

# Morning Agenda

**10:00-10:05:** Introduction to Innovate UK and the Net Zero Living programme

**10:05-10:30:** Keynote: Realising Net Zero Liverpool

**10:30-11:00:** Morning Break, Networking and Business Showcase

**11:00-11:30:** Panel: Driving Local Net Zero Impact: The Power of Local Authority and Business Collaboration

**11:30-12:00:** Panel: Bridging the Green Skills Gap: Building a Future Ready Workforce

**12:00-13:00:** Lunch Break, Networking and Business Showcase

# Innovate for Net Zero Living - Solutions Exchange

5<sup>th</sup> November 2024, The Florrie, Liverpool



The UK's innovation agency

## About Us

Innovate UK Business Connect exists to connect innovators with new partners and new opportunities beyond their existing thinking – accelerating ambitious ideas into real-world solutions.

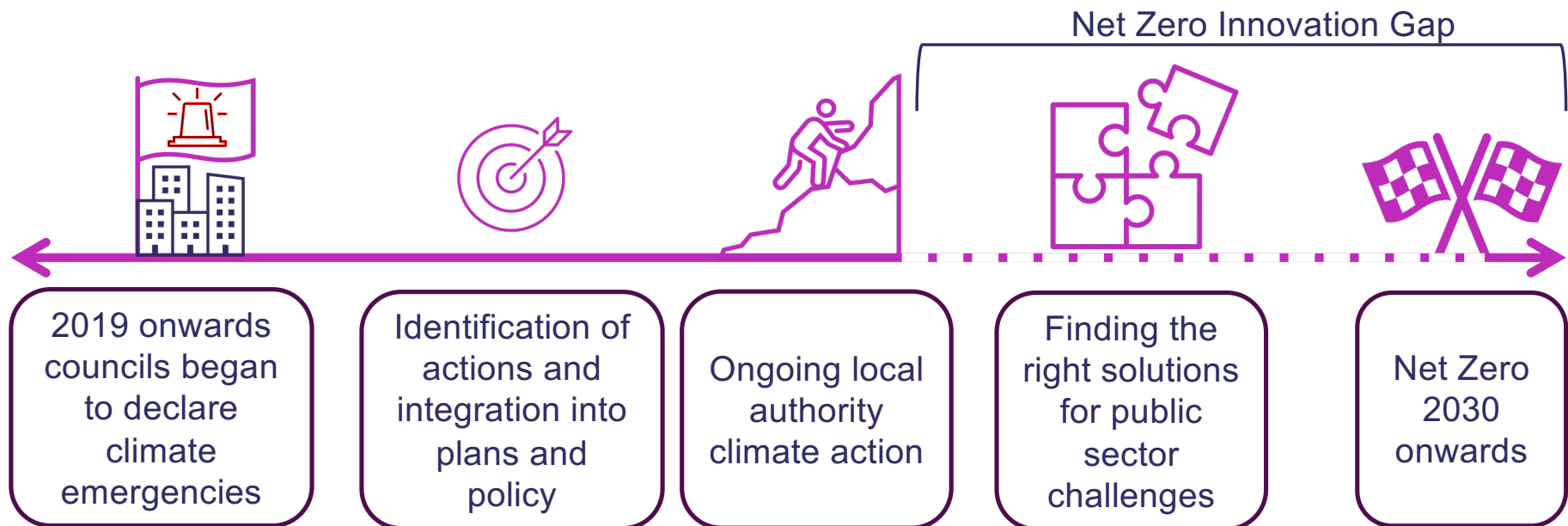


Innovate  
UK

Business  
Connect

# The Net Zero Innovation Gap

The current shortfall between current public sector actions and the adoption and diffusion of innovative solutions required to achieve net zero by the set target date.





# Welcome from Innovate UK

The UK's innovation agency

November 2024



# Net Zero Living

For UK places and communities to thrive through their journey to net zero

This means working to enable markets on the 'demand' side and step-change 'supply' of great products

## THRIVING PLACES:

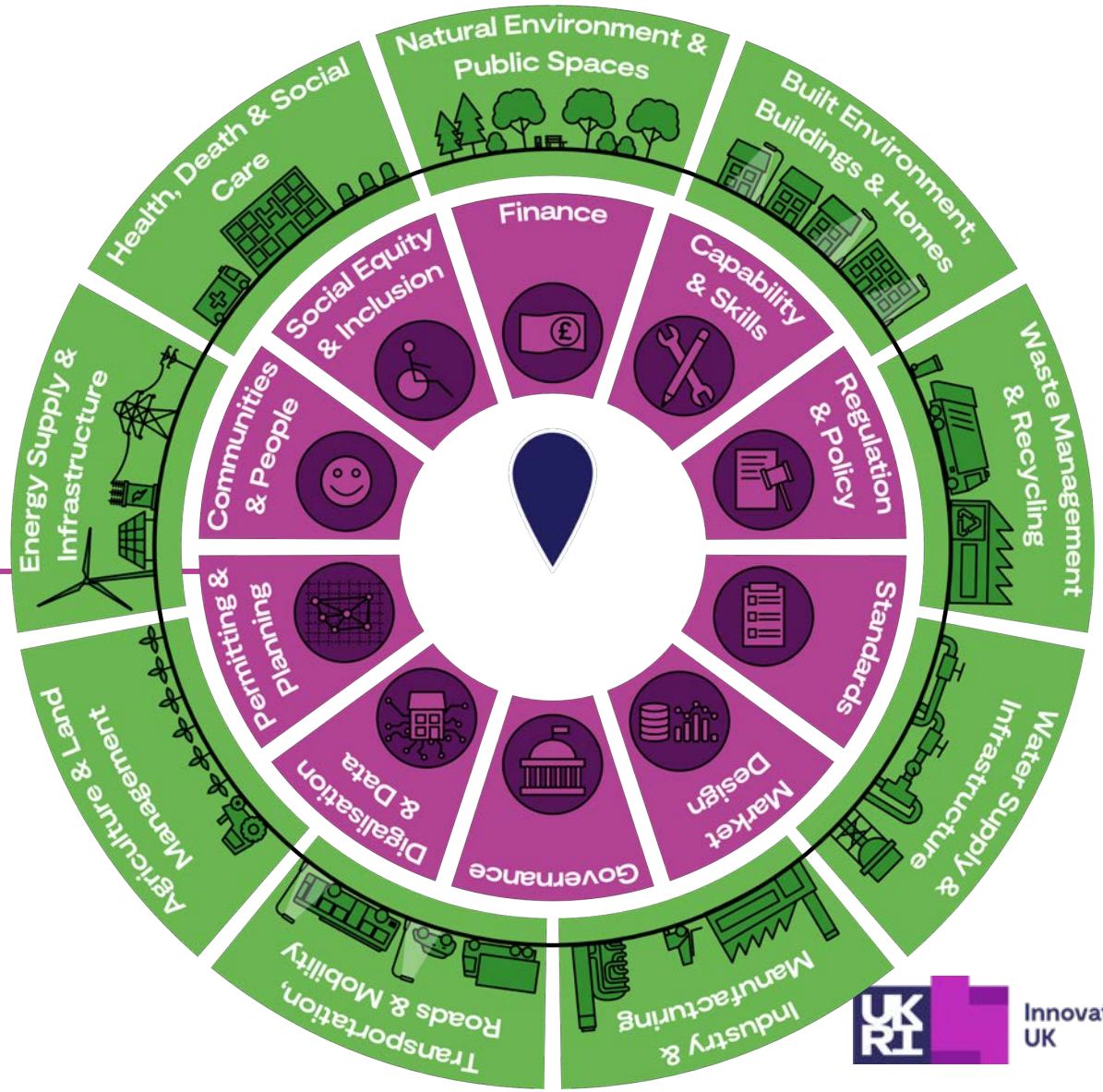
- show how market barriers can be broken down in practice, and for businesses to access the market opportunity available
- Build capacity & capability in places to address the net zero transition challenge
- Enable knowledge exchange between places to learn, adapt and accelerate their own plans

## USER-FOCUSSED PRODUCTS:

- Enable businesses to develop products designed for us
- Incorporate the needs and wants of diverse populations
- Understand and build on the global opportunity for innovative data-driven solutions in places

# Net zero will only be achieved by considering a whole system.

Places and cities, in particular, are where physical systems and social systems come together.

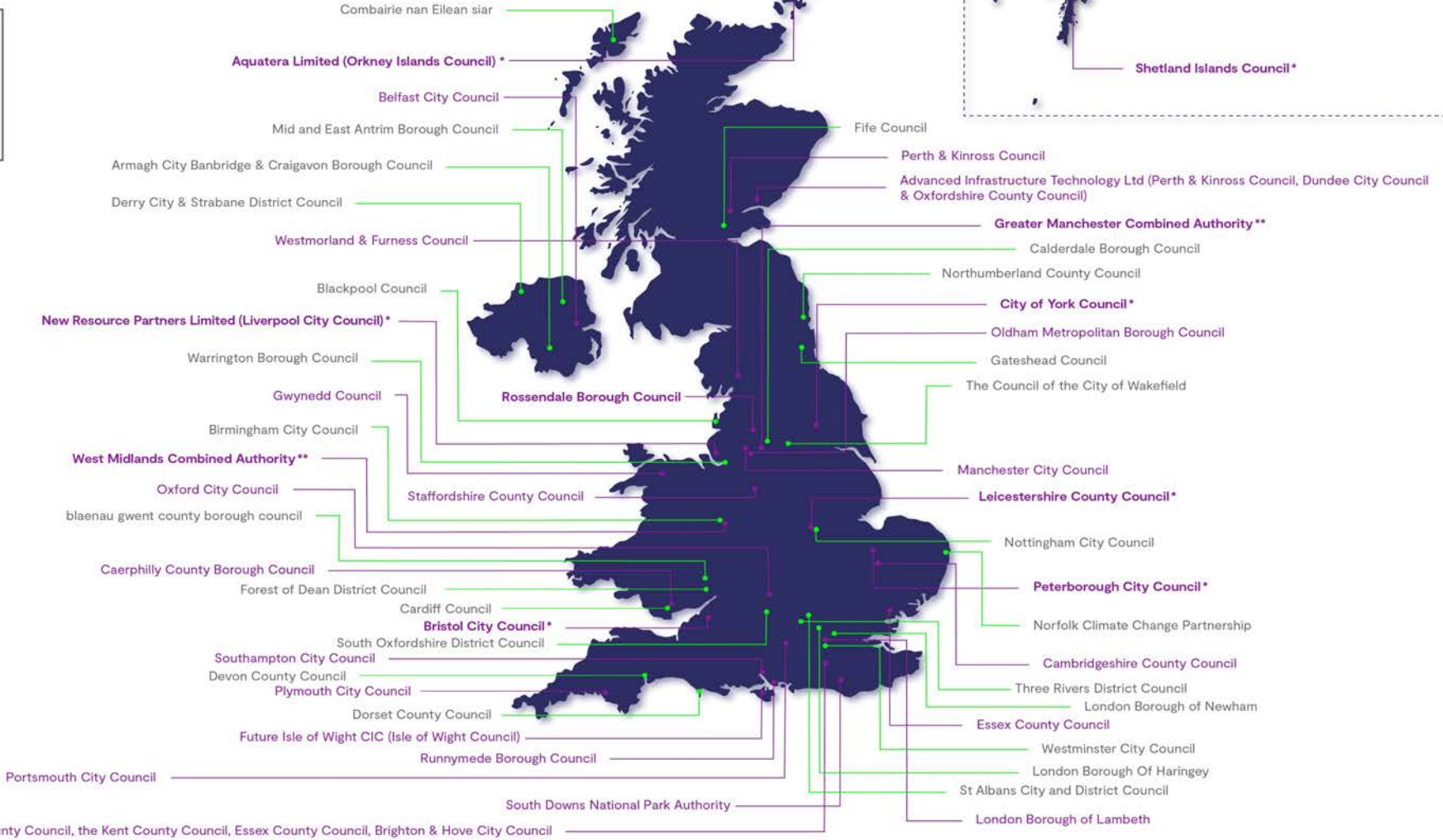


# Pathfinder and Fast Follower Places



**Key**

- Pathfinder —●—
- Fast Follower —●—
- Demonstrator \*
- LNZCA \*\*

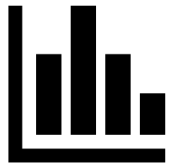


# Design, Digital & International



- 167 applications
- 48 Projects funded
- 49 organisations

**User Focussed Design**  
**£3.8m**



- 214 applications
- 43 Projects funded
- 60 organisations

**Digital (Accelerator & Fast Start)**  
**£4.5m**



- 118 applications
- 30 Projects funded
- 52 organisations

**International (Incubators,  
Bilateral & African Innovators)**  
**£3.4m**

# Keep up to date with the Net Zero Living Programme activities on LinkedIn



[Innovate UK – UKRI](#)



# Thank you

Kara Cartwright – Innovation Lead  
[Kara.Cartwright@iuk.ukri.org](mailto:Kara.Cartwright@iuk.ukri.org)



[Innovate UK – UKRI](#)

# Realising Net Zero Liverpool

A journey of strategic planning, innovation,  
economic modelling and citizen engagement

Innovate for Net Zero Living - Solutions Exchange

5<sup>th</sup> November 2024

Simon Mansfield

Sustainability Manager  
Liverpool City Council



Department for  
Energy Security  
& Net Zero

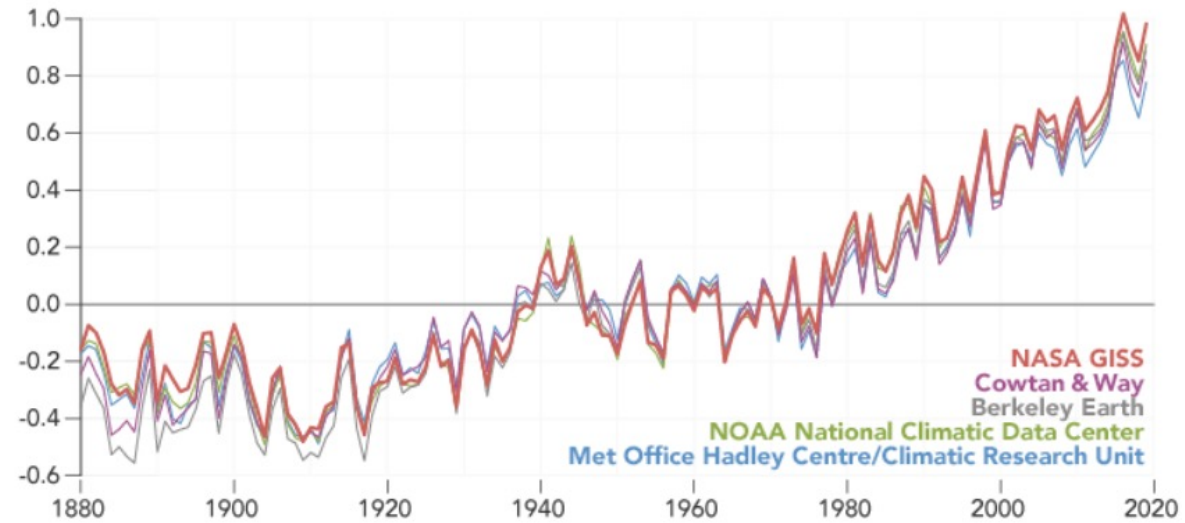




# Climate Change



**A World of Agreement: Temperatures are Rising**  
Global Temperature Anomaly (relative to 1951-1980, °C)



<https://earthobservatory.nasa.gov/world-of-change/global-temperatures>



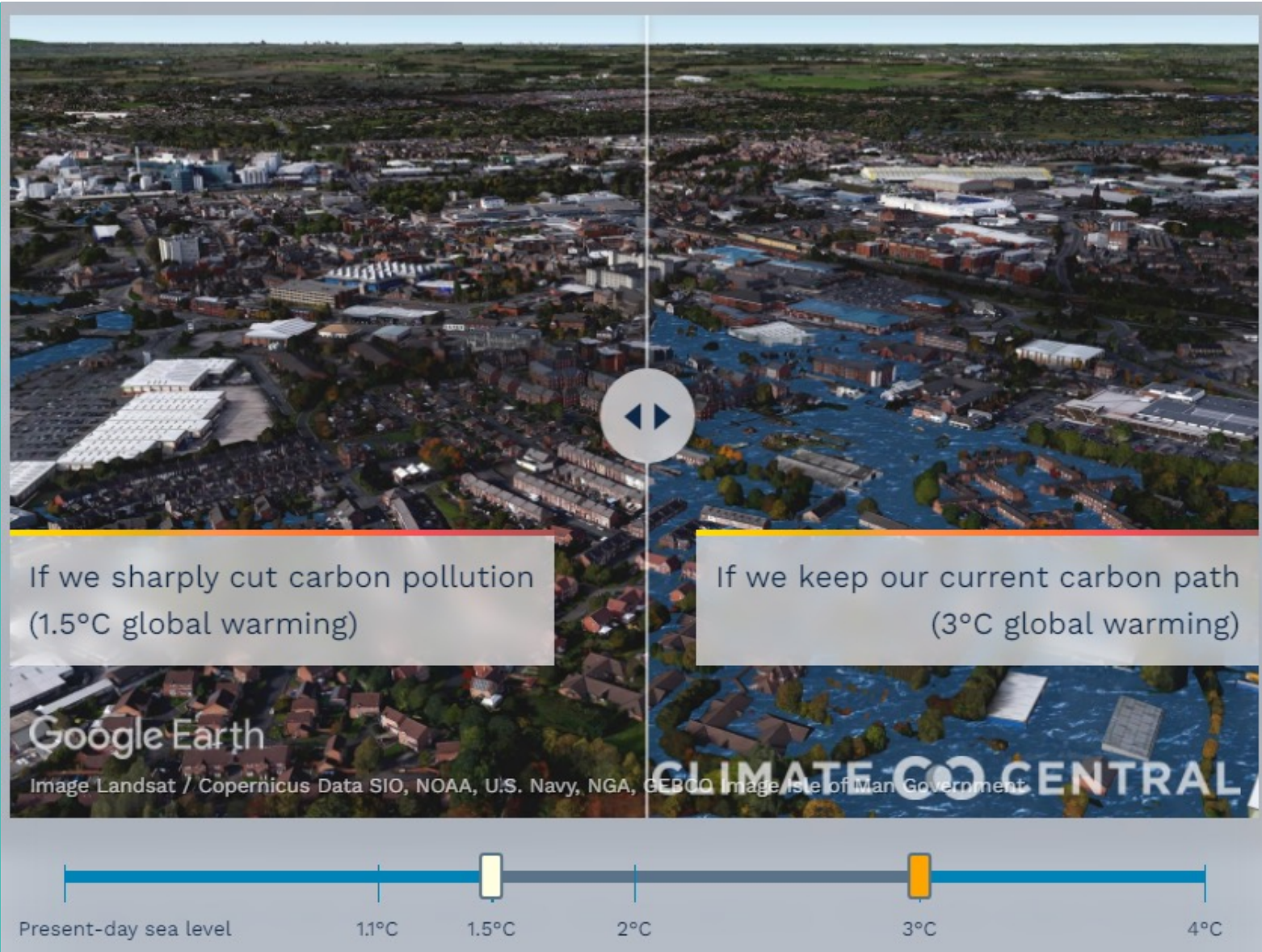
Fairbourne, Mid Wales



West Kirby

# What does the future look like?

## Warrington



If we sharply cut carbon pollution  
(1.5°C global warming)

If we keep our current carbon path  
(3°C global warming)

Google Earth

Image Landsat / Copernicus Data SIO, NOAA, U.S. Navy, NGA, GEBCO Image Isle of Man Government

Present-day sea level

1.1°C

1.5°C

2°C

3°C

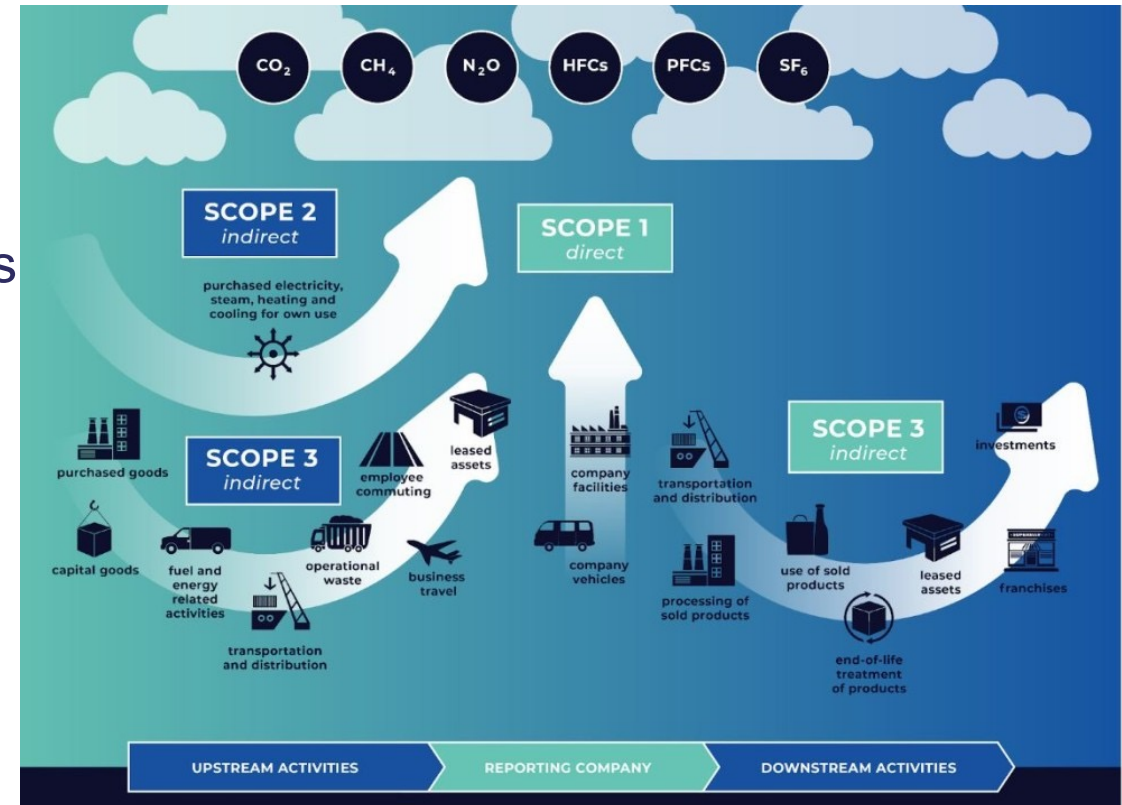
4°C

<https://picturing.climatecentral.org/location/53.388828,-2.584154>



# Starting your Net Zero Journey

1. Definitions, Commitment and Team
2. Collect and understand data - Scope
3. Identify fossil fuels and supply chains: Gas/ Diesel/ Petrol/ Materials/ Power
4. Plan insulation, fuel switching, process efficiency, materials: **LCC Glidepath tool**
5. Business case & investment
6. Communication & training
7. Delivery and Supply Chain
8. Collaboration with city plans





# Our commitments



2019

- Climate Emergency declared by LCC
  - Net Zero Council Estate and Activities 2030
  - Support City and Combined Authority decarbonisation

2022

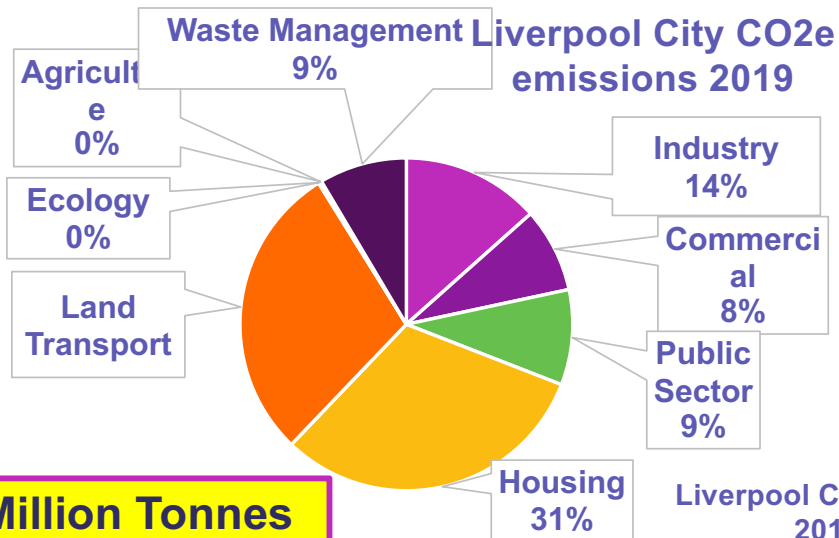
- Net Zero Strategic Plan - delivery of Council Net Zero 2030
  - Reduce & displace LCC emissions of ~36,000 tonnes CO<sub>2</sub>/ yr

2023

- Development of City Scale decarbonisation Plans ~2-4 Million tonnes CO<sub>2</sub>/ yr
- IUK/ DESNZ funded research programme: Realising Net Zero Liverpool

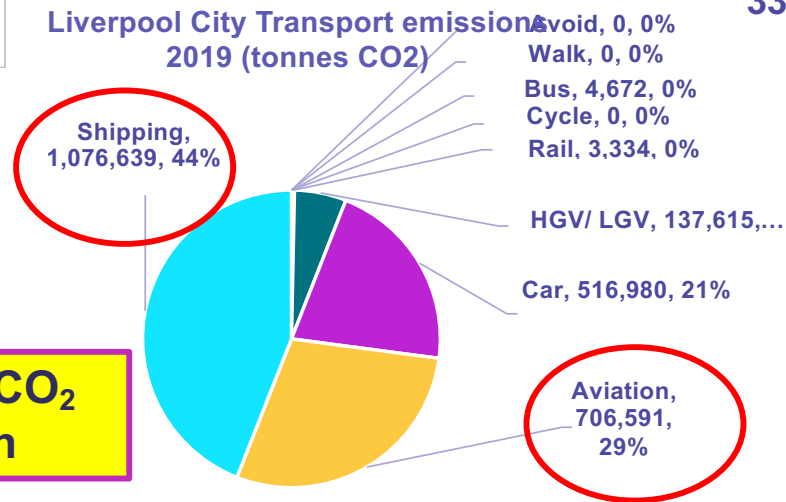


# Liverpool – the baseline

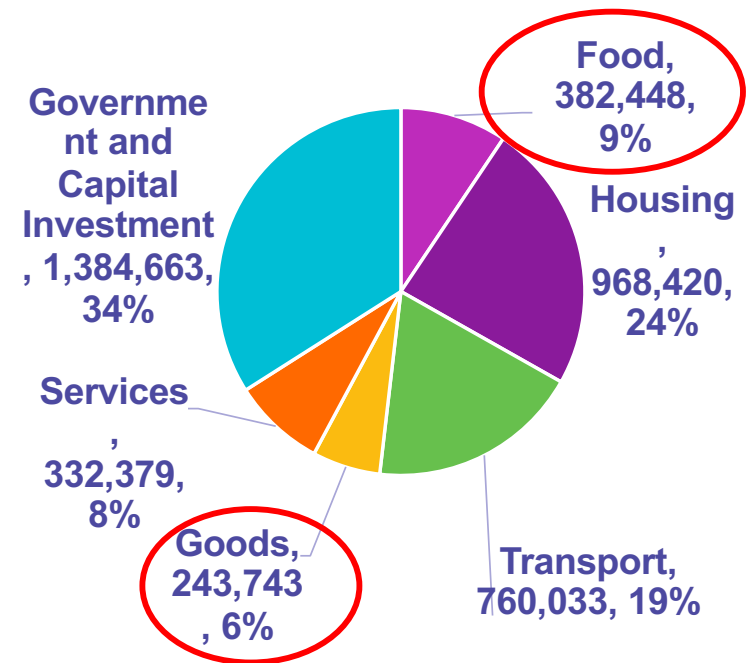


**2 Million Tonnes CO<sub>2</sub> Liverpool City 2019**

**Liverpool City Transport emissions 2019 (tonnes CO<sub>2</sub>)**

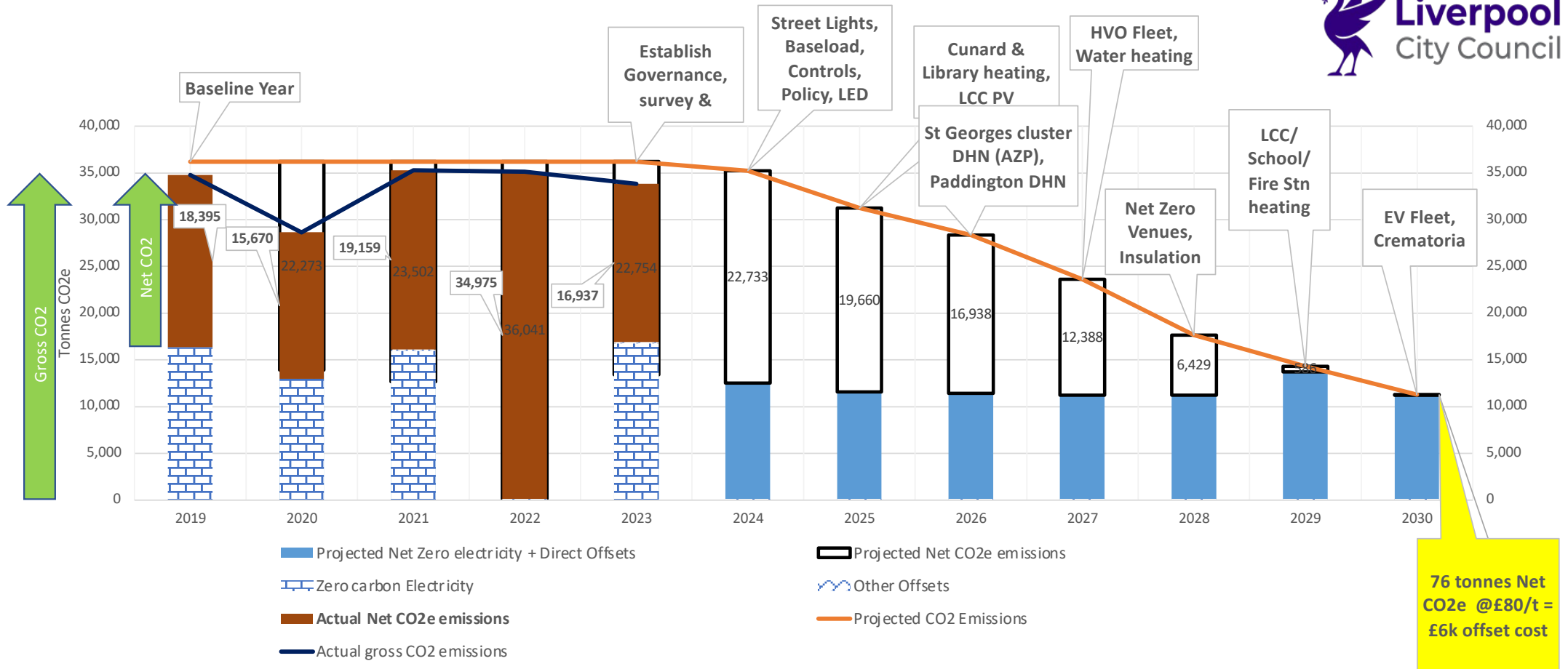


**1.8 Million Tonnes CO<sub>2</sub> Shipping & Aviation**



**0.6 Million Tonnes CO<sub>2</sub>: Goods & Food**

# Liverpool City Council - Net Zero Carbon Plan 2030



# The Business Case



Liverpool City Council

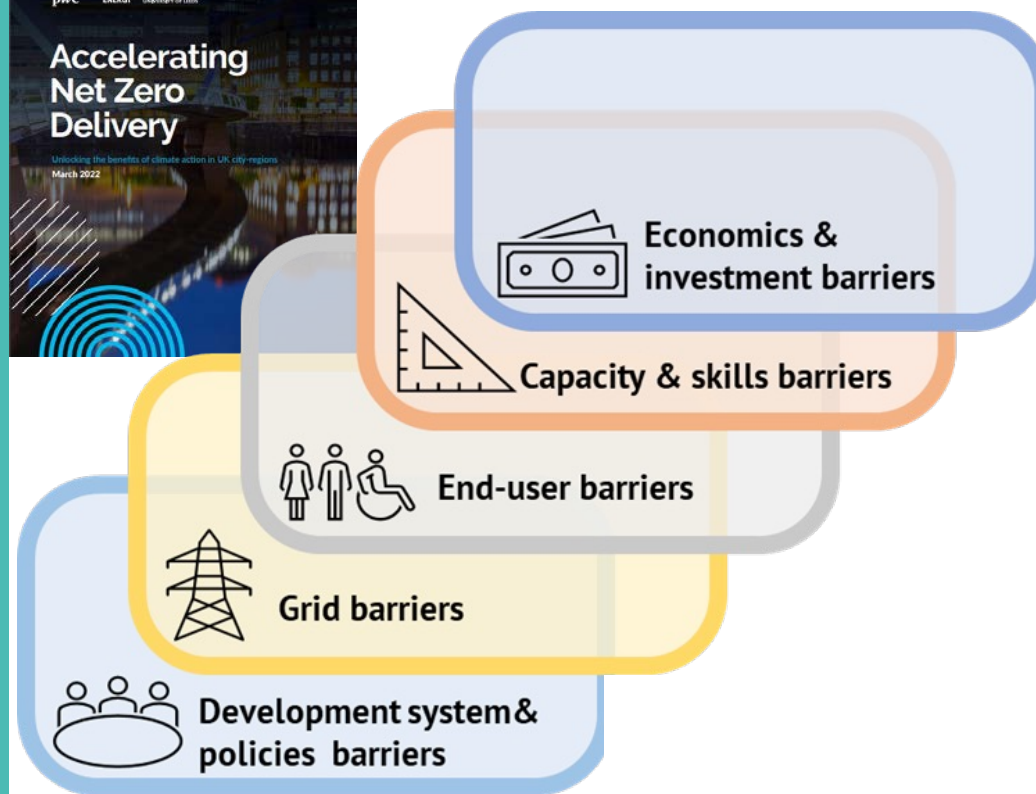
Utility/ Resource saving projects - Milstead PSDS



Project details				Annual net Savings			Payback & priority			Whole Life Costing			
<b>Utility projects - Collective payback</b>				£1,069,577	£207,906	188	5.1	£2	£285	20		£1,954,123	£4,918,582
Electricity cost £/kWh	Year	Main utility	Project Title	Cost installed	Annual Savings	CO2 Tonnes	Payback Years (Incl. maintn.)	Cost per population	£/ ton CO2/ yr	Est'd lifetime (years)	Proposed Annual kWh/ other usage	Whole Life Costing (Purchase + Running + other costs)	Do Nothing Option (life time)
£0.30	2223	Electric	LED Conversion	£50,935	£28,862	17	1.8	£0.10	£123	25	29,939	£275,477	£946,084
		Gas	Loft Insulation	£68,996	£3,318	6	20.8	£0.14	£400	27	0	£68,996	£89,589
		Gas	Wall Insulation	£27,477	£1,321	3	20.8	£0.06	£360	30	0	£27,477	£39,643
		Gas	ASHP	£762,140	£32,340	62	23.6	£1.56	£612	20	110,001	£1,422,144	£646,804
		Electric	Solar PV	£160,029	£142,065	100	1.1	£0.33	£71	22.5	0	£160,029	£3,196,463

# Realising Net Zero Liverpool findings:

## The barriers to Net Zero



- Commercialisation
- Whole life costing
- Repayment model
- Attractive investment
- Not for excessive profit

- Technical workforce
- Trades workforce
- Apprentice pipeline
- Supply chain
- Economic development

- Climate action
- LCC Leadership
- Domestic retrofit
- Commerce & Industry
- Low carbon technology
- Low carbon lifestyles

- Grid Resilience (cables)
- Grid Flexibility (storage & smart grids)

- Planning Guidance
- Planning Controls



# LCC's High level Net-zero City Plan

## IUK/ DESNZ Net Zero Living programme



### KEY

Net-zero projects in NZL Scope

### NZL Project Exemplars

Other planned projects and associated exemplars

Existing activities

Overarching work

**Emissions sectors baseline (2019): 2 Million tonnes CO<sub>2</sub>**

DNO Network Resilience and Flexibility (SPEN)

LCC Net-zero Planning Team development & controls

Engagement plans – all sectors

Whole city grid strategy  
Micro grid strategy  
Local Plan, Housing Design Guide  
Net Zero revision  
Major launch & engagement plan

### Net Zero Living Transport emissions Programme

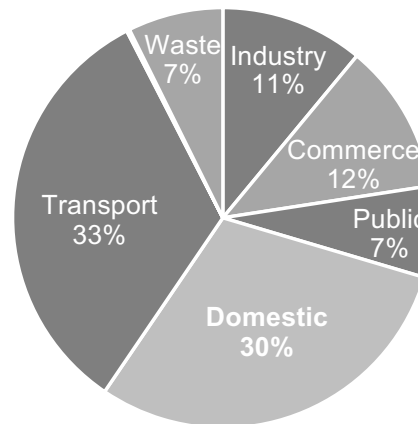
Cruise Industry & Shipping leadership and engagement : Heavy Fuel oil transition

Aviation fuel displacement/ Aviation engagement

City Plan: EV charging infrastructure

### Adaptation, Ecology, Natural Capital

- Adaptation & Green Infrastructure
- Ecology/Biodiversity (BNG and LNRS)
- SuDS (for flood resilience)
- Carbon capture (ecological)



### Commercial & Industrial engagement: Net zero commitment and action

- Business mentoring & targets (LCC & LCR CA)
- Fuel efficiency & switching – Heat Network, Electric & Hydrogen

Liverpool Carbon Training Standards  
Economic Development programme  
Chambers & Business org schemes

Large-scale Development Pathfinder  
Net Zero Festival Gardens Development

Domestic Decarbonisation Economic Model  
Economic model whole city

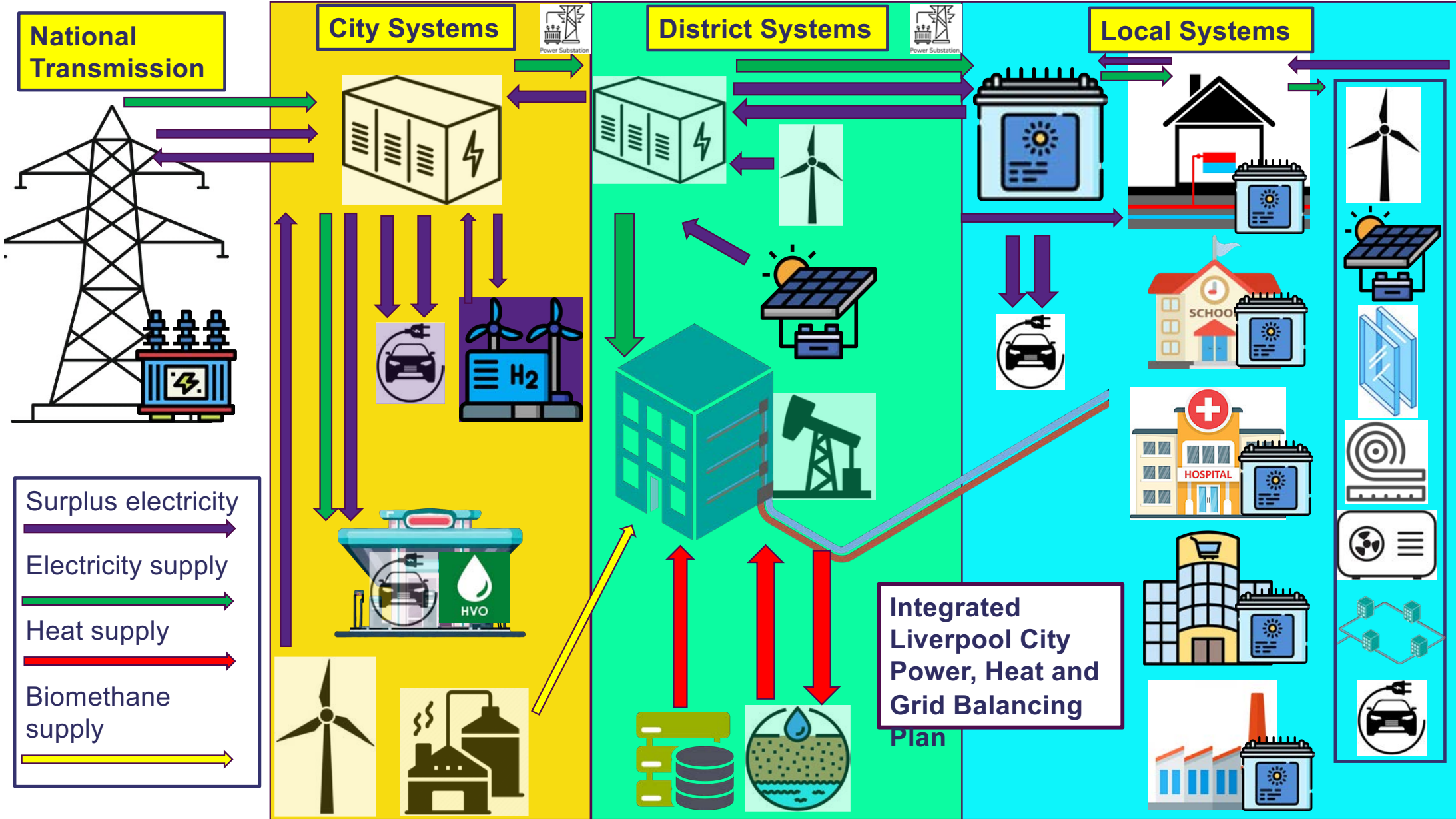
### District Heat Network Conceptual Model & Delivery Plan:

- Geological heat yield and energy centre design
- Displacing 1.5Billion kWh gas heat demand
- Provision for all sectors, whole city

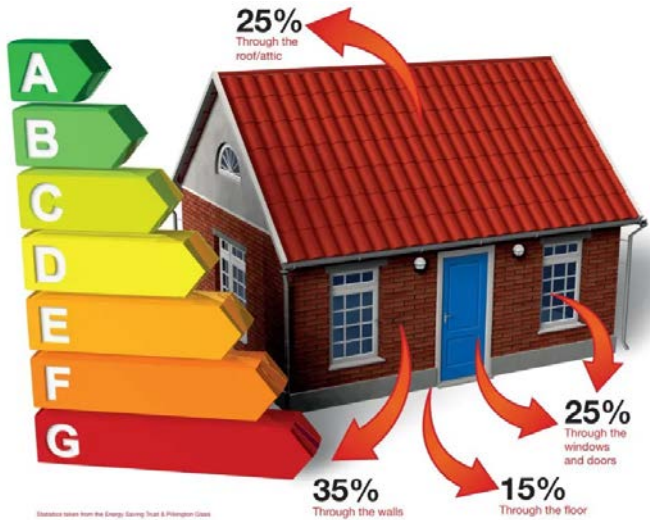
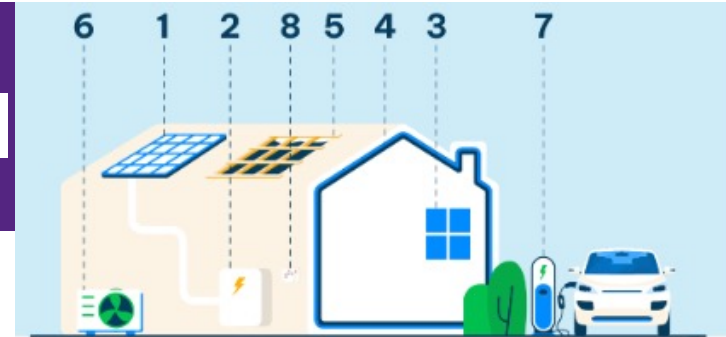
### Culture Sector Leadership - Net Zero & Licensing:

- Events Carbon Accounting & Green Tourism accreditation
- Provision of grid power (external events)

LCC Strategic Public Sector  
Sharing & Mentoring Plan: LAs, Academia, NHS, Gov etc  
Schools Decarbonisation PSDS



# Domestic Retrofit economic model

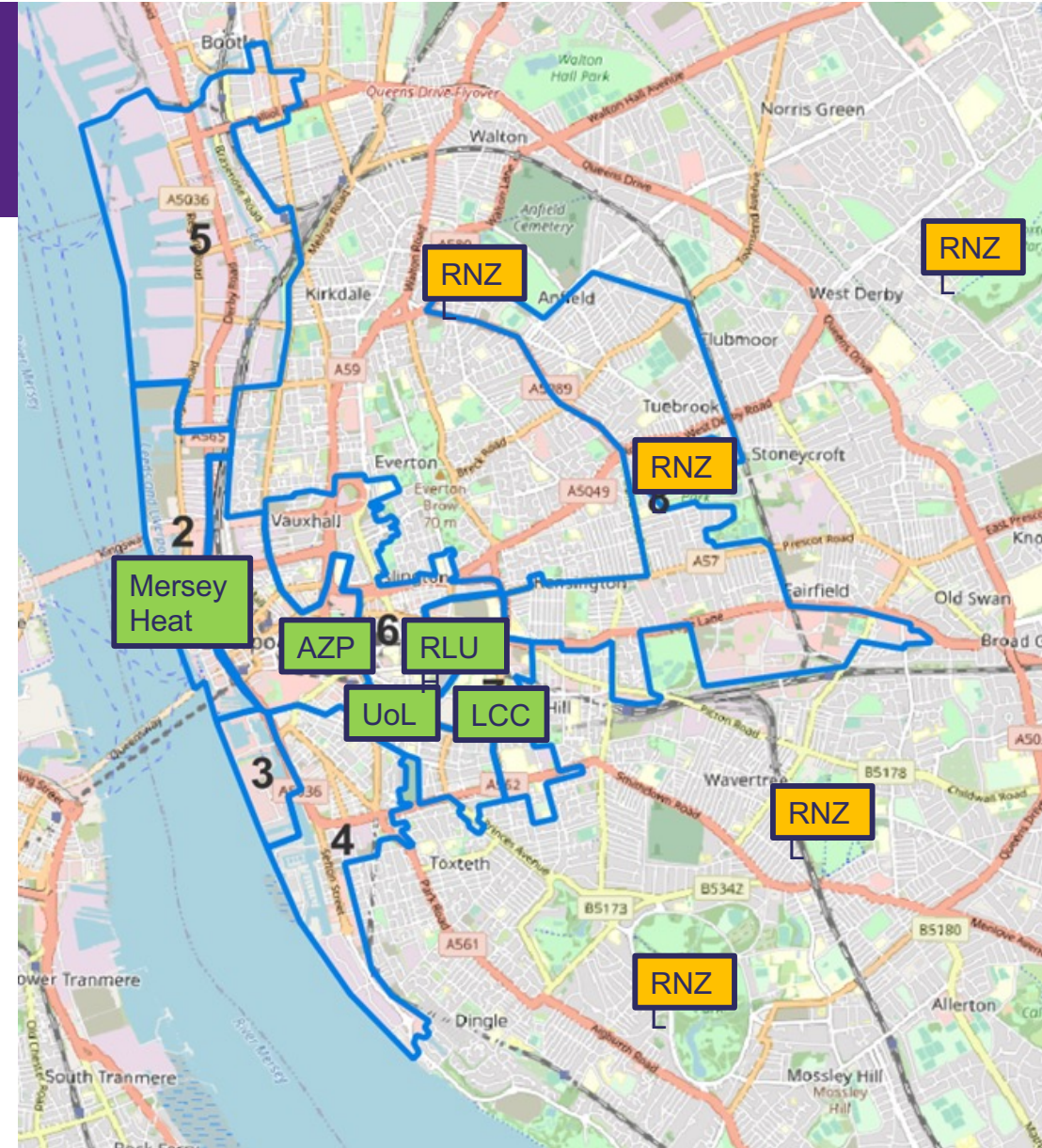
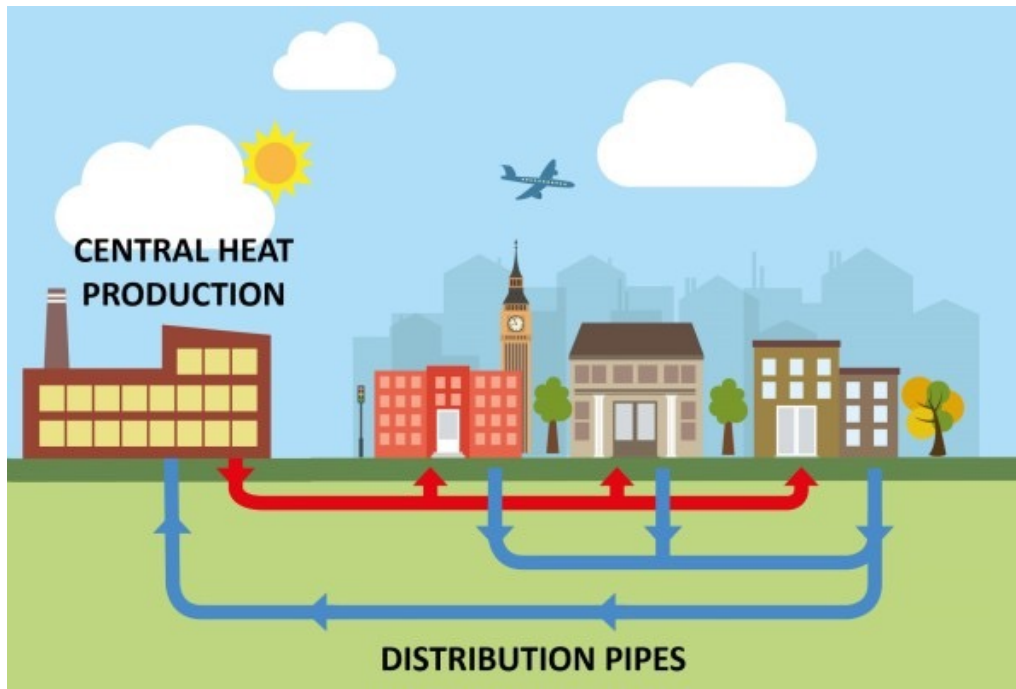


- 1. Solar Panels**  
 Average cost: £7,860  
 Average annual savings\*: £557
- 2. Solar Battery §**  
 Average cost: £4,500  
 Average annual savings\*: £701
- 3. Double Glazing**  
 Average cost: £6,400  
 Average annual savings\*: £195
- 4. Cavity Wall Insulation**  
 Average cost: £2,700  
 Average annual savings\*: £300
- 5. Roof Insulation**  
 Average cost: £930  
 Average annual savings\*: £285
- 6. Air Source Heat Pump**  
 Average cost: £10,000  
 Average annual savings\*: £72
- 7. Electric Vehicle Charger**  
 Average cost: £1,000  
 Average annual savings\*: £492
- 8. Smart Thermostat**  
 Average cost: £225  
 Average annual savings\*: £130

23/24 energy rates	Cost of heating Liverpool city sustainably:	Conventional gas Central heating house	Fully retrofitted house + PV and battery
Average House	Whole Life Cost: Total Energy + Technology cost over 20 yrs	£59,100	£26,855
Whole City		£12.2 billion	£5.6 billion



# District Heat Networks



# Influencing large scale development: Festival Gardens Net Zero Design Brief



**ECHO** NEWS IN YOUR AREA LFC EVERTON FC

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> News > Liverpool News > Liverpool Council

## Festival Gardens could be 'most exciting development in the UK'

Liverpool Council has taken a major step forward on the site

[f](#) [t](#) [e](#)

**NEWS** By [David Humphreys](#) Local Democracy Reporter  
16:51, 11 Sep 2024 |



Festival Gardens was made into the UK's first garden festival back in 1984

- LCC's City Development Team's Festival Gardens Net Zero development project
- Build of up to 1,500 homes on fully remediated brownfield land
- Whole Life Cycle Net Zero Carbon development to act as an exemplar



## Net Zero:

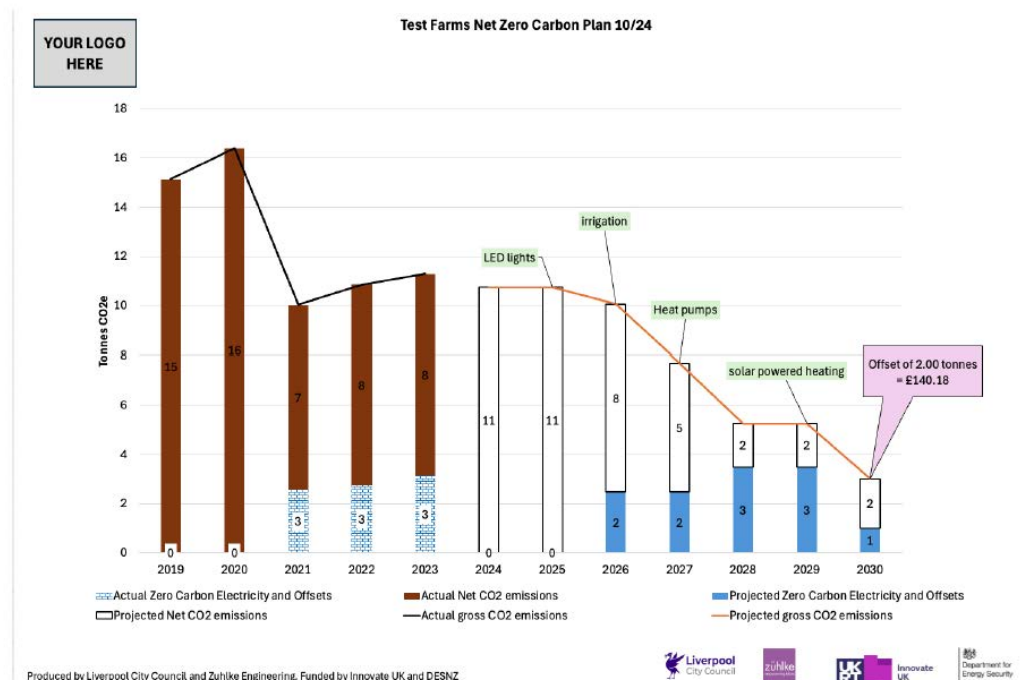
- Construction
- Materials
- Operation

- Carbon Accounting standards
- High carbon intensity material displacement
- Materials Innovation: natural materials & use of waste
- Redefining Planning Guidance

# LCC's Net Zero Glidepath – a tool for sharing



- A Carbon Management Plan
- An Excel based tool to capture CMP data and produce visualisations
- Inputs:
  - Annual electricity, gas, fuel, other
  - Project data: Costs, savings, dates
  - Reference data (per unit costs & CO2)
- Outputs:
  - Net Zero Carbon
  - Scope 1-3 emissions & projected
  - Cost Model



Department for  
Energy Security  
& Net Zero



# Your Collaboration: Realising Net Zero Liverpool

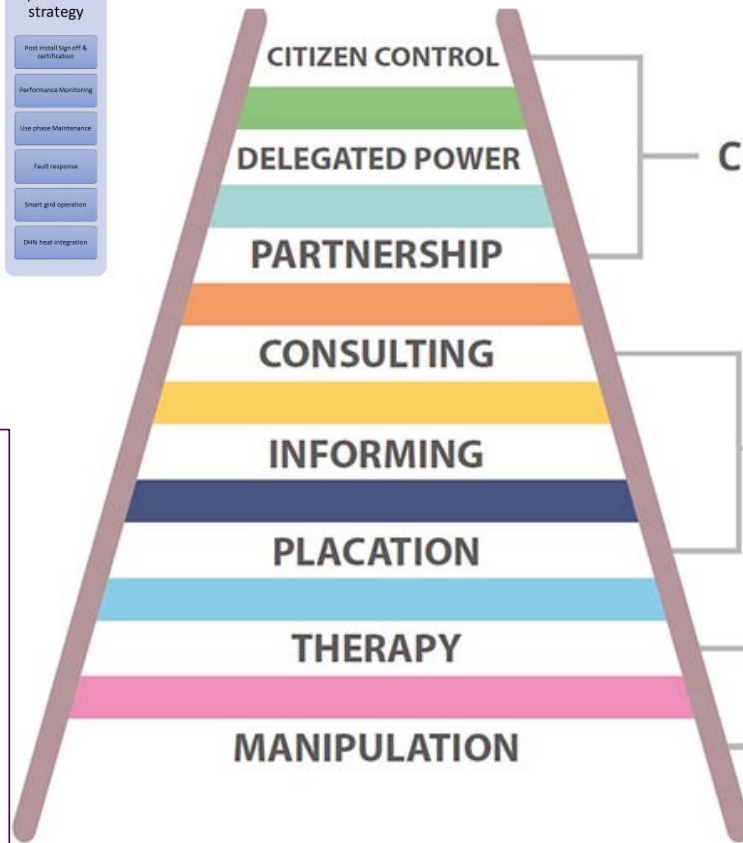


## WP 2.2: Domestic Retrofit – detailed planning



Contribute to research and planning with LCC programme

- Participate in LCC Business engagement:**
- Net Zero Glidepath
  - Sharing Glidepath data
  - Industry sector leadership
  - Liverpool Carbon Training Standards (Carbon Literacy and Sustainability)
  - Support Citizen, Householder and Business collaboration programmes



Citizen collaboration

Citizen engagement

Dictating



Innovate UK

Department for Energy Security & Net Zero

UNIVERSITY OF LIVERPOOL

LIVERPOOL JOHN MOORES UNIVERSITY

SP Energy Networks

Onward

RegentCapital

DE

New Resource Partners



Fuel poverty  
Insulation  
Solar PV



LCC Food Hub  
Health Prog



Indoor Air Q  
Air Q  
Damp & Mould  
Active Travel  
Transport Plan



Hearts & Minds  
Skills & Capacity  
Apprentices  
Sharing  
Mentoring



Leave no one behind  
Hard to reach  
Equal recruitment



Flooding  
SUDS



Public Sector  
Commercial  
Industrial  
DESNZ IUK  
United Nations  
LCR Combined Auth



Resilient LCC  
Social value  
Citizens Jury



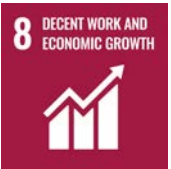
# Realising Net Zero Liverpool A Just Transition



DHNs  
Waste Heat  
Solar PV  
Geothermal  
Heat exchange



Employment  
Technical skills  
Economic growth



Parks Maintenance  
Carbon capture  
BNG/ LNRS/ Nature based  
Solutions  
Habitat improvements  
Brownfield Redevelopment

Net Zero Liverpool  
Fossil Fuel Displacement  
Housing, Transport,  
Commerce & Industry  
Public Sector

Domestic, Commercial,  
Industrial, Public Sectors  
Lean design/ manufacture  
Waste in construction  
Circular economy/ materials  
Alternative materials

Visitor economy  
Net zero living  
Fossil fuel  
displacement  
UN SDGs

DNO – Grid readiness  
Local manufacture  
Shipping & Aviation  
Hydrogen & alt fuels  
Shore power  
Live labs (Roads)  
Sustainable transport



SUDS  
MEPAS





# Liverpool City Council



# 10:30-11:00: Morning Break, Networking and Business Showcase



The UK's innovation agency

# Driving Local Net Zero Impact: The Power of Local Authority and Business Collaboration



**Host: Kelly Botham,**  
Knowledge Transfer  
Manager - Net Zero,  
IUK Business  
Connect



**Andy Hulme,**  
Head of Innovation  
and Growth, North  
West Business  
Leadership Team



**Stephen Sykes,**  
Director of  
Sustainability, East  
Lancashire Chamber  
of Commerce

# Bridging the Green Skills Gap: Building a Future Ready Workforce



**Host: Marie Godward**, Knowledge Transfer Manager – Net Zero, IUK Business Connect



**Prof. Liz Price MBE**, Professor of Environmental Education at Manchester Metropolitan University



**Paul Amann**, Principal Officer at Liverpool City Region Combined Authority



**Ben Goodwin**, Director of Policy and Public Affairs at IEMA

# 12:00-13:00: Lunch Break, Networking and Business Showcase



The UK's innovation agency

# Afternoon Agenda

**13:00-13:45:** Pitch Session 1

**13:45-14:00:** Break, Networking & Business Showcase

**14:00-14:45:** Pitch Session 2

**14:45-15:00:** Break, Networking & Business Showcase

**15:00-15:45:** Parallel Workshops:

Workshop 1: Collaborative Pathways for Net Zero Action

Workshop 2: Navigating Net Zero: Supporting your innovation adoption journey

**15:45:** Event Close

# Pitch Session 1

**Host:** Bruce McLelland, Knowledge Transfer Manager - Emerging Technologies and Industries

**Pitch 1:** eco-shaper

**Pitch 2:** Skilled Mapping

**Pitch 3:** ecolens

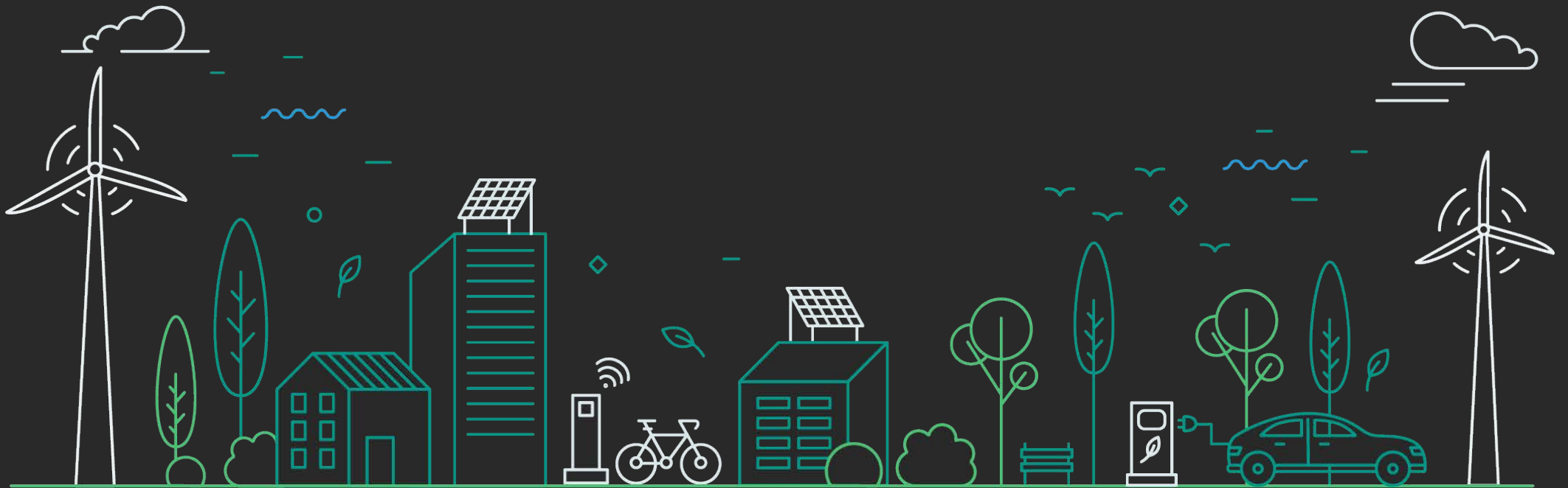
**Pitch 4:** Eluxevo

**Pitch 5:** Harbour Project Management on behalf of LCC

**Pitch 6:** Optimise AI

# eco<sup>o</sup>shaper

AI-driven  
Automated Carbon Reporting and Reduction Strategy





12 Co-founders

Mission

To become the leading carbon accounting and sustainability platform

Saving time and money

# The Problem

Carbon accounting is complex,  
detailed and costly

Regulated markets increasing for the UK,  
EU, USA and Australasia

Penalties include fines and/or  
prosecution (California violations fine  
\$500K)

£1.7m is the manual cost of gathering  
and inputting complex data (equivalent  
to the cost of 34 full-time employees in a  
mid sized company)

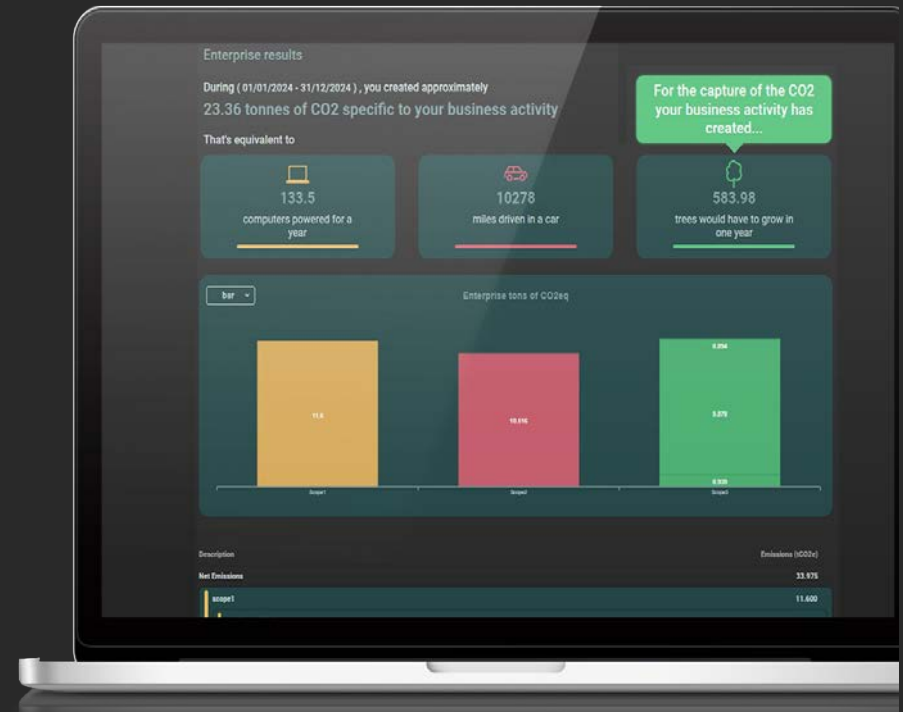
# The solution: eco-shaper



## Benefits:

- Cost avoidance: 30-60% efficiency improvement
- Productivity: efficiency frees up employees for other tasks
- Speed to implement (1-3 months with ROI within 12 months)
- Low risk, non disruptive technology
- Audit trail: API driven logged and recorded
- Unlimited users, sites, projects and products
- GHG Protocol scope 1-3 with geo-specific emission factors and AI driven solutions
- Results can be used for SECR, B-CORP, CDP, CSRD, TCSFD and more

Simple, beautiful easy to use consolidated system integrating 5 products and leveraging AI technology to automate the collection, analysis, and organization of data, producing personalized reduction strategies



Company data & reduction strategy

Employee work data

Employee personal data

Supplier data

ESG Compliance



## World-class leaders

- 25 years in AI
  - 25 years in Sustainability
  - 25 years in corporate culture change
- A team of 8 full time including Masters in AI
  - and Masters in Corporate Sustainability
  - 12 Co-founders with 20-plus years of global experience each



**Dr Marc Teerlink**  
AI Strategy Director EU  
and Director Ireland

Marc is an experienced strategist, growth leader and innovation executive and board director representing Private Equity and Venture Capital entities.

Throughout his 25+ year career, he's held pivotal roles in renowned firms such as SAP and IBM and was previously Head Strategist at IBM Watson.



**Tracey Carr**  
CEO & CRO,  
Director Ireland and UK

Tracey is a lifetime entrepreneur with success across multiple industries. She previously gre a global brand working with clients such as Barclays & Cisco on culture change and her work was endorsed by the Secretary of State.

She is a guest lecturer on Sustainability at the University of Surrey.



**Andy Dewis**  
Commercial Director,  
UK

Andy founded a successful international energy and sustainability consultancy in 2010.

The business was sold to Schneider Electric in 2012. Andy went on to become Vice President of Energy and Sustainability Services at Schneider and still advises the Board.

There are hundreds of carbon calculator products and the big 5 are making a push for large companies. Our market research (with mid-sized companies) showed that executives want one product and one dashboard. eco-shaper uniquely consolidates 5 different products into one solution

	<b>Spherics</b>	<b>CoGo</b>	<b>.planetly</b> <small>by OneTrust</small>	<b>planA</b>	<b>eco</b> shaper
Company carbon calculation	✔	✘	✔	✔	✔
Automated dashboard data	✔	✔	✔	✔	✔
Accurate employee carbon scores	✘	✔	✘	✘	✔
Personalized suggestions	✘	✔	✘	✘	✔
Supply chain connection	✔	✘	✘	✔	✔
Carbon progress tracker	✔	✔	✔	✔	✔
goals and milestones	✘	✘	✘	✘	✔

The climate crisis is here.

We need to do more than calculate numbers for regulators.

Its about hearts and minds.

Join us to deliver our mission to reach as many people as possible in our lifetimes.

Contact [tracey@eco-shaper.com](mailto:tracey@eco-shaper.com)  
44 (0)7801260717 [www.eco-shaper.com](http://www.eco-shaper.com)

*“eco-shaper is a superior solution compared to existing alternatives”*

*The European Innovation Council*





# SKILLED MAPPING

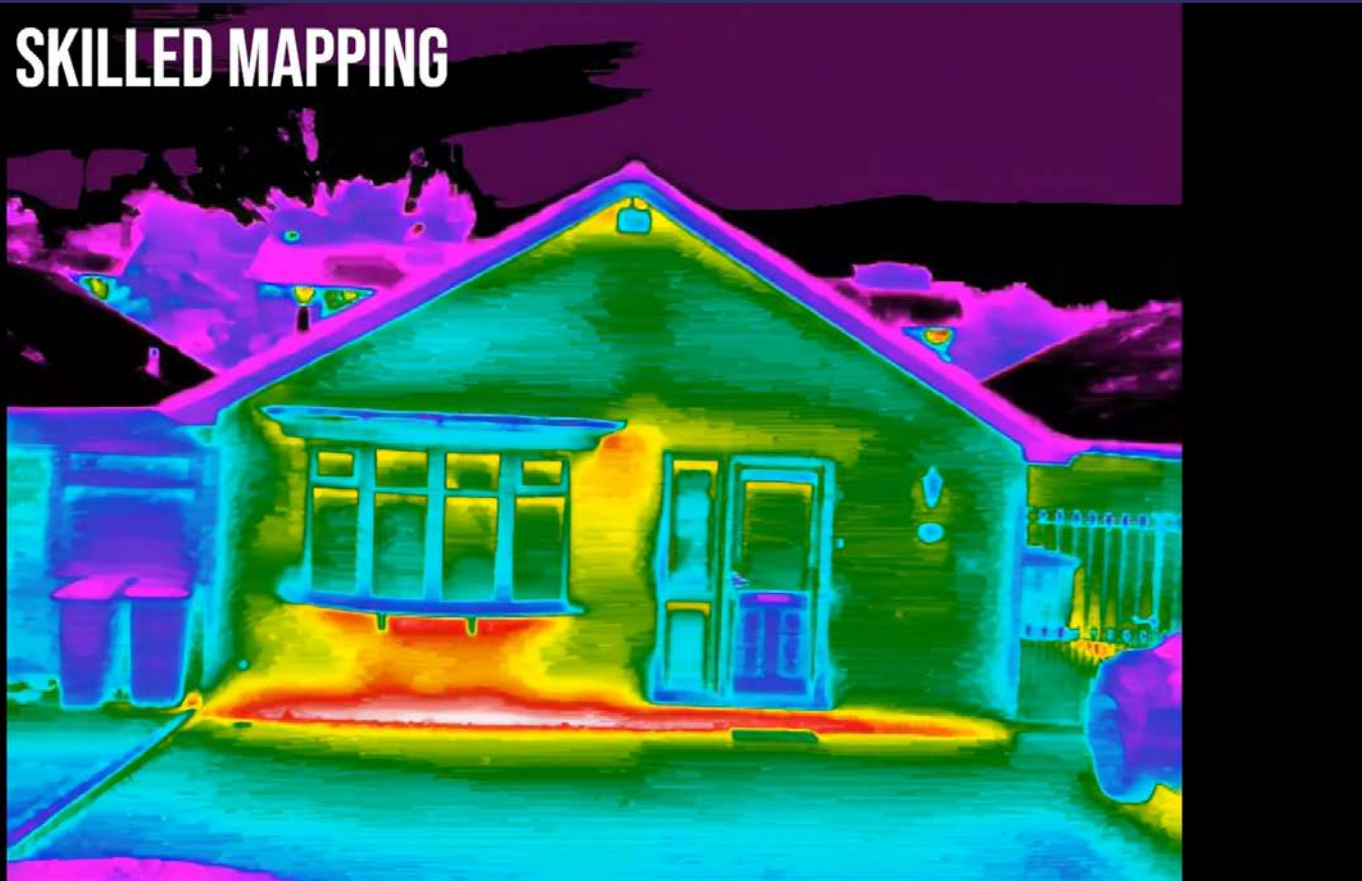


**STATION F**



# WHAT IS THERMAL IMAGING?

## SKILLED MAPPING



**SKILLED MAPPING**

[www.skilledmapping.com](http://www.skilledmapping.com)



## SKILLED MAPPING

www.skilledmapping.com

### EVALUATION RATING METHODOLOGY

Our analysis studies the features that are susceptible of losing heat that can be revealed by our thermal analysis. Each of these features can then be automatically analysed by our artificial intelligence:

- Windows
- Walls
- Roof
- Front door and garage door
- Floor

For each of those features we identify potential source of heat loss, or the absence which we classify under the following categories:



High heat loss / potential insulation anomaly

Some heat loss / comparable to average British homes

No visible heat loss / potentially well insulated feature

N/A : not enough elements available in the thermal image to assess heat loss

Additional comments on heat loss and the conditions of capture specific to this analysis are available in the further section "CAVEAT".

### SYNTHESIS OF THE EVALUATION

Windows  
Walls  
Roof  
Front door and garage door  
Floor



Need help? Email us at [reports@skilledmapping.com](mailto:reports@skilledmapping.com)  
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## SKILLED MAPPING

www.skilledmapping.com

### WALLS 1/3



High heat loss / potential insulation anomaly



Thermal imaging suggests that the insulation within the wall may have deteriorated over time.

**Recommendation:** This can lead to increased heat loss and reduced energy efficiency. It is recommended to inspect the insulation and consider replacement or augmentation to restore optimal thermal performance.

Saving potential per year	£30-90	CO2 87-263kg
---------------------------	--------	--------------

### EPC comparison

EPC date is July 21, 2019 and thermal image date is January 17, 2024

Quality of the walls  
Very Poor

#### Description

Solid brick, as built, no insulation (assumed)

Need help? Email us at [reports@skilledmapping.com](mailto:reports@skilledmapping.com)  
© Skilled Mapping Ltd 2024

Example 1

AI  
generated  
thermal  
report

## SKILLED MAPPING

www.skilledmapping.com

## COMPARISON WITH EPC

When an Energy Performance Certificate (EPC) is available, we provide a comparison between the thermal analysis and the EPC recommendations.

It is important to note that the dates of the EPC and the thermal imaging capture may differ significantly. As a result, any retrofits made in the interim could account for variations in the findings.

Energy Performance Certificates (EPCs) are documents that provide an energy efficiency rating for buildings, ranging from **A** (most efficient) to **G** (least efficient). EPCs are typically conducted by accredited assessors who evaluate the energy performance of a property. EPCs are mandatory if an owner wants to sell a property, or rent it, conduct significant changes to a building or apply to some government fundings.

Comparing the results of an EPC, which often includes declarative or estimated data, with scientifically measured data obtained through thermal imaging and AI analysis provides a more precise and objective assessment of a building's energy efficiency. This dual approach ensures a more comprehensive understanding of a building's performance.

## EPC RATING KEY DATA POINTS

Date of the EPC rating	January 17, 2016
Date of the thermal survey	January 17, 2024
Time difference between EPC and thermal survey	<b>Almost 9 years</b>
Assessment grade of the EPC rating	<b>E</b>
Our assessment of the EPC:	We believe the house could be rated C or above which contradicts the rating from the EPC.

Need help? Email us at [reports@skilledmapping.com](mailto:reports@skilledmapping.com)  
© Skilled Mapping Ltd 2024

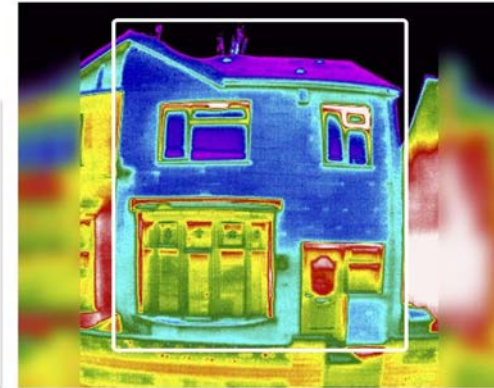
## SKILLED MAPPING

www.skilledmapping.com

## WALLS 1/2



No visible heat loss / potentially well insulated feature



the walls exhibit good insulation properties with minimal heat loss detected. This indicates that the insulation is effective and well-maintained.

**Recommendation:** Regular inspections should continue to ensure insulation integrity over time.

Saving potential per year	-	-
---------------------------	---	---

## EPC comparison

EPC date is January 17, 2016 and thermal image date is January 17, 2024

Quality of the walls  
Very Poor

### Description

Solid brick, as built, no insulation (assumed)

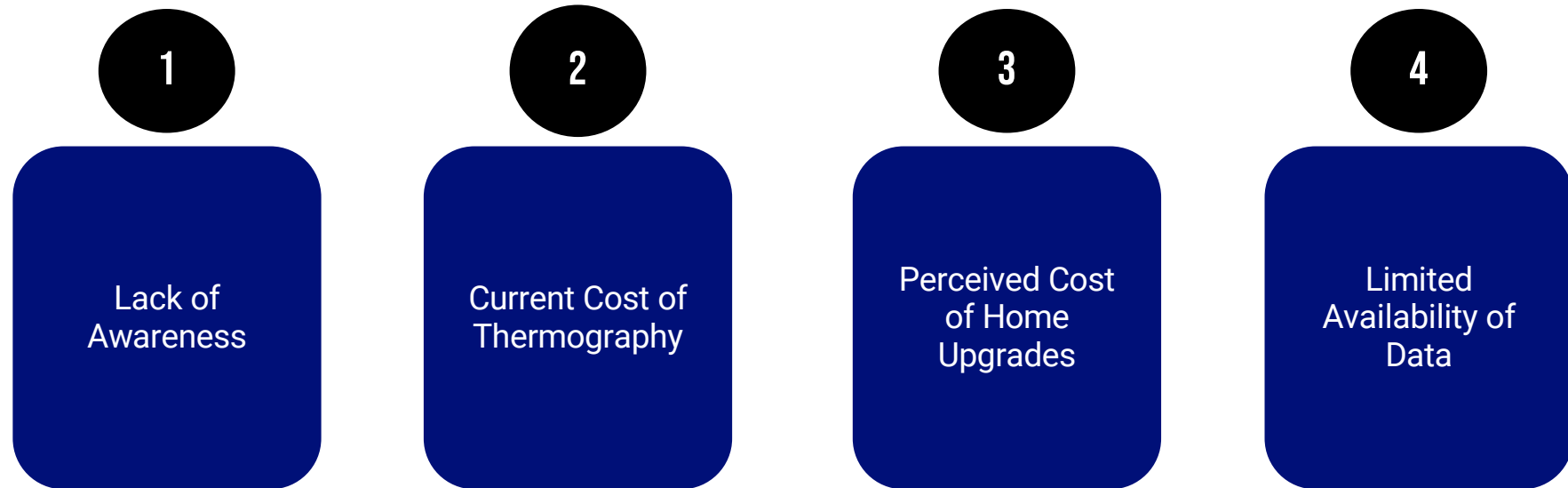
Need help? Email us at [reports@skilledmapping.com](mailto:reports@skilledmapping.com)  
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Example 2

AI generated thermal report

## THE PROBLEM

THERE ARE MULTIPLE BARRIERS TO HOME OCCUPIERS TAKING PROACTIVE STEPS TO IMPROVE THEIR HOME ENERGY EFFICIENCY, ALL OF WHICH DRIVE CUSTOMER INERTIA AND BLOCK PROGRESS ON A NATIONAL SCALE



Seeing the heat loss from one's homes increases the likelihood of taking energy efficient actions: **40%** take action with a Thermal Image vs **16.7%** without

*Plymouth University study, 2016*

# TECHNOLOGY

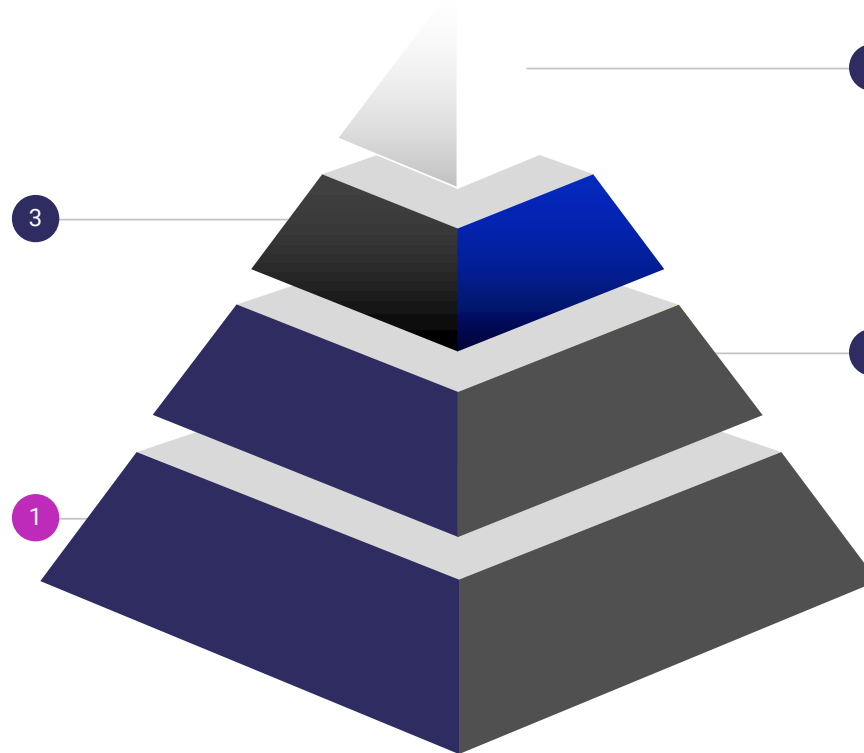
## AT THE CORE OF OUR SOLUTION: AI MODEL TRAINED ON OUR PROPRIETARY DATASET

### AI models to interpret the data automatically and at scale

We are in the process of building **two AI models** one that will be able to **automate the report writing** and one that will be able to **detect changes at scale**.

### World-leading proprietary thermal mapping system + large scale captures

Skilled Mapping developed **in-house** a unique **thermal mobile mapping system** and tested it extensively while capturing the largest database of thermal images of home worldwide: **33 million images** representing **half a million homes**.



### Portal to distribute thermal images and reports on a map

Skilled Mapping is developing an **online portal** to facilitate access to large dataset of thermal images, enabling users to **easily access** thermal reports.

### First AI models to make the most of the thermal dataset

Skilled Mapping developed two solutions using machine learning to better manage the quantity of the data and its interpretability: **identification of homes** on thermal images + **automated thermal tuning**

**SKILLED MAPPING**

[www.skilledmapping.com](http://www.skilledmapping.com)



# NOTRE SOLUTION VIENT DE REMPORTER 2 PRIX PROPTech EUROPÉENS



## European Proptech Awards

“Finalist”

17 September 2024 - Brussels



**SKILLED MAPPING**  
www.skilledmapping.com

Supported by



## Expo Real Impact Awards

“Category Winner - Social Impact”

8 October 2024 - Munich



Supported by



# CONTACT

Alex Wrigglesworth  
[alex@skilledmapping.com](mailto:alex@skilledmapping.com)



**SKILLED MAPPING**  
[www.skilledmapping.com](http://www.skilledmapping.com)

# ecolens

AI platform scaling retrofits  
to save energy, cut costs and reduce carbon





Lytton Estate, Fulham; London

# 29%

Increase in utility bills since 2021

# 8 million

Homes in England have energy efficiency rating below 'C'

# 4000+

Retrofitted buildings per week to meet 2050 net zero goal

# The housing sector is distressed

## Shocking news stories

- 15% of fuel-poor households in England are in social housing
- Damp, mould and fire has lead to death

## Regulatory pressures

- UK plans to require EPC 'C' for private and social rentals by 2030
- New standards require social landlords to provide accurate property condition data

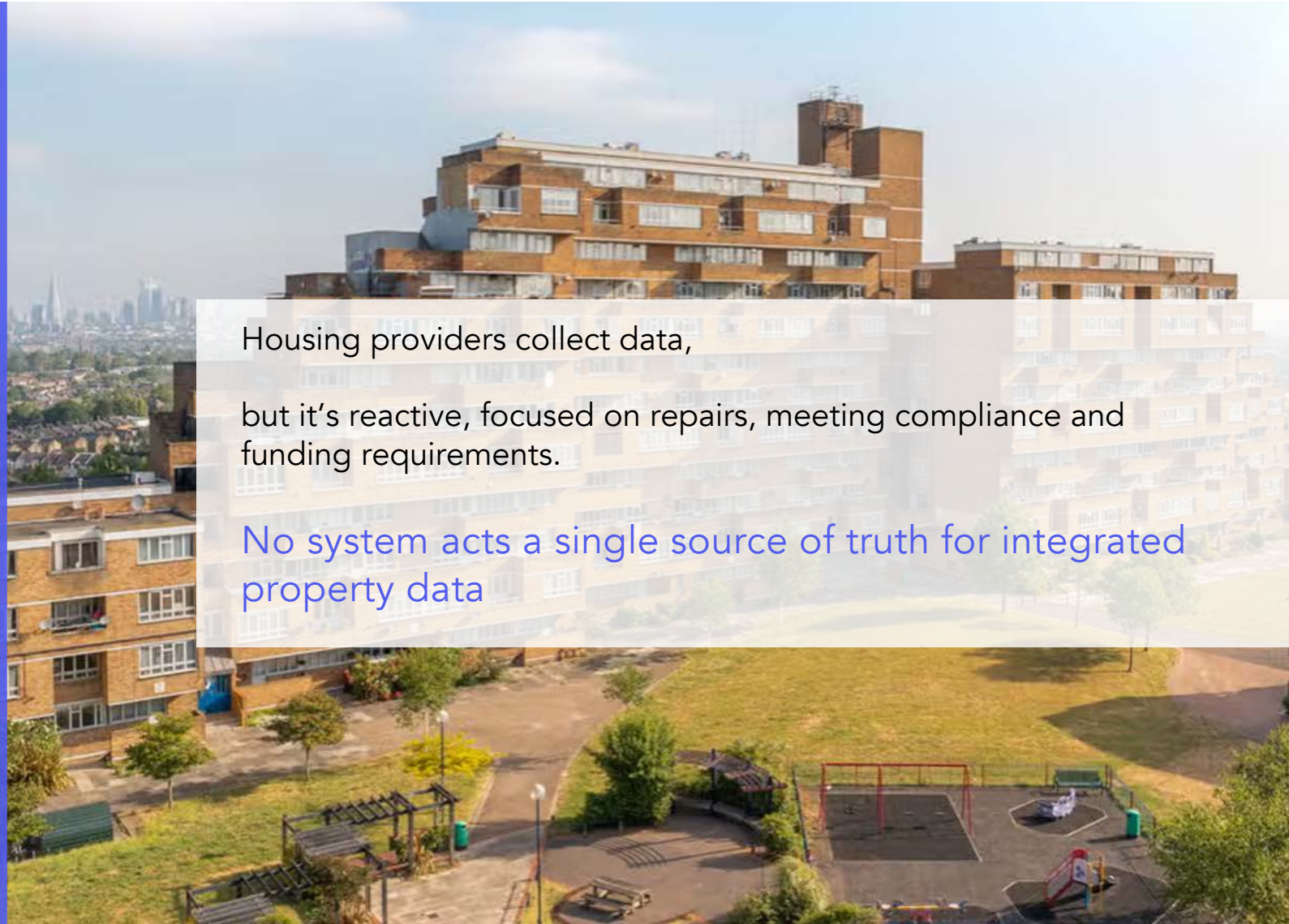
## Problem.

30%

of housing resources spent on collecting and re-keying data

10+

unique surveys conducted during a property's lifecycle.



Housing providers collect data,

but it's reactive, focused on repairs, meeting compliance and funding requirements.

No system acts a single source of truth for integrated property data



## Our Vision.

We're developing an **AI asset management platform**

Sits on top of existing systems and data using predictive models to provide **early warnings** and **predictive insights** for future repairs.



Starting with retrofits

## Current Solution.

Starting with automating manual tasks to enable retrofits at scale



### Gather

Property data  
Landlords/ Tenant  
Public /Open source



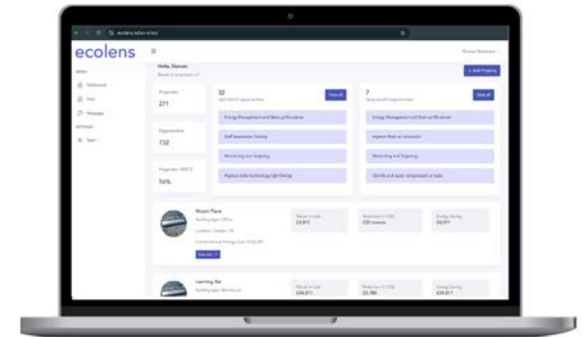
### Assess

Property condition  
Machine learning  
Energy modelling



### Recommend

Retrofit plan  
Building optimisation plans  
Cost planning



Underpinned by stakeholder engagement - landlord, tenant

## Activity so far.

150 industry interviews



Won £10k grant funding



Industry bodies & networks



# ecolens



Noma Nkala  
CEO



India Dearlove  
CTO



Duncan Robertson  
COO



backed by:



## Advisors



Neil Carter  
Retrofit - Director



Cecile Babcock  
Property Investor - Executive



# ecolens

Contact me if you're interested in

Pilots



Networking



Grants & funding



# Q&A



The UK's innovation agency



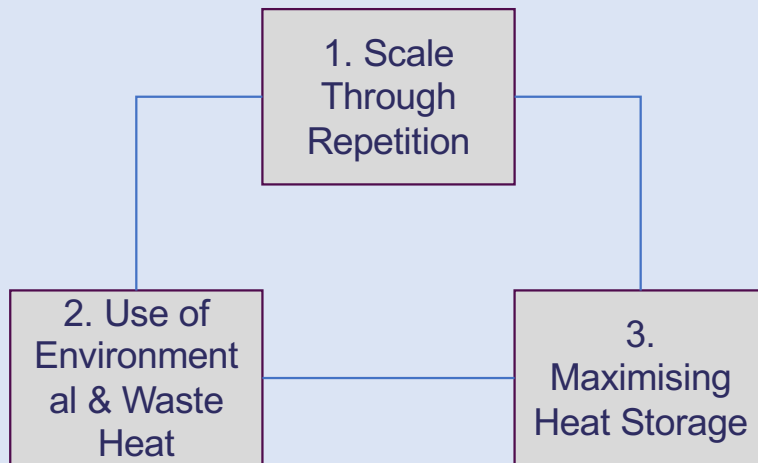


# Small Repeatable Heat Networks

Part of Realising Net Zero Liverpool

# The Concept

## 3 Key Principles



## Specific Areas of Focus

- Removal of fossil fuels
- Cost / value
- Efficiency through repetition
- Modular assembly using common parts
- Electricity grid reduction and balancing
- Shared use of environmental / waste heat
- Scalable geothermal investment (extraction & storage)
- Applicable to many areas (not just city/town centres)

## Heat Network Process



1. Environmental / Waste Heat Collection

2. Heat Generation (Energy Centres)

3. Heat Storage

4. Heat Distribution

5. Building Connections

# The Potential Opportunity



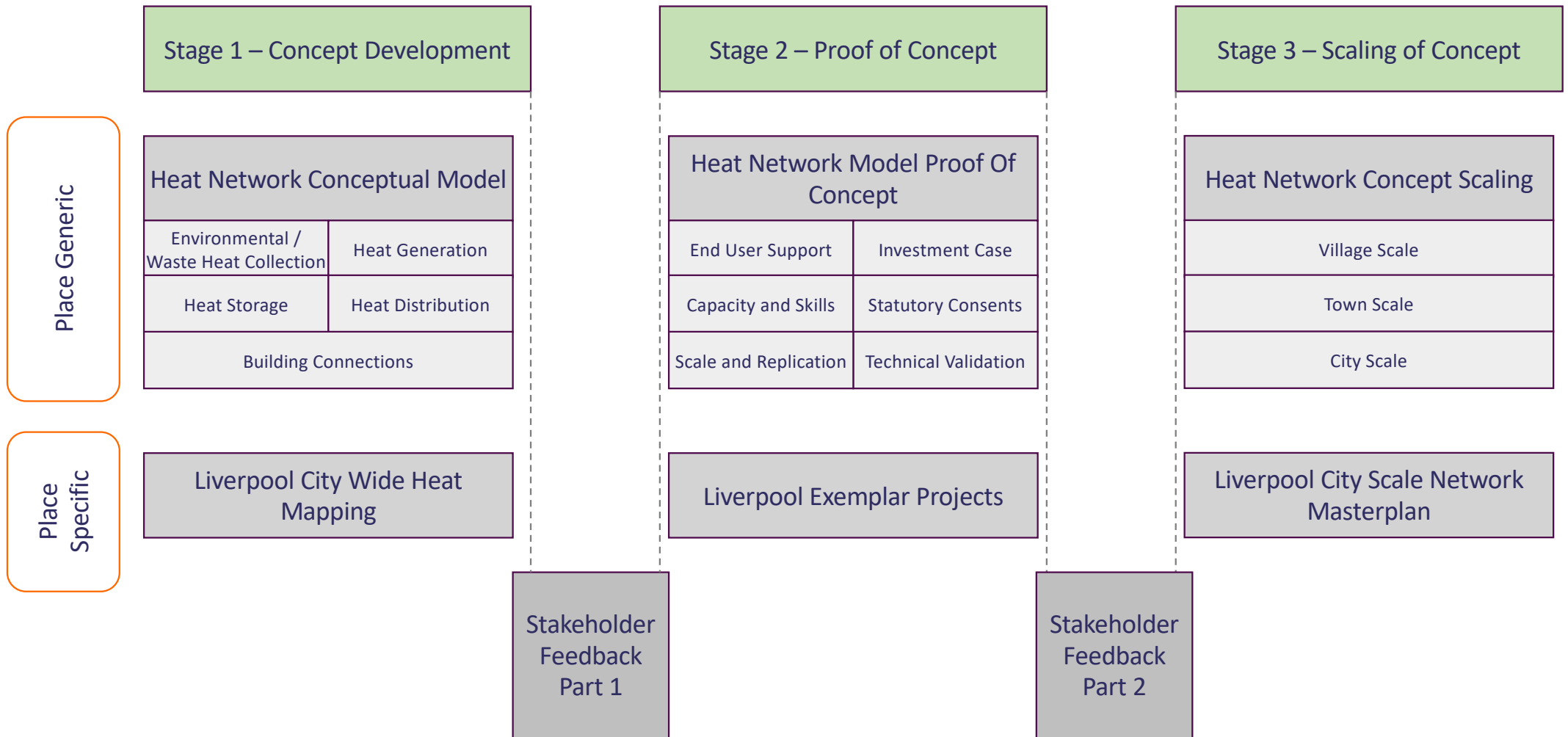
## For Businesses

- Long term opportunities in all project stages:-
  - Design
  - Manufacturing
  - Construction
  - Operation, retail and maintenance
- Investment possibilities in all network components
  - Environmental / waste heat collection
  - Heat generation
  - Heat storage
  - Heat distribution
  - Building Connections
- Geothermal element provides low carbon 'transition' for jobs in the oil and gas industry.
- Creates 'breeding ground' for innovation.

## For Local Authorities

- Tested scalable approach to building decarbonisation
- Solution for 'difficult' buildings (heritage, terrace streets etc)
- 'Oven ready' solution for new housing estates
- Quicker, simpler, less risky heat network delivery
- Reduces electricity grid pressures through storage
- Potential for local authority ownership /control of heat network elements
- Well understood investment opportunities
- Local manufacturing and job creation
- Accelerates boiler scrappage and retirement of gas in delivery of Net Zero aspirations

# Project Roadmap

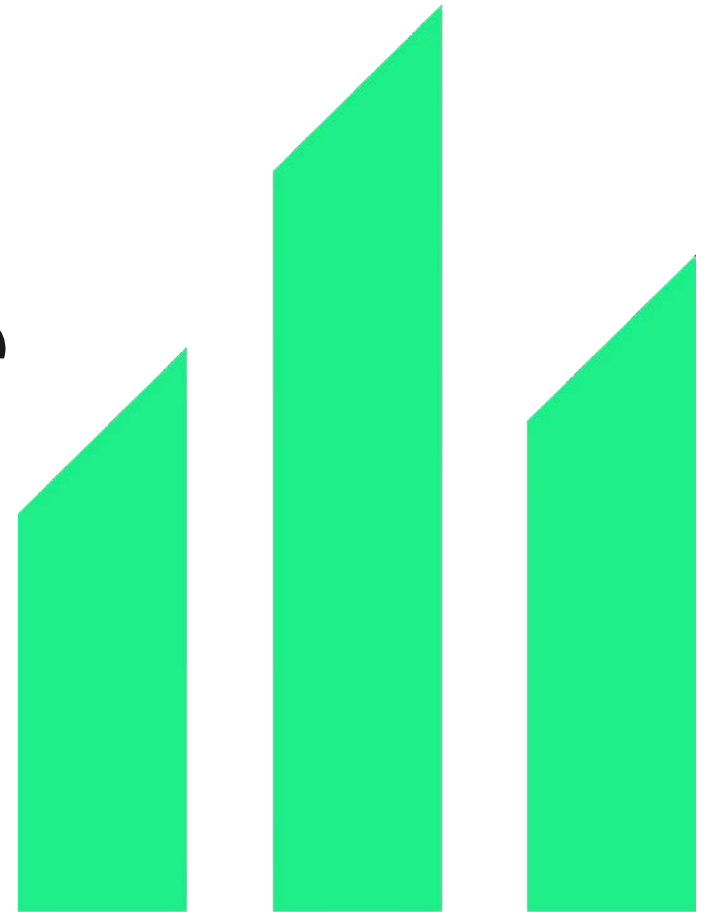




# Forget Smart Buildings: How to Decarbonise the Dumb ones

---

INTUITIVE, COST-EFFECTIVE DECARBONISATION WITH FAST RESULTS



# The problem

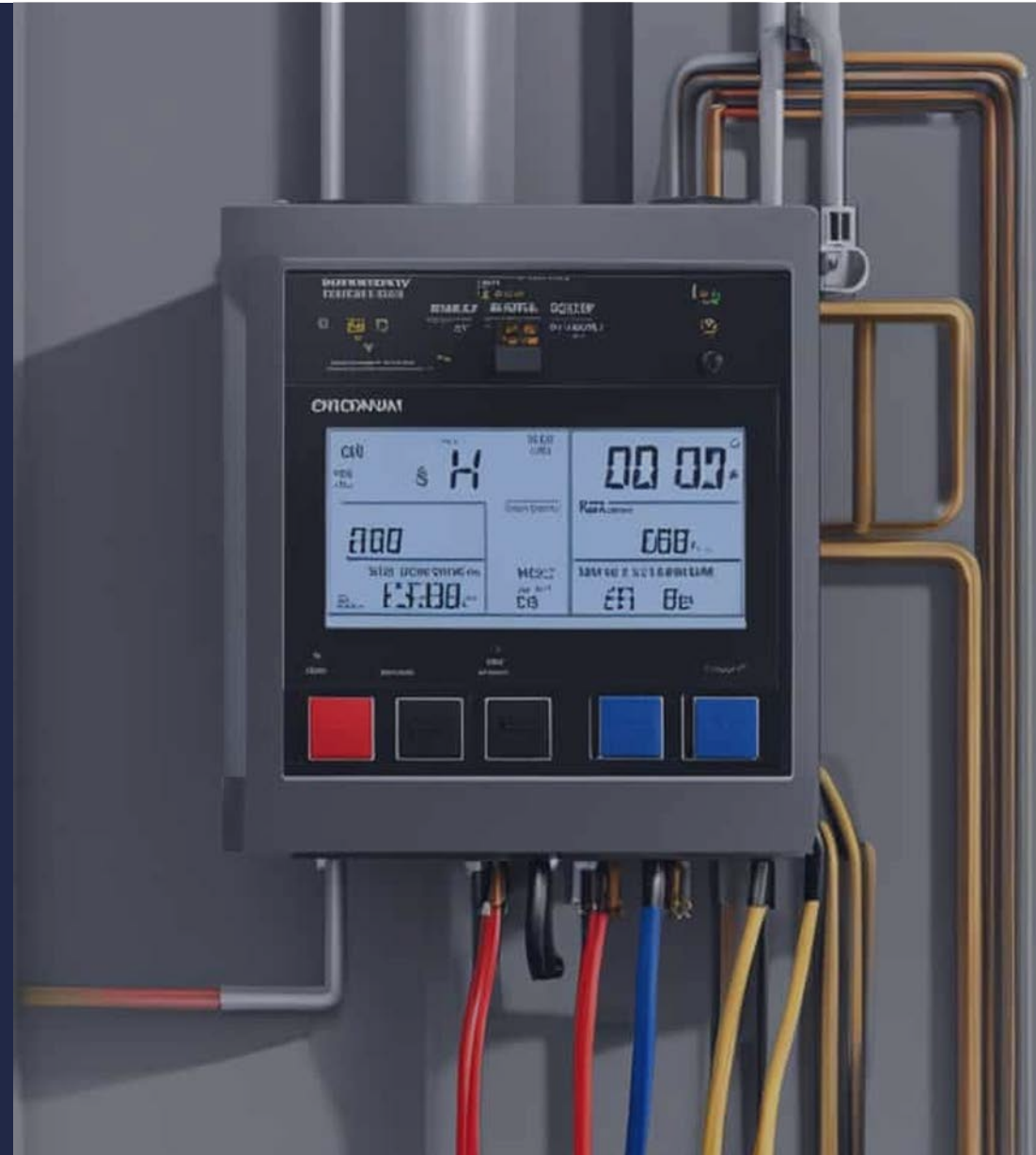
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## Buildings lack data

90% of Non-Domestic buildings don't have a Building Energy Management System and 90% of those that do generally lack actionable insights.

03

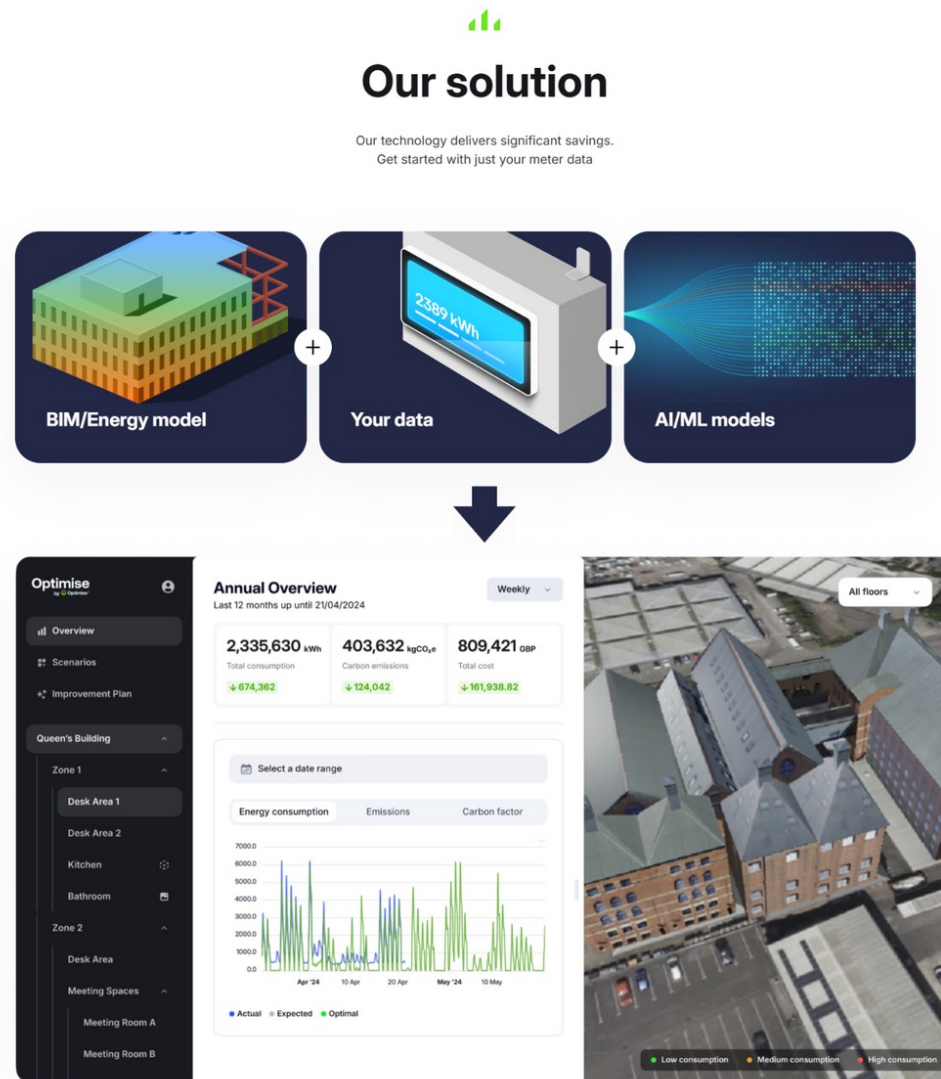
# 99%



# The Solution

Semantics and AI is the answer

- Creation of a Semantic Digital Twin, via ML/LLMs and Ontologies provides a richer context of a building for understanding the data being processed.
- This provides more complex and insightful questions about the building they are looking to optimise



## Our solution

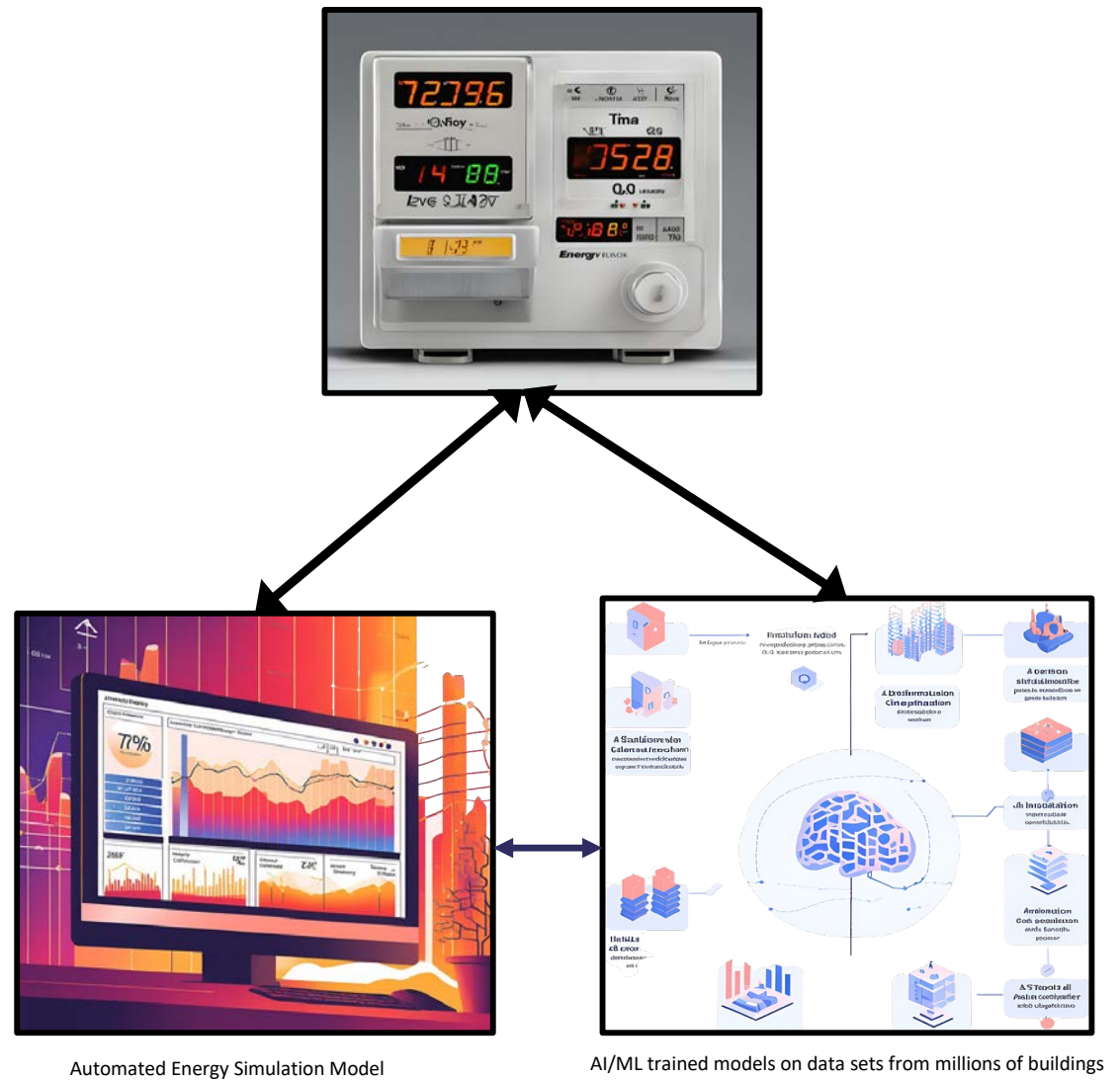
Our technology delivers significant savings.  
Get started with just your meter data





# The Methodology

Creation of semantic digital twin, by adding real time energy data (from meters, BMSs/IoT) with a building physics model and an AI trained large data model



# Predict

by  Optimise<sup>AI</sup>

**A whole estate digital twin that provides a helicopter view of the energy consumption, cost and carbon emissions of all your buildings and HOW to improve them**

- Identify the buildings that need attention, and the measures required to improve them
- Compare your energy tariff against the most appropriate tariffs for you, based on your future consumption
- Compare your buildings against industry benchmarks and EPCs
- Receive guidance on what measures to implement to improve performance, as well as practical guidance on how to implement them, via our virtual AI consultant
- You don't need to be an expert to interpret the data, the system is intuitive and sets easy actions to follow





# Use Cases

---

Clients we've worked with and who are already seeing the benefits of up to 30% energy savings with Optimise-AI.

## Bristol TM Station

---

A digital twin of Bristol train station, pioneering energy and carbon emissions optimisation within the station's operations.



## Luton Airport

---

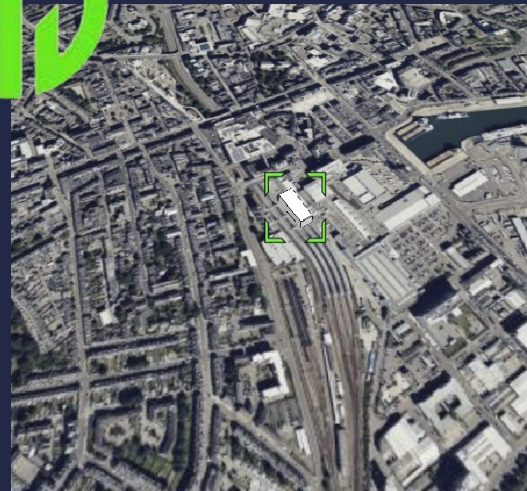
We implemented a semantic digital twin of the airport to simulate, predict and optimise the operational energy and carbon emissions and identified how to affordably save over 20%



## Scot Rail

---

A created semantic digital twins of 15 stations and depots and identified over 30% of savings with support on how to make the savings



# Achievements

---

## Awards



## Funding



## Clients





# Contact us

---

**Website:**

[www.optimise-ai.com](http://www.optimise-ai.com)

**Email:**

[nick@optimise-ai.com](mailto:nick@optimise-ai.com)

**LinkedIn**

[Optimise-AI](#)



# Thank You

Do you want to work with us?





# 13:45-14:00: Break, Networking & Business Showcase



The UK's innovation agency

# Pitch Session 2

**Host:** Bruce McLelland, Knowledge Transfer Manager - Emerging Technologies and Industries

**Pitch 1:** Fairer Warmth

**Pitch 2:** AURORA

**Pitch 3:** Hiyacar

**Pitch 4:** DG Cities

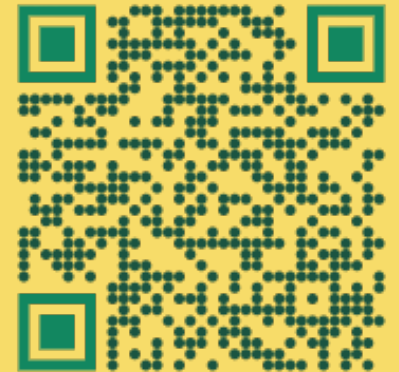
**Pitch 5:** Uplyfted

# Fairer Warmth

Connecting Organisations with  
Households for a Fair Energy Future



Fairer Warmth App



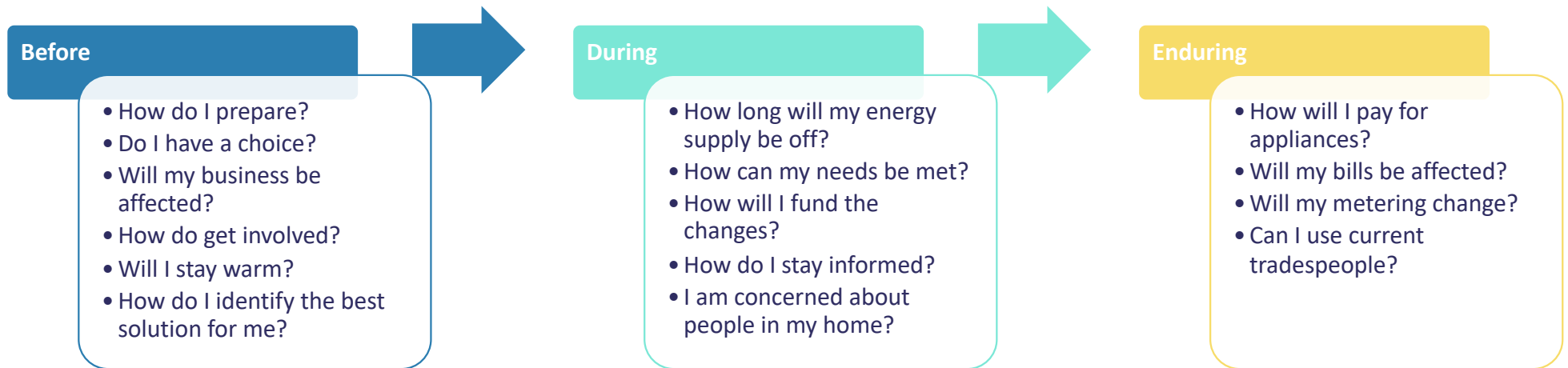
# Introducing Fairer Warmth



# The Challenge

The perspectives of different demographic groups and businesses differs, and people require tailored consideration and support throughout all phases of a Net Zero Transition:

1. Current consumer information offerings can be **difficult to access and complicated**
2. Current 'top down' projects can risk investments through **planning and engagement difficulties** and objections
3. These issues **compound together**, making the energy transition **less accessible** for those **most in need** of support.

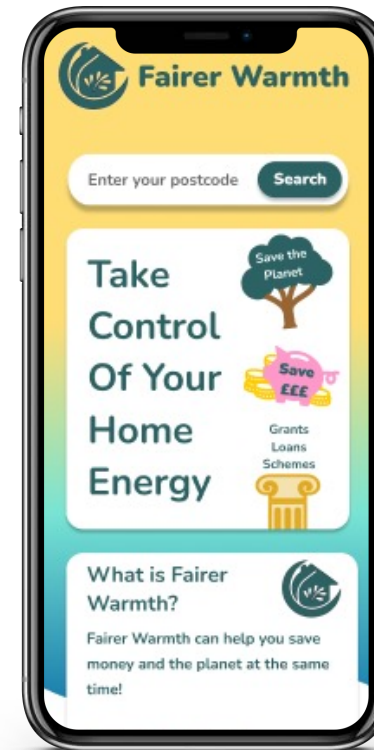


# Introducing Fairer Warmth



Fairer Warmth is designed to engage people and communities about reducing their home energy consumption and costs, helping:

- **Home Occupiers:** Receive the advice and support they need to save energy, money and reduce CO2.
- **Champions:** Provide anyone with a desire to support their neighbors and communities with the tools and training to do so.
- **Communities:** Initiate, grow, monitor and analyse effective community engagement and support programs.

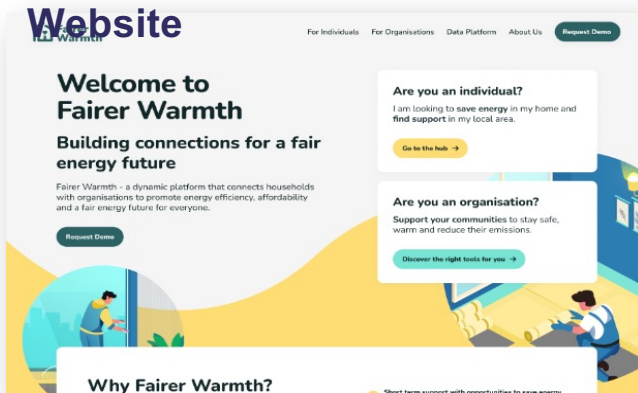




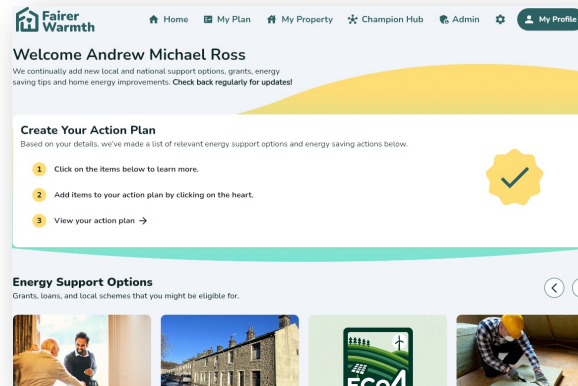
# The Fairer Warmth Toolkit



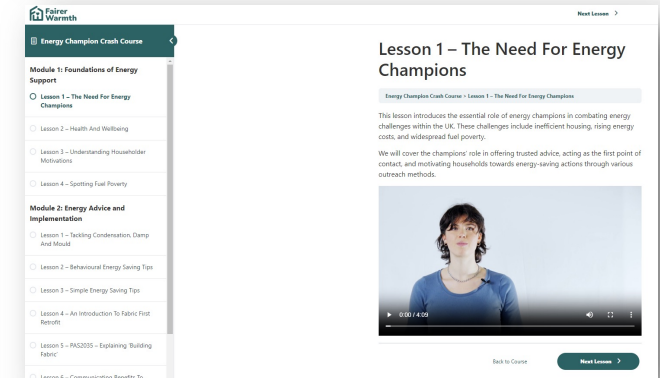
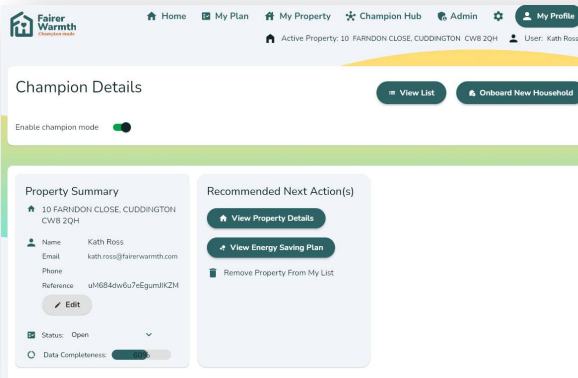
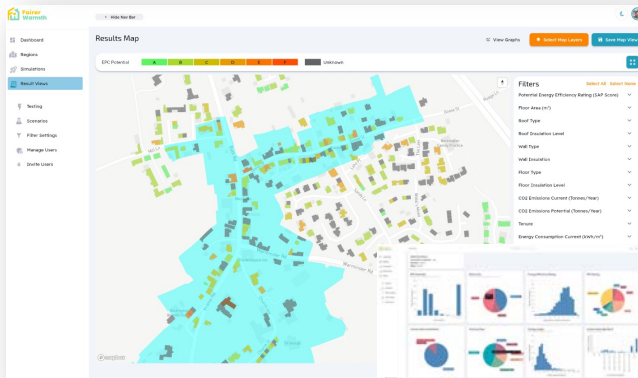
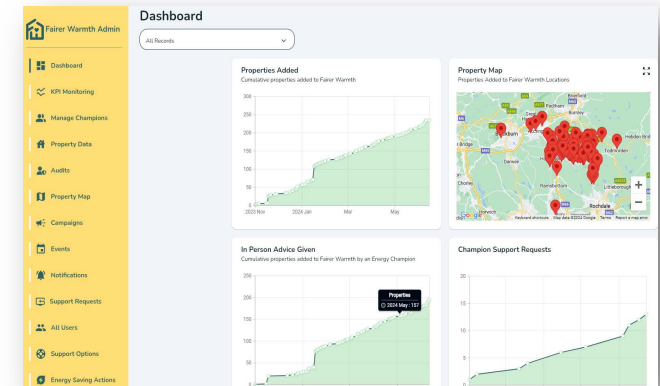
## Fairer Warmth Hub



## Fairer Warmth App



## Admin System



## Data Platform

## Champions' System

## E-Learning Platform

# The Fairer Warmth Toolkit



## Fairer Warmth Hub Website

A screenshot of the Fairer Warmth Hub website homepage. The page has a clean, modern design with a white background and blue and yellow accents. At the top left is the Fairer Warmth logo. To the right of the logo are navigation links: "For Individuals", "For Organisations", "Data Platform", and "About Us". A dark green button labeled "Request Demo" is positioned to the right of these links. The main heading reads "Welcome to Fairer Warmth" in a large, bold, dark green font. Below this is the sub-heading "Building connections for a fair energy future" in a smaller, bold, dark green font. A short paragraph describes the platform: "Fairer Warmth - a dynamic platform that connects households with organisations to promote energy efficiency, affordability and a fair energy future for everyone." Below this text is another "Request Demo" button. On the right side of the page, there are two white callout boxes. The first box is titled "Are you an individual?" and contains the text "I am looking to save energy in my home and find support in my local area." Below this text is a yellow button labeled "Go to the hub →". The second box is titled "Are you an organisation?" and contains the text "Support your communities to stay safe, warm and reduce their emissions." Below this text is a teal button labeled "Discover the right tools for you →". At the bottom of the page, there is a white box with the heading "Why Fairer Warmth?". The background of the page features a stylized illustration of a person in a blue uniform working on a wall, and another person in a blue uniform working on a roof. The overall color palette is dominated by white, blue, and yellow.

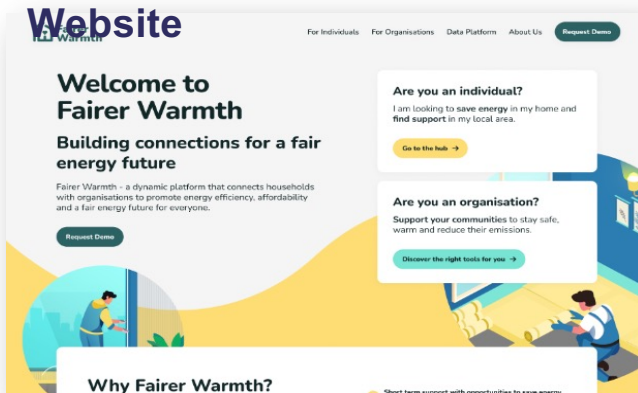


<https://www.fairerwarmth.com/>

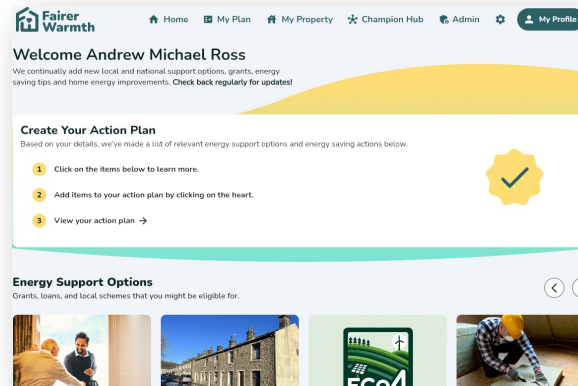
# The Fairer Warmth Toolkit



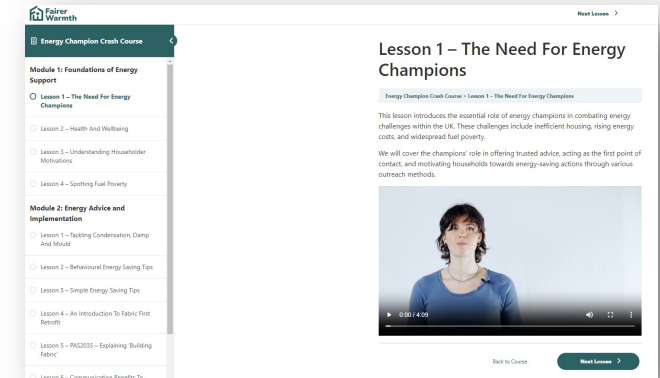
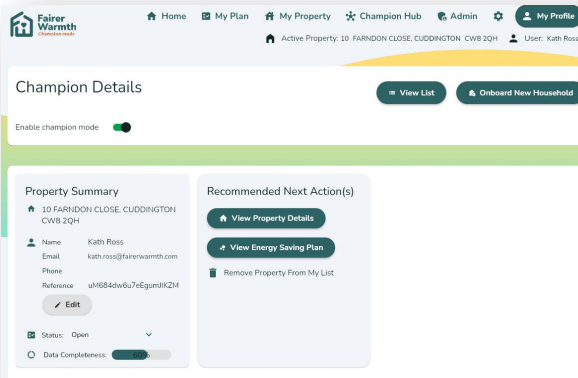
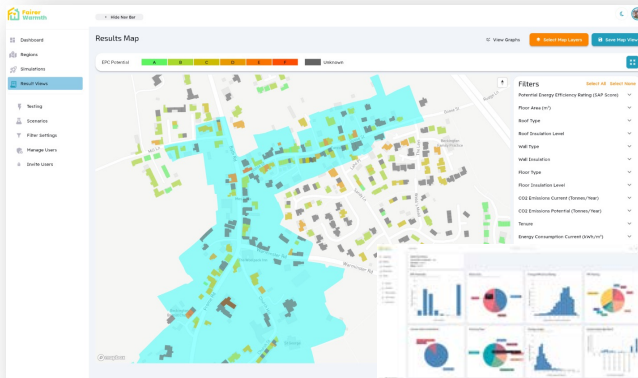
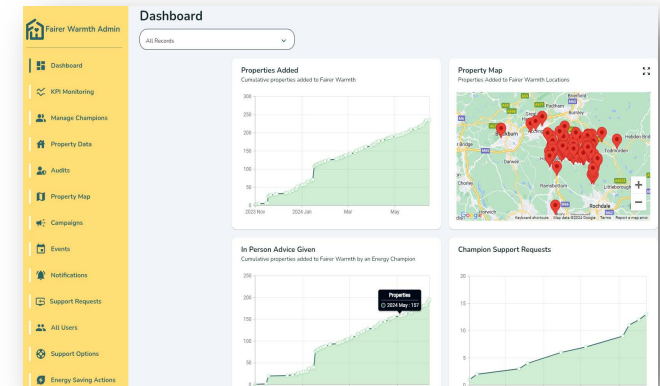
## Fairer Warmth Hub



## Fairer Warmth App



## Admin System



## Data Platform

## Champions' System

## E-Learning Platform

# The Fairer Warmth Toolkit



## Fairer Warmth App

The screenshot shows the user interface of the Fairer Warmth App. At the top, there is a navigation bar with the app's logo and several menu items: Home, My Plan, My Property, Champion Hub, Admin, and My Profile. Below the navigation bar, a personalized welcome message reads "Welcome Andrew Michael Ross" and includes a note about new support options. The main content area features a "Create Your Action Plan" section with a list of three steps and a yellow checkmark icon. Below this is an "Energy Support Options" section with a carousel of images showing people, a row of houses, an ECOM logo, and a worker.

**Fairer Warmth** Home My Plan My Property Champion Hub Admin My Profile

### Welcome Andrew Michael Ross

We continually add new local and national support options, grants, energy saving tips and home energy improvements. **Check back regularly for updates!**

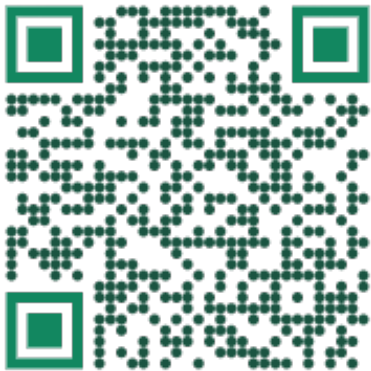
#### Create Your Action Plan

Based on your details, we've made a list of relevant energy support options and energy saving actions below.

- 1 Click on the items below to learn more.
- 2 Add items to your action plan by clicking on the heart.
- 3 View your action plan →

#### Energy Support Options

Grants, loans, and local schemes that you might be eligible for.



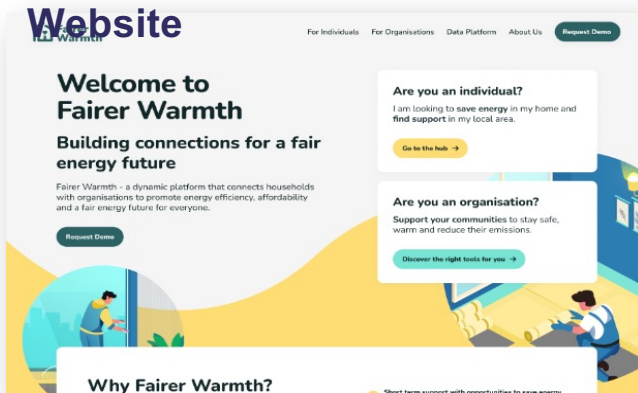
<https://app.fairerwarmth.com>



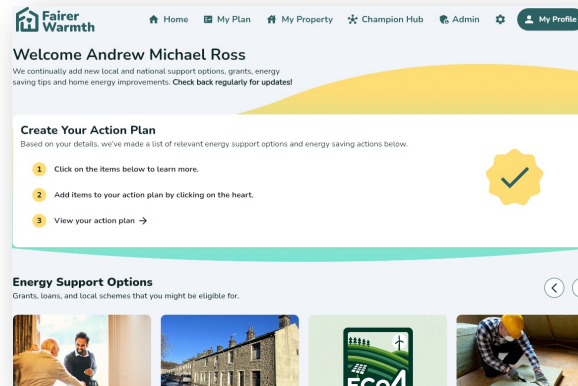
# The Fairer Warmth Toolkit



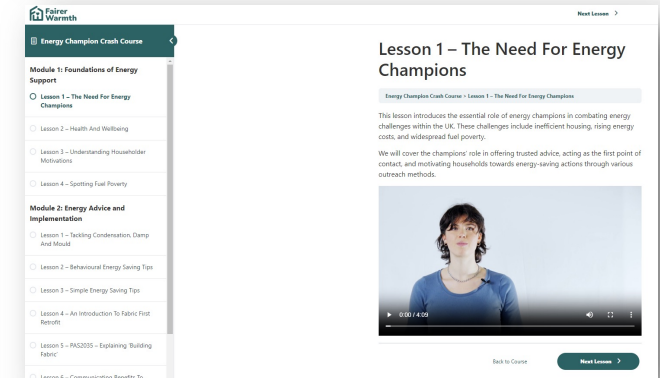
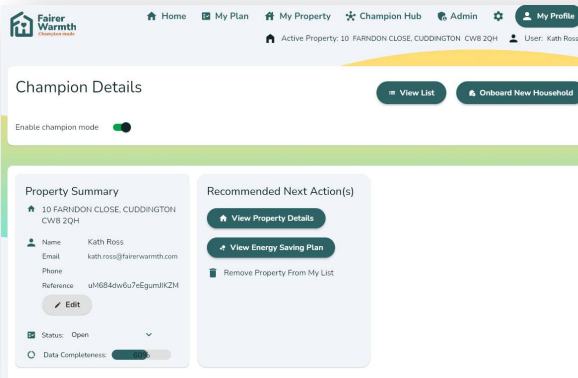
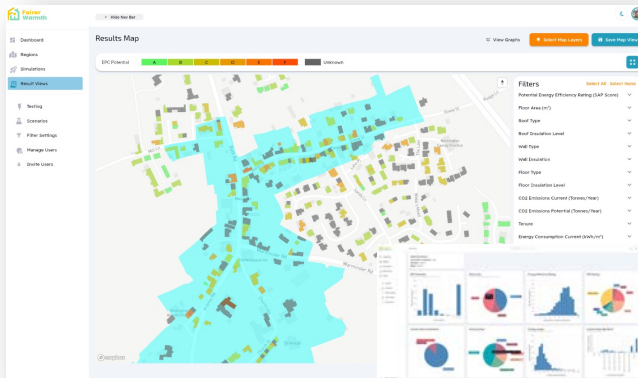
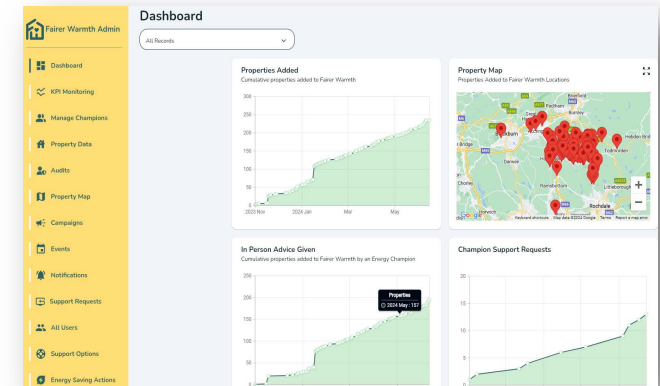
## Fairer Warmth Hub



## Fairer Warmth App



## Admin System

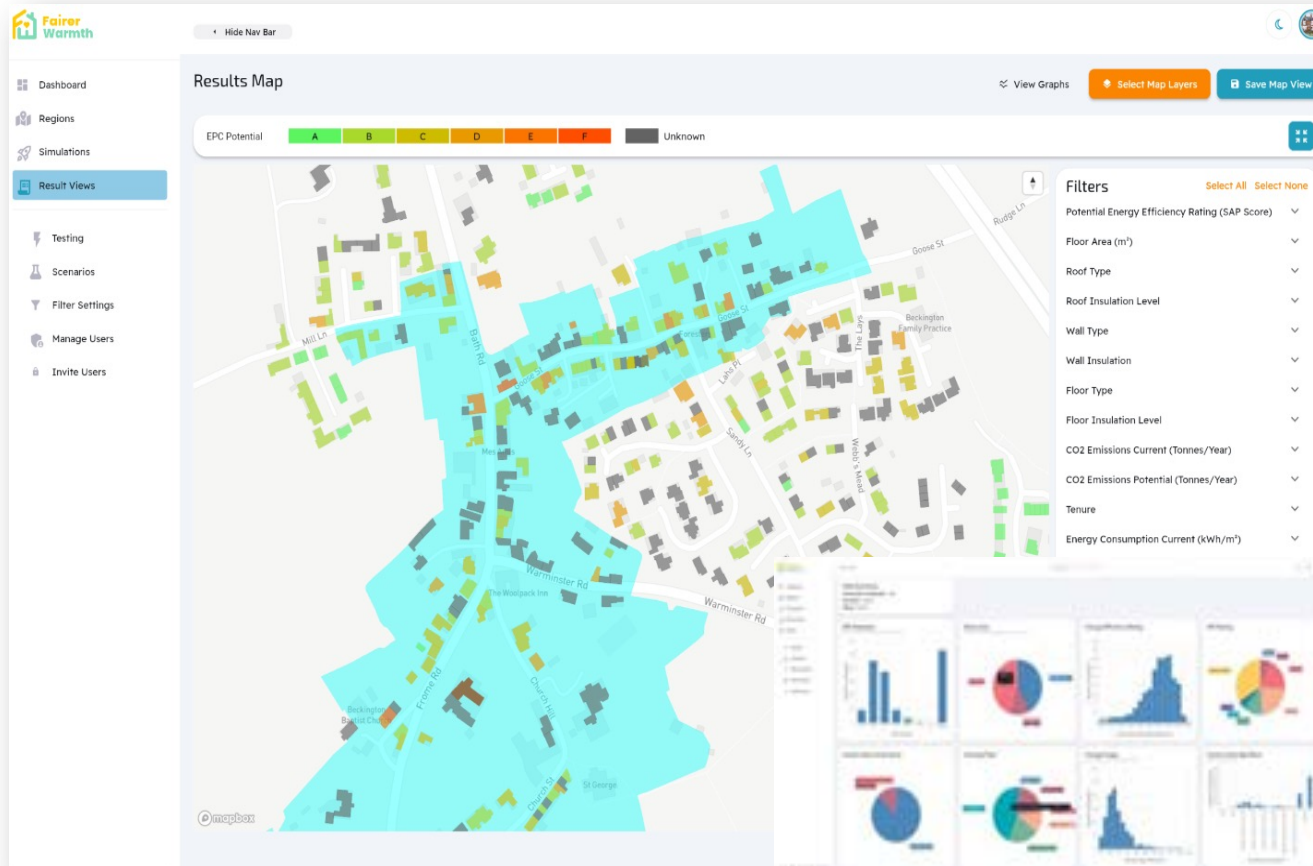


## Data Platform

## Champions' System

## E-Learning Platform

# The Fairer Warmth Toolkit



Data Platform





# The Fairer Warmth Toolkit



## Fairer Warmth Hub

Website

For Individuals For Organisations Data Platform About Us Request Demo

### Welcome to Fairer Warmth

Building connections for a fair energy future

Fairer Warmth - a dynamic platform that connects households with organisations to promote energy efficiency, affordability and a fair energy future for everyone.

Request Demo

**Are you an individual?**  
I am looking to save energy in my home and find support in my local area.  
[Go to the hub →](#)

**Are you an organisation?**  
Support your communities to stay safe, warm and reduce their emissions.  
[Discover the right tools for you →](#)

### Why Fairer Warmth?

Short term support with responsibility to save energy

## Fairer Warmth App

Fairer Warmth

Home My Plan My Property Champion Hub Admin My Profile

### Welcome Andrew Michael Ross

We continually add new local and national support options, grants, energy saving tips and home energy improvements. [Check back regularly for updates!](#)

### Create Your Action Plan

Based on your details, we've made a list of relevant energy support options and energy saving actions below.

- 1 Click on the items below to learn more.
- 2 Add items to your action plan by clicking on the heart.
- 3 View your action plan →

### Energy Support Options

Grants, loans, and local schemes that you might be eligible for.

## Admin System

Fairer Warmth Admin

Dashboard

All Reports

- Dashboard
- KPI Monitoring
- Manage Champions
- Property Data
- Avails
- Property Map
- Campaigns
- Events
- Notifications
- Support Requests
- All Users
- Support Options
- Energy Saving Actions

**Properties Added**  
Cumulative properties added to Fairer Warmth

**Property Map**  
Properties Added to Fairer Warmth Locations

**In Person Advice Given**  
Cumulative properties added to Fairer Warmth by an Energy Champion

**Champion Support Requests**

Fairer Warmth

Results Map

View Groups Select Data Layer Add Data Layer

Filters

- Annual Energy Efficiency Rating (EPC Score)
- Floor Area (m<sup>2</sup>)
- Roof Type
- Roof Insulation Level
- Wall Type
- Wall Insulation
- Floor Type
- Floor Insulation Level
- CO<sub>2</sub> Emissions Potential (Champs/Year)
- CO<sub>2</sub> Emissions Potential (Champs/Year)
- Revenue
- Energy Consumption Potential (Champs/Year)

Fairer Warmth

Home My Plan My Property Champion Hub Admin My Profile

Active Property: 10 FARNDON CLOSE, CUDDINGTON, CW8 2QH User: Kath Ross

### Champion Details

Enable champion mode

[View List](#) [Onboard New Household](#)

#### Property Summary

10 FARNDON CLOSE, CUDDINGTON, CW8 2QH

Name: Kath Ross  
Email: kath.ross@fairerwarmth.com  
Phone:  
Reference: uM684dw6u7Egum3K2M

Status: Open  
Data Completeness:

#### Recommended Next Action(s)

- [View Property Details](#)
- [View Energy Saving Plan](#)
- [Remove Property From My List](#)

Fairer Warmth

### Energy Champion Crash Course

Next Lesson

#### Module 1: Foundations of Energy Support

- Lesson 1 - The Need For Energy Champions
- Lesson 2 - Health And Wellbeing
- Lesson 3 - Understanding Householder Motivations
- Lesson 4 - Spotting Fuel Poverty

#### Module 2: Energy Advice and Implementation

- Lesson 1 - Tackling Condensation, Damp And Mould
- Lesson 2 - Behavioural Energy Saving Tips
- Lesson 3 - Simple Energy Saving Tips
- Lesson 4 - An Introduction To Fabric First Retrofit
- Lesson 5 - PAS2035 - Explaining Building Fabric
- Lesson 6 - Communicating Benefits To

### Lesson 1 - The Need For Energy Champions

Energy Champion Crash Course - Lesson 1 - The Need For Energy Champions

This lesson introduces the essential role of energy champions in combating energy challenges within the UK. These challenges include inefficient housing, rising energy costs, and widespread fuel poverty.

We will cover the champion's role in offering trusted advice, acting as the first point of contact, and motivating households towards energy-saving actions through various outreach methods.

0:00 / 4:09

Back to Course [Next Lesson](#)

## Data Platform

## Champions' System

## E-Learning Platform

# The Fairer Warmth Toolkit



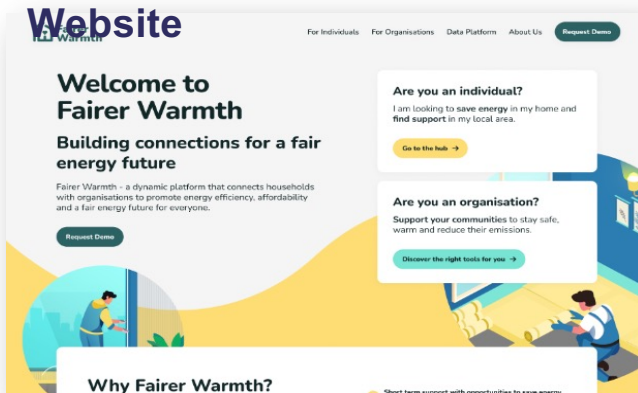
The screenshot shows the 'Champion Details' page in the Fairer Warmth toolkit. At the top, there is a navigation bar with links for Home, My Plan, My Property, Champion Hub, Admin, and My Profile. Below the navigation bar, the page title 'Champion Details' is displayed, along with two buttons: 'View List' and 'Onboard New Household'. A toggle switch for 'Enable champion mode' is currently turned on. The main content area is divided into two columns. The left column, titled 'Property Summary', contains the following information: address (10 FARNDON CLOSE, CUDDINGTON CW8 2QH), name (Kath Ross), email (kath.ross@fairerwarmth.com), phone, and reference (uM684dw6u7eEgumJKZM). There is an 'Edit' button below the reference. At the bottom of this column, the status is 'Open' and the data completeness is 60%. The right column, titled 'Recommended Next Action(s)', contains three buttons: 'View Property Details', 'View Energy Saving Plan', and 'Remove Property From My List'.

## Champions' System

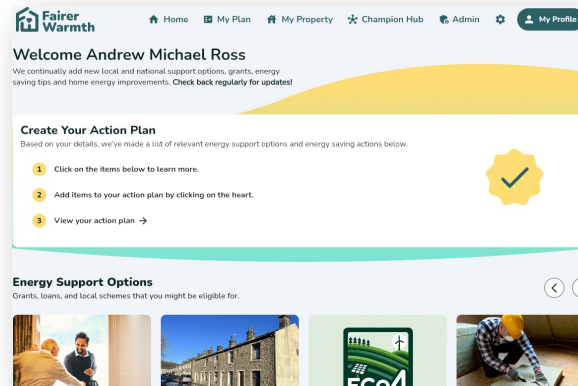
# The Fairer Warmth Toolkit



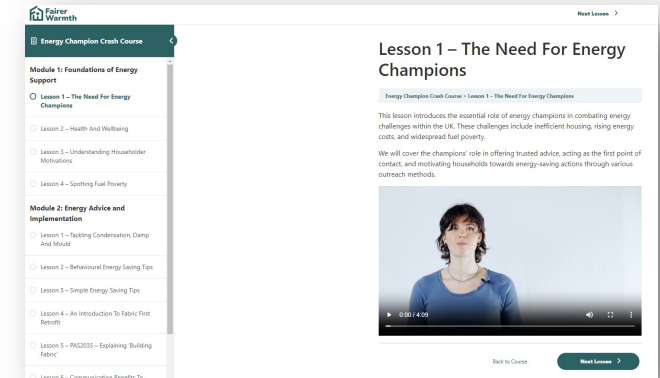
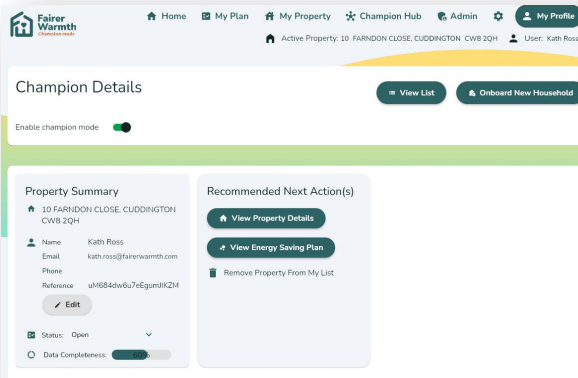
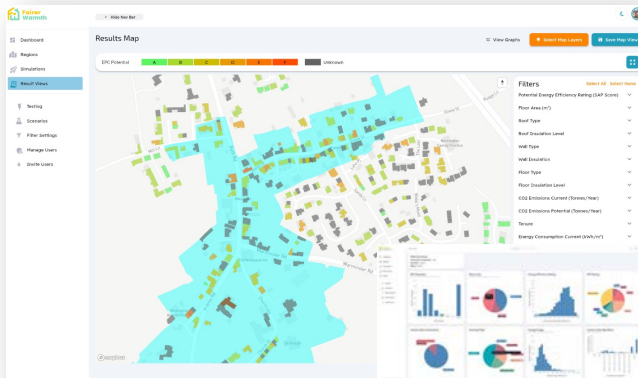
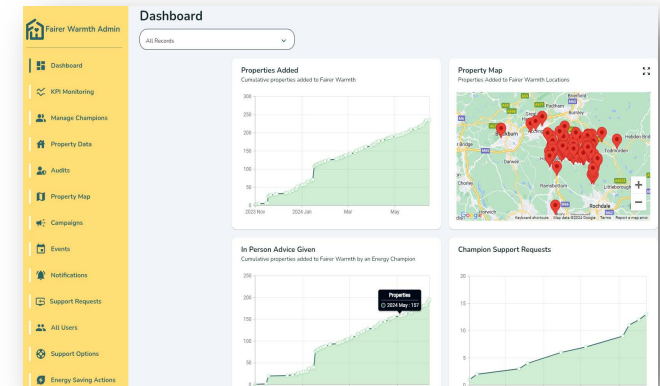
## Fairer Warmth Hub



## Fairer Warmth App



## Admin System



## Data Platform

## Champions' System

## E-Learning Platform

# The Fairer Warmth Toolkit



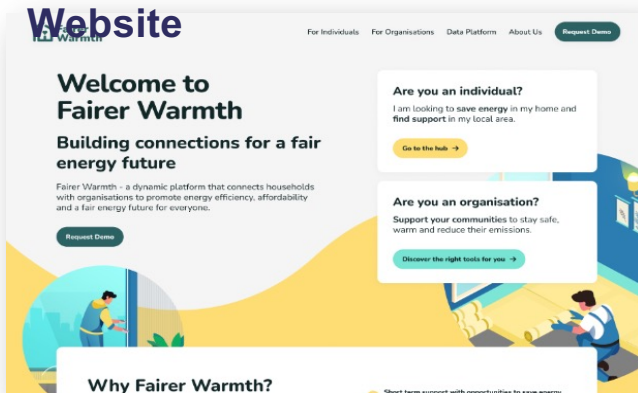
A screenshot of the Fairer Warmth E-Learning Platform interface. The interface is divided into a left sidebar and a main content area. The sidebar, titled "Energy Champion Crash Course", lists two modules: "Module 1: Foundations of Energy Support" and "Module 2: Energy Advice and Implementation". Under Module 1, "Lesson 1 – The Need For Energy Champions" is selected and highlighted. Under Module 2, several lessons are listed, including "Lesson 1 – Tackling Condensation, Damp And Mould", "Lesson 2 – Behavioural Energy Saving Tips", "Lesson 3 – Simple Energy Saving Tips", "Lesson 4 – An Introduction To Fabric First Retrofit", "Lesson 5 – PAS2035 – Explaining 'Building Fabric'", and "Lesson 6 – Communicating Benefits To". The main content area displays the title "Lesson 1 – The Need For Energy Champions" and a breadcrumb trail "Energy Champion Crash Course &gt; Lesson 1 – The Need For Energy Champions". Below the title, there is a paragraph of introductory text: "This lesson introduces the essential role of energy champions in combating energy challenges within the UK. These challenges include inefficient housing, rising energy costs, and widespread fuel poverty." followed by another paragraph: "We will cover the champions' role in offering trusted advice, acting as the first point of contact, and motivating households towards energy-saving actions through various outreach methods." Below the text is a video player showing a woman speaking. The video player has a progress bar at 0:00 / 4:09 and control icons for play, volume, and full screen. At the bottom of the main content area, there are two buttons: "Back to Course" and "Next Lesson &gt;".

## E-Learning Platform

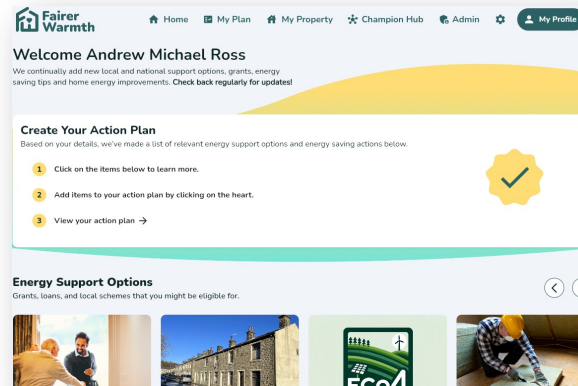
# The Fairer Warmth Toolkit



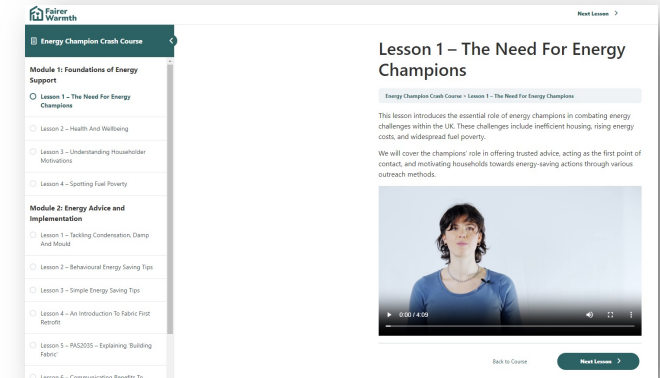
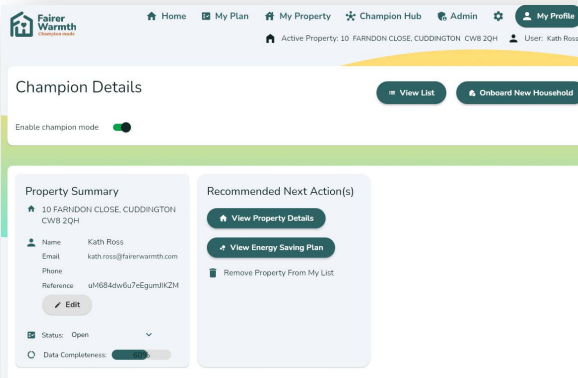
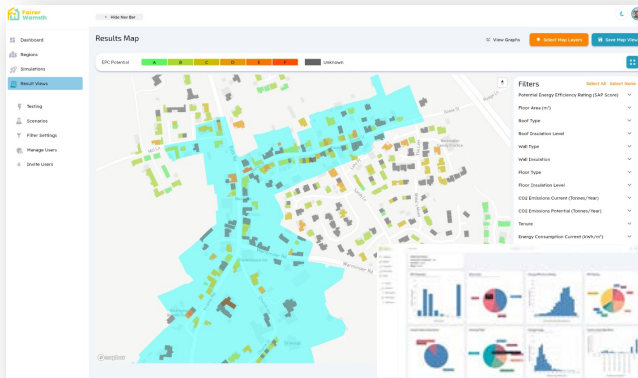
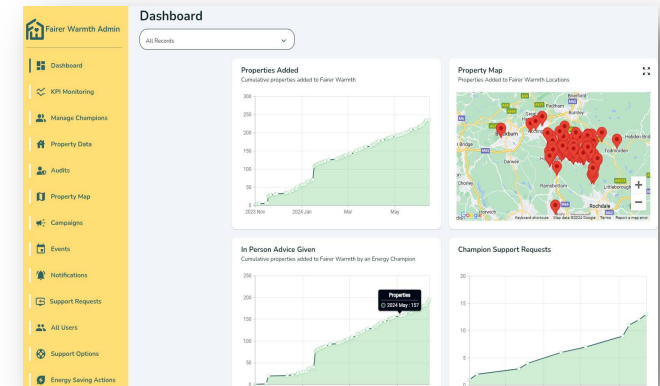
## Fairer Warmth Hub



## Fairer Warmth App



## Admin System



## Data Platform

## Champions' System

## E-Learning Platform



# The Fairer Warmth Toolkit



## Admin System

**Fairer Warmth Admin**

- Dashboard
- KPI Monitoring
- Manage Champions
- Property Data
- Audits
- Property Map
- Campaigns
- Events
- Notifications
- Support Requests
- All Users
- Support Options
- Energy Saving Actions

### Dashboard

All Records

#### Properties Added

Cumulative properties added to Fairer Warmth

Month	Cumulative Properties
2023 Nov	0
2024 Jan	~50
2024 Mar	~150
2024 May	~240

#### Property Map

Properties Added to Fairer Warmth Locations

#### In Person Advice Given

Cumulative properties added to Fairer Warmth by an Energy Champion

Month	Cumulative Properties
2023 Nov	0
2024 Jan	~20
2024 Mar	~100
2024 May	157

#### Champion Support Requests

Month	Cumulative Requests
2023 Nov	0
2024 Jan	~2
2024 Mar	~8
2024 May	~15



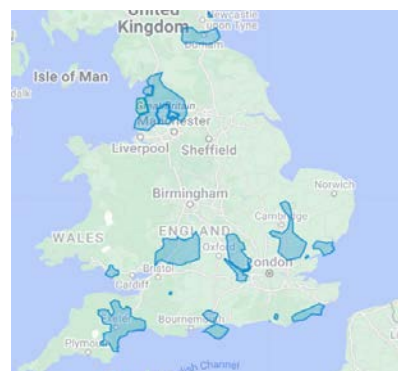
# Our Impact so far



FWH has already gained significant momentum to date

Established 15 Fairer Warmth Communities nationwide

- ~2000 individual users
- 100 Energy Champions across multiple communities
- Collaborating with Regional Hubs through Local Energy Advice Demonstrators
- Utilised for DESNZ Pathfinder Projects and network projects including Net Zero Terrace Streets
- MCS Charitable Trust Funded project in Somerset
- Requested to present at IUK and CEE Events





# Example Benefits



Aggregate supply chains and create one-stop-shops

Generate leads for HUG and other grants

Improve quality of life by promoting healthier living

Support the local economy and green jobs and businesses

Foster community engagement on sustainability initiatives

Improve the overall energy efficiency of homes and businesses in the region



# Join Us!

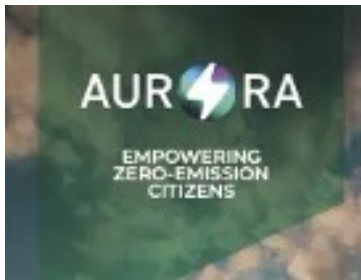


Andrew Ross  
[a.ross@cee-uk.com](mailto:a.ross@cee-uk.com)

[www.fairerwarmth.com](http://www.fairerwarmth.com)

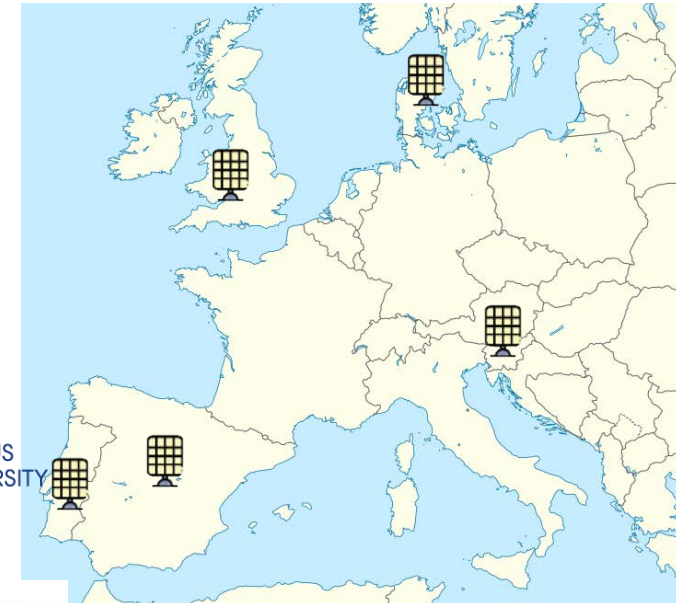
Fairer Warmth App





# A Citizen Science Project to Tackle Climate Change

- Reducing carbon emissions from Heating & Powering homes and from Transport decision
- Promoting engagement in the Energy Transition – 1MW total new community PV
- Influencing local climate policies and strategies
- Testing Tools & Techniques with 7000 people
- Laying the ground-work for an EU wide citizen science programme on climate change.



UNIVERSIDAD POLITÉCNICA DE MADRID



[www.aurora-h2020.eu](http://www.aurora-h2020.eu)

**Forest Community Energy** AURORA

**Forest Community Energy**  
Reduce carbon, help people, and help the environment

Want to help our Forest of Dean community fight climate change?

Join our fun and friendly regular meetings, and help progress our community solar and energy awareness projects!

**Get Involved**

- Join Forest Community Energy: fod.energycommunity@fdean.gov.uk
- Sign up to our newsletter: http://eepurl.com/h5141f
- Visit our website: www.aurora-h2020.eu/fod-home/

**Scan Me**

Newsletter Website

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036418

Supported by: Forest of Dean Sustainable Energy

## UK Case Study - Forest of Dean

- Forest of Dean District Council & Centre for Sustainable Energy working together
- <https://www.aurora-h2020.eu/fod-home/>
- AURORA Project website (EU consortium)
- <https://www.aurora-h2020.eu/>
- Working with Big Solar Cooperative to install community PV across the District
- Diverting Fossil Fuel Profits back into the community circa £0.5 m savings over 20 years for 2 installations



**Forest  
Community  
Energy**



**AURORA**

**BIG SOLAR CO-OP**

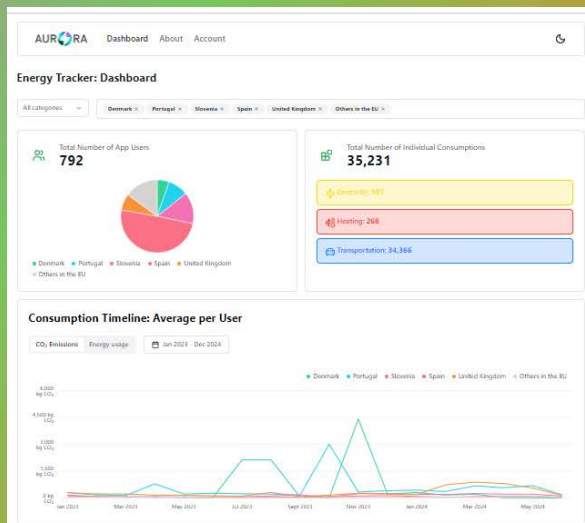
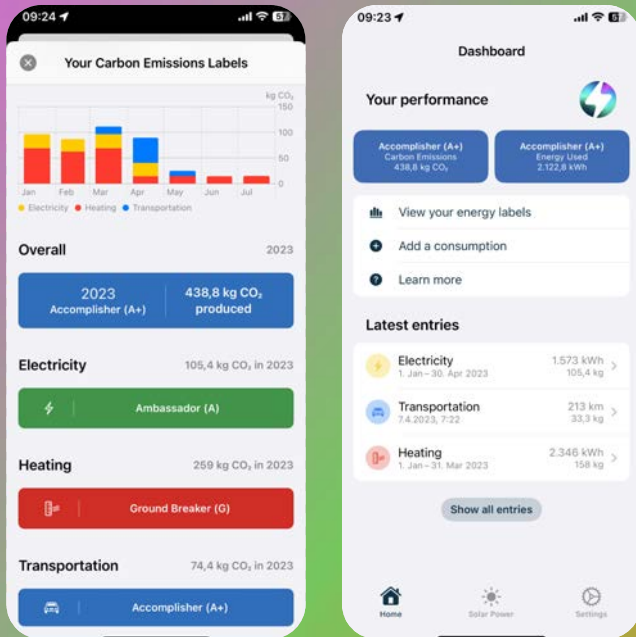
[www.aurora-h2020.eu](http://www.aurora-h2020.eu)

## DEVELOPING NEW CITIZEN SCIENCE TOOLS

### AURORA Energy Tracker App

### AURORA Carbon Labelling Scheme

- Carbon footprint for electricity, heating and transport
- Track improvements over time
- AURORA Energy Tracker App on computer too
- To find out more and download the app: <https://www.aurora-h2020.eu/aurora/ourapp/>
- Interactive dashboard – see how we compare with the rest of the EU <https://dashboard.aurora-h2020.eu/en-GB>



[www.aurora-h2020.eu](http://www.aurora-h2020.eu)







# Taking Action on Climate Change

Empowering a new generation  
of near zero-emission citizens



## LAYING THE FOUNDATIONS FOR A GLOBAL CITIZEN SCIENCE PROJECT

- BECOME AN AURORA AMBASSADOR
- <https://www.aurora-h2020.eu/ambassadors-call/>

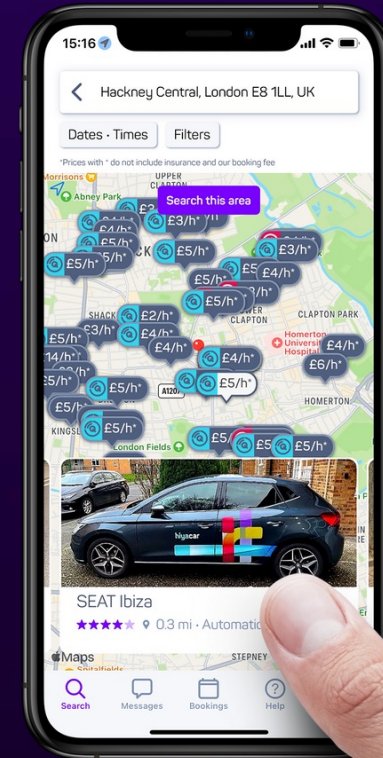


World Environment Situation Room  
Data, Information and Knowledge on the Environment





# Decarbonisation of transport Powered by **hiyacar**

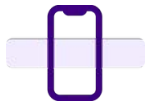
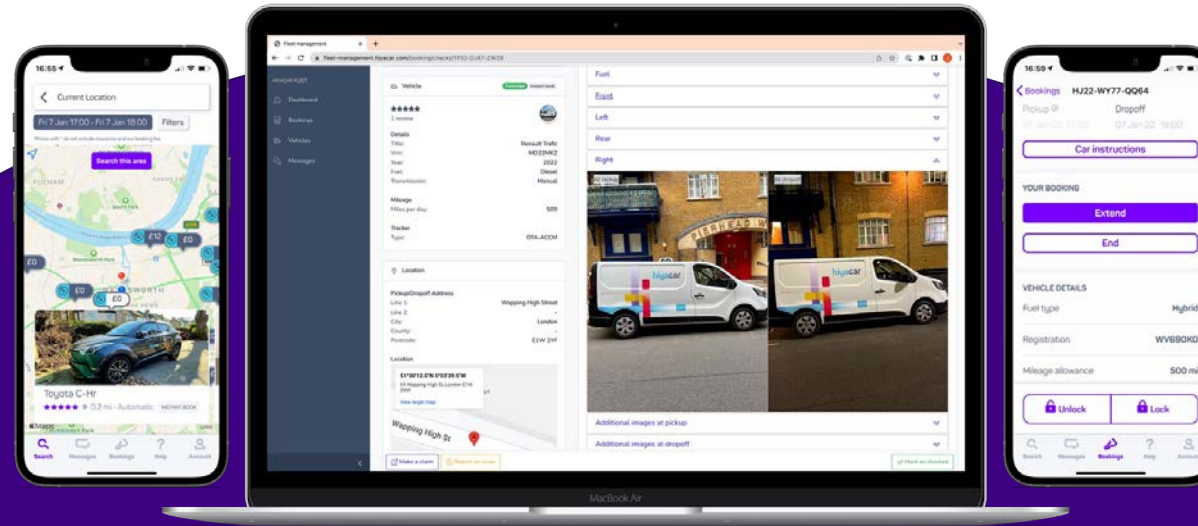


Crown  
Commercial  
Service  
Supplier



# Pool Car Solution - What is it?

Leverage our best in-class technology and CCS discounted pricing to create your own, cost effective car club



## Booking platform

Our booking platform has been developed in partnership with drivers and is highly rated on TrustPilot.



## Keyless vehicle access

Remove the burden of key handover, our QuickStart™ solution makes vehicle hire completely keyless.



## 24/7 Support

Our team will take care of all booking, vehicle and breakdown related queries end to end.



## Fleet administration

Powerful Management Information & a Fleet Admin system which was developed from the ground up for car sharing.

# Existing customers & partners



Norfolk Community  
Health and Care  
NHS Trust



Norfolk and Suffolk  
NHS Foundation Trust



North Middlesex  
University Hospital  
NHS Trust



LANCASTER  
CITY COUNCIL

*Promoting City, Coast & Countryside*



Central  
Bedfordshire  
Council



University  
of Exeter



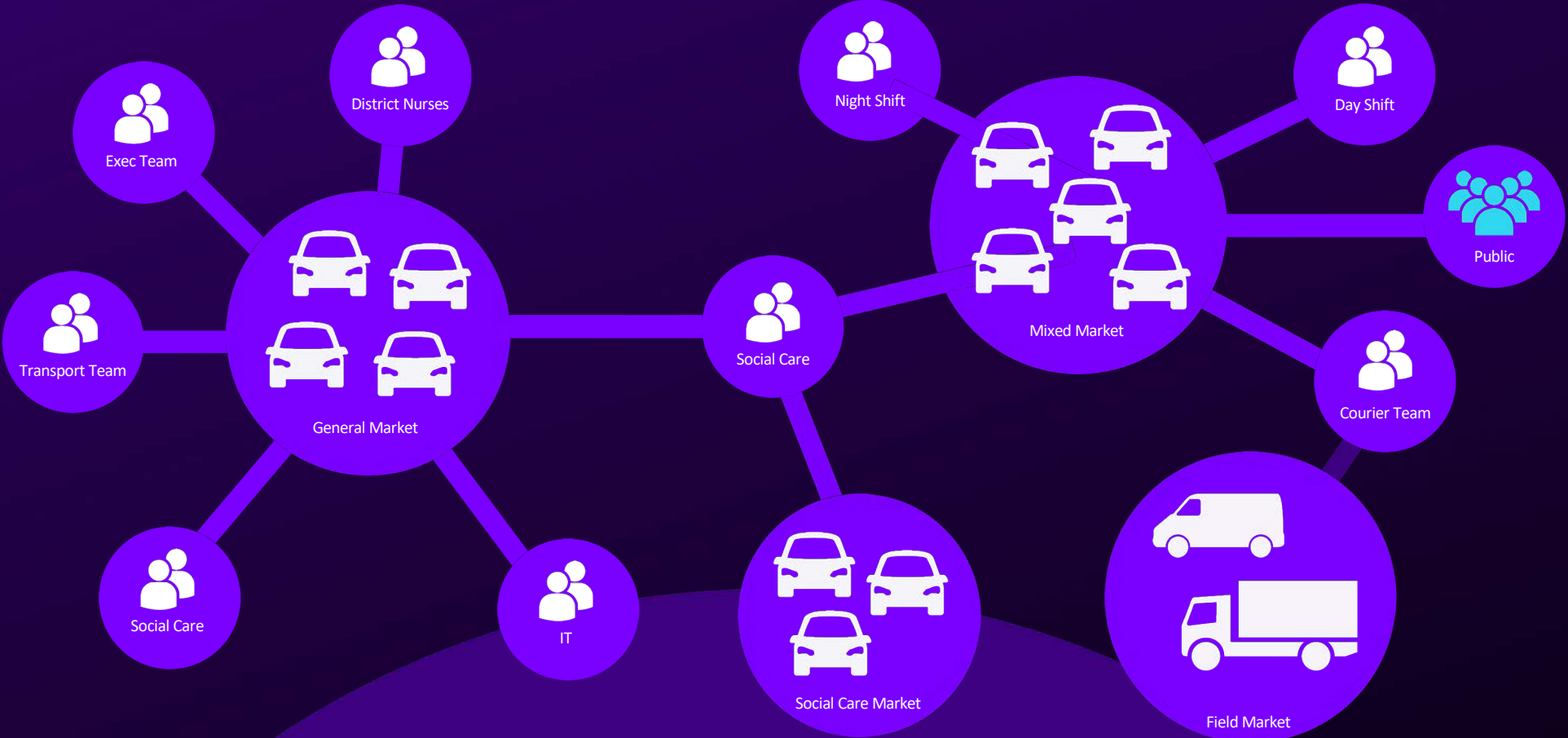
Royal Berkshire  
NHS Foundation Trust



Central London  
Community Healthcare  
NHS Trust



# Bespoke team markets to improve efficiency



# Our work with East Lothian Council

Strategically placed electric pool cars and infrastructure

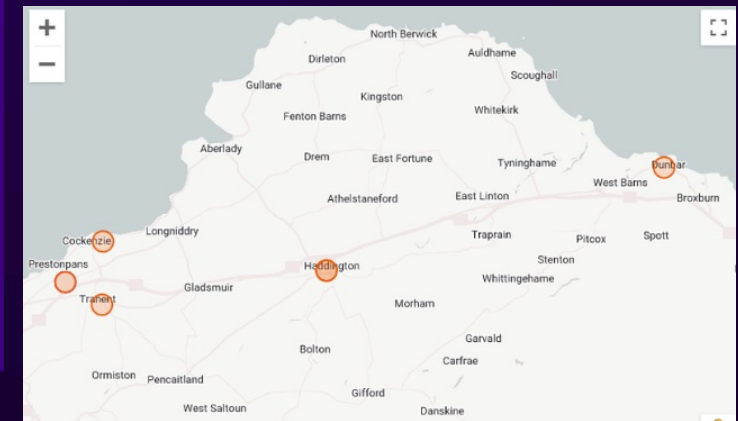
Vehicles shared with the public after 6pm, Weekends and Bank

Holidays - 30 bookings in first 3 months!

Council keeps 100% revenue

Reduces grey fleet emissions, commuter emissions and creates cost savings

Provides an Electrified car club to local residents at low rates set by the council

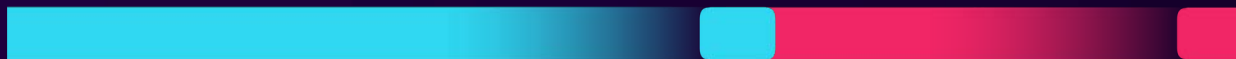


Pool Car

Powered by Hiyacar

Shared

With your community



Mon

Tues

Weds

Thurs

Fri

Sat

Sun

'Working with Hiyacar on our car club project has enabled ELC to continue to reduce grey fleet mileage by targeting locations where we know mileage claims are concentrated. This has allowed us to increase pool car utilisation whilst also enabling vehicles to be shared with the general public. Not only does this hybrid approach mean we can reduce carbon emissions of the general public, but the revenue generated by public hires means the cost of reducing our own emissions is reduced.'

Richard Kerr | Active Travel Manager | ELC



## Case study: Norfolk and Suffolk NHS Foundation Trust



**110 vehicles**

From Seat MII EV to Ford  
Transit van



**22 locations**

Rural and Urban



**29%**

Reduction in grey  
fleet miles



**£53,000+**

Estimated saving  
in year 1



**33%**

Increase in vehicle  
utilisation



18.91 estimated  
tonnes of Co2 saved

Norfolk & Suffolk NHS Foundation Trust (NSFT) faced challenges managing their 100+ vehicle pool car fleet. Hiyacar provided key data to optimise vehicle numbers and create sharing strategies. With keyless access and real-time tracking, we improved usage efficiency. Our utilisation analysis identified cost-saving opportunities and guided the transition to electric vehicles (EVs), supporting NSFT's sustainability goals. This comprehensive approach empowered NSFT to enhance vehicle utilisation, reduce damages and reduce taxi spend.

### Key Stats so far...

**Total Bookings - 15000+**

**Total Registered Drivers - 783**

**Miles Driven - 345,000+ Miles**

**Total 'ring-fenced' markets - 10**



**Norfolk and Suffolk**  
NHS Foundation Trust

Hiyacars platform has significantly enhanced our vehicle management and streamlined inter-departmental sharing. Hiyacar has truly revolutionised the way the trust uses pool vehicles making our fleet management more efficient and helping reduce grey fleet mileage.

**Elliott Semmence Transport Manager**  
Norfolk & Suffolk NHS Foundation Trust



# Summary

---

By adopting Hiyacar's technology you can

- Sweat existing assets
- Save in excess of 40% per year on your fleet costs
- Leverage discounted CCS vehicle pricing to obtain vehicles with favourable termination charges
- Give your drivers access to best in class technology
- Transition from polluting grey fleet to electric pool cars
- Generate up in excess of £30,000 additional income per year
- Get started with little/no upfront capital

## Contact

**Sam Dewhurst**

Head of public sector

✉ sam.dewhurst@hiyacar.co.uk

☎ 07534533203

**Keith Stark**

Head of Business Development

✉ keith.stark@hiyacar.co.uk

☎ 07432 579233

<https://www.hiyacar.co.uk/pool-cars>



dg:cities

# *Home-by-home* plan

**A roadmap for data-led  
housing improvement**

**Balazs Csucar | Rasheed Sokunbi  
Director of Innovation and Net Zero**

## Questions to answer

**If I have £10million – what do I target?**

**Which 2 blocks shall we prioritise next year?**

**Where are the bad homes I don't know about?**

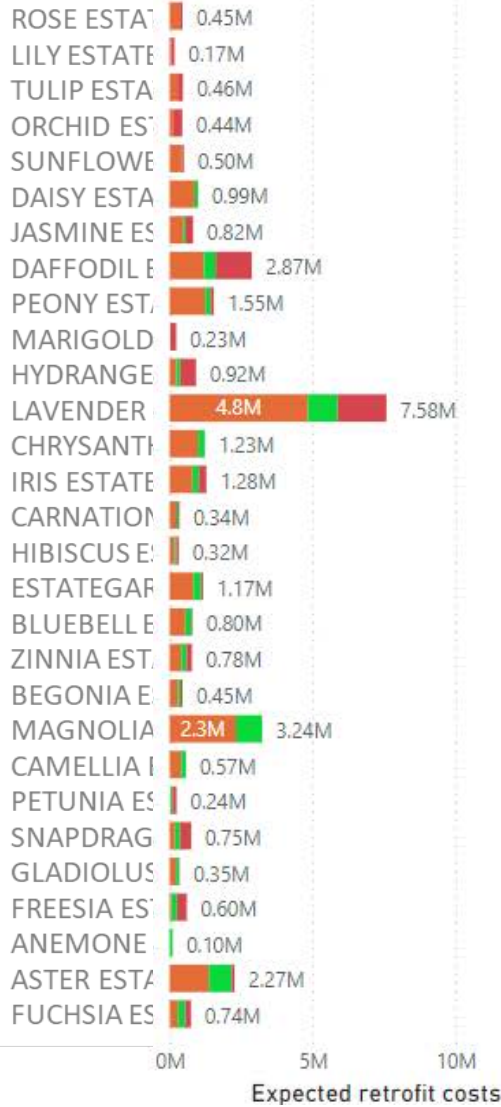
**What does my repair budget go?**

**Which property is too expensive to invest in?**



### Retrofit project costs per asset

Retrofit priori... ● Amber ● Green ● Red



Number of homes per estate with retrofit priority



EPC	No of homes
0	2
A	9
B	149
C	8860
D	7818
E	485
F	12
G	1
<b>Total</b>	<b>17335</b>

address	EPC
15 ROSEWOOD AVENUE, ROSE E	C
43 LILYPAD ROAD, LILY ESTATE	D
22 DAISY COURT, DAISY ESTATE	D
9 ORCHID CLOSE, ORCHID ESTAT	D
56 TULIP CRESCENT, TULIP ESTA	D
78 LAVENDER LANE, LAVENDER I	D
30 SUNFLOWER GROVE, SUNFLC	C

### retrofit\_priority, latitude and longitude

retrofit\_pri... ● Amber ● Green ● Red



Roof priority	Insulation priority	Window/door priority	No of homes
Green	Green	Green	9985
Green	Amber	Green	3236
Amber	Amber	Green	2808
Amber	Amber	Amber	525
Green	Amber	Amber	305
Amber	Green	Green	198
<b>Total</b>			<b>17335</b>

# 159M

Total retrofit project cost

# 9.14K

Average retrofit project cost

### % of asset with retrofit priority

0.00% 100.00%



### % asset with recurring damp/mould issues

0.00% 76.92%



### Leaseholder %

0.00% 100.00%





Select only street level properties

- House Mid Terrace (System, Timber)
- House Mid Terrace (Solid Brick)
- House Mid Terrace (Cavity)
- Flat System, Timber
- Flat Solid Brick
- Flat Cavity
- Bungalow Mid Terrace (all wall types)

- asset
- ABBEY ESTATE F/M GN & TEMP 1945-1...
  - ABBEY ESTATE F/M GN 1945-1964 Low...
  - ABBEY ESTATE H/B GN 1945-1964
  - ABBEY ESTATE H/B GN Post 1974

Council ownership

0 1

planned\_retrofit\_project

0 YES

Roof priority Insulation priority Window/door priority No of homes

E	186
F	3
G	1
<b>Total</b>	<b>4837</b>

address	EI
15 ROSEWOOD AVENUE, ROSE E	D
43 LILYPAD ROAD, LILY ESTATE	D
22 DAISY COURT, DAISY ESTATE	C
9 ORCHID CLOSE, ORCHID ESTAT	C
56 TULIP CRESCENT, TULIP ESTA	D
78 LAVENDER LANE, LAVENDER I	D
30 SUNFLOWER GROVE, SUNFLC	D

retrofit\_priority, latitude and longitude

retrofit\_pri... ● Amber ● Green ● Red



Roof priority	Insulation priority	Window/door priority	No of homes
Green	Green	Green	1841
Amber	Amber	Green	1242
Green	Amber	Green	1064
Amber	Amber	Amber	368
Green	Amber	Amber	132
Green	Green	Amber	56
<b>Total</b>			<b>4837</b>

82M 17.02K

Total retrofit project cost Average retrofit project cost

% of asset with retrofit priority



% asset with recurring damp/mould issues



Leaseholder %



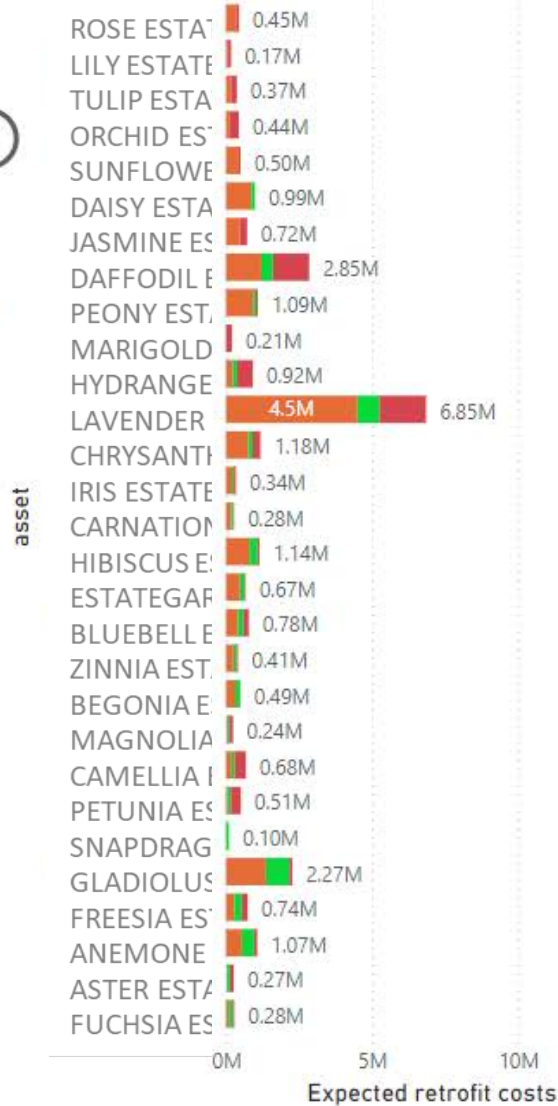
6 homes



### Retrofit project costs per asset

Retrofit priori... ● Amber ● Green ● Red

Number of homes per estate with retrofit priority



EPC	No of homes
C	660
D	1931
E	68
F	3
G	1
<b>Total</b>	<b>2663</b>

Roof priority	Insulation priority	Window/door priority	No of homes
Amber	Amber	Green	1096
Green	Green	Green	656
Green	Amber	Green	392
Amber	Amber	Amber	344
Green	Amber	Amber	85
	Green	Green	25
			<b>2663</b>

Select estates where at least 30% of homes have high overall need

address	EPC
15 ROSEWOOD AVENUE, ROSE E	D
43 LILYPAD ROAD, LILY ESTATE	D
22 DAISY COURT, DAISY ESTATE	C
9 ORCHID CLOSE, ORCHID ESTAT	D
56 TULIP CRESCENT, TULIP ESTA	D
78 LAVENDER LANE, LAVENDER	D
30 SUNFLOWER GROVE, SUNFLC	C

**74M** Total retrofit project cost

**27.95K** Average retrofit project cost



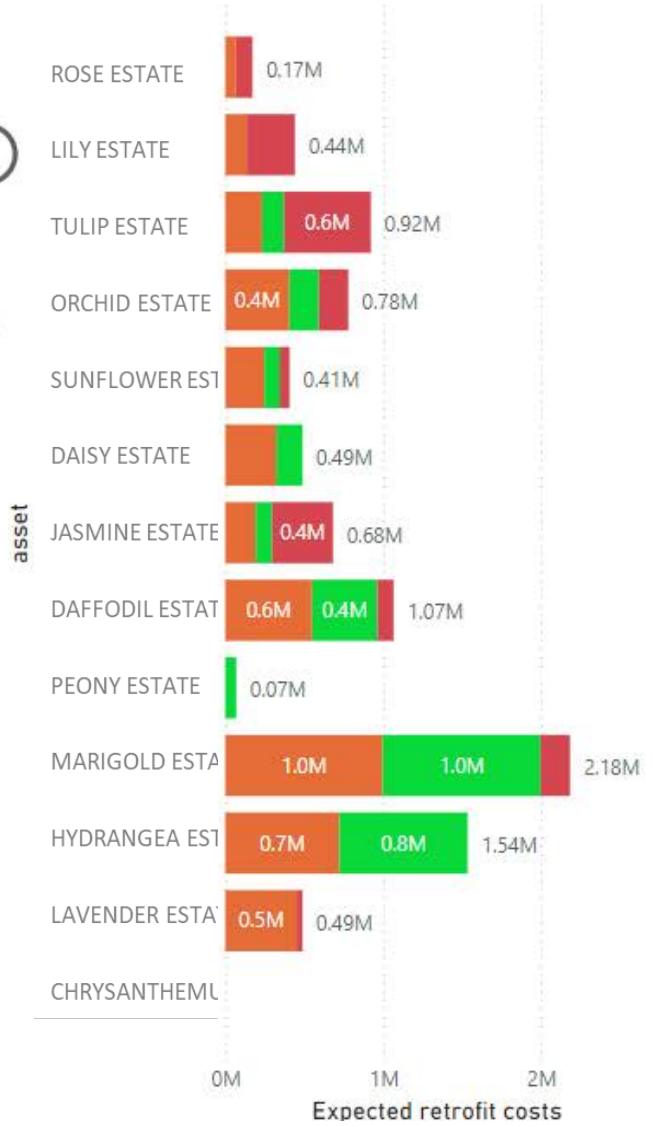




### Retrofit project costs per asset

Retrofit priori... ● Amber ● Green ● Red

**i**  
Number of homes per estate with retrofit priority



EPC	No of homes
C	75
D	192
E	9
<b>Total</b>	<b>276</b>

Roof priority	Insulation priority	Window/door priority	No of homes
Amber	Amber	Green	77
Green	Green	Green	71
Amber	Amber	Amber	54
Green	Amber	Green	28
Green	Amber	Amber	23
	Green	Green	6
			<b>276</b>

Select estates where at least 30% of homes have recurring damp issues

address	EPC
15 ROSEWOOD AVENUE, ROSE E	D
43 LILYPAD ROAD, LILY ESTATE	D
22 DAISY COURT, DAISY ESTATE	C
9 ORCHID CLOSE, ORCHID ESTAT	D
56 TULIP CRESCENT, TULIP ESTA	D
78 LAVENDER LANE, LAVENDER I	D
30 SUNFLOWER GROVE, SUNFLC	C

retrofit\_priority, latitude and longitude

retrofit\_pri... ● Amber ● Green ● Red



9M

Total retrofit project cost

33.46K

Average retrofit project cost

% of asset with retrofit priority

30.00%

100.00%

% asset with recurring damp/mould issues

30.00%

76.92%

Leaseholder %

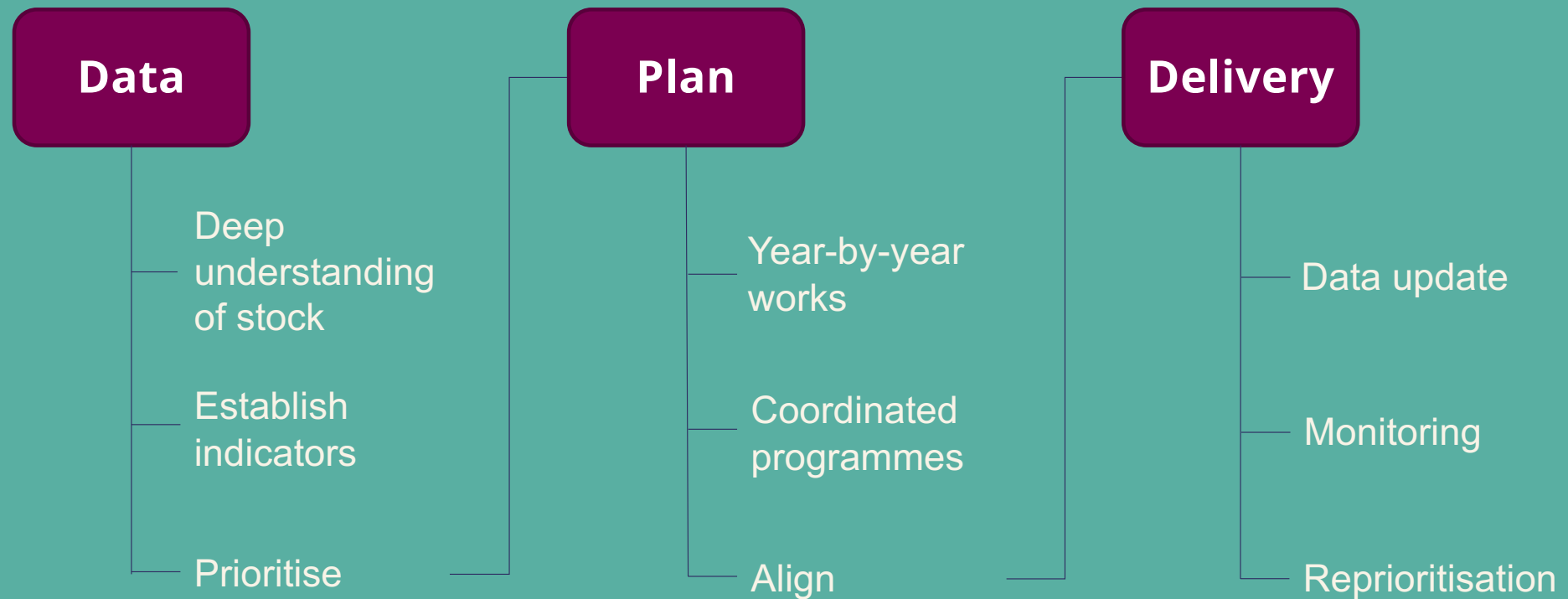
0.00%

100.00%

address	EPC	archetype	planned_project_details
12 LILYPAD ROAD, LILY ES	D	House Semi Detached, Detached, End Terrace (Cavity)	0
56 TULIP CRESCENT, TUL	D	House Semi Detached, Detached, End Terrace (Cavity)	0
23 ORCHID CLOSE, ORCH	C	House Semi Detached, Detached, End Terrace (Cavity)	0
78 SUNFLOWER GROVE,	D	House Semi Detached, Detached, End Terrace (Cavity)	Cavity Wall installations, Roofing Repairs
43 DAISY COURT, DAISY E	D	House Mid Terrace (Cavity)	0
9 JASMINE LANE, JASMIN	D	House Semi Detached, Detached, End Terrace (Cavity)	0
17 DAFFODIL AVENUE, DA	C	House Semi Detached, Detached, End Terrace (Cavity)	0
34 PEONY PLACE, PEONY	C	House Mid Terrace (Cavity)	Installation of new bathrooms (both Prin
66 MARIGOLD WAY, MARI	D	House Mid Terrace (Cavity)	0
48 HYDRANGEA STREET,	D	House Semi Detached, Detached, End Terrace (Cavity)	Cavity Wall installations, Roofing Repairs
29 LAVENDER LANE, LAV	D	House Mid Terrace (Cavity)	0
11 CHRYSANTHEMUM DR	D	House Semi Detached, Detached, End Terrace (Cavity)	0
84 LILYPAD ROAD, LILY ES	D	House Mid Terrace (Solid Brick)	0
52 TULIP CRESCENT, TUL	D	House Mid Terrace (Cavity)	0
14 ORCHID CLOSE, ORCH	D	House Semi Detached, Detached, End Terrace (Cavity)	Boiler upgrades and replacements to enl
91 SUNFLOWER GROVE,	C	House Mid Terrace (Cavity)	Cavity Wall installations, Roofing Repairs
30 DAISY COURT, DAISY E	C	House Mid Terrace (Solid Brick)	0
61 JASMINE LANE, JASMI	C	House Semi Detached, Detached, End Terrace (Cavity)	0
44 DAFFODIL AVENUE, DA	D	House Mid Terrace (Cavity)	Installation of new bathrooms (both Prin
39 PEONY PLACE, PEONY	D	House Mid Terrace (Cavity)	0
18 MARIGOLD WAY, MARI	D	House Mid Terrace (Cavity)	0
72 HYDRANGEA STREET,	C	House Semi Detached, Detached, End Terrace (Cavity)	0
55 LAVENDER LANE, LAV	C	House Mid Terrace (Solid Brick)	0
27 CHRYSANTHEMUM DR	D	House Semi Detached, Detached, End Terrace (Cavity)	0

**Priority list of 276  
addresses**

# A home-by-home plan





**We can do this for you**

**Make it look nice and everything**

**Just get in touch**

[balazs.csuvar@dgcities.com](mailto:balazs.csuvar@dgcities.com)

[rasheed.sokunbi@dgcities.com](mailto:rasheed.sokunbi@dgcities.com)

**Rasheed and I are running a live demo in the event space – come and have a look**

# 14:45-15:00: Break, Networking & Business Showcase



The UK's innovation agency



# Parallel Workshops: 15:00-15:45

## Workshop 1:

### Collaborative Pathways for Net Zero Action:

This interactive session will explore how we can unlock collaboration between the public and private sector to achieve net zero action.

**Location:** The Grand Hall.

## Workshop 2:

### Navigating Net Zero: Supporting Your Innovation Adoption Journey

This interactive session will provide a pragmatic approach to mapping out your unique Net Zero innovation adoption journey, utilising the Innovate UK Adopt & Accelerate programmes tailored framework.

**Location:** The Gymnasium, located downstairs.