



# ZERO WASTE EXCHANGE

Team: Magic Carpet

# Overview

## MISSION

Driving the circular economy and decarbonisation through platform for trading heat & waste locally

### Challenges:

- **Industrial & Domestic waste (Source: Defra):**
  - Commercial & Industrial waste 41 million tonnes (19%)
  - Projected landfill from C&I circa 10 million tonnes
- **Estimated UK emissions from heating (Source: BEIS):**
  - 79.56 MtCO<sub>2</sub>e - attributable to space heating in the UK
  - 65.52 MtCO<sub>2</sub>e - attributable to industrial process heat in the UK
  - Total of both = 31% of the UK heat emissions.
- **Waste heat from manufacturing** - circa 50% waste heat from process (McKenna & Norman, 2010)
- **Fuel poverty** – 2.53 million homes in fuel poverty in the UK and 15% of households in Middlesbrough in fuel poverty (Source: BEIS)

**Opportunity: Zero Waste Exchange** for local heat and waste

**Hackathon Focus:** Teesside industrial cluster heat waste exchange

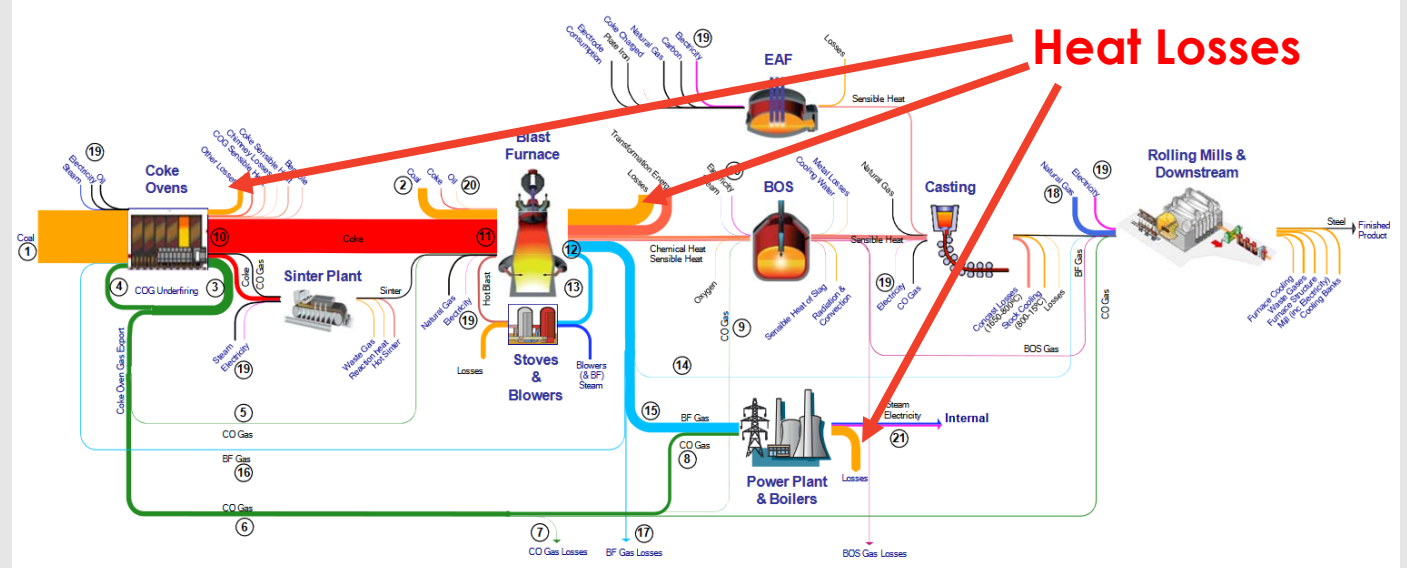
# Teesside Opportunity

Local Authority	Number of MPRN's (thousands)			Sales (GWh)		
	Domestic meters (1)	Non-domestic meters	Total number of meters	Domestic consumption	Non-domestic consumption	Total consumption
Stockton-on-Tees	84	1	85	1,045	751	1,796

## Opportunity:

- Proposed Heat Network - £40m investment underway (Biotech waste heat to Hospital)
- Potential to connect from high temperature manufacturing to low temperature

Simplified 2009 UK Iron and Steel Industry Energy Flows



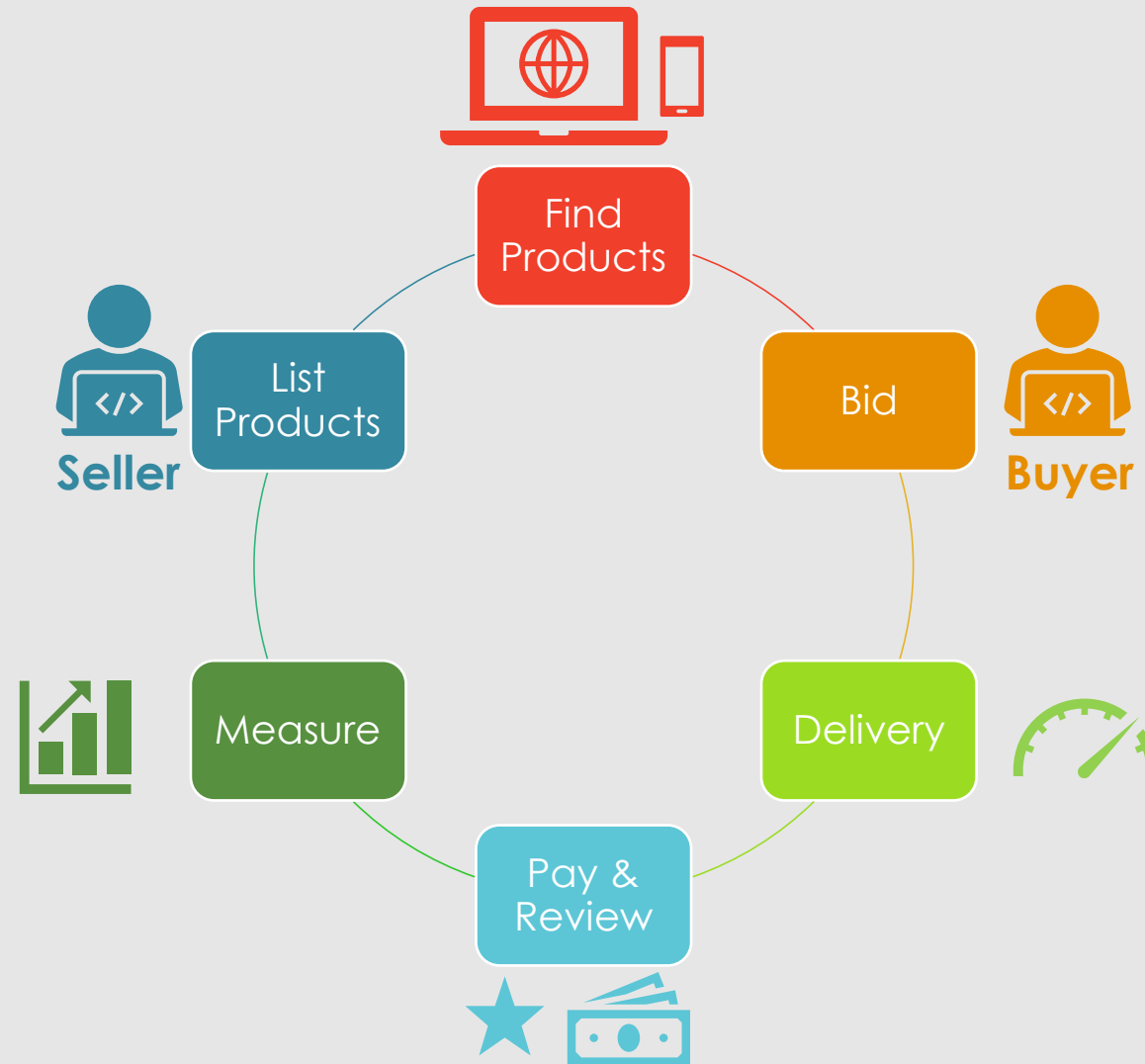
# Business Model

## Example Sellers:

1. Agriculture
2. Commercial & Industrial
3. Domestic
4. Health

## Seller Benefits:

1. Efficient waste disposal
2. Financial benefits
3. Local community benefits
4. ESG/ CSR credentials



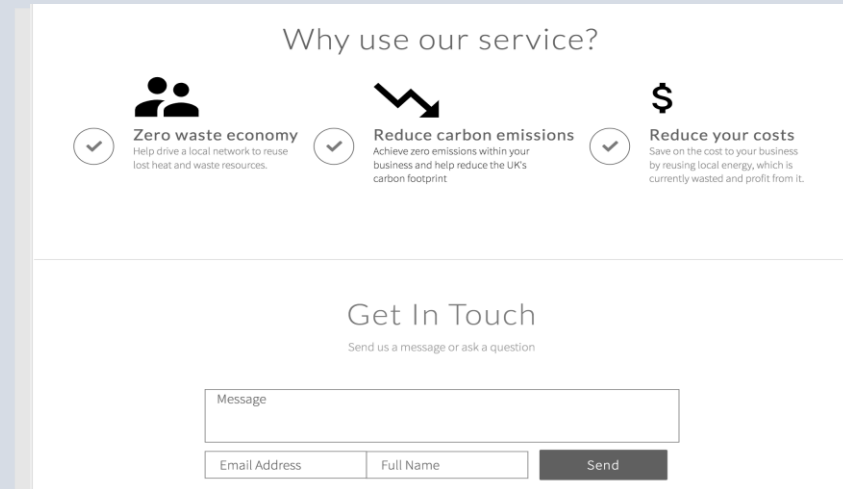
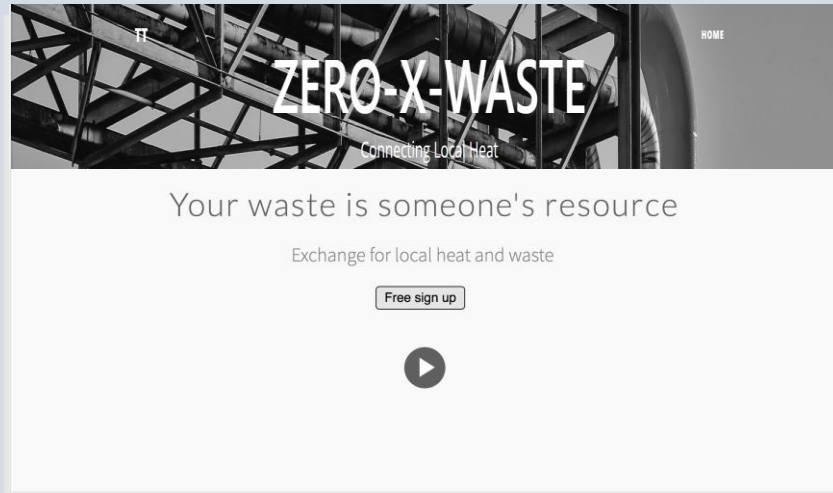
## Example Buyers:

1. Agriculture
2. Commercial & Industrial
3. Domestic
4. Health

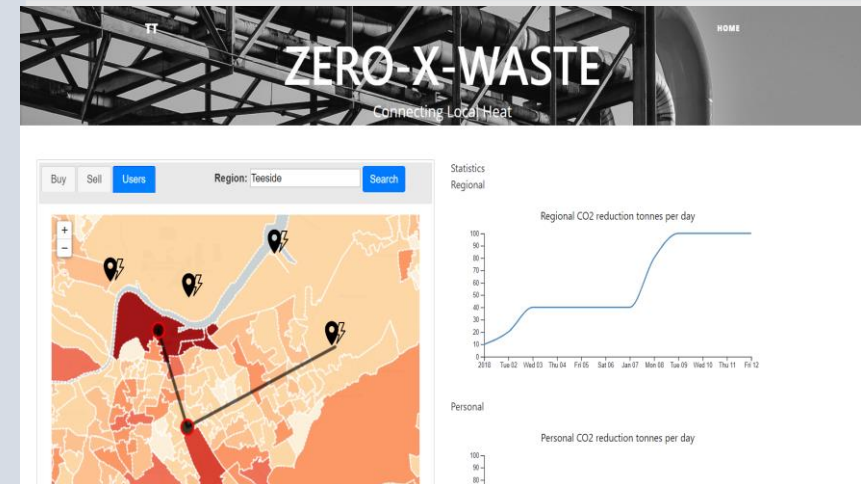
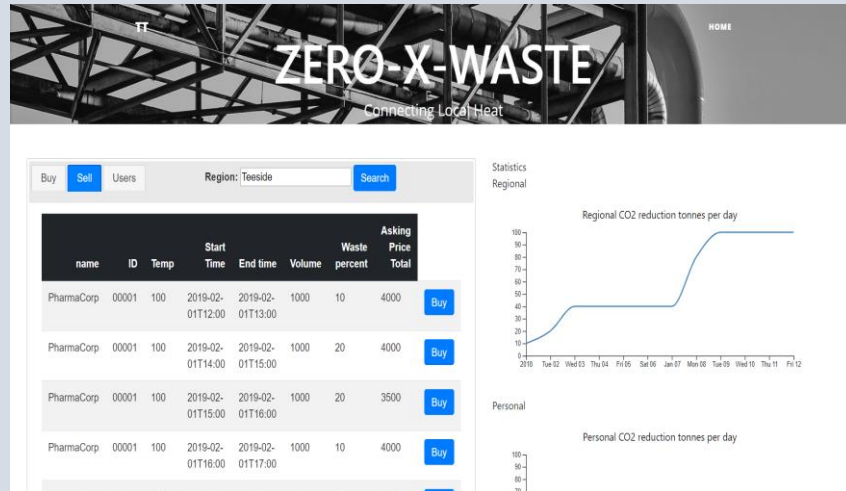
## Buyer Benefits:

1. Competitive procurement
2. Reduced carbon emissions
3. Locally sourced
4. Fuel poverty impacts

# Platform

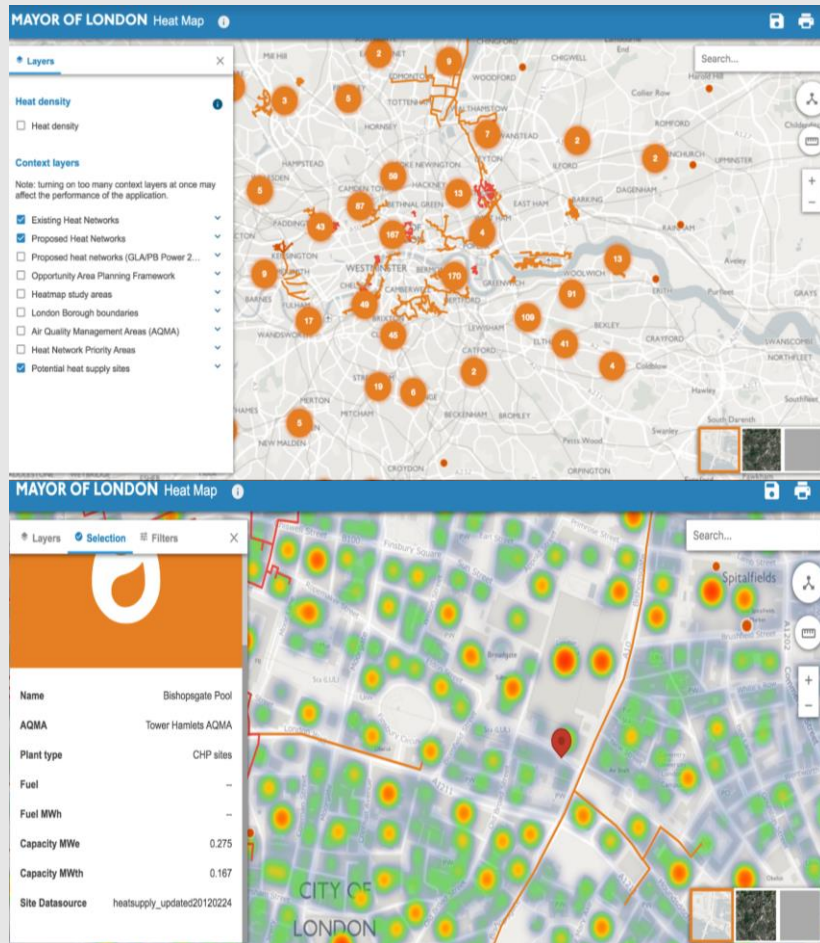


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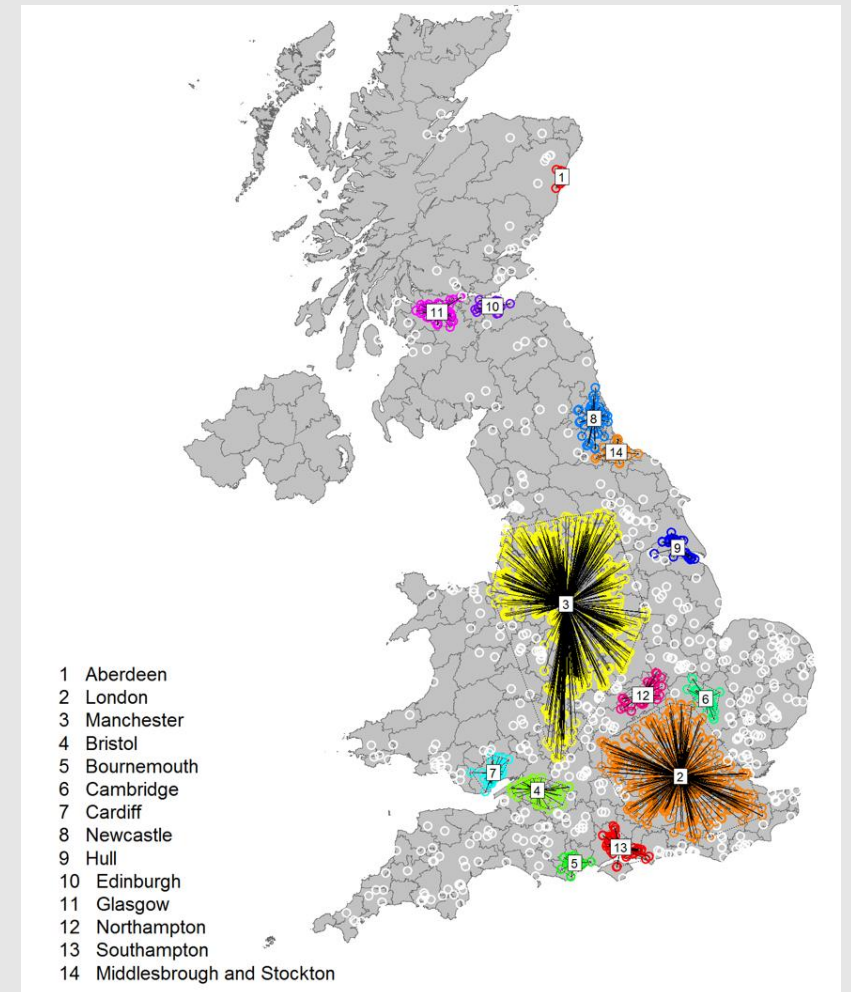




# Scale-up Opportunity



- Opportunity areas
  - Industrial Cluster Zones
  - Existing/Proposed Heat networks
- £320 m committed to new heat networks and expansion (BEIS - HNIP) – to enable the market
- Mapping tools to identify and onboard new producers of heat and off-takers
- Additional information required:
  - £/tCO<sub>2</sub> avoided for heat decarbonisation



# Growth & Maturity Continuum

## Data Used:

1. National Statistics (BEIS/Ofgem)
2. Heat & carbon emissions
3. Postcode level gas usage
4. DCC smart meter data
5. Electralink consumption data

## Data Proposed:

1. Property gas demand profiles
2. Waste heat profiles
3. Waste resources profiles from producers
4. Current & Proposed heat networks – Heat Mapping Tool

## Example Policy Asks:

1. Zero Waste Clusters / Trading Zones to drive right behaviours
2. Domestic Gas boiler phase-out in existing properties
3. Domestic upgrades to Heat Network, Heat Pumps or Electrification
4. Reporting of process waste & heat

### Heat Networks

Existing Networks and Connections    New & Expanding networks

### Customers

2 Node Network

Multiple suppliers & buyers

### Geography

Teesside

National

### Products

Waste Heat

Farm, Domestic & Industrial waste

### Services

Simple Trading

Dynamic Hedging





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