BURO HAPPOLD

CommuniHeat

Transitioning Communities to Net Zero Carbon



27th May 2026

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Buro Happold Overview

- Engineering consultancy, founded 1976
- Integrated design, advisory, and consultancy services
- Global presence in 11 countries, 37 locations and c. 3500 employees


Government (US)


Major infrastructure


Science and technology


Commercial


Healthcare


Rail


Aviation


Urban Development


Sport and Entertainment

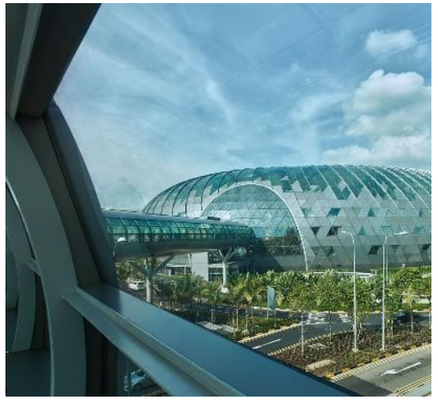

Education


Cultural













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Buro Happold – Energy Consultancy

Our values – we believe that distributed energy holds the key to mitigating climate change

Our mission – to implement the distributed energy revolution

We help our clients realise value from distributed energy systems



Energy Team : 60 engineers
North + Scotland : 26
London + Bath : 34

Our Service Offers:

Energy Planning	Energy System Design + Delivery	Net Zero Campuses
Smart Energy Systems	Utilities Strategy and Commercialisation	Power Systems



SELCHP – EfW Southwark District Heat Network Extension



Shawfair Energy Centre, Midlothian Heat Network



Hebburn Minewater District Heating – RIBA 1-7 appointment

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Introduction to CommuniHeat

Develop a **blueprint** for the decarbonisation of our communities.

Enable off gas communities to switch from **expensive and carbon intensive fossil** fuels.

Approximately **four million off gas grid** homes in the UK.



Barcombe Residents

BURO HAPPOLD

OVESCO

UK Power Networks
Delivering your electricity

COMMUNITY ENERGY SOUTH

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Understanding the community

- Barcombe's household carbon footprint is almost **double the national average**
- **25% of which arises from the burning of oil for heat generation**
- Highly engaged rural off gas grid community
- Early adopters to transition off oil
- Diverse customer base and housing stock



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Data Collection

703 HOMES IN THE COMMUNITY

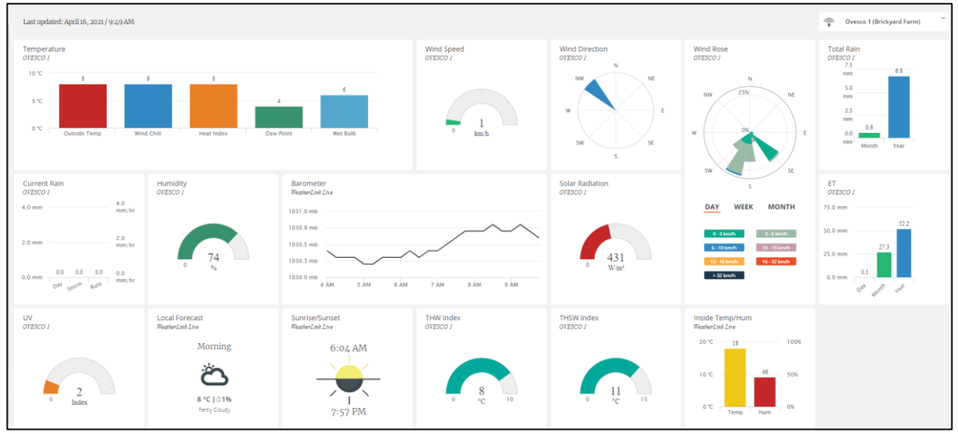
500 HOMES WITH ENERGY PERFORMANCE CERTIFICATES

44 HOMES INSTALLED WITH HEAT AND POWER METERING

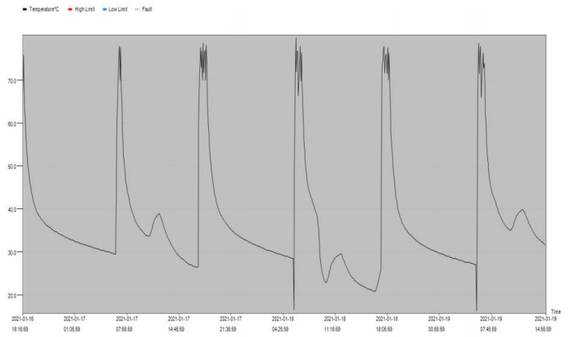
85 HOMES CARRIED OUT ROOM-BY-ROOM HEAT LOSS SURVEYS

OVESCO WOULD LOVE TO GET **400** HOMES TO COMPLETE THE ONLINE QUESTIONNAIRE

Barcombe weather station data



Energy loggers



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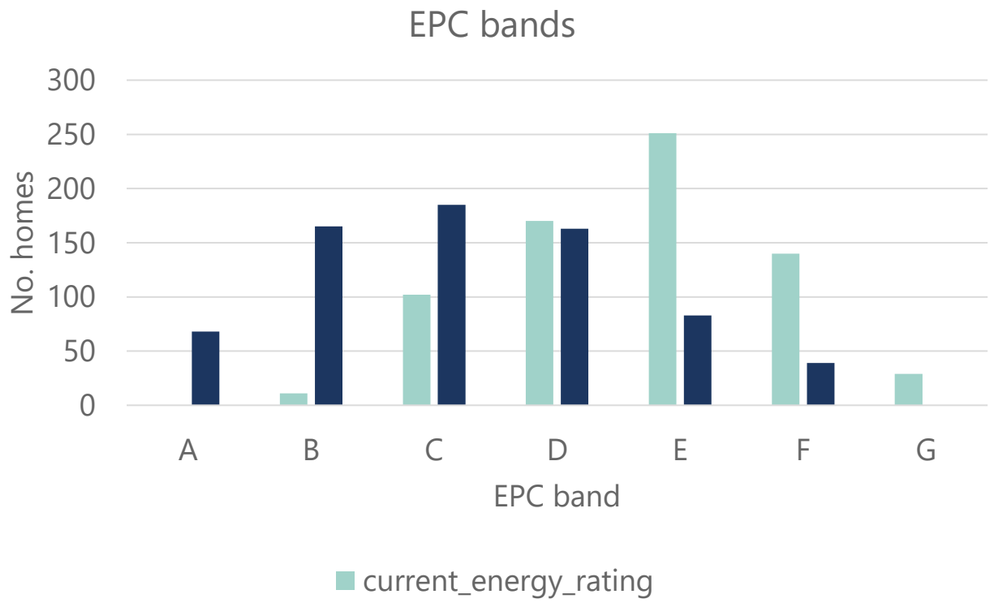
Barcombe’s current building stock

- Archetypes grouped in broad terms, **age and building type**
- Allows creation of both **heat profiles and retrofit costs**
- Over half of the existing housing stock are deemed poorly insulated

Housing Archetypes



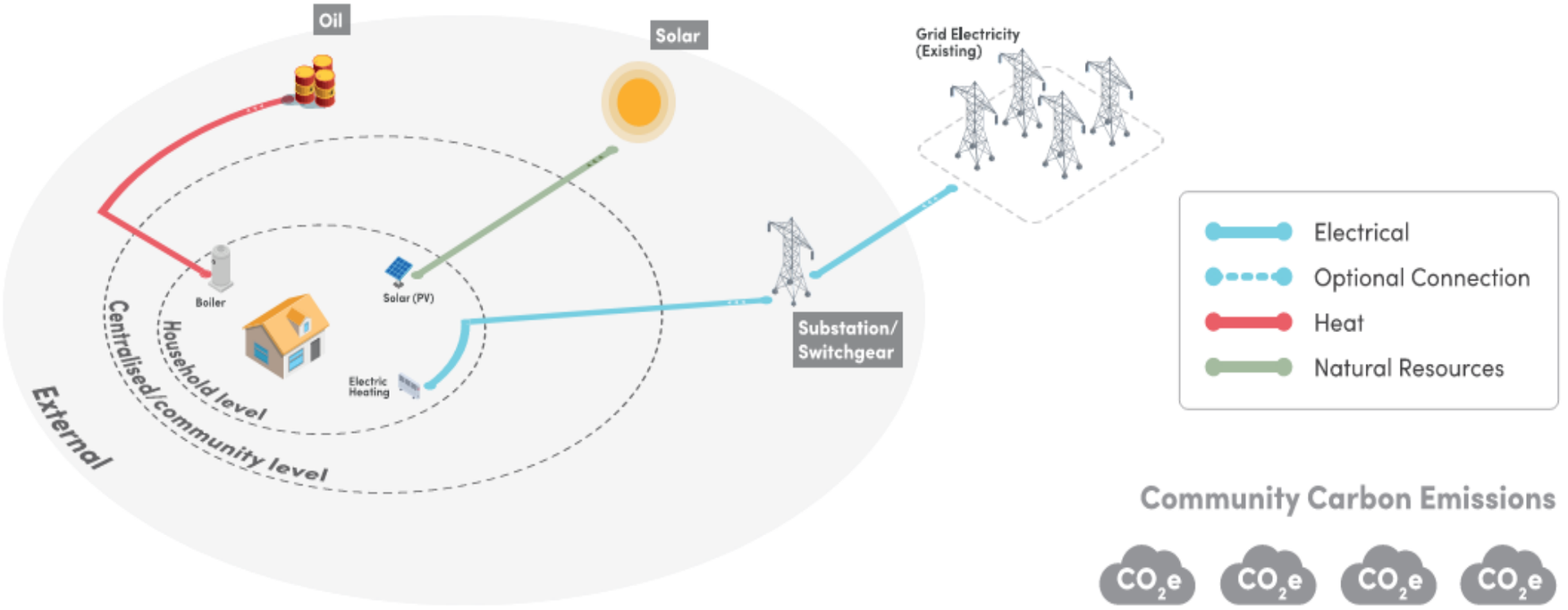
Pre 1930s | 1930 to 1975 | All flats | 1976 to 1995 | 1996 to present



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The existing scenario

Fragmented and fossil fuel dependent



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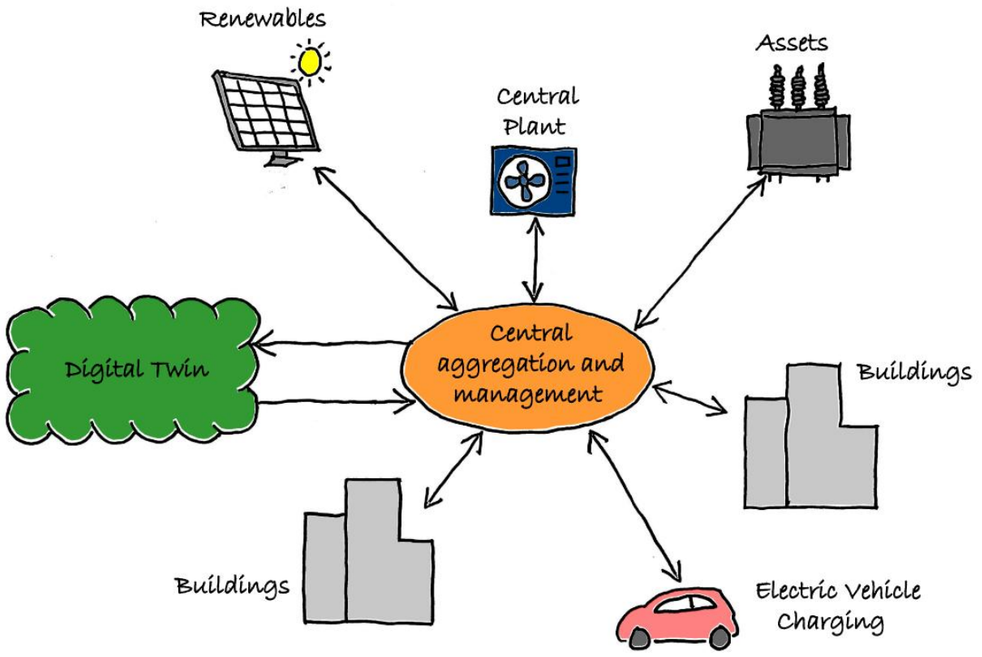
Two pathways to decarbonisation

Not reasonable to compare only to a low uptake scenario

- **Scenario 1: Gradual uptake**
  - Resident led change
  - Irregular growth
  - Market led
- **Scenario 2: Community intervention**
  - Community energy assets
  - Government intervention
  - Shift to digitalised energy systems
  - Subsidy support

Intervention uptake is balanced with ease of adoption

- High uptake scenario
- Medium uptake scenario
- Low uptake scenario

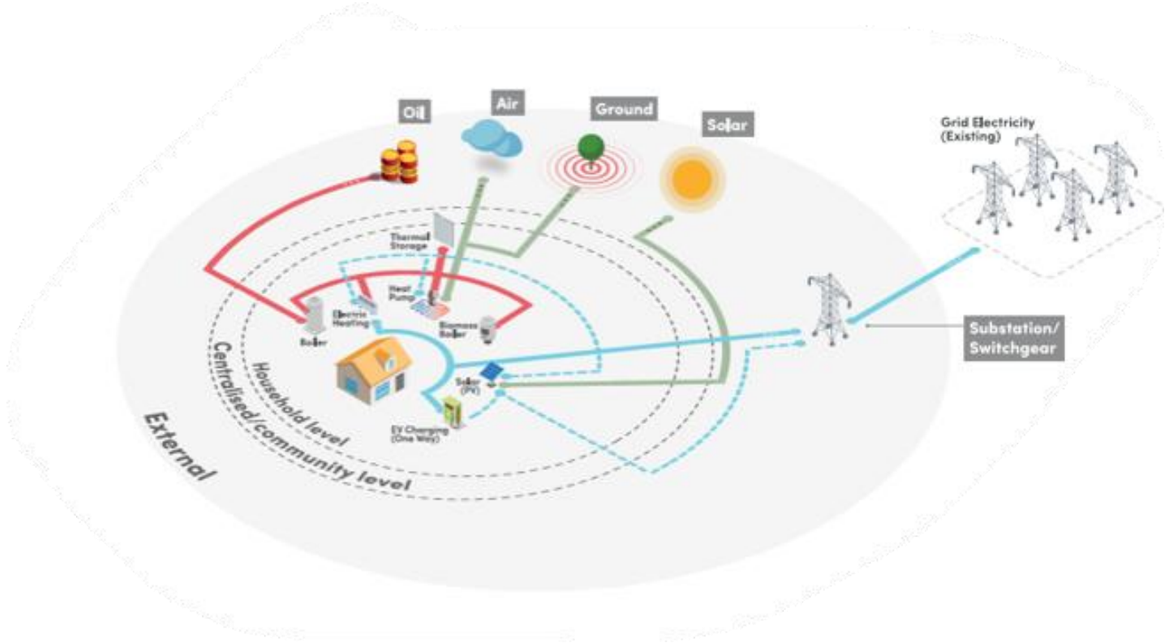


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Coordinated vs Uncoordinated Scenarios

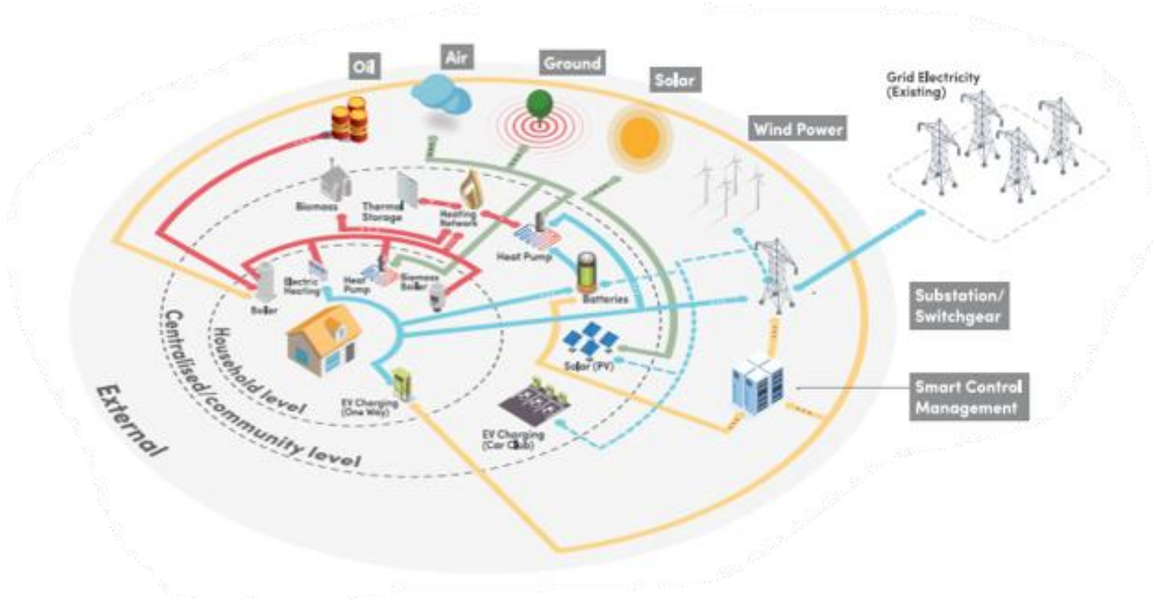
Scenario 1 - Uncoordinated

- Low retrofit uptakes
- Low rooftop PV
- No community energy generation



Scenario 2 - Coordinated

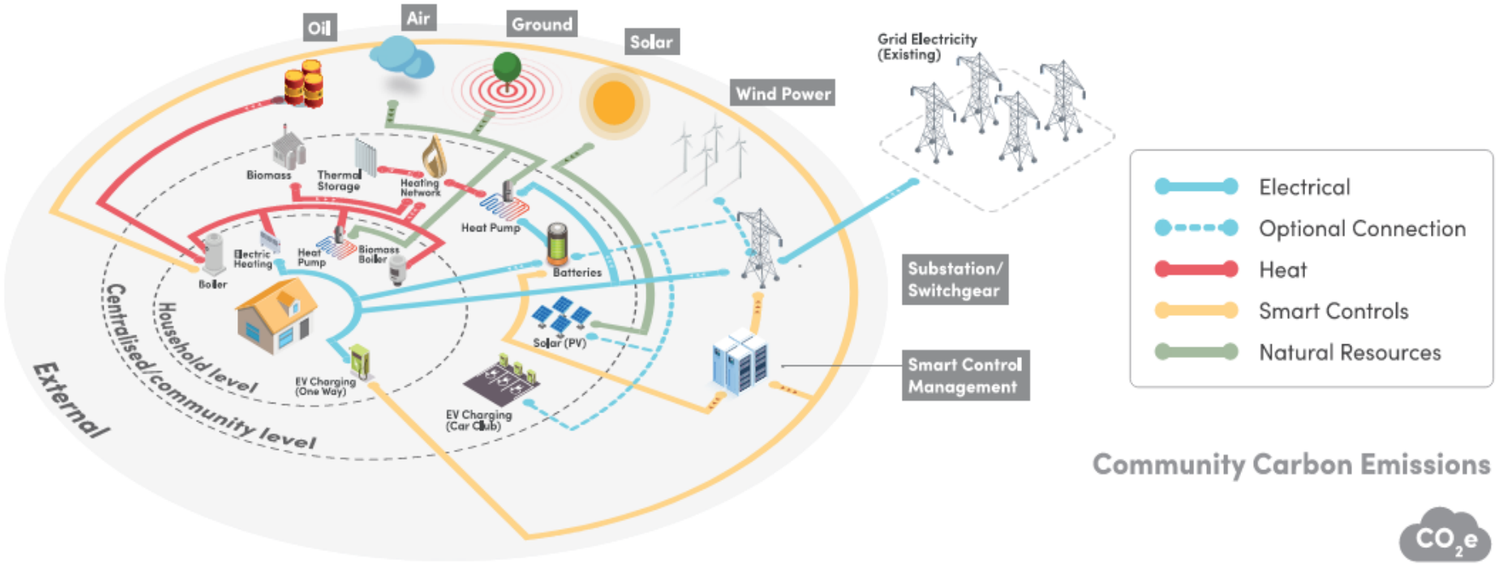
- High retrofit uptake
- High rooftop PV uptake
- Max PV and Wind farm generation
- Community Energy finance



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Coordinated benefits

- Targeted approach to building fabric retrofits
- Increased number of heat pumps installed
- Savings in network reinforcement cost
- Households could save up to 30% on energy bills vs uncoordinated approach
- Up to 3,000 tonnes of community wide carbon savings per year



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Digital Twin

- Making sense of vast quantities of data from a variety of sources
- Uses the latest digital engineering technology
- Allows stakeholders to engage with a dynamic model



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Key Insights

Building fabric	Technology selection is sensitive to building archetypes and data quality is important to improving accuracy of the modelling
Strategically targeted transition	Connection strategy can be influenced early on to reduce overheads for all
Partnership and community engagement	Publicly available data must be refined with data from the community
Digital Planning	Allows alignment between roll out of community assets and network assets

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