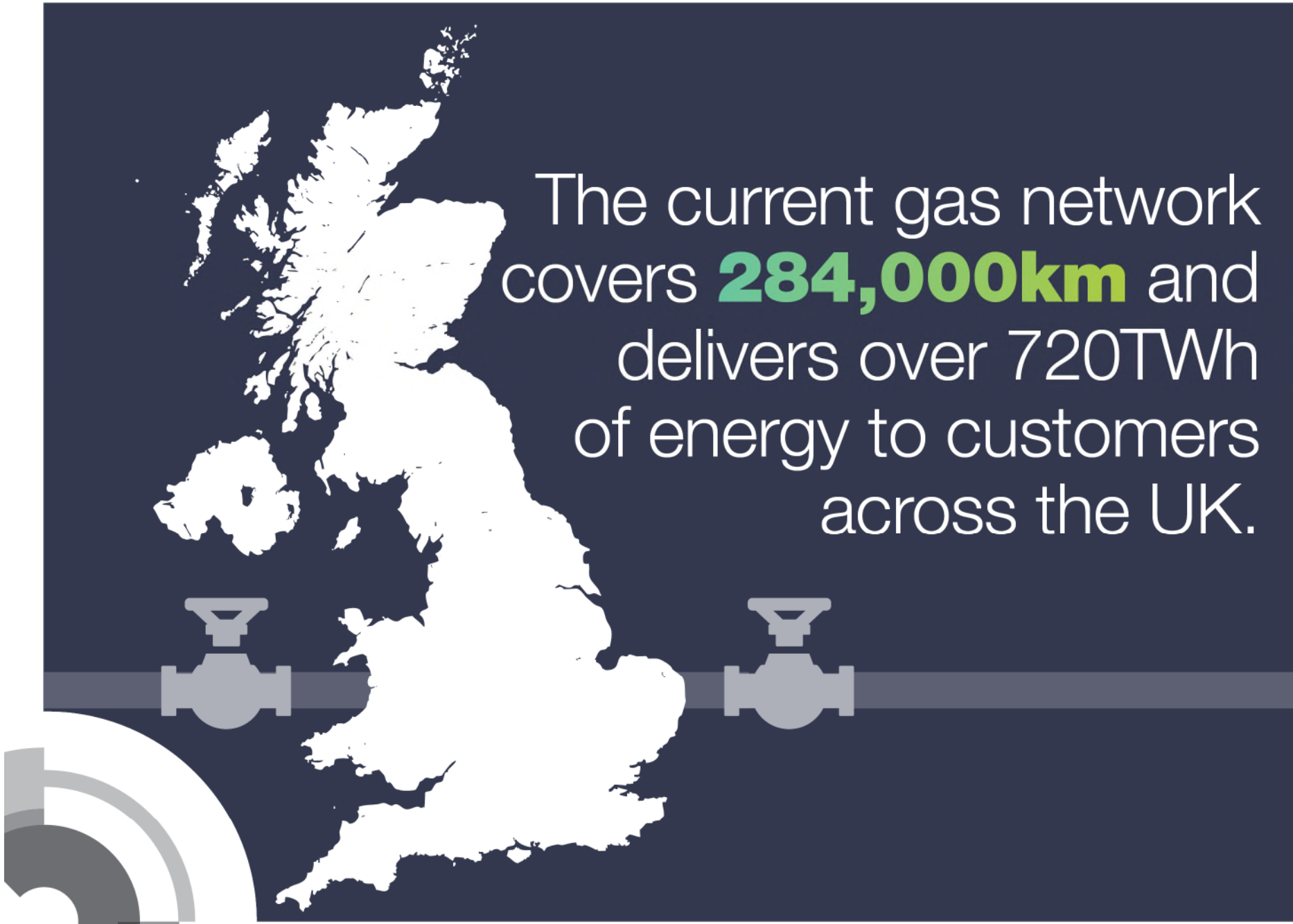


nationalgrid



# ENERGY 2050

THE GAS NETWORK OF THE FUTURE



The current gas network covers **284,000km** and delivers over 720TWh of energy to customers across the UK.

In 2050, our network has the potential to deliver **new, environmentally friendly forms of energy** to benefit customers across the UK.

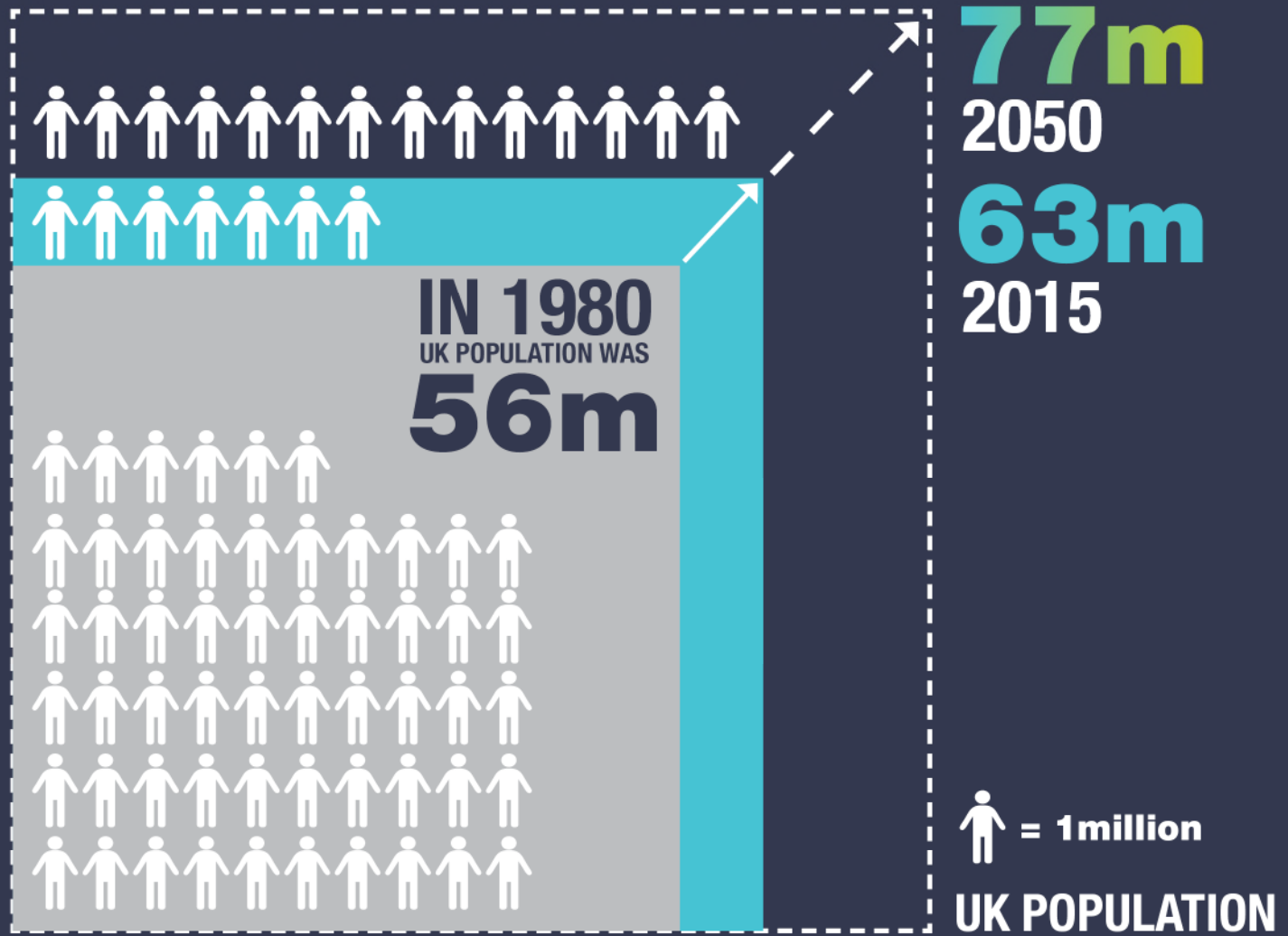


# THE FUTURE CUSTOMER

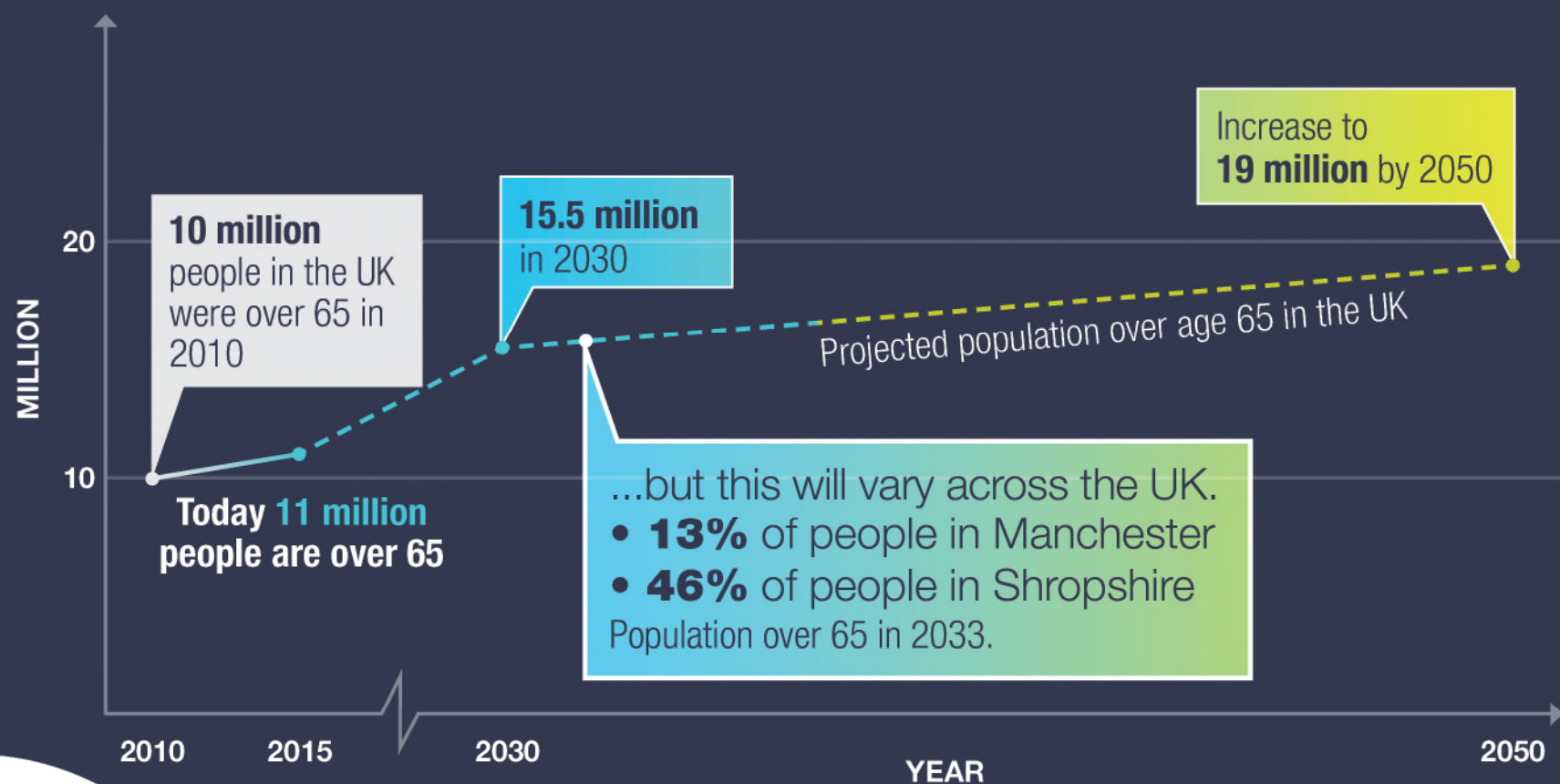
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# Population growth



# The UK population is ageing



Our future homes – are our current homes

**80%** of homes  
that will exist in 2050  
already exist today



# Connecting to our energy

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**POLITICALLY &  
THROUGH  
SOCIAL MEDIA**



**THROUGH SMART  
INFRASTRUCTURE &  
APPLIANCES**





# THE FUTURE ENERGY MIX AND THE ROLE OF GAS

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# Where we are now

**GAS** HAS BEEN A SOURCE OF ENERGY IN THE UK FOR OVER



**200  
YEARS**

GAS PROVIDES

**4/5**

OF TOTAL ENERGY DEMAND AT

**PEAK TIMES**

**1/3** OF ALL ENERGY CONSUMPTION IS FOR HEAT, PROVIDED BY

**NATURAL GAS**



THERE ARE OVER

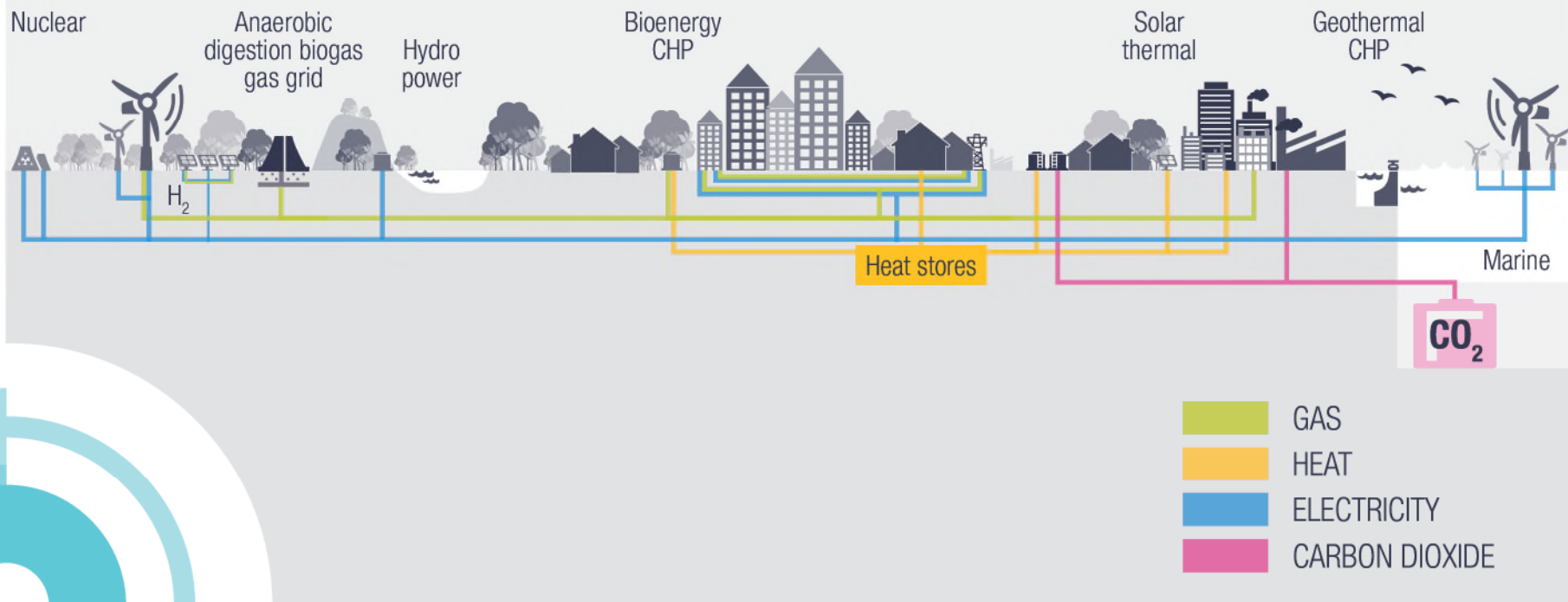
**23.2m**

**GAS CUSTOMERS  
ACROSS THE UK**

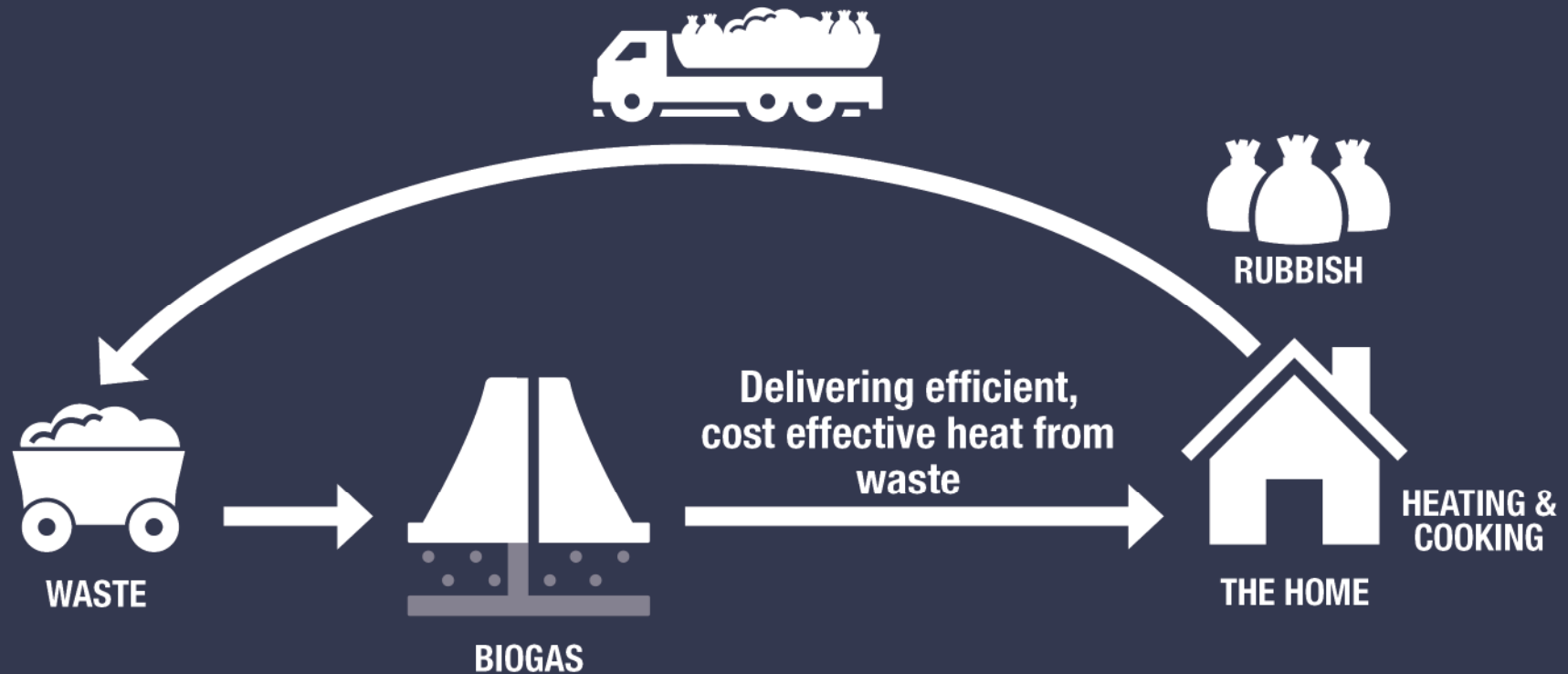


# Looking forward: The energy mix in 2050

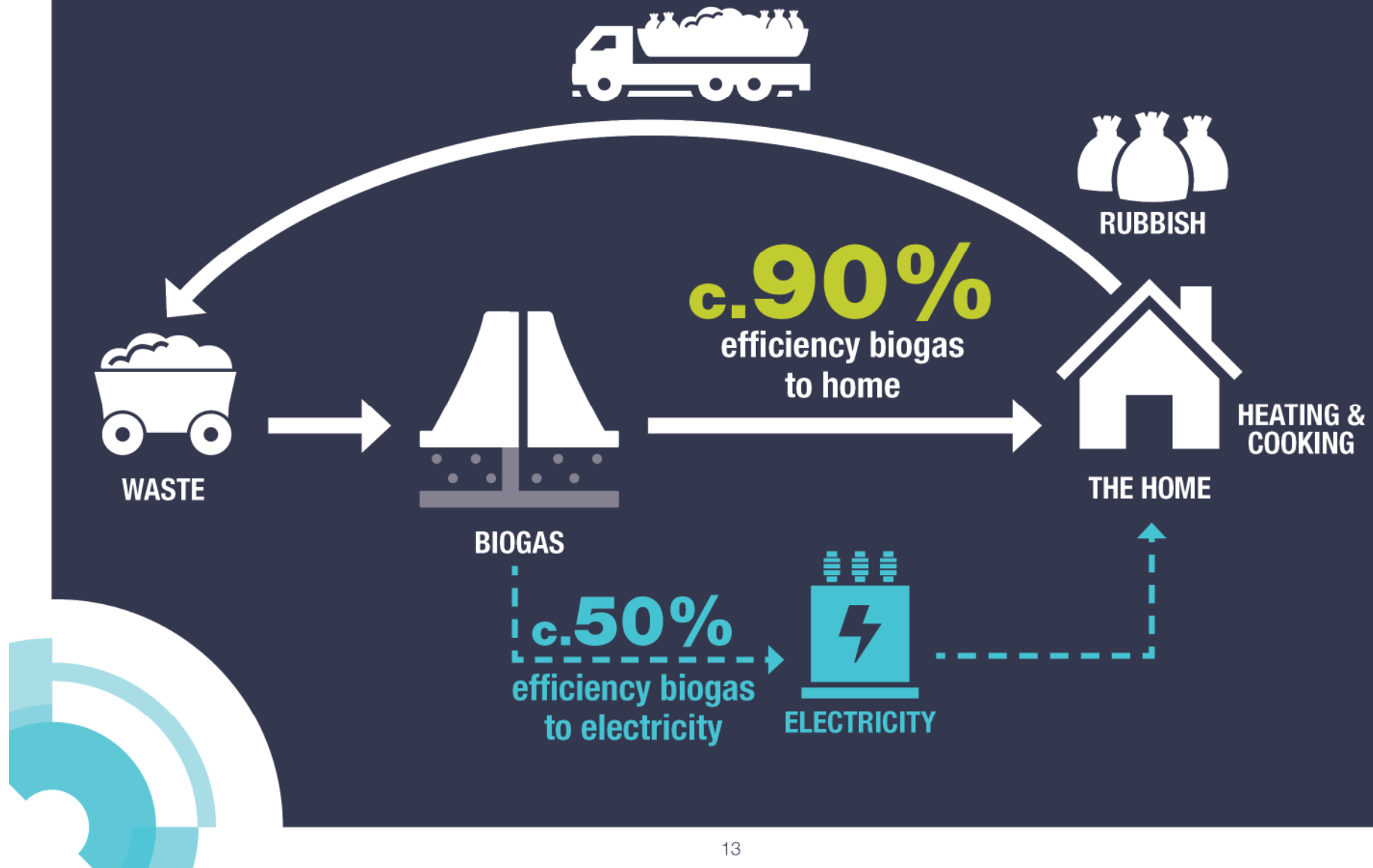
The networks of the future are the networks of today



# Biogas and the circular economy



# Keeping it simple – keeping gas as gas



# Maximising use of existing assets

EVERY YEAR

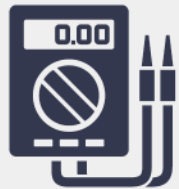
**4,200km**

OF GAS MAINS ARE REPLACED,  
THE EQUIVALENT OF BRITAIN'S  
ENTIRE MOTORWAY NETWORK



MAY 2014

**23.2m**  
GAS CUSTOMERS



OVER  
**150K** NEW CUSTOMERS  
ARE CONNECTED TO THE GAS NETWORK EACH YEAR



GAS  
**720TWh**



IS TRANSPORTED ALONG  
**284,000km**  
OF PIPES  
ENOUGH TO GO  
**6 TIMES**  
AROUND THE WORLD!

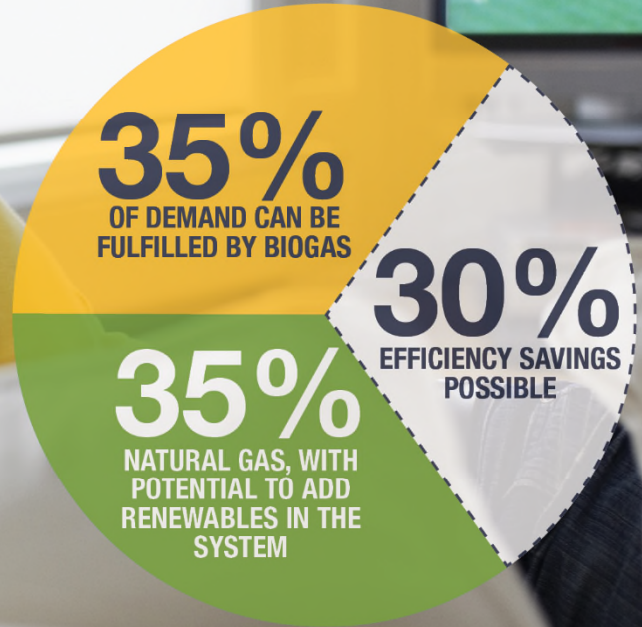


# DELIVERING THE GAS NETWORK OF THE FUTURE



# Heat

On the journey to de-carbonise heat



TOTAL ENERGY DEMAND FOR HEAT

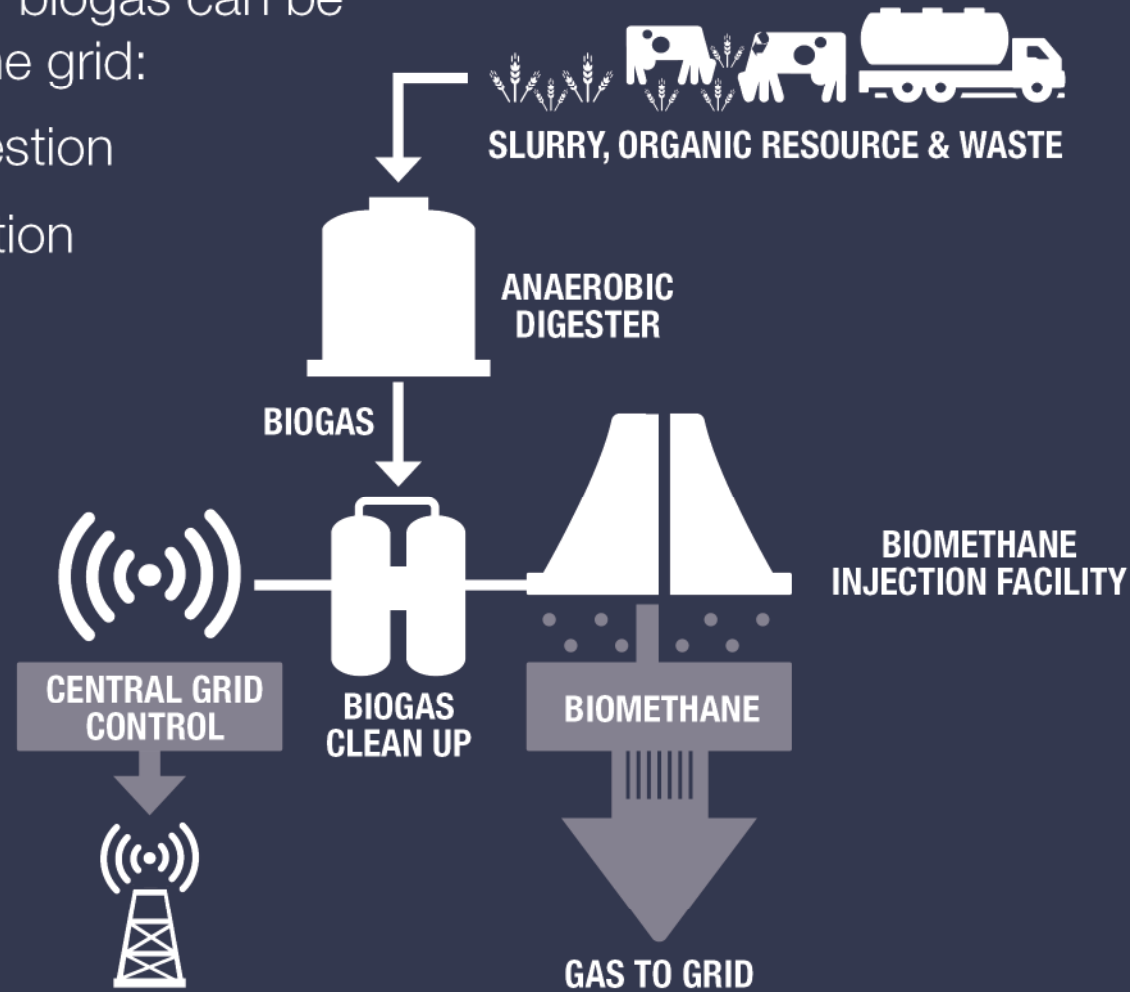




# Generation: local and national

Local generation of biogas can be delivered through the grid:

- Anaerobic digestion
- Waste gasification



# Using the network as a battery

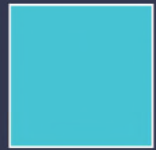
Excess electricity can be turned into H<sub>2</sub> and stored in the grid.



IS TRANSPORTED ALONG  
**284,000km**  
OF PIPES



# Using the network as a battery



← **16GWh**  
Pump storage  
electric capacity  
**2%**  
of the capacity  
of the gas network

## 650GWh

Storage capacity  
in the gas network

**5%**

← If all UK wind power stored as H<sub>2</sub>



# Using CNG – to power HGV's

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There are over **260,000**  
UK registered HGVs



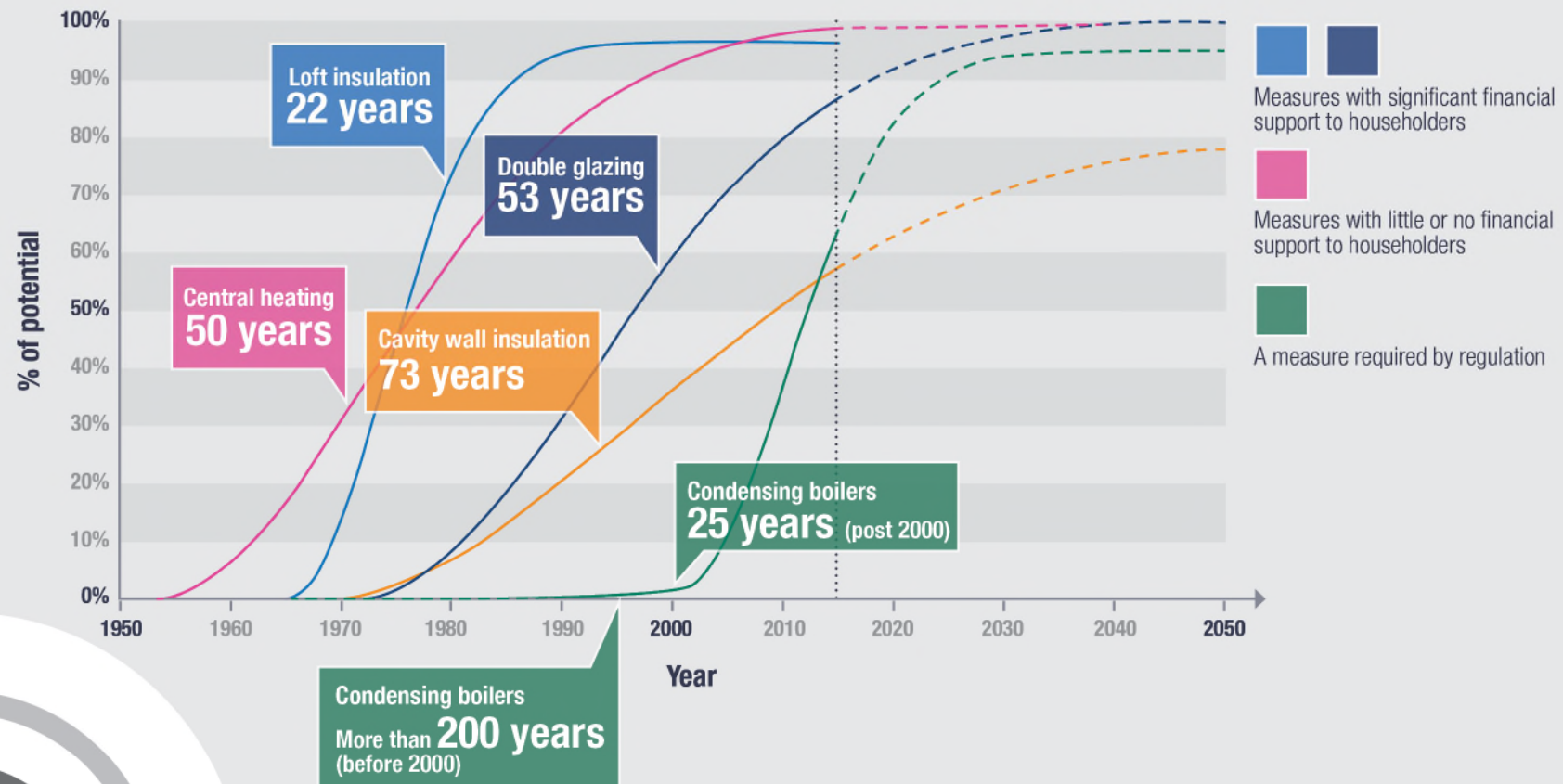
# THE NEED TO ACT

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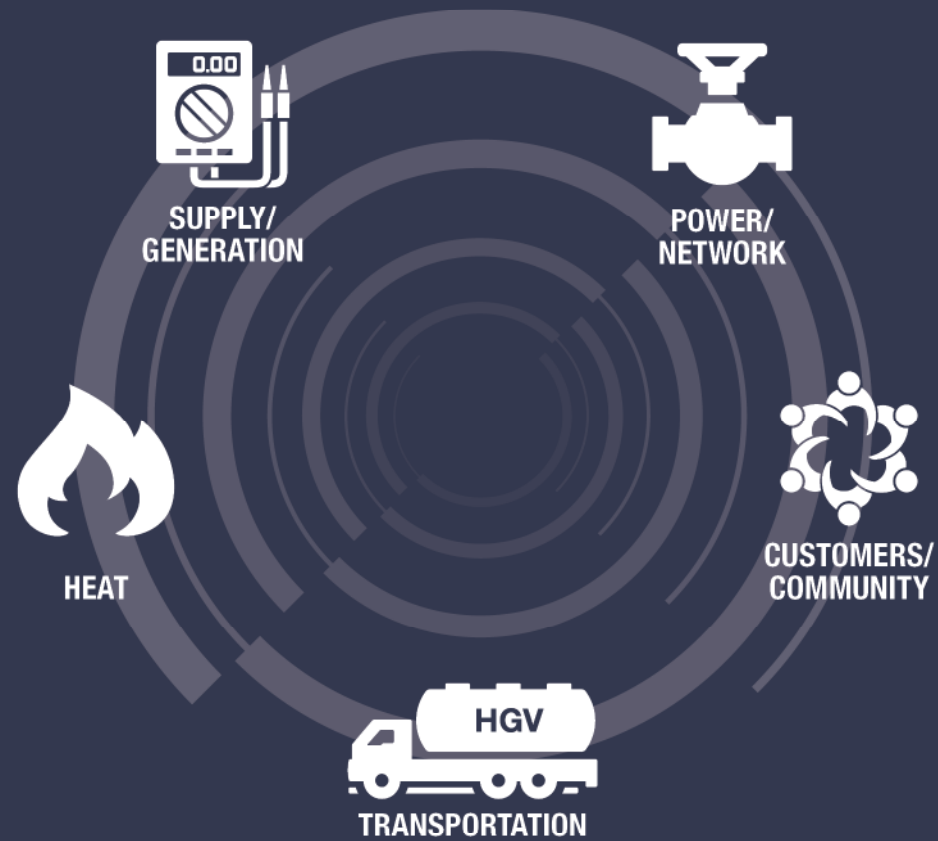
# It will take time – so we need to act now

**Time for change** – Market penetration data and s-curves for home energy efficiency related measures (in the UK)



# Getting to 2050

We are already developing solutions to meet future challenges





# CONCLUSIONS

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# The gas network of the future



# The gas network of the future

For the consumer of the future, their energy experience may not look that different, but it will be different



**FUTURE  
CUSTOMER**

Resilience requires a strong energy mix



**RESILIENT  
ENERGY MIX**

Maximise value from existing assets



**MAXIMISE  
VALUE**

Support policy makers to maximise the opportunity of renewable gas



**SUPPORT POLICY  
MAKERS**

**ENERGY  
2050**





David Parkin

Director, Network Strategy

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**GAS DISTRIBUTION**

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