

Carbon Zero Homes Project

SLIDE PACK

March 2024

This project is fully funded by the Community Levelling Up Programme



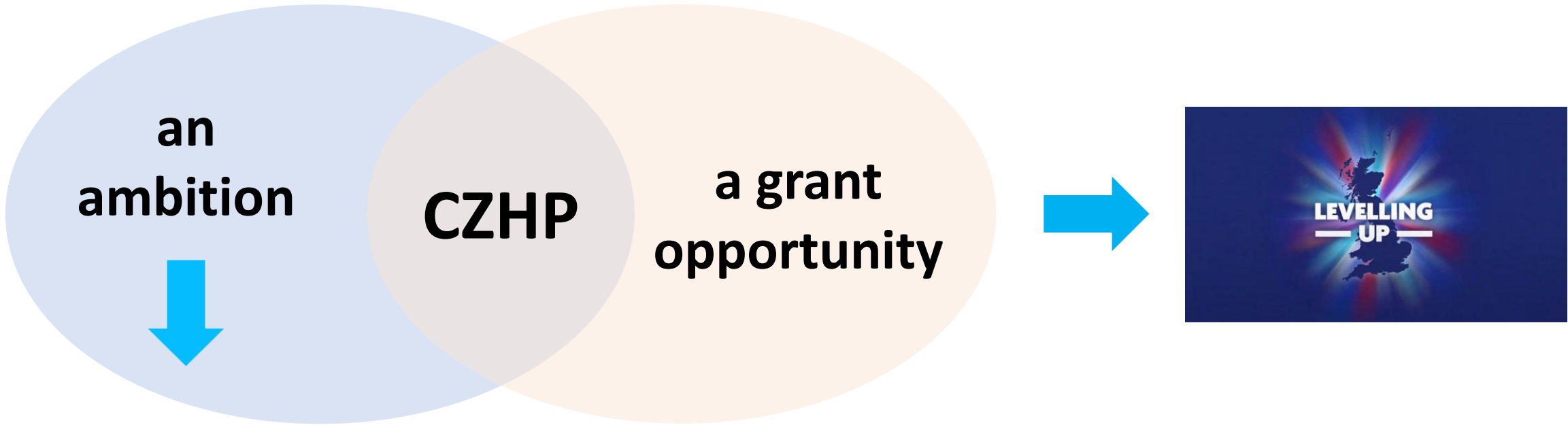
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In the Beginning



Parish response to the Carbon Neutral Cornwall Call to Action, in respect of *“improving the energy efficiency of homes across Cornwall”*.



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The Challenge

- The UK has one of the oldest and leakiest housing stocks in western Europe, possibly in the world. Yet 80% of homes that are lived in today will still be inhabited in 2050. Without urgent, nationwide action, our buildings will continue to waste precious, and increasingly expensive, heat as it leaks out of every uninsulated wall, roof and door.

UK Green Building Council

- 63% of UK homes are below EPC 'C' (17 million)
- In order to achieve Net Zero targets the UK needs to deliver at least 5 retrofits per minute over the next 3 decades at a cost of £1 trillion

Department for Energy Security and Net Zero (DESNZ)

- It is estimated to cost the NHS in the UK £2.5 billion a year to treat people affected by poor housing – significant factor: cold damp homes

bre, The cost of poor housing in England, 2021



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The Stoke Climsland Challenge

- 80% of homes in the parish have an EPC rating of 'D' or less
- Most of the parish is off the gas grid
- As with many rural communities, the housing stock is quite old (100-200yrs+) and there are lots of traditionally built properties with solid stone walls



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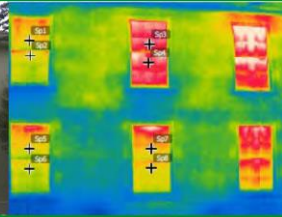
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Key References


Improving Energy Efficiency in Historic Cornish Buildings

Cornwall Council Historic Environment Service



Camborne, Roskear, Tuckingmill Townscape Heritage Initiatives

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COMMUNITY RETROFIT GUIDE




TRUSTMARK
Government Endorsed Quality

Updated February 2024


A guide to Retrofitting your home

Making your home warmer and reducing your energy costs



The path to net zero


Climate Assembly UK
Full report



The cost of poor housing in England

2021 Briefing paper

Helem Garrett, Molly Mackay, Simon Nixon, Justine Piddington, Mike Roys



PAS 2035:2023

Retrofitting dwellings for improved energy efficiency – Specification and guidance



MISSION RETROFIT

The Building Mission Zero

RT HON CHRIS SKIDMORE OBE MP
SIMON MCWHIRTER, DEPUTY CHIEF EXECUTIVE,
UK GREEN BUILDING COUNCIL

DEVON RETROFIT GUIDE


LGA Behavioural Insights Programme 2022-23

Encouraging householder engagement with retrofit

March 2023




Exeter City Council, Plymouth City Council, Devon Environment, South Hams District Council, Torridge Council, East Devon



Heat and Buildings Strategy

CP 388



Scaling up retrofit 2050

Why a nationwide programme to upgrade the existing housing stock is the only way for the UK to achieve its carbon saving goals.

theiet.org/built-environment
www.uts.ac.uk



Department for Energy Security & Net Zero



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This is a Learning Project

“Perhaps the most important enabler that will need to drive improved decarbonisation and retrofit of buildings is public engagement and advice.”

Mission Zero Coalition, Mission Retrofit, 2023, p36.

We all need to better understand how our homes work

So that we can improve them safely

We can all do something



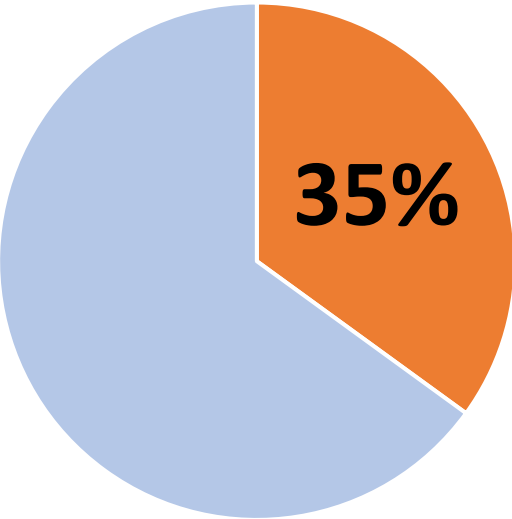
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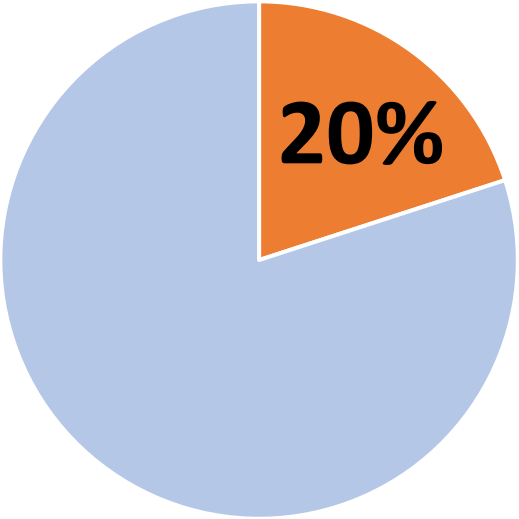
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Our Homes ...



UK homes use 35% of the UK's energy ¹

¹ Trustmark



UK homes emit 20% of our carbon dioxide emissions ¹

² University of Exeter's Centre for Energy and the Environment

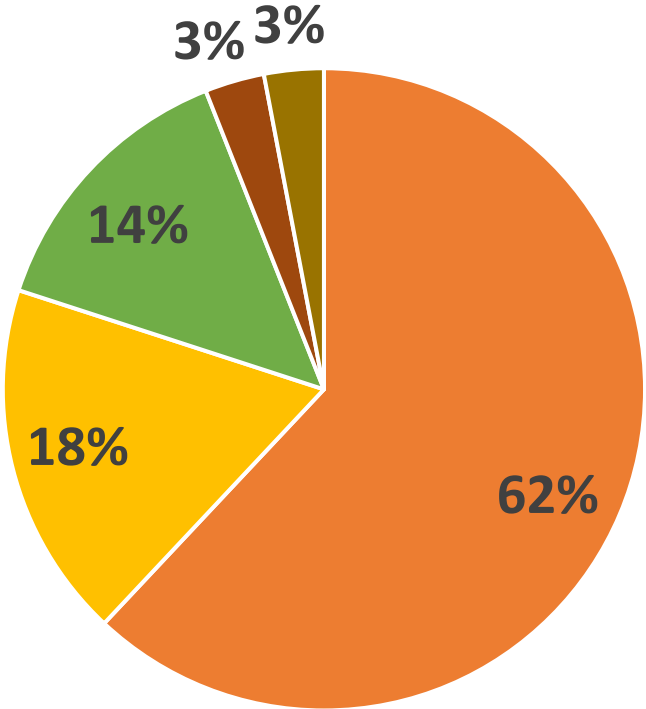
In 2020, our homes in Cornwall consumed 3,974 GWh of fuel.

This represents 35% of the total energy consumed in Cornwall.

21% of Cornwall's greenhouse gas emissions come from our homes. ²



Our Homes ...



- Heating
- Hot Water
- Appliances
- Cooking
- Lighting

In a typical household, around 80% of energy use will be for space heating and hot water ¹

¹ Energy Consumption in the UK (ECUK) data from BEIS, within Devon Retrofit Guide

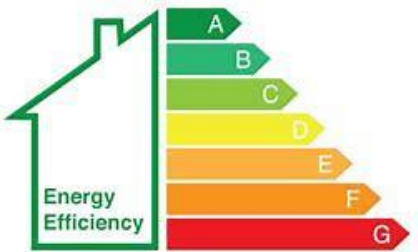


Principal Aim



The Carbon Zero Homes Project aims to support households to make changes to existing buildings so that energy consumption and emissions are reduced, and your home is warmer, healthier and more comfortable.

Why do this? – 3 Reasons



MONEY

Supporting households to save money

Supporting households to have warm, healthy and comfortable homes

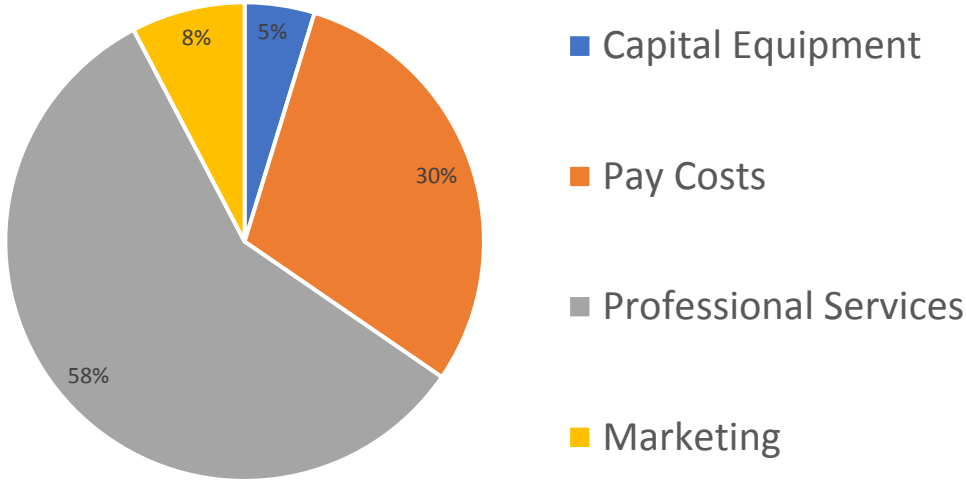
HEALTH

CLIMATE

Supporting households to reduce energy consumption and emissions

Project Inputs

Parish Council Zero Carbon Committee

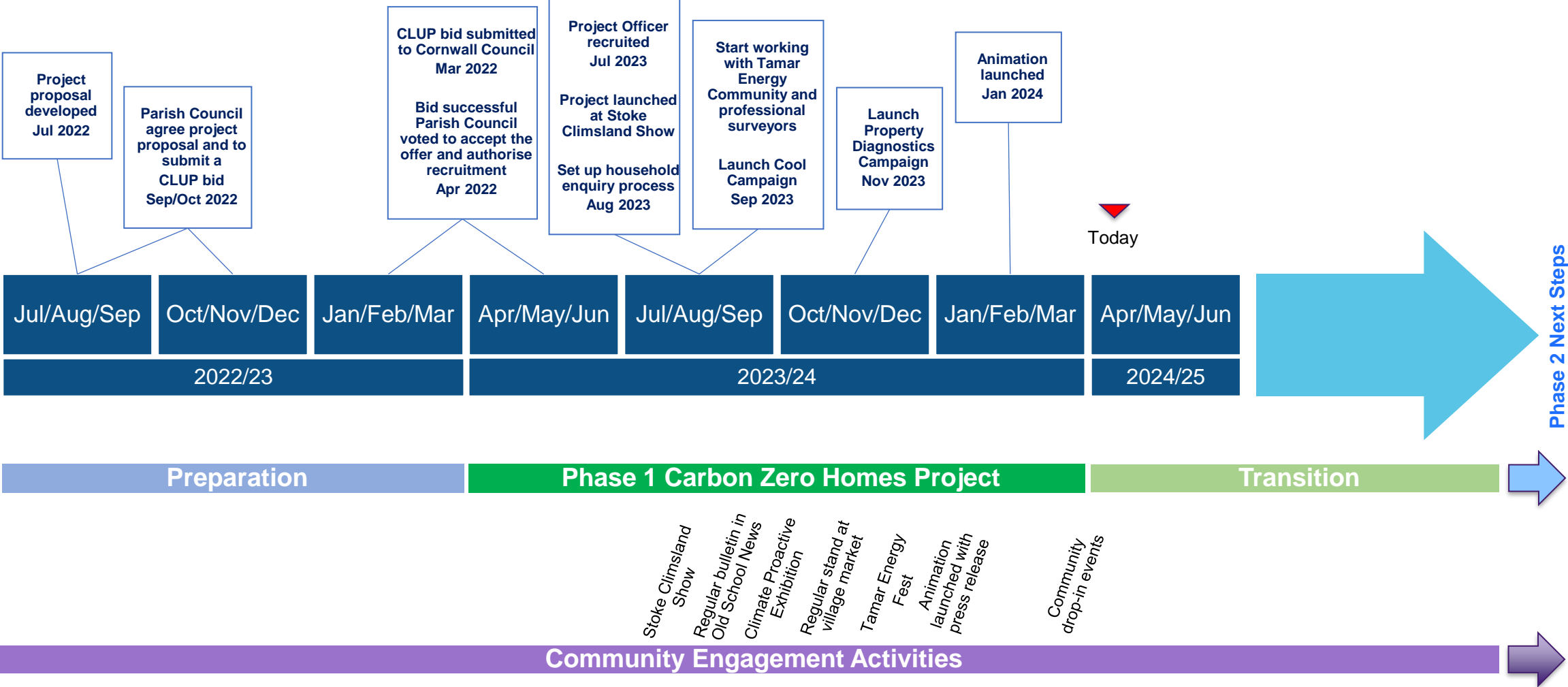


Community Energy Advisor



£54k CLUP grant
£6,300 household contributions (surveys)

Project Timeline



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Timing

- At 2023/4 it is likely that we are at the 'slow growth' stage of the S curve adoption model for domestic retrofit, moving into the 'take off' stage

Figure 9: Existing homes national retrofit strategy

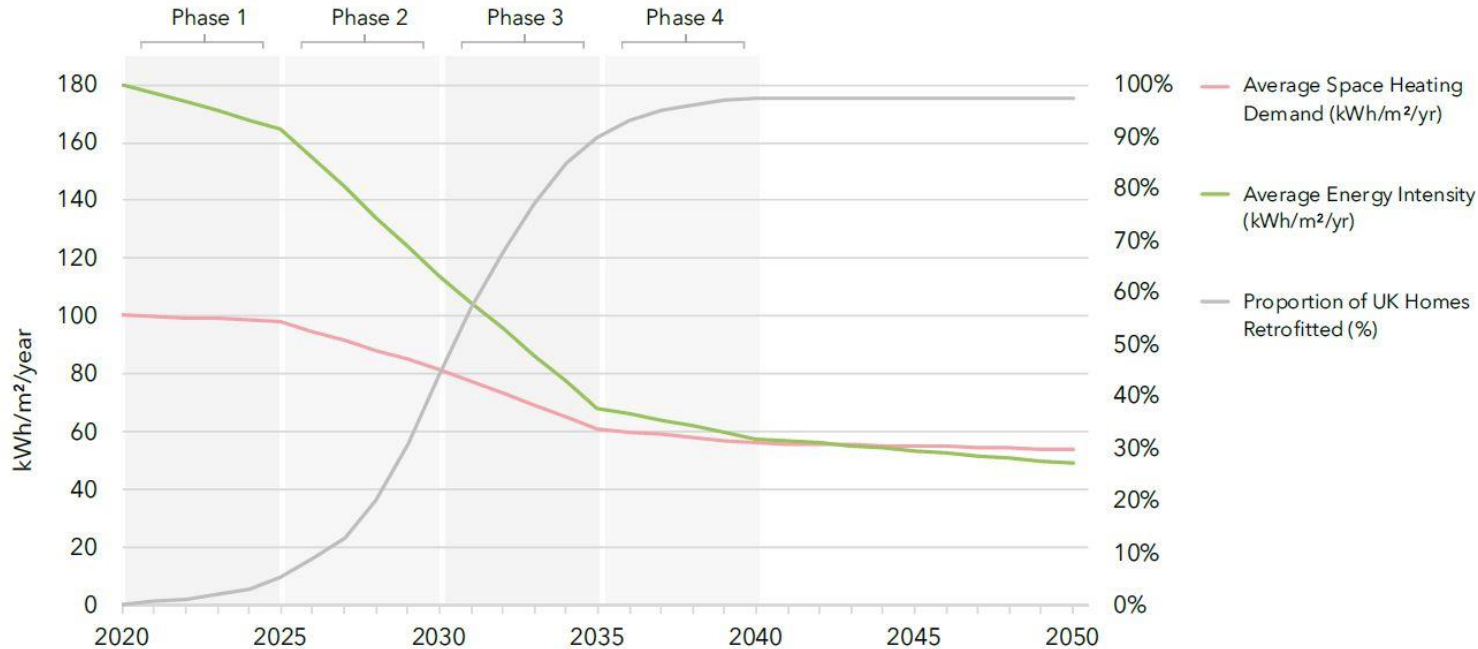
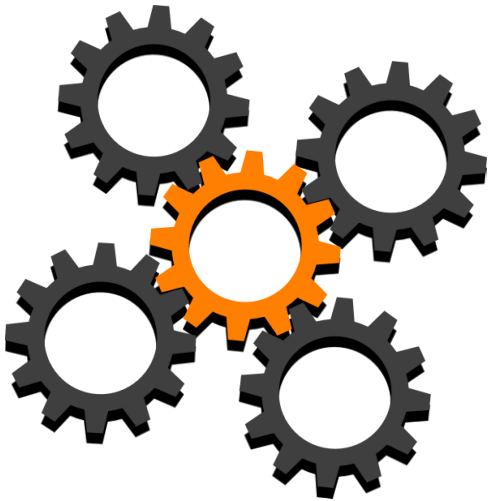


Figure 9 reproduced from:
Net Zero Whole Life Carbon Roadmap: A Pathway for the UK Built Environment.
UK Green Building Council, 2021, London.

With reference to:
Construction Leadership Council, Greening Our Existing Homes, 2021, London.

Project Process



- Gather knowledge
- Stakeholder and community engagement: raising awareness with agency
- Household enquiry process
- Topic specific campaign programme



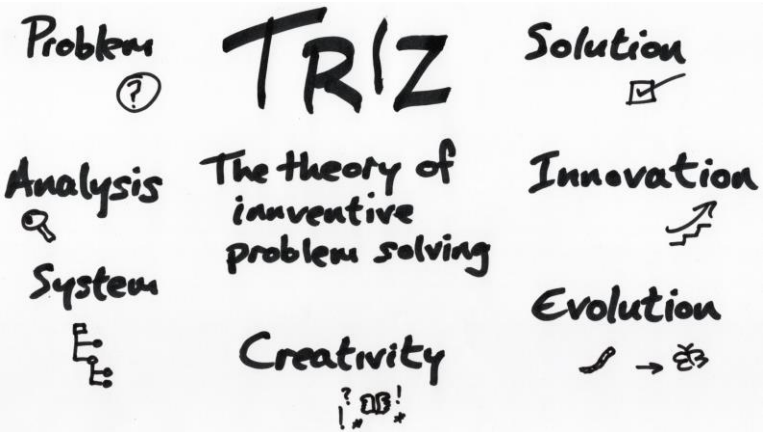
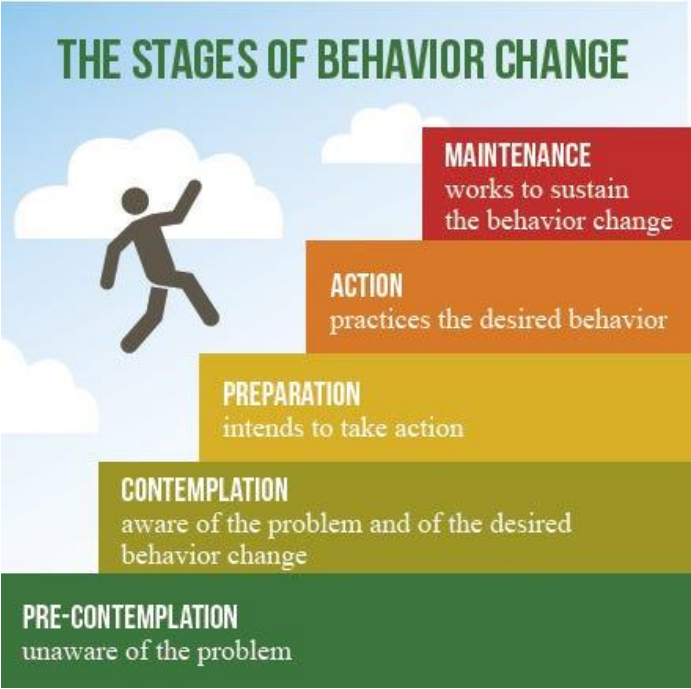
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Tried and Tested Business Modelling



*Prochaska and DiClemente
Trans Theoretical Model of Behaviour Change*



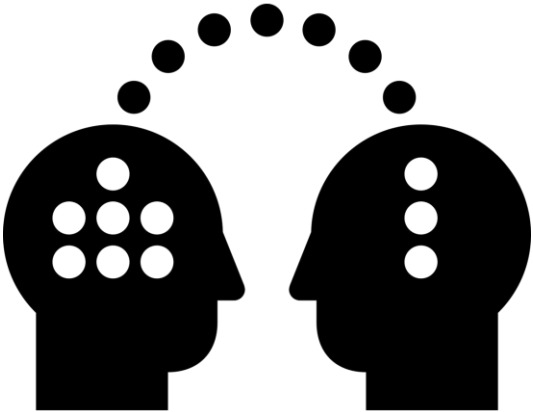

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Professional Frameworks

PAS 2035:2023

Retrofitting dwellings for improved energy efficiency – Specification and guidance



Coaching



Department for Energy Security & Net Zero

bsi.



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Project Outputs

- >100 queries handled
- Reached out to all parish households
- Signposting
- Topic-specific advice and information sheets created (on demand)
- Home visits – nrgCoach tool developed
- Cool campaign (messaging about appliance energy monitors)
- Property diagnostics campaign: subsidised surveys for 45 households
- Professional thermal imaging camera purchased to support surveys
- Animation created
- Capturing and sharing learning



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Community Engagement – the biggest challenge



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Community and Stakeholder Engagement



New Conversations
LGA guide to engagement



- Contents
- Foreword
- Introduction
- Which hat are you wearing?
- Context
- Section One: The Basics
- Section Two: Surpassing Expectations
- Section Three: Pilot Projects
- Further reading
- Glossary



SCAN ME

- Parish households – events, monthly village market, f2f/email/tel, social media channels, personal direct mail to every household (c.700), word of mouth
- Establish working relationship with strategic partner (Tamar Energy Community) – lucky with our geography
- Establish working relationships with providers of professional services (surveyors)



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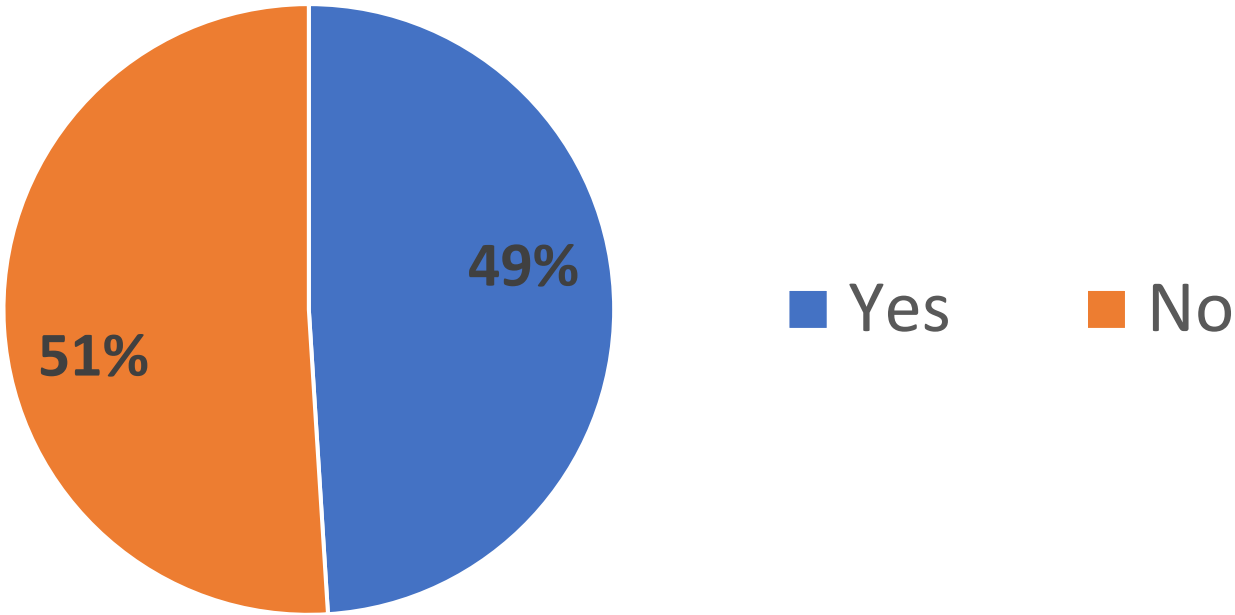


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Market research (n=40)

Have you heard of the term RETROFIT relating to home energy efficiency?



Market research (n=40)

Which of the following statements best describes your situation?

I have made energy efficiency measures recently, and I am planning to make more changes soon	47%
I am aware of the benefits of home energy efficiency measures, and I am planning to make changes soon	18%
I would consider making home energy efficiency measures at some point in the future	32%
I have made the home energy efficiency measures I wish to make	3%
I am not considering making any home energy efficiency measures	0%

An Early Challenge ...



Search: 'Carbon Zero Homes Project Animation'

... how to describe whole house retrofit in simple everyday terms

We could not find a simple engaging explanation of retrofitting for households

So, we developed our own animation

Local community, public (local government and NHS), private and third sector collaboration in action

Over 1,000 views since it's launch on 24th January 2024



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Methods of communication

- Project flyer
- Parish council website: a dedicated page for the project
- Face-to-face events: Stoke Climsland Show, climate pro-active exhibition, monthly village market, Food for Thought event, community drop-in events
- Social media: Facebook, Nextdoor, LinkedIn
- Direct mailshot (c.700 households)
- Animation: distributed and reaching beyond the parish



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The Cool Campaign – launched September 2023

THE COOL CAMPAIGN
You could be losing up to £500 a year!

GOOD GROWTH
CORNWALL & ISLES OF SCILLY
SHARED PROSPERITY FUND

Stoke Climsland Parish Council

CORNWALL COUNCIL
one and all - onen hag oll

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LEVELLING UP

The infographic features a green background with white and blue circular callouts. It includes logos for Stoke Climsland Parish Council, Cornwall Council, Good Growth, and the UK Government's Levelling Up initiative. A central text box highlights the potential savings of £500 per year from the campaign.

Check your fridge / freezer

A fridge/freezer is less powerful than a washing machine but could be using 5 times more electricity over a year – because it is always on



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Property Diagnostics Campaign – launched November 2023



Heritage and Traditional Property Survey

Cornwall Council



Heat Loss Survey

Heating System Assessment

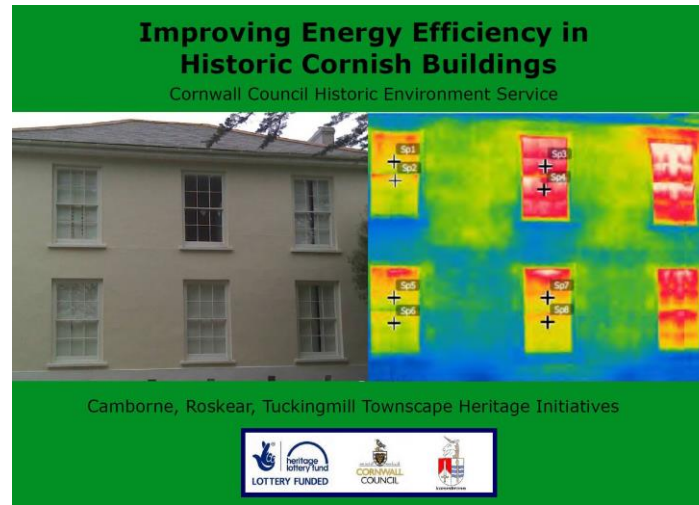
MPA Plumbing & Heating Ltd

Dartmoor Energy Ltd

Eco Nrg Ltd

Retrofit Survey
Whole House Plan

Two Counties Property Surveyors



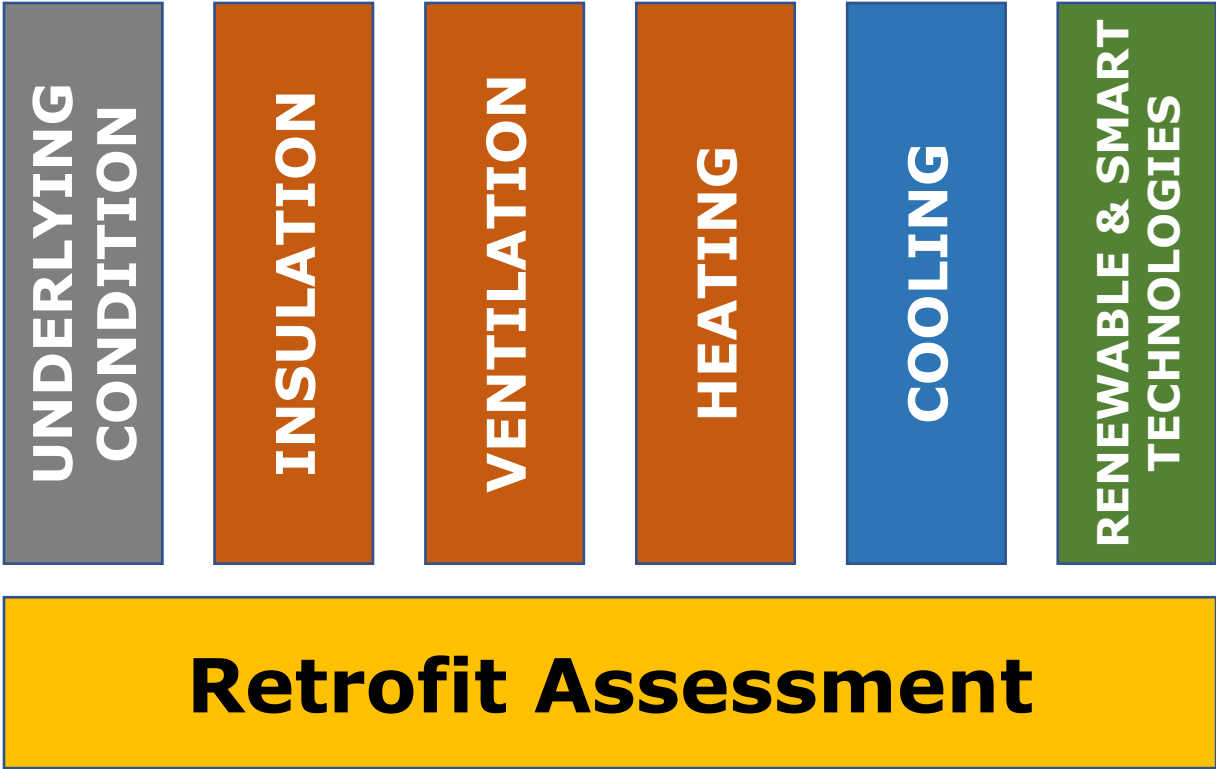
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Wholistic Review of House and Household



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Decouple DIAGNOSTICS from INTERVENTION

Property
Diagnostics

DECOUPLE

Energy
Efficiency
Measures

NHS equivalent:
Community Diagnostic Centre

NHS equivalent:
Treatment Centre



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Energy Efficiency Measures Interaction

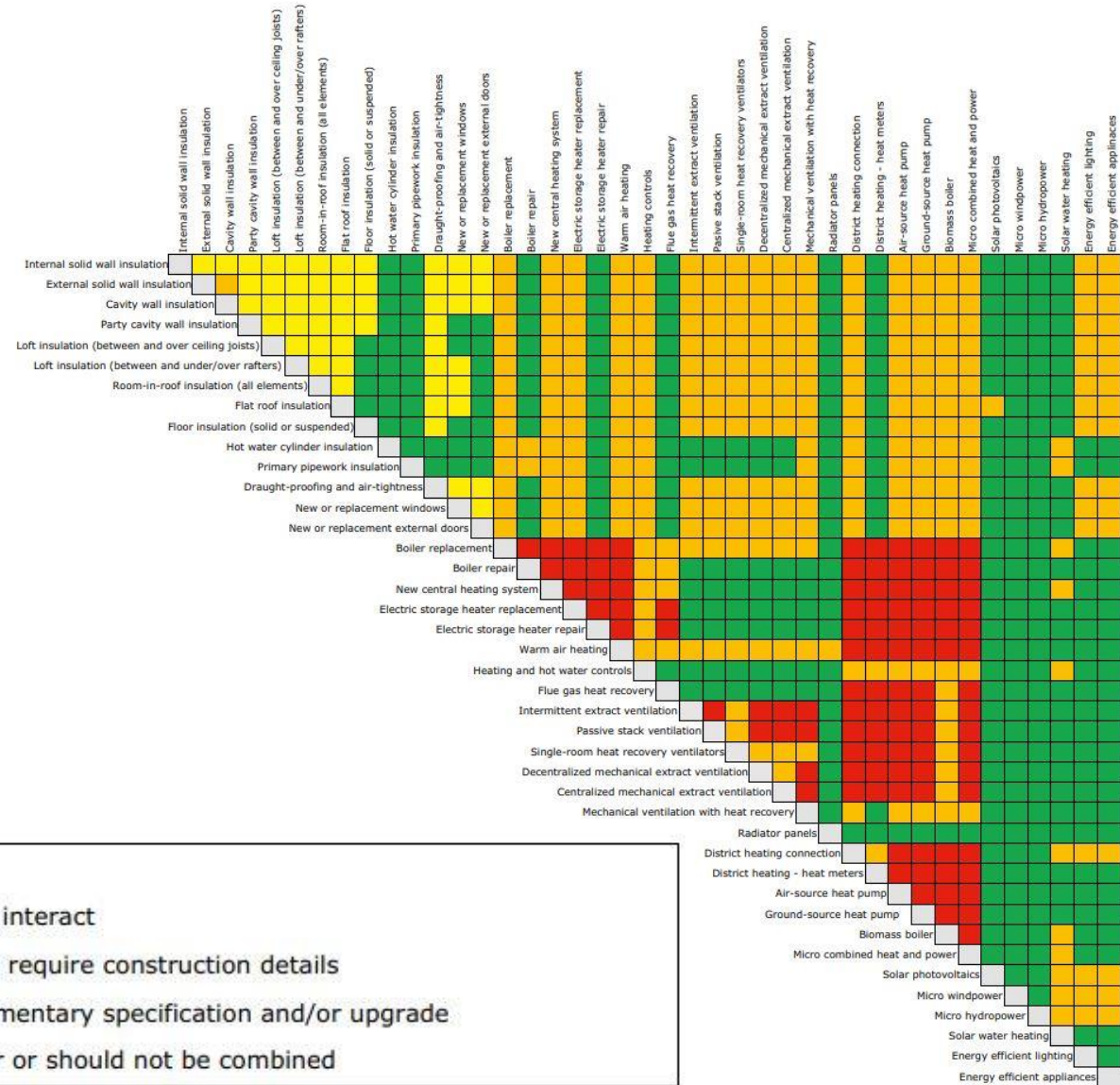
Figure D.1 – The measures interaction matrix

Some energy efficiency measures can impact on the performance of other measures or can themselves be impacted by those measures

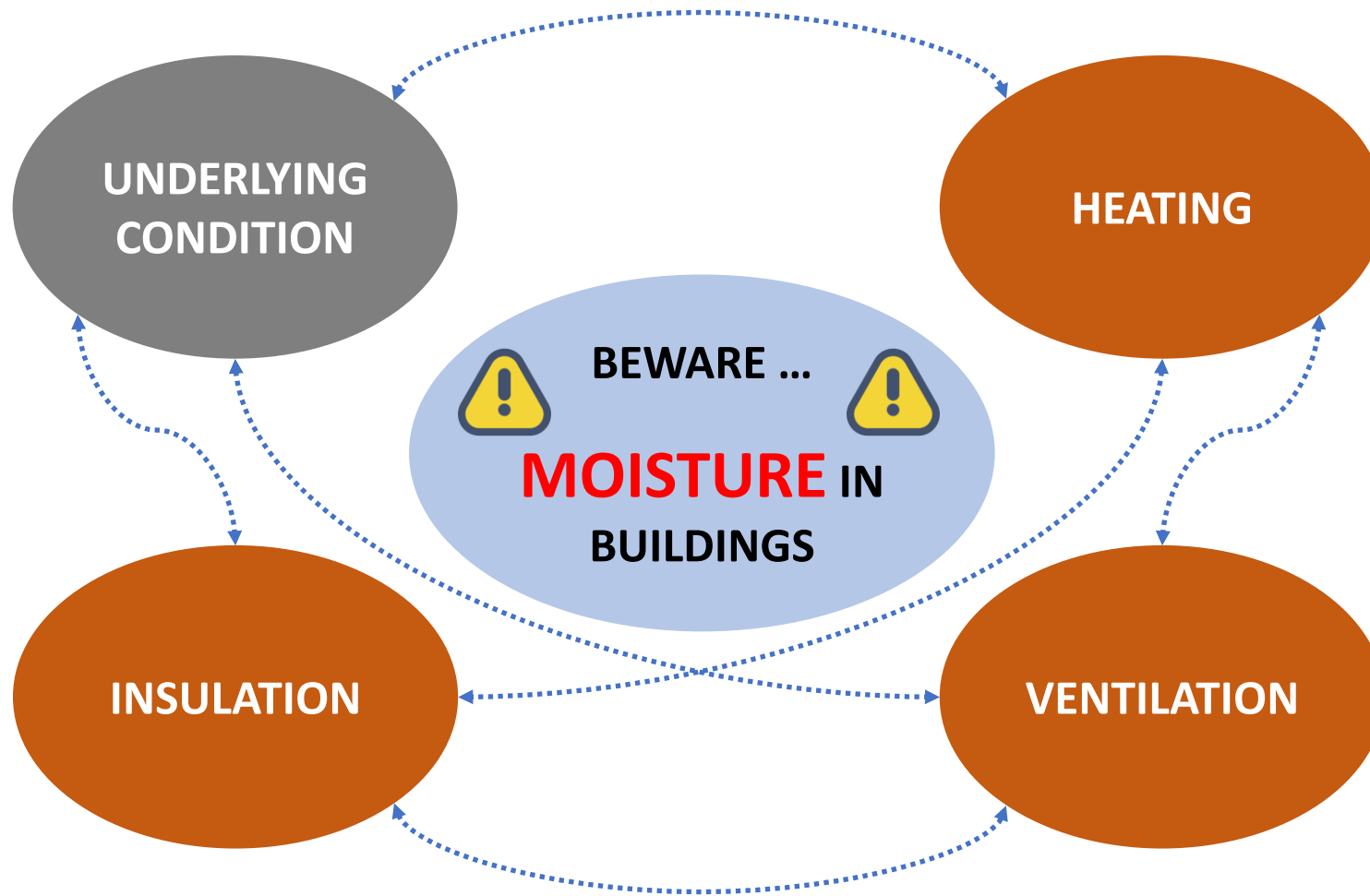
BSi PAS 2035:2023, p42

Key to interaction

- Measures are independent and do not interact
- Measures interact or may connect and require construction details
- Measures interact and require complementary specification and/or upgrade
- Measures are not appropriate together or should not be combined



Interplay of Retrofit Measures can affect Moisture in Buildings



Moisture itself is not necessarily problematic, but it is a powerful agent of damage – both to the fabric of buildings and the people occupying them.

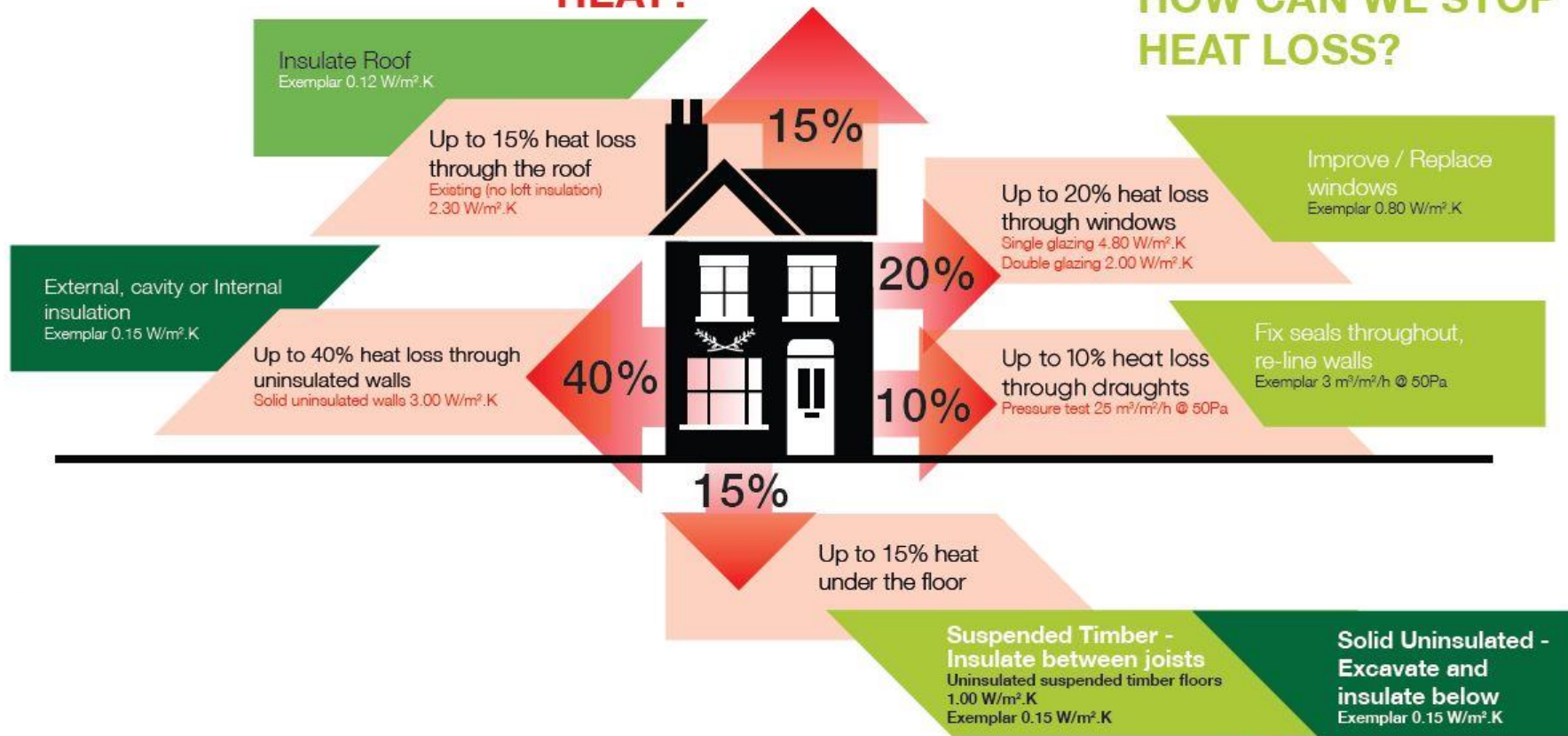
Occupant behaviour can affect moisture in the home.

Heat Loss

HOW MUCH HEAT DOES A TYPICAL VICTORIAN HOME LOSE?

WHERE DO WE LOSE THE MOST HEAT?

HOW CAN WE STOP HEAT LOSS?



Devon Retrofit Guide, Energy Saving Devon, p6

*The lower the U-value the better, measured in W/m²K.



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Funding and Grants

- Energy efficient homes are attracting higher valuations, but improvements still need to be funded
- Reliable sources of information:

Tamar Energy Community

Community Energy Plus

Cornwall Council: Cornwall grants, loans and subsidies for energy use

Trustmark

- Most grant funding is there to support vulnerable households and those with a total annual income (before deductions) of less than around £35k



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Project Perception Indicators



- Acting on continuous feedback
- Collecting structured feedback from pilots and campaigns
- Google forms used to collect feedback for the Property Diagnostics Campaign

Project Outcomes

- Indicator: improvement in EPC ratings
- BUT cannot measure this because of the long time-frame for implementation of improvement measures and no direct control
- Now have a much better understanding of the retrofitting landscape and of the challenges
- This has been a ‘seed project’



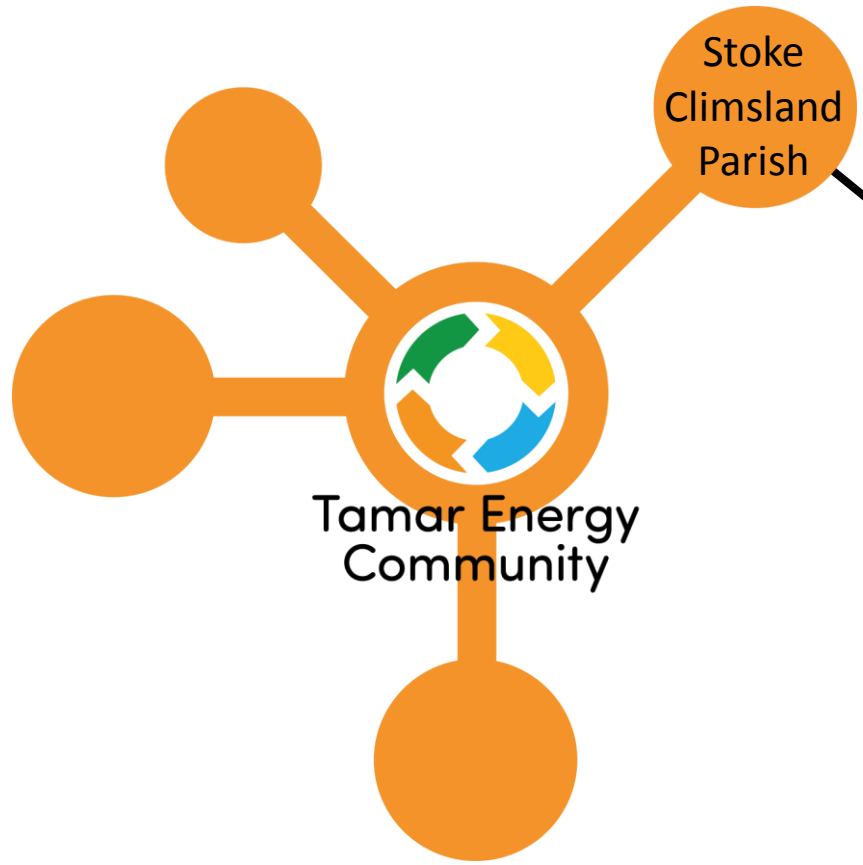
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Next Steps – Hub and Spoke



- What is it that only we can do?
- How can we add value together within this complex landscape?
- How can we collaborate across our local community to unlock our inherent resources?



Challenges

- Parish council cash flow and liquidity
- The Parish Council Zero Carbon Committee needed to be agile
- Complex support and grants landscape and processes for households
- Abundance of biased and misinformation in the tabloid press and via social media – particularly relating to heat pumps

- The industry and activity is largely driven by single-measure intervention
- Limitations with property energy modelling standards (RdSAP) – particularly for renewable and smart technologies
- Building physics – theory/modelling vs reality – particularly solid walls
- Complex landscape overall with skills shortages



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Success Factors

- Find a capable strategic partner
- Develop relationships with local professionals
- Seek out where to add value – avoid reinventing the wheel
- Coach households: build knowledge; don't assume, direct or judge
- Yes, it is technical – but its really all about people and the choices they make
- Be agile: pilot pilot pilot
- Communicate communicate communicate (and that won't be enough!)
- Decouple diagnostics from intervention
- Households need wholistic plans – spread the work and cost
- Seek out truth



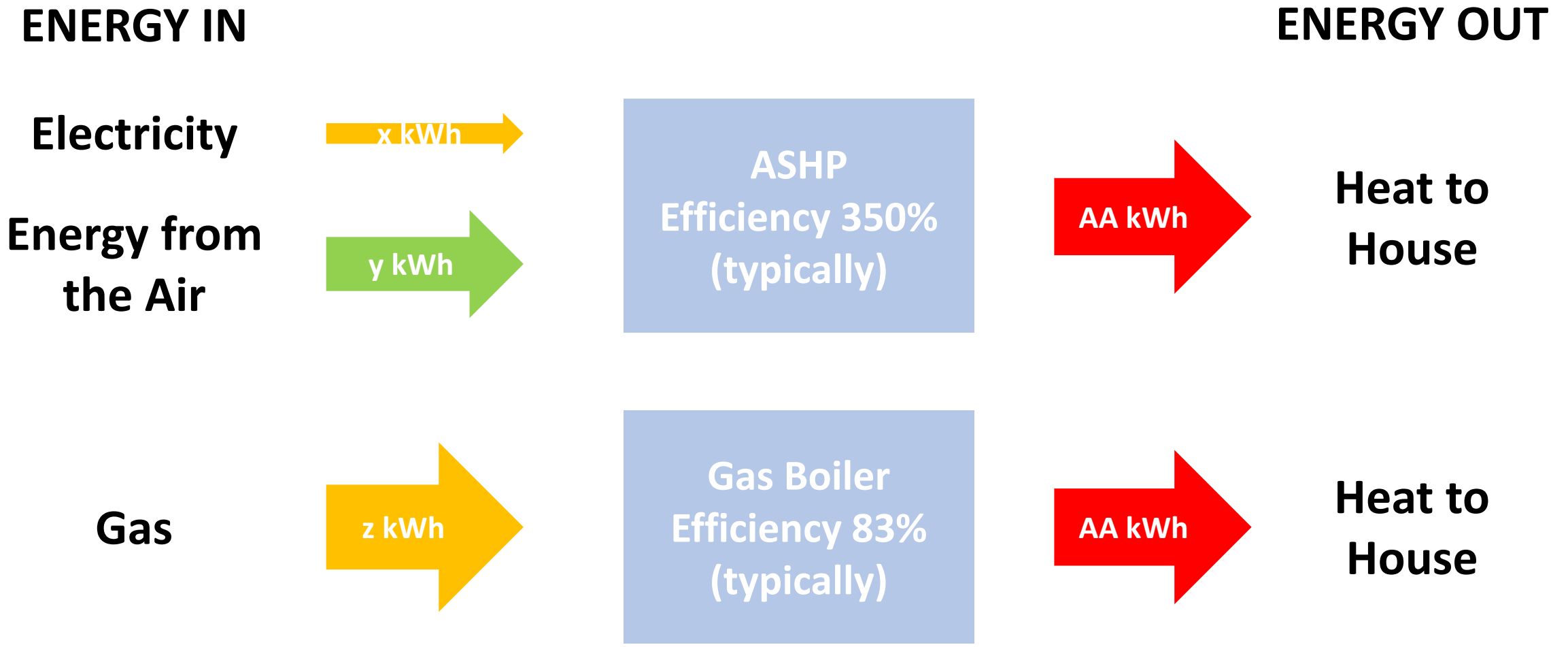
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The Search for Truth – For Example: Heat Pumps



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In 5-10 years time we will all be much more focused on
‘total cost of occupancy’

= Mortgage / Rent + Energy Bills

We will also feel that having a low carbon home
is more valuable to us than it is currently
generally perceived to be

What can we all do about this?

We could all have a good plan

We could all be prepared – ready to take advantage of opportunities

We can all do something

We can all share our experiences with others



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I have no special talents. I am only
**PASSIONATELY
CURIOUS.**
- Albert Einstein

