Welcome to Brent Cross Town

Warmtenetwerk delegation
2nd October 2024

Introduction

Today's agenda

13:30 Welcome and HSE information: *Chairman Warmtenetwerk and Frank de Vries, Vattenfall*

13:45 Insights into the UK Government's support for District Heating: *James Beal, Department for Business and Trade*

14:30 District Heating in UK and the role of Vattenfall Heat UK: *Alina Gheorghiu-Currie, Vattenfall*

15:00 Refreshments and comfort break

15:30 Brent Cross Town's Master and Plot Developer: *Benoit Dufour and Anthony Peter, Related Argent*

16:00 Brent Cross Town's Energy Centre, design and contract structure: *Jacques van den Dool and Alina Gheorghiu-Currie, Vattenfall*

16:30 Presentations conclude

Health and safety information

There are multiple designated escape routes from the building including:

- Ground floor entrance / exits from café and main reception area
- Via main staircase, leading to an exit at the back of the exhibition space
- Via ground floor toilets to an exit at the side of the building

Building occupants should familiarise themselves with their escape routes including:

- Available stairway and escape routes
- Location of fire alarm call points
- Location of firefighting equipment and method of operation
- Operation of any door opening mechanisms on fire exit doors

Assembly point – Claremont Park, next to pond

Department for Business & Trade

Heat Networks in UK

James Beal, Low Carbon Heat Specialist,
Department for Business and Trade

- Open, liberal economy
- Stable regulatory regime with independent legal system
- Globally competitive and transparent tax regime
- Generous R&D and patent tax relief
- The UK-EU Trade and Cooperation Agreement allows zero tariff market access with the EU
- Flexible labour market
- World class professional services sector supporting businesses with insurance and finance

References: [1]Dealroom, [2]EY Attractiveness Survey June 2022Attractiveness , [3]Z/Yen Global Green Finance Index 2022 (GGFI 10), [4]DHL Global Connectedness Index 2021,[5]Official statistics converted at market exchange rates as a source; [6]UK Innovation Strategy (2021); [7]Workforce trends (2022)

The UK has one of the world's most attractive business and investment environments

1st
in Europe for value of start–up & scale–up ecosystem[1]

2nd
in Europe for FDI attractiveness[2]

£1bn
Funding for Net Zero Innovation Portfolio

£22bn
committed to raise R&D to 2.4% of GDP[6]

Engineering employs **5.6mn** people[7]

1st
Ranked best global green finance centre[3]

1st
in G20 as a globally connected economy[4]

5th
Largest economy[5]

UK Low Carbon Leadership

UK, in 2008, first major economy to set legally binding target for carbon reduction

- (was 80% reduction by 2050, now net zero)

Emissions fell 43% between 1990 to 2018 whilst the UK economy grew by 75%.

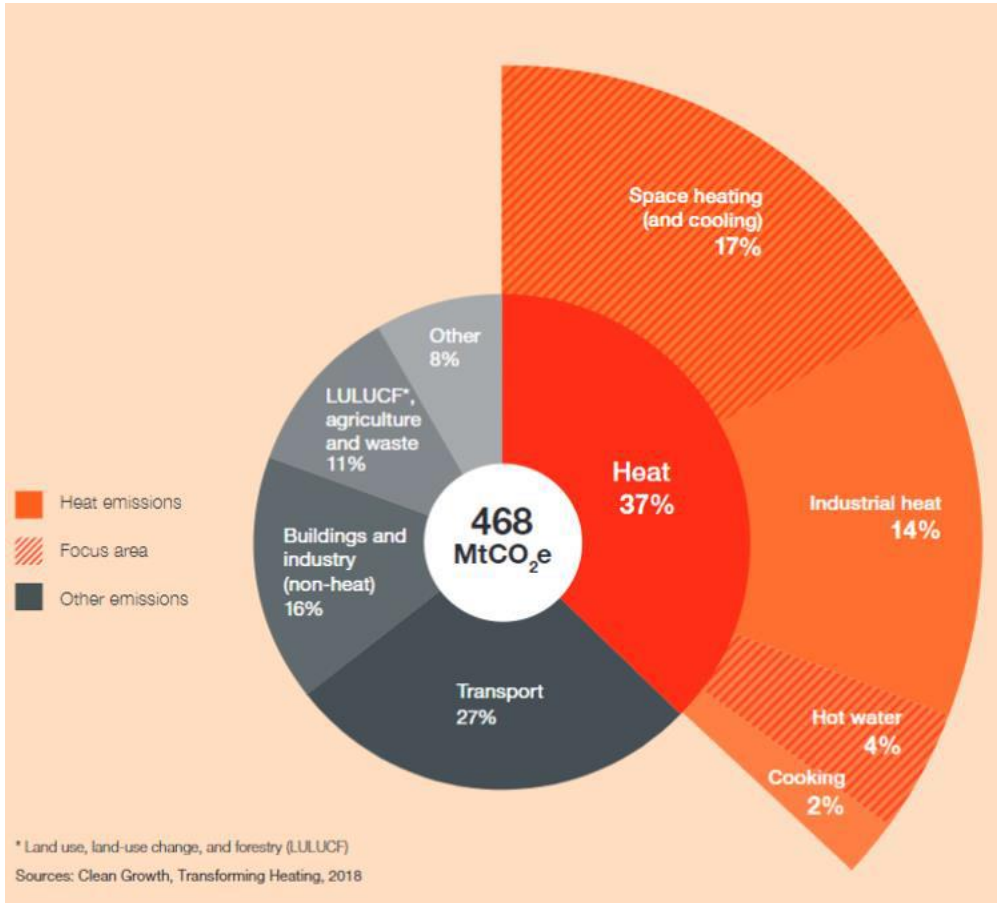
UK leading G7 nation in carbon reduction

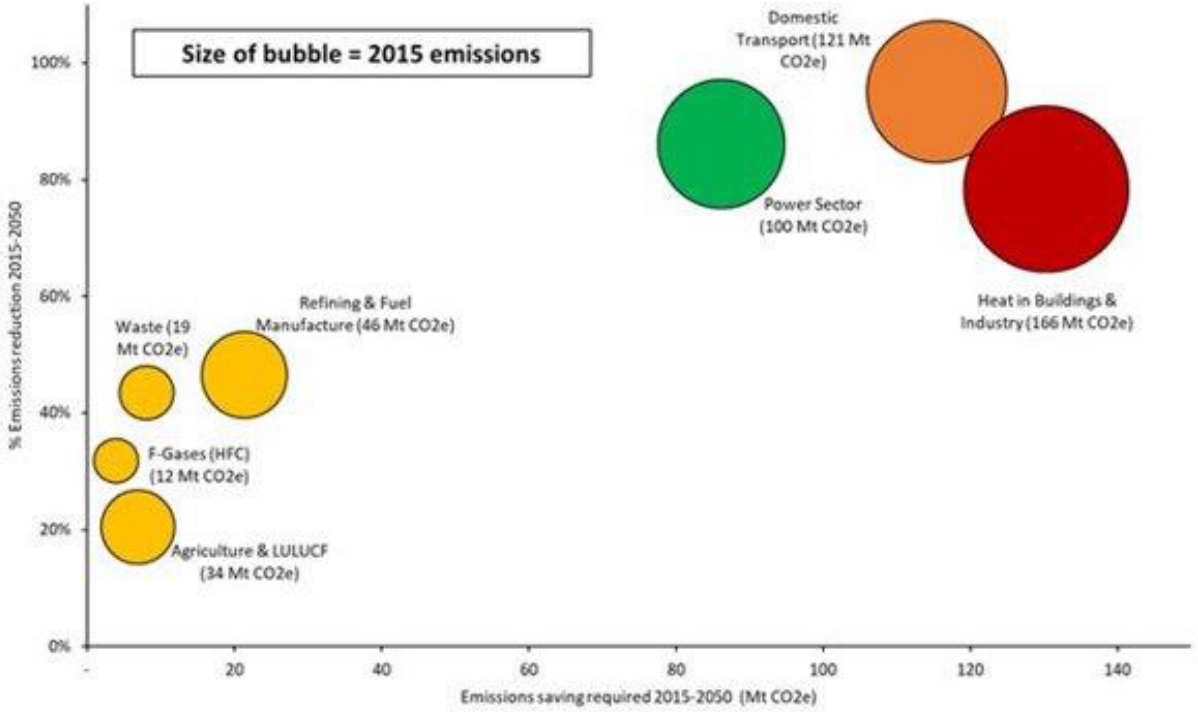
460,000 employed in low-carbon jobs in UK (2017 data)

UK enabled low-cost and reliable offshore wind for the rest of the world to benefit from

Clear progress on decarbonising electricity, now focused on delivering low / zero carbon heat

Decarbonizing Heat Remains Challenging





Net Zero Scenarios 2021

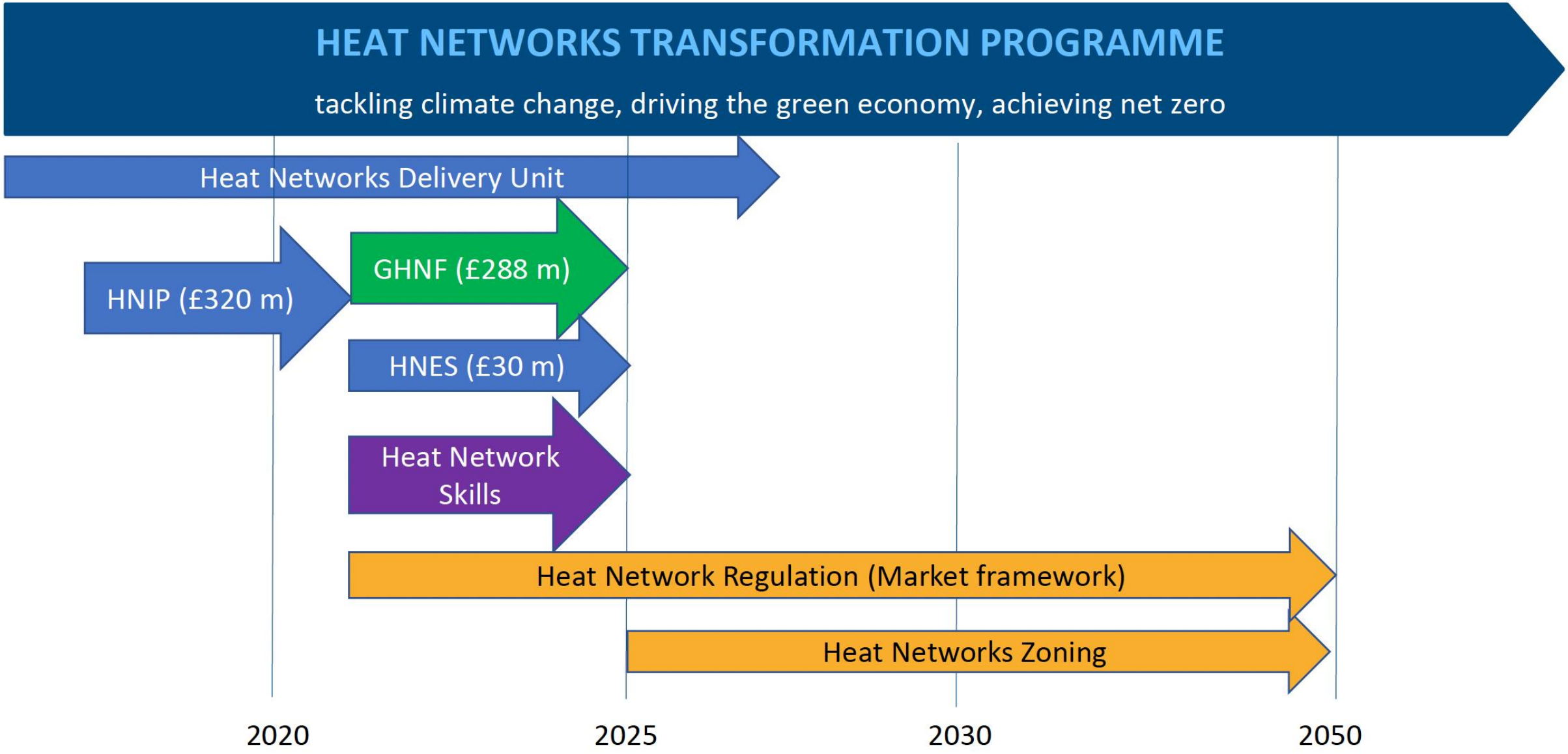
Underpinning assumptions

Heat Networks deliver 20% heat

Deployment assumptions underpinning pathway

Sector	Deployment assumptions	Unit	2019	2025	2030	2035	2050 illustrative range
Power	Electricity generation	TWh	320	315	370	460*-510	610-690
	Low carbon GB generation as a percentage of total projected generation required in 2035	%	29%-33%*	38%-42%*	62%-69%*	99%	99-100%
Heat and Buildings	Cumulative heat pumps installed domestically	Million installations	0.2	1.1	4*- 4.3	6.9* - 11.3	12-28
	Cumulative homes converted to 100% hydrogen for heat	Million homes	0	0	0-0.2*	0-4*	0-14
	Yearly homes treated by new domestic energy efficiency measures	Million homes	0	0.5	1	0.5	
	Low carbon fuels[a] consumption as a percentage of total fuel consumption in commercial buildings (excluding heat networks)	%	62%	63%	67%	78%-81%*	90-100%
	Yearly heat supplied via heat networks	TWh	14	16	22	29	70
	Yearly biomethane injected into the grid	TWh	3	8	12	12	0-20

In England


HEAT NETWORKS TRANSFORMATION PROGRAMME
tackling climate change, driving the green economy, achieving net zero
Heat Networks Delivery Unit
HNIP (£320 m)
GHNF (£288 m)
HNES (£30 m)
Heat Network Skills
Heat Network Regulation (Market framework)
Heat Networks Zoning
2020
2025
2030
2050

Heat Network Delivery Unit

- The Heat Networks Delivery Unit (HNDU) is a specialist unit of heat network experts in DESNZ. HNDU provides grant funding and guidance for early-stage heat network project development.

- They share best practice and knowledge across the market, promote new guidance on technical standards, create standardised documentation and facilitate project development.

- HNDU previously worked with local authorities, but their reach has now been widened to support registered social landlords, NHS Trusts, universities, government departments and property developers.

- All bids for support are reviewed by a panel of engineering, financial and commercial experts with significant experience in heat network development.

HNDU key achievements:

- Completed 12 Rounds of funding since 2013
- Supported over **250 schemes**
- Over **£30m** of grant funding awarded
- Summaries of projects supported by HNDU are on the published pipeline: https://www.gov.uk/government/publications/heat-networks-pipelines

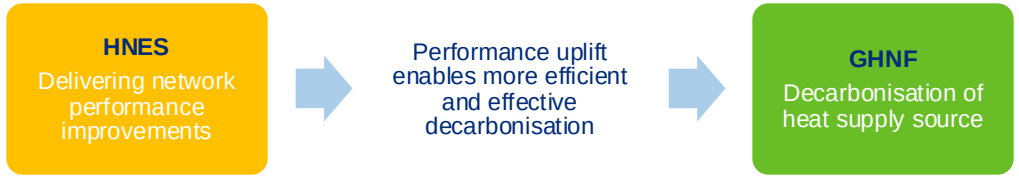
Green Heat Network Fund

- **The Green Heat Network Fund (GHNF) provides funding** to develop new and existing low carbon heat networks across England.
- **Funding is available for a range of decarbonisation technologies** such as large heat pumps, energy from waste, geothermal and recovered heat.
- **The fund opened for applications in March 2022 and will run until 2028.** It originally launched with a budget of £288m and was intended to run until 2025. However, due to demand additional capital funding of £485m was announced in December 2023 and the scheme was extended until 2027/28.
- **25 funding awards totalling over £325m have been announced to date**. Details of these awards can be found on the website of the GHNF delivery partner, Triple Point Heat Networks
- The UK Infrastructure Bank (UKIB) also announced in 2022 that they would offer councils streamlined access to their **£4 billion local authority lending product** as part of the GHNF application process.
- **Public, private and third sector organisations can apply.** Guidance is available at: https://www.gov.uk/government/publications/green-heat-network-fund-ghnf

Heat Network Efficiency Scheme

- The Heat Network Efficiency Scheme (HNES) opened in February 2023.
- It is a programme providing funding to public, private and third sector applicants in England and Wales.
- It supports improvements to existing district heating or communal heating projects that are operating sub-optimally, leading to poor outcomes for customers and operators.
- It was initially launched with a budget of £32m. Due to strong demand a further £45m was announced for the scheme in December 2023.
- Funding Round 6 is currently open, closing on 22 March 2024. To date, over £28.1m of funding has been announced publicly.

HNES scope of support



Revenue grants

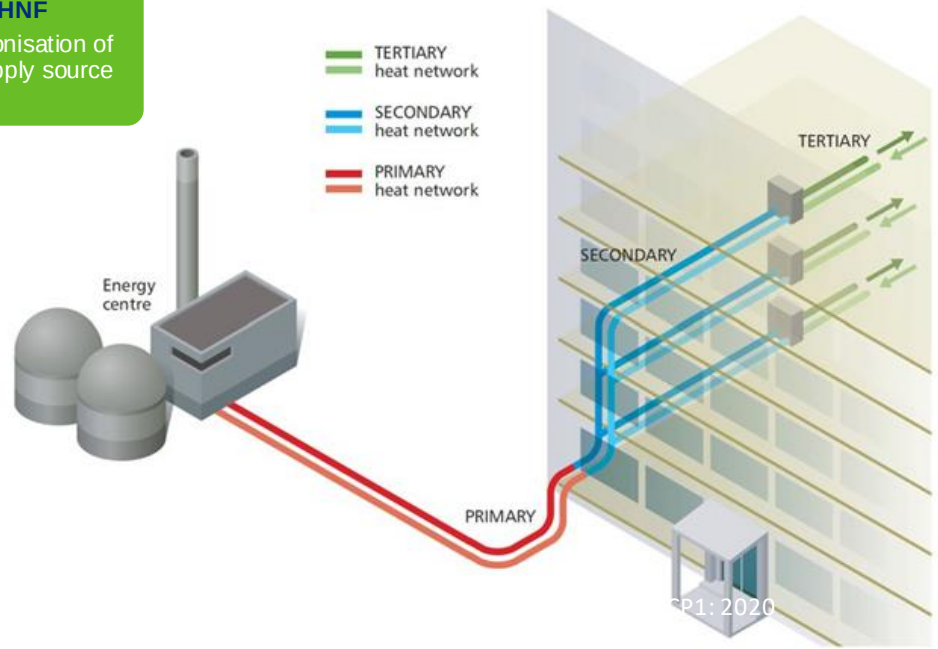
Optimisation studies

- Identifying issues, recommending solutions

Capital grants

Delivery/installation of measures

- Plant room
- Primary / secondary network
- Tertiary network
- Controls & metering
- *Excluding technology switch*



Heat Training Grant

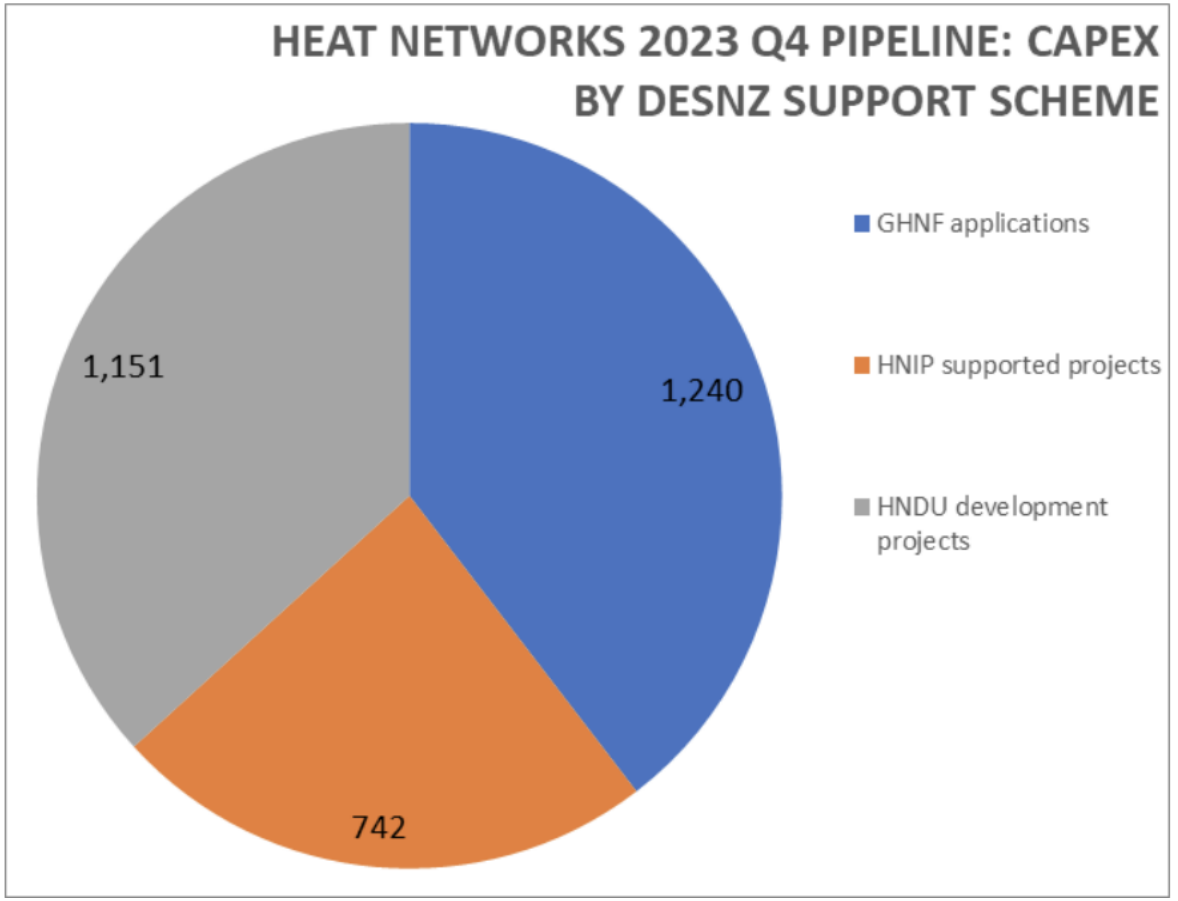
- **The £5m Heat Training Grant** will support trainees in England taking short training courses relevant to either heat pumps or heat networks.

- For the heat network courses, providers offering the grant will be able to **provide trainees with a discount or rebate of up to £500**. This will cover initial design of networks to building, operation, and maintenance and we expect approximately 4000 individuals will be supported over the two years.

- **The Midlands NetZero Hub has been appointed as the administrator, including to run the bidding process** to select training providers. Heat networks training providers are being selected in two bidding rounds: one for delivery in 2023/24 and one for delivery in 2024/25.

- Training is open to all. You can find out more here: https://www.gov.uk/guidance/apply-for-the-heat-training-grant-discounted-heat-network-training

Heat Network £3bn Pipeline



North East HPO- £600m of heat network projects

- Join a growing cluster of heat networks and district energy schemes and access a rich and diverse customer base

Newcastle Helix District Energy Centre

- The £20 million scheme is a pioneering joint venture between ENGIE and Newcastle City Council to develop district energy schemes across Newcastle, providing affordable heating to all businesses and homes.

Gateshead District Energy Scheme

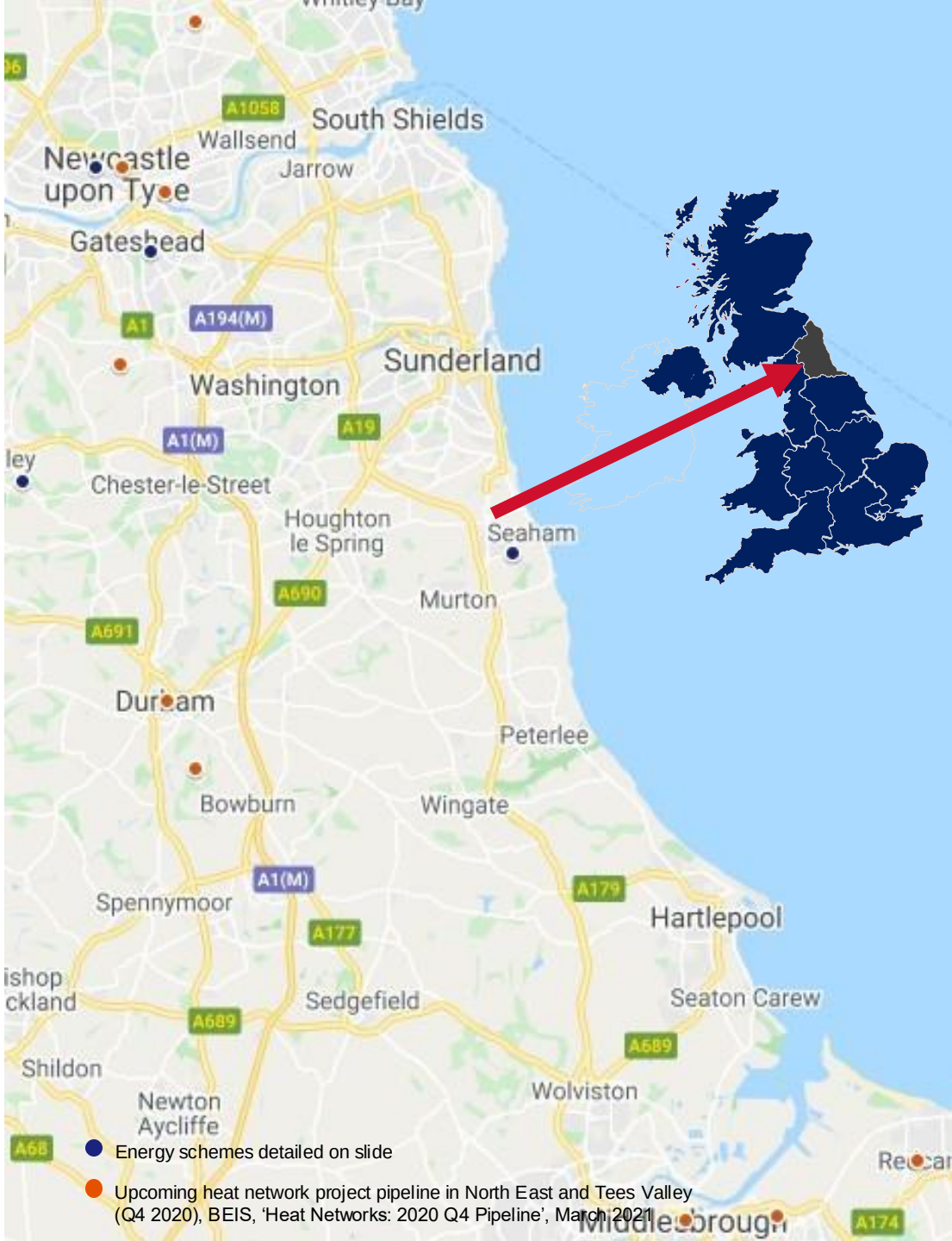
- Originating in 2010, the local authority-owned Gateshead District Energy Scheme sets the blueprint for next-generation district energy, integrating heat and power generation and distribution, with energy storage, whilst providing national grid services.

Lanchester Wines

- The first business in the UK to draw heat from disused coal mines using pioneering heat pump technology.

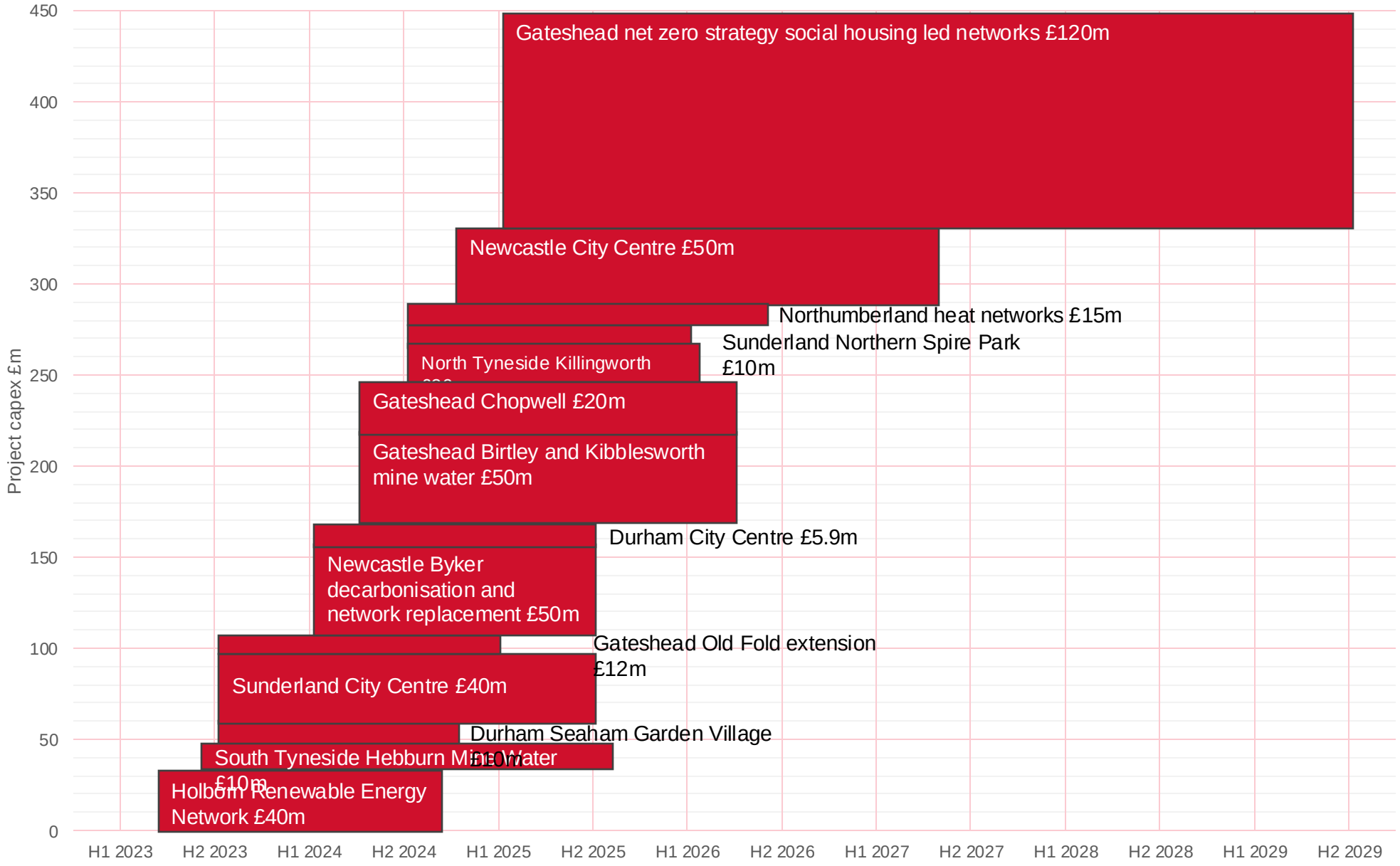
Seaham Garden Village

- In partnership with Durham County Council, and the Coal Authority, Tolent Construction are developing an exemplary Garden Village at Seaham, County Durham. This development has the potential to make Seaham Garden Village the first large scale mine energy district heating scheme in the UK.



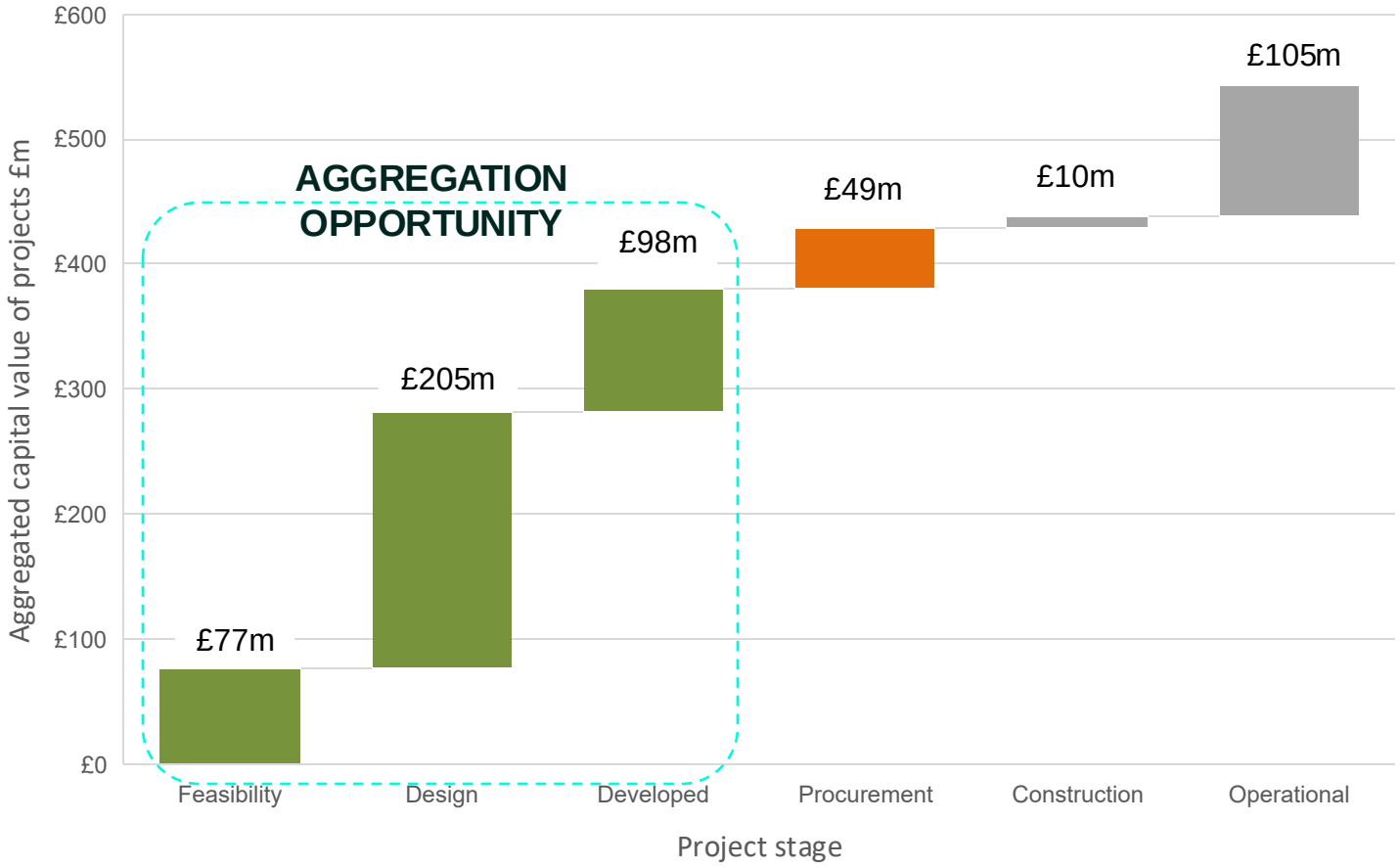
Source: Newcastle Helix, 'The District Energy Centre'; Gateshead.gov.uk, 'Gateshead District Energy Scheme'; The Coal Authority, 'Seaham Garden Village'; Durham Heat Hub; BEIS, 'Heat Networks: 2020 Q4 Pipeline, March 2021

Potential timescales for deploying the pipeline



- Timescales reflect best current understanding
- Capex estimates currently fairly conservative
- The pipeline will continue to grow

The North East Pipeline by project stages



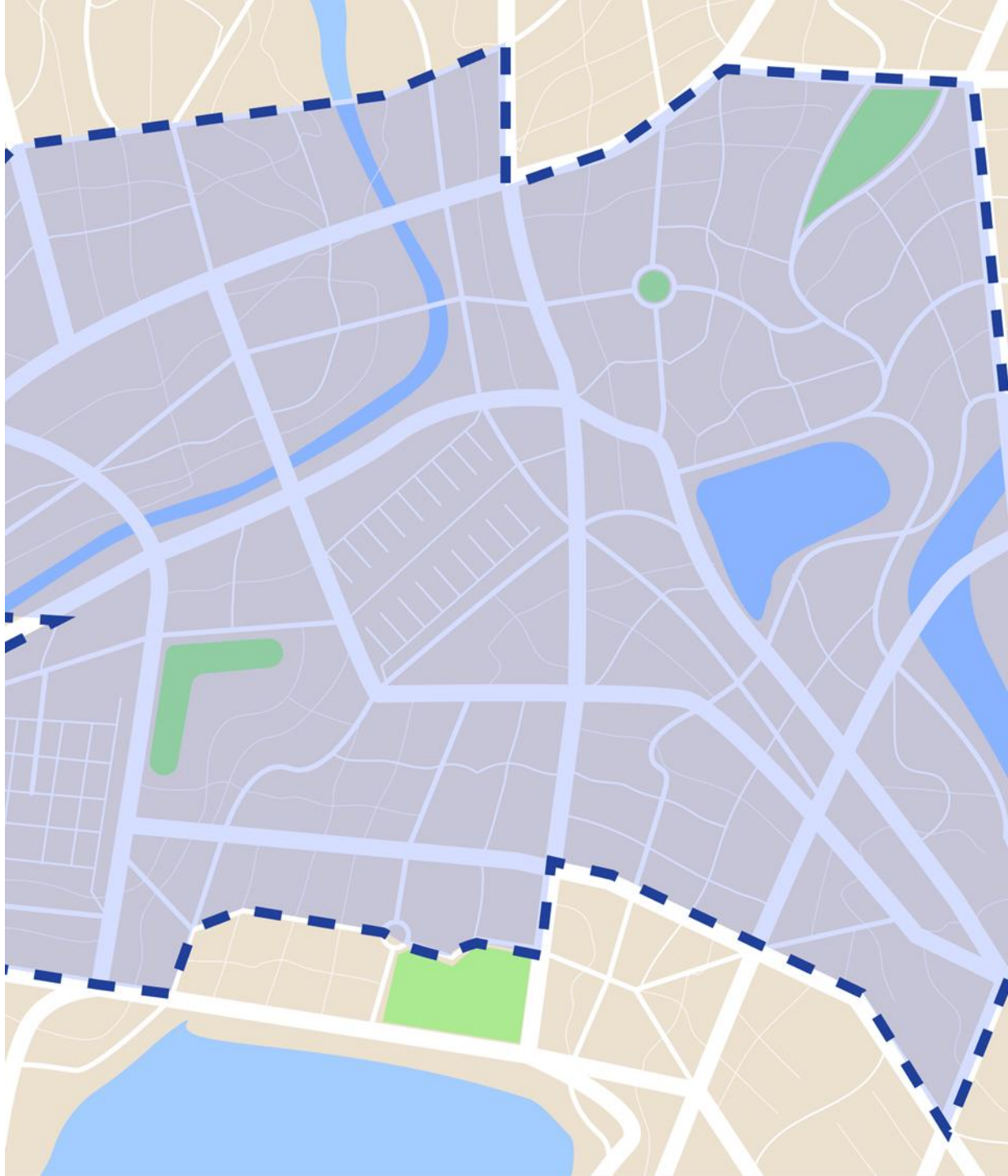
- Majority of projects in development are receiving LEP support to help maintain momentum
- Commercial, funding, delivery models are key considerations at this stage
- We are interested in early engagement with the market to determine optimal delivery route

Heat Network Zoning

An overview

Heat Network Zones

- **Heat network zoning will designate areas** where heat networks are expected to provide the lowest-cost, low carbon heating.
- **It will give local communities the tools** to accelerate the development of heat networks in their towns and cities.
- **We want to give developers and investors more certainty** about the number of likely connections to networks to help unlock the investment needed to build them.
- **This will remove the barriers to greener, cheaper heat** that currently limit the scale and pace of developing heat networks and encourage investment.
- **This will allow for large-scale strategic heat networks** to be built in towns and cities across the country.



Heat Network Zones

How will zoning be delivered?

- Enabling legislation in the Energy Act 2023
- Consultation on heat network zoning – closed 26 Feb
- Establish zoning co-ordinators and a national authority to oversee the process and support local zoning co-ordinators

Where will zones be and how will this be communicated?

- Potential zones identified throughout England via a national methodology
- Local refinement before zones designated
- Zone information available via a digital portal

What is the process via which zones will be built?

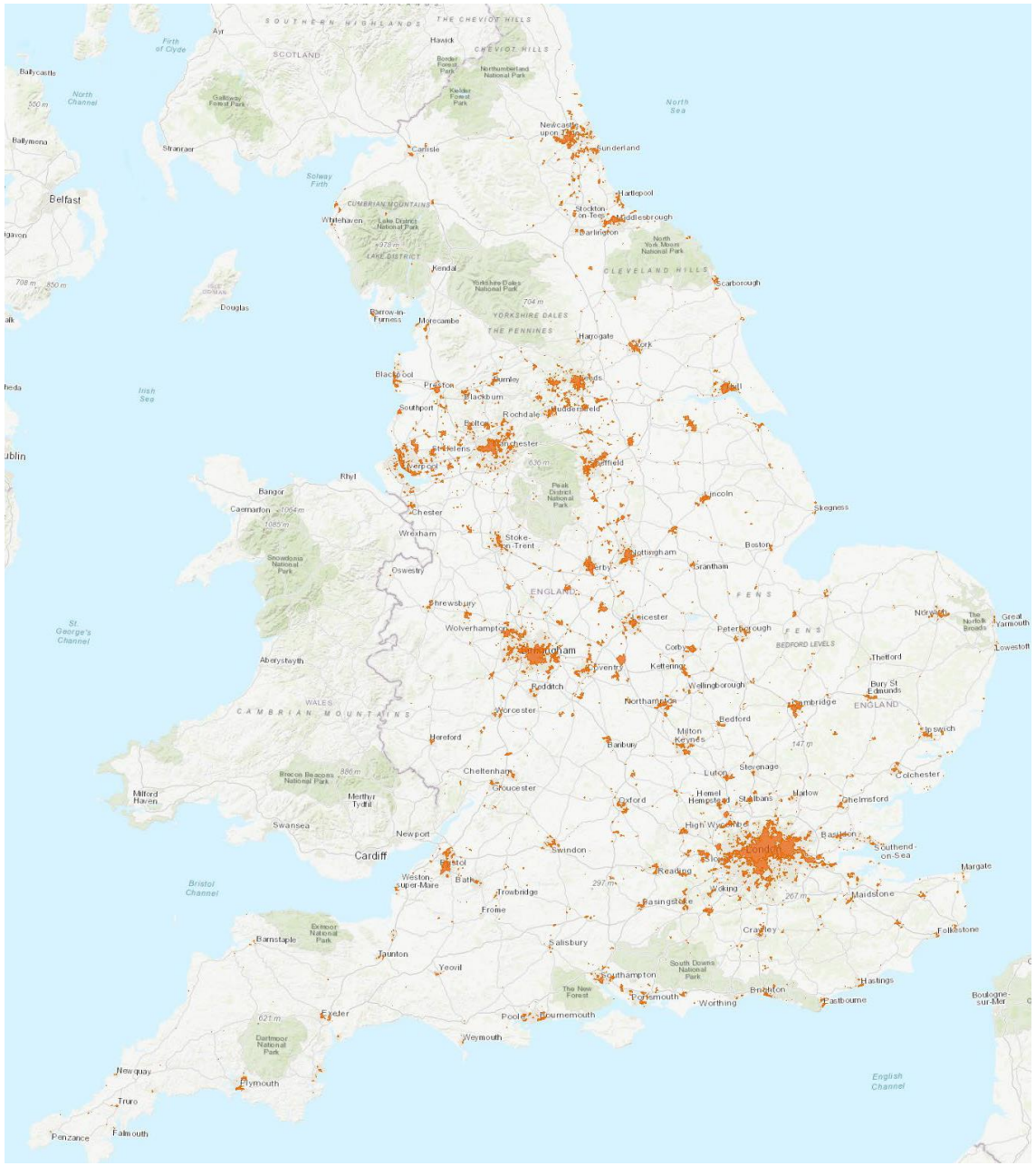
- Standardised routes for identifying heat networks developer in each zone

What lessons can we learn from early pilots and activity?

- Advanced work to ensure initial batch of zones are in construction by end 2025

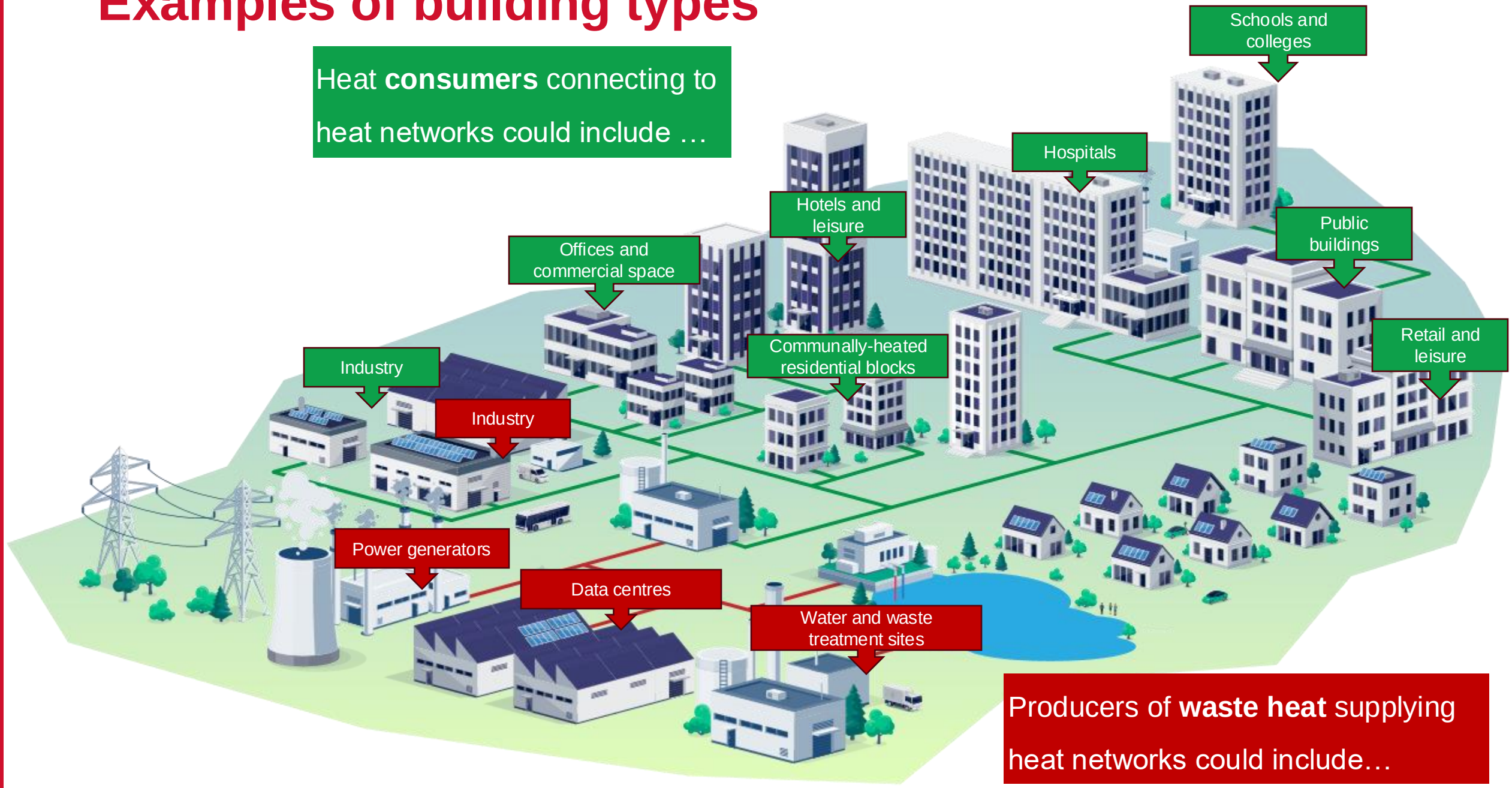
Identifying Heat Network Zones

- Standardised methodology for identifying indicative heat network zones
- Areas where we expect heat networks to be the lowest cost low carbon heat against a suitable counterfactual.
- Model uses data about the size, type and existing energy use.
- Working with 28 towns and cities to test and refine the model.



Examples of building types

Heat **consumers** connecting to heat networks could include …



Producers of **waste heat** supplying heat networks could include…

Advanced Zoning Programme

Advanced Zoning Programme Aims

1 **CONSTRUCTION STARTS & PIPELINE**

Working to identify the opportunities for accelerating the scale and pace of zonal heat network delivery with cities, areas and project sponsors currently within the programme.

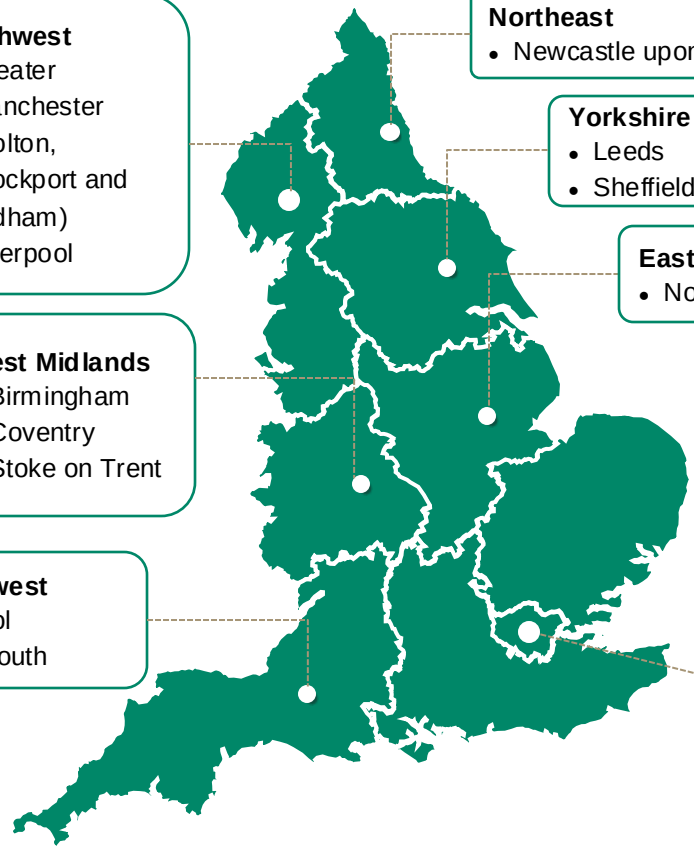
2 **READINESS FOR ZONING**

Supporting the acceleration of zonal scale heat network delivery, aligned with zoning policy.

3 **LEAVING A STRATEGIC LEGACY**

Capture lessons learnt, establish standardised outputs, and provide feedback to policy development from key stakeholders.

19 areas make up the Advanced Zoning Programme



Northwest
- Greater Manchester (Bolton, Stockport and Oldham)
- Liverpool

Northeast
- Newcastle upon Tyne

Yorkshire & the Humber
- Leeds
- Sheffield

East Midlands
- Nottingham

West Midlands
- Birmingham
- Coventry
- Stoke on Trent

Southwest
- Bristol
- Plymouth

London
- Barking & Dagenham
- City of London
- City of Westminster (SWAN)
- East London Energy (Hackney, Tower Hamlets and Newham)
- Enfield
- Islington
- Old Oak and Park Royal Development Corporation (Ealing, Brent and Hammersmith and Fulham)
- Southwark

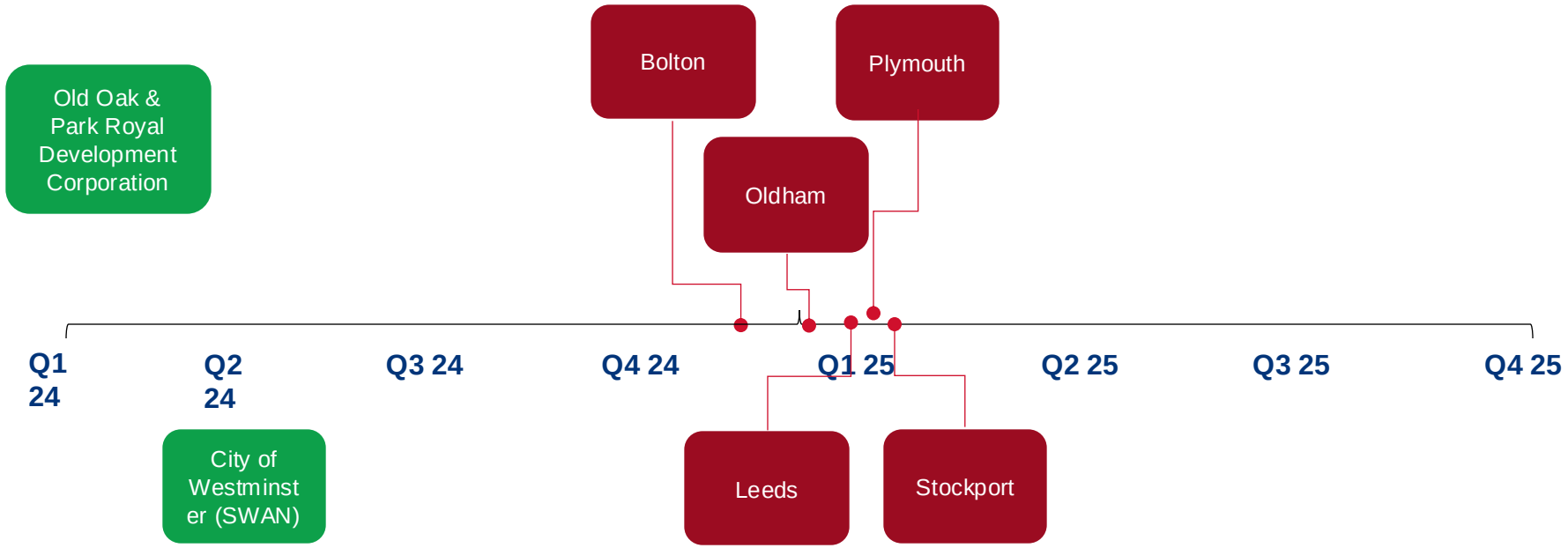
Advanced Zoning Programme – staged approach

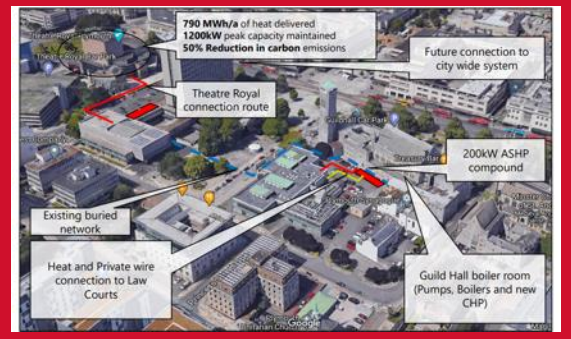
Advanced Zoning Programme Cities

Advanced Zoning Programme London Areas

City / London Borough selection to participate in the Advanced Zoning Programme	**Zone Identification**	**Zonal Scale Heat Network Delivery Plan**	**Triage Assessment**	**Zonal Outline Business Case**	**Procurement**	**Commercialisation**	**Heat Network Zoning**	**Construction**

Anticipated procurement programme





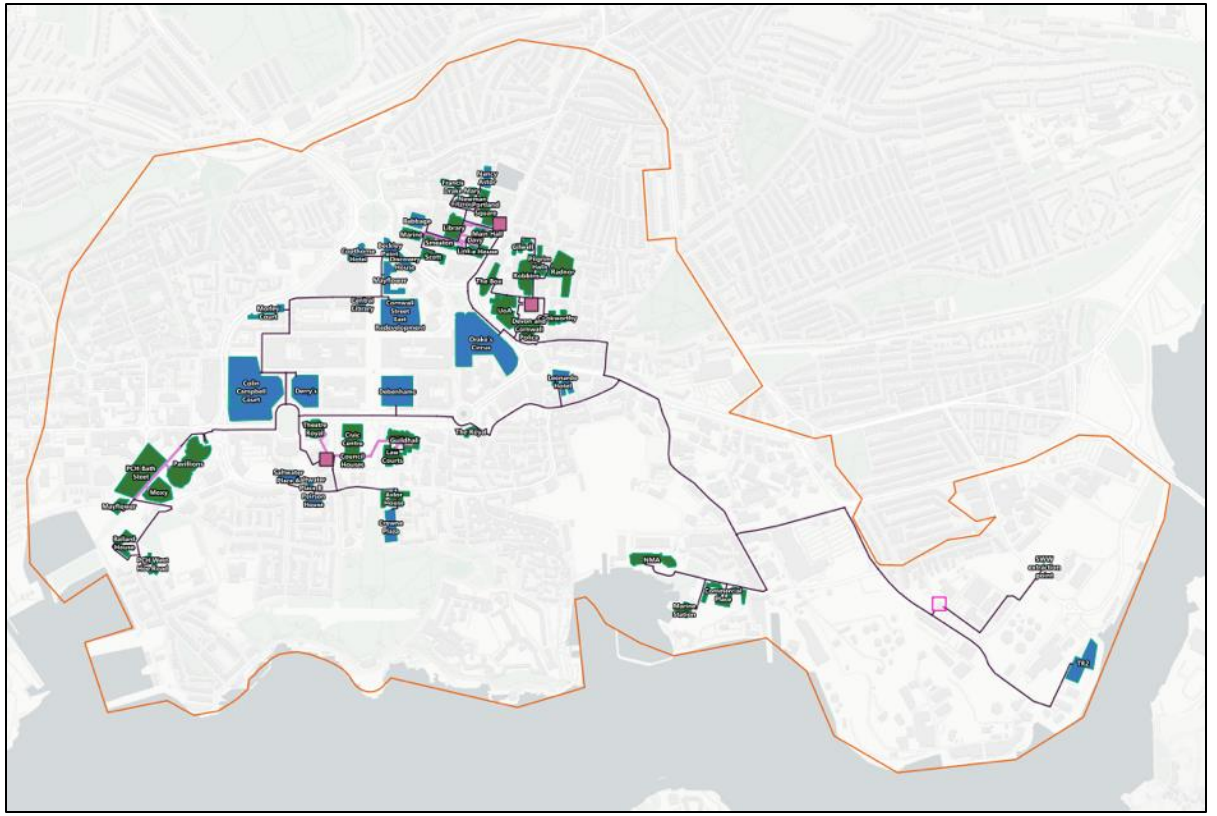
Plymouth AZP

AZP example -
Plymouth's heat network opportunity…

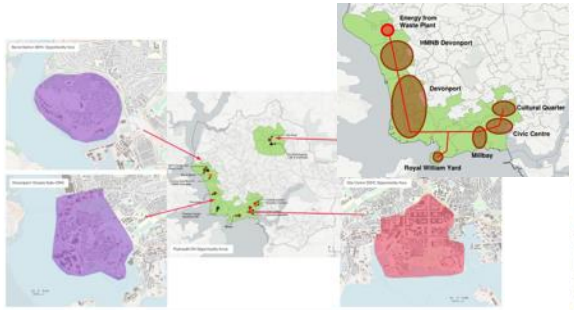
Significant proposal developed through the Advanced Zoning Programme.

Reference first phase zonal approach focusing on City Centre:

- 78 GWh/yr heating
- 16 GWh/yr cooling (climate resilient)
- 9 Km pipework
- 12,000 tCO2 reduction
- £93m investment
- Harvesting waste heat sources



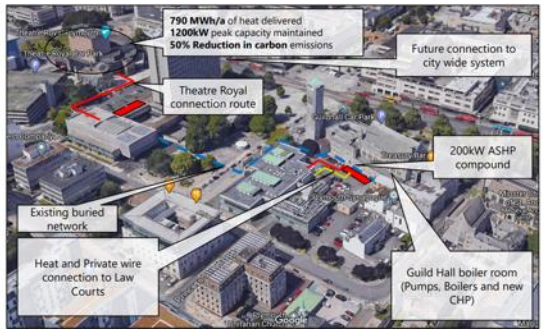
Plymouth’s heat network journey over the past 10 years…



City Wide Energy Strategy
Heat network opportunity areas adopted into JLP
Strong policy for futureproofing

2013

2017



Civic Centre & Millbay
Phase 1 Civic (Salix) and Millbay (HeatNet) enabling works
Phase 2 Civic Business Case approval & GHNF application success

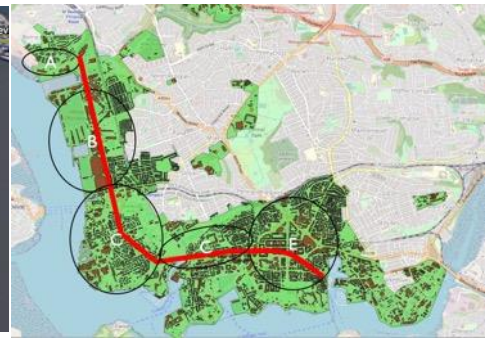
April 2019

2019- 2022

HNDU refresh/ Devonport Feasibility Study
LA vision of heat off take expansion
MoD site modernization
Oceangate developments

2019- 2024

2023



Roll out of Heat Network scheme
Total Zone heat demand of ~340 GWh/a and ~150GWh/a of mandatable loads

2025- 2050

Procurement of partner Plymouth Heat

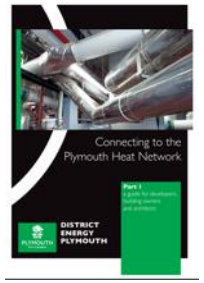
2023- 2025

2024

2025

ICE UK and WSP studies

Climate Emergency Declaration
Net Zero national targets
Local Targets



HeatNet and D2Grids EU projects
Millbay
Civic Centre
Geothermal wells
Waste Heat from cooling
Heat Network infrastructure

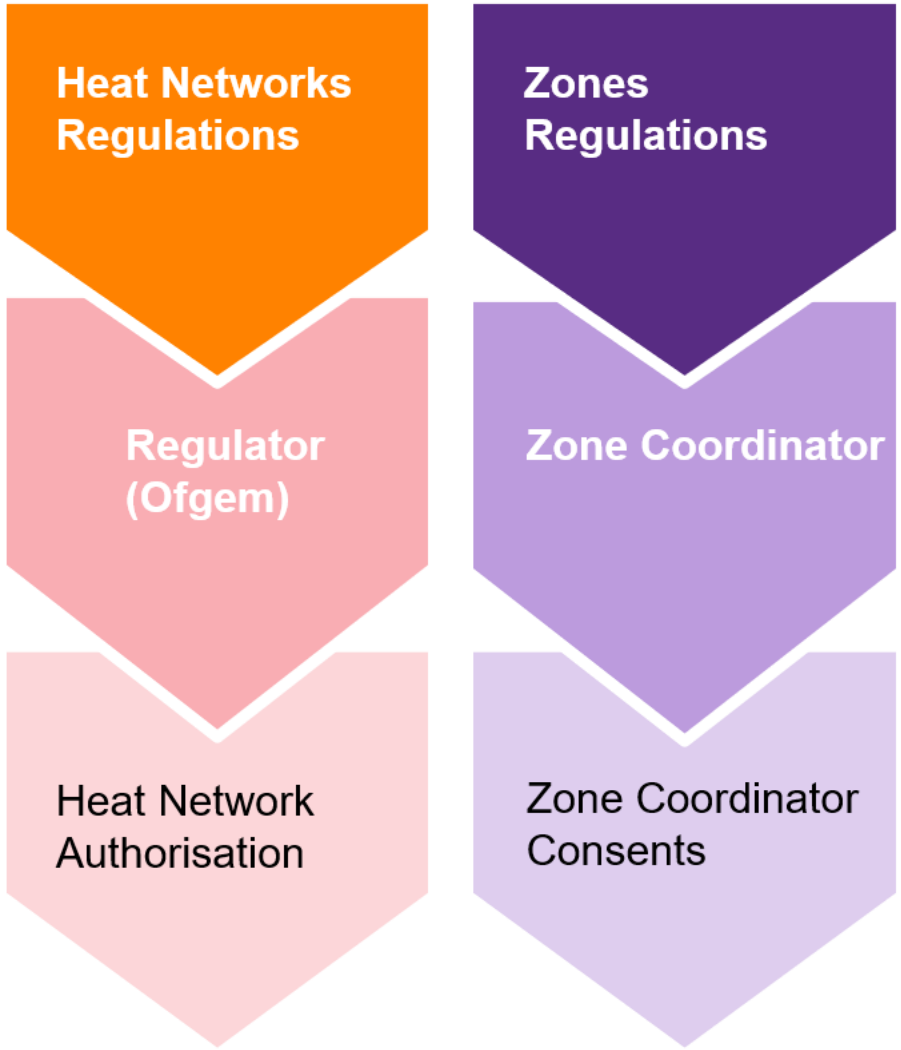
DESNZ Heat Network Zoning Pilot and AZP
Plymouth one of 28 and 19 pilot cities

DESNZ Gov: Heat Network Zoning Legislation
Legislation for mandating new developments to shared low-carbon energy infrastructure and Regulation of Heat

Energy Act 2023 & zoning legislation will also support connection of existing buildings…

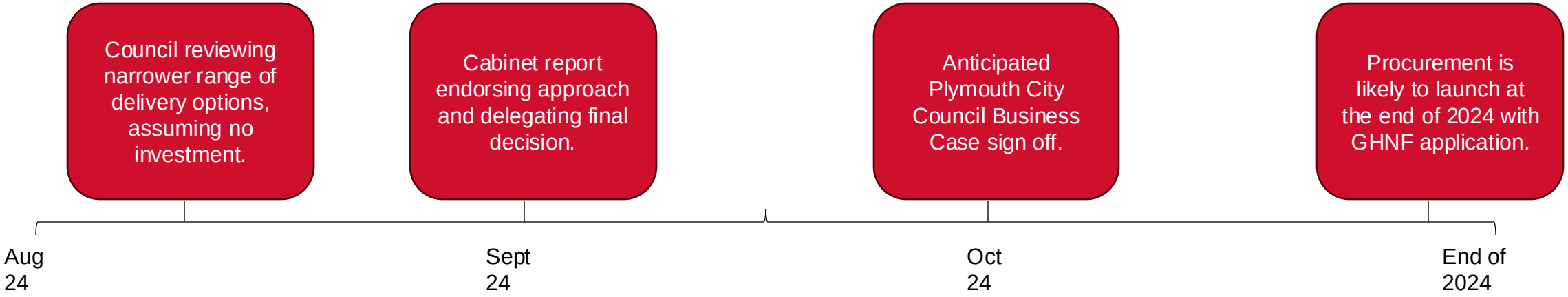
Energy Act 2023	Enabling Act
Heat Network Regulations	Apply to all heat networks
Zones Regulations	Apply only to heat network zones

Regulations	
Heat Network Regulations (s.216 Energy Act)	
• Amendment or Repeal of Primary Legislation • Regulator's Duties • Regulated Activities • Designated Documents	• Conditions of Heat Network Authorisations • Conditions of Installation and Maintenance Licences • Enforcement
Zones Regulations (s.222 Energy Act)	
• Designation of Heat Network Zones Authority • Designation of Zone Coordinators	• Designation of Zones • Connection Requirement - Mandation Rules (including exemptions)



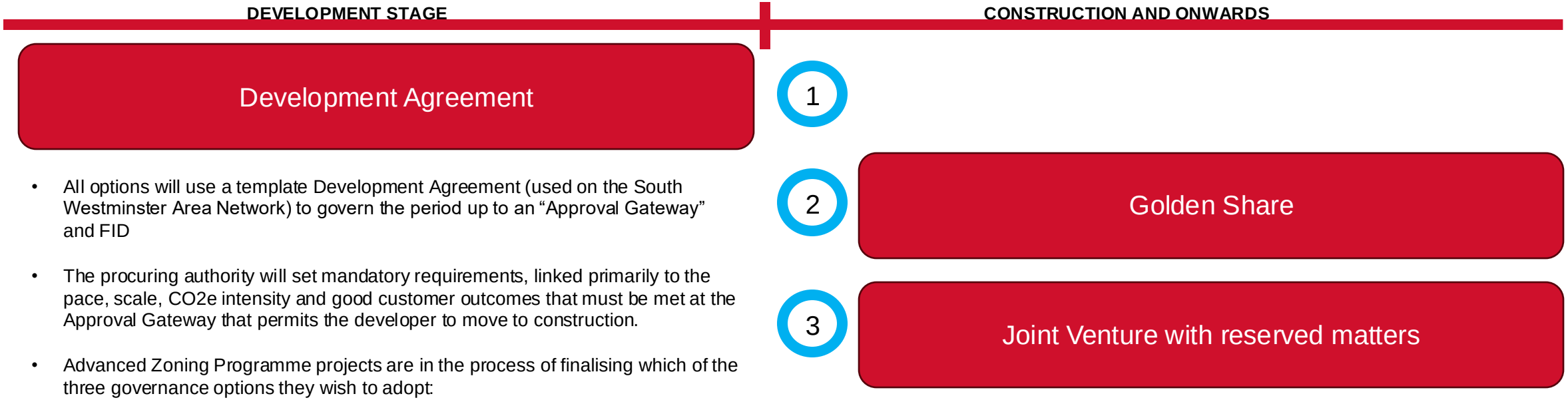
Commercial workstream

- Soft Market Test published – May 2024
- Positive responses from Market to opportunity
- Going to Cabinet today, to endorse approach and delegate final decision!
- Final Business Case sign off anticipated October / November 2024.
- Potential procurement launch end 2024/early 2025.



Governance options available under Advanced Zoning Programme supported projects

Governance options available under Advanced Zoning Programme supported projects



- All options will use a template Development Agreement (used on the South Westminster Area Network) to govern the period up to an “Approval Gateway” and FID
- The procuring authority will set mandatory requirements, linked primarily to the pace, scale, CO2e intensity and good customer outcomes that must be met at the Approval Gateway that permits the developer to move to construction.
- Advanced Zoning Programme projects are in the process of finalising which of the three governance options they wish to adopt:

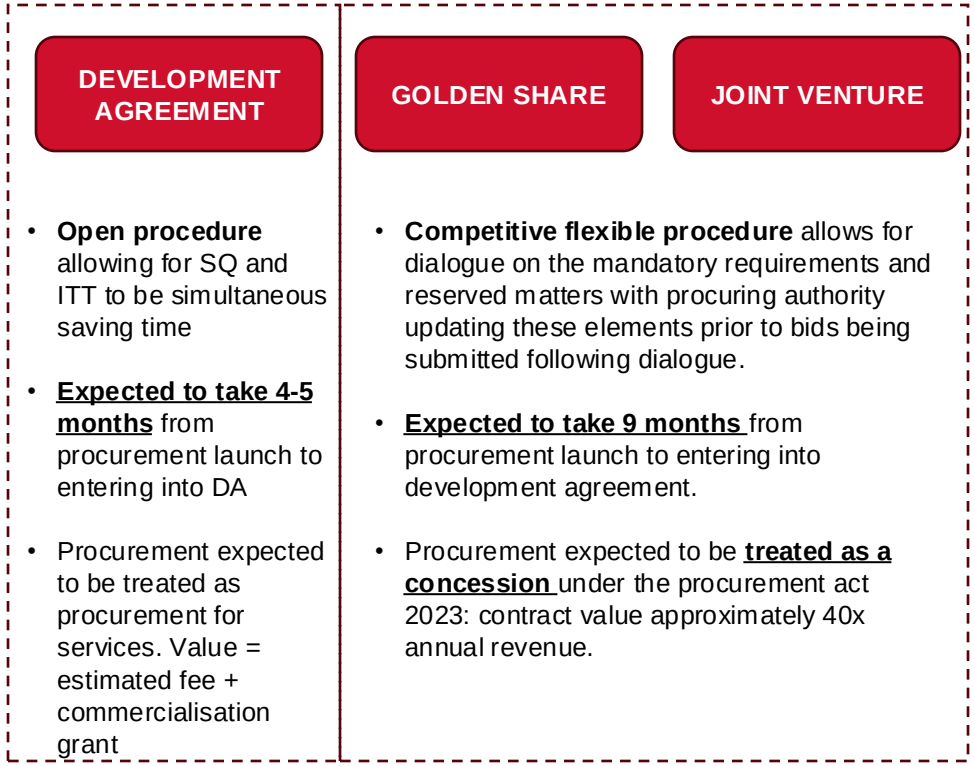
1. This option relies on the Approval Gateway providing sufficient steer to ensure the mandatory outcomes are achieved. Customer protection and minimum service levels are achieved through the planned regulations which the DA are anticipated to straddle.

2. The golden share model is a template shareholder’s agreement for the project SPV and will be used where the procuring authority wants an enhanced involvement with the project beyond the development / commercialisation stage but does not want to invest in the project. The procuring authority would become a special shareholder following the Approval Gateway under the terms of the Development Agreement. The Authority would have a non-voting presence at the board and certain items such as customer tariff would form part of the reserved matters

3. The joint venture model is where the procuring authority does want to invest in the project and be involved in the operational decision making. A template shareholder’s agreement will be used. The procuring authority will at the outset state: the funds committed in principle to the project as part of the procurement, the proportion of the project capital investment it commits (the lower of committed funds and proportion of capex being its required investment at FID), and its investment hurdle rate for the project.

Procurement approach

- Whichever governance option is adopted by the procuring authority **the core evaluation questions will be the same**:
    1. Project team(s)
    2. Development period approach
    3. Mobilisation stage approach
    4. Supply chain / sub-contracting approach
    5. Operations methodology
    6. Tariff and Pricing
    7. Hurdle Equity IRR (Qualitative)
    8. Deliverability of finance
    9. Hurdle equity IRR (quantitative)
    10. Development fee (where GHNF grant is to be transferred it is possible that there will be no fee)
    11. Social value questions focused on educational attainment and supply chain collaboration
- This is an important feature of AZP projects and is intended to: introduce greater consistency across projects and reduce bidder fatigue.



Next Event

- The next market engagement webinar will be held on Tuesday 22nd October.

Scan the QR code to register or via the link:

https://events.teams.microsoft.com/event/a1104813-7998-44c7-89c1-64ef77a0f3fc@cbac7005-02c1-43eb-b497-e6492d1b2dd8?utm_content=&utm_medium=email&utm_name=&utm_source=govdelivery&utm_term=

Why Invest Now?

Low Carbon	• UK legally committed
Growth	• Unprecedented growth is locked in.
Regulation	• Chance to be part of shaping the UK market approach with regulations coming through.
Europe	• Set to be largest heat network market in Europe
UK place to invest	• Government is keen to enable investment in this sector, first movers will get the best engagement

GREAT
BRITAIN & NORTHERN IRELAND

Invest in the UK | Buy from the UK | Contac

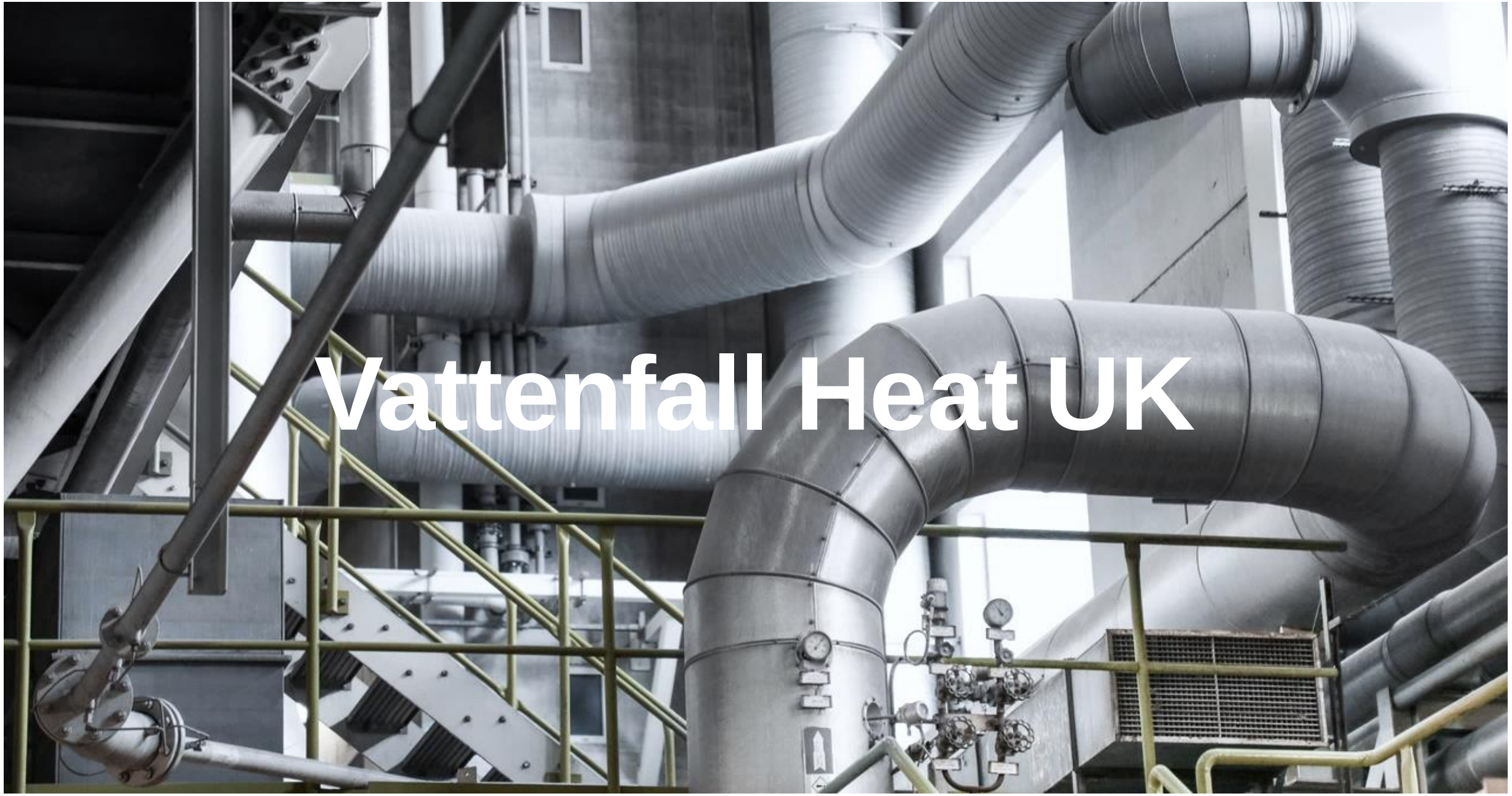
Why invest in the UK? | UK nations and regions | Sectors | Investment opportunities | How we can he

Invest in the UK

Use the Investment Atlas to navigate UK investment opportunities available to your business, learning more about areas of competitive advantage across our sectors, nations and regions

James.Beal@trade.gov.uk

https://www.great.gov.uk/international/investment/



Vattenfall Heat UK

VATTENFALL

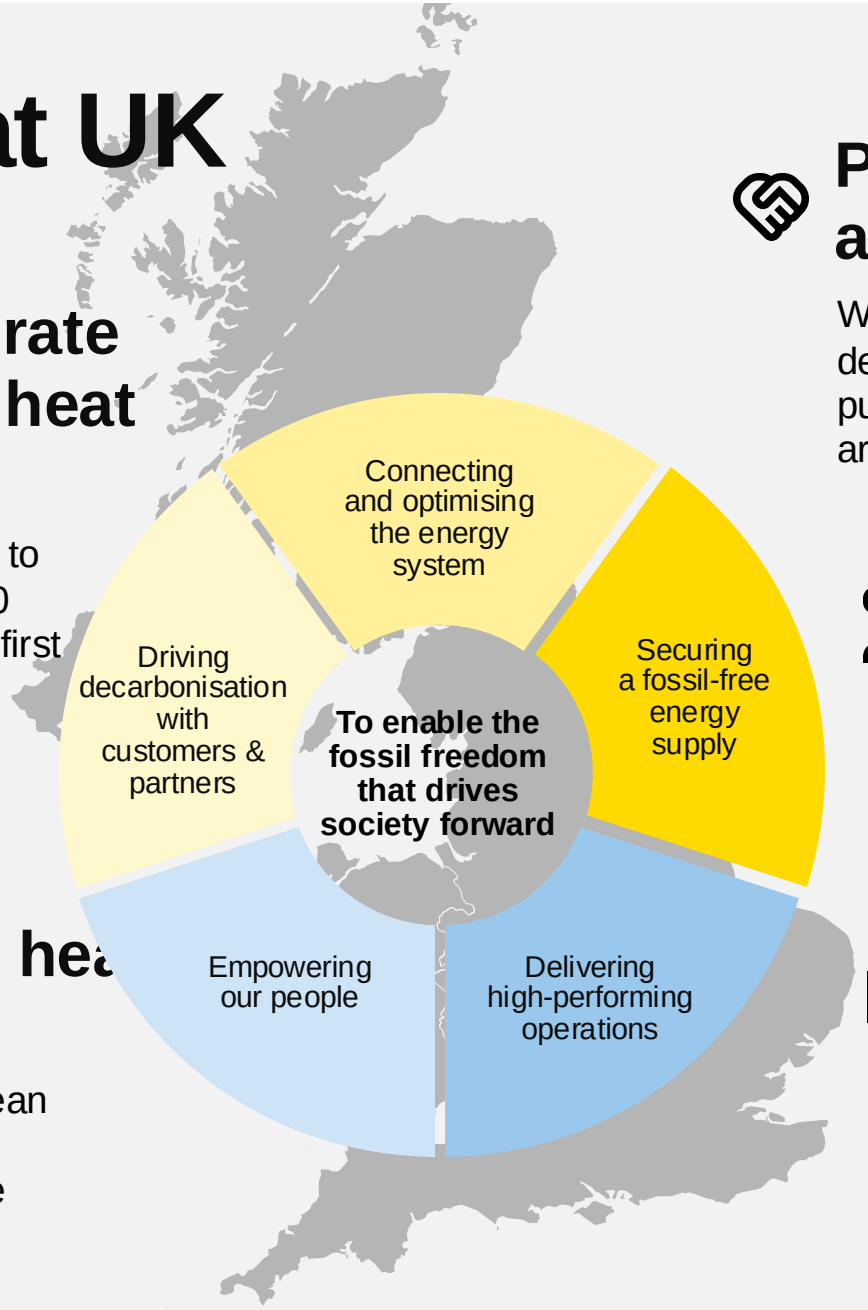
Vattenfall Heat UK

Design, build and operate low carbon city-scale heat networks

UK Heat currently provides enough heat to supply the equivalent of more than 6,200 homes and expects to supply heat to its first residential customers in 2024.

Experienced leader in hea networks

We have more than 100 years of European experience and have been working to establish our UK Heat Business over the last six years.



Partner with cities & local authorities in the UK

We partner with local authorities, property developers, housing associations and public sector institutions in UK cities who are ready to decarbonize.

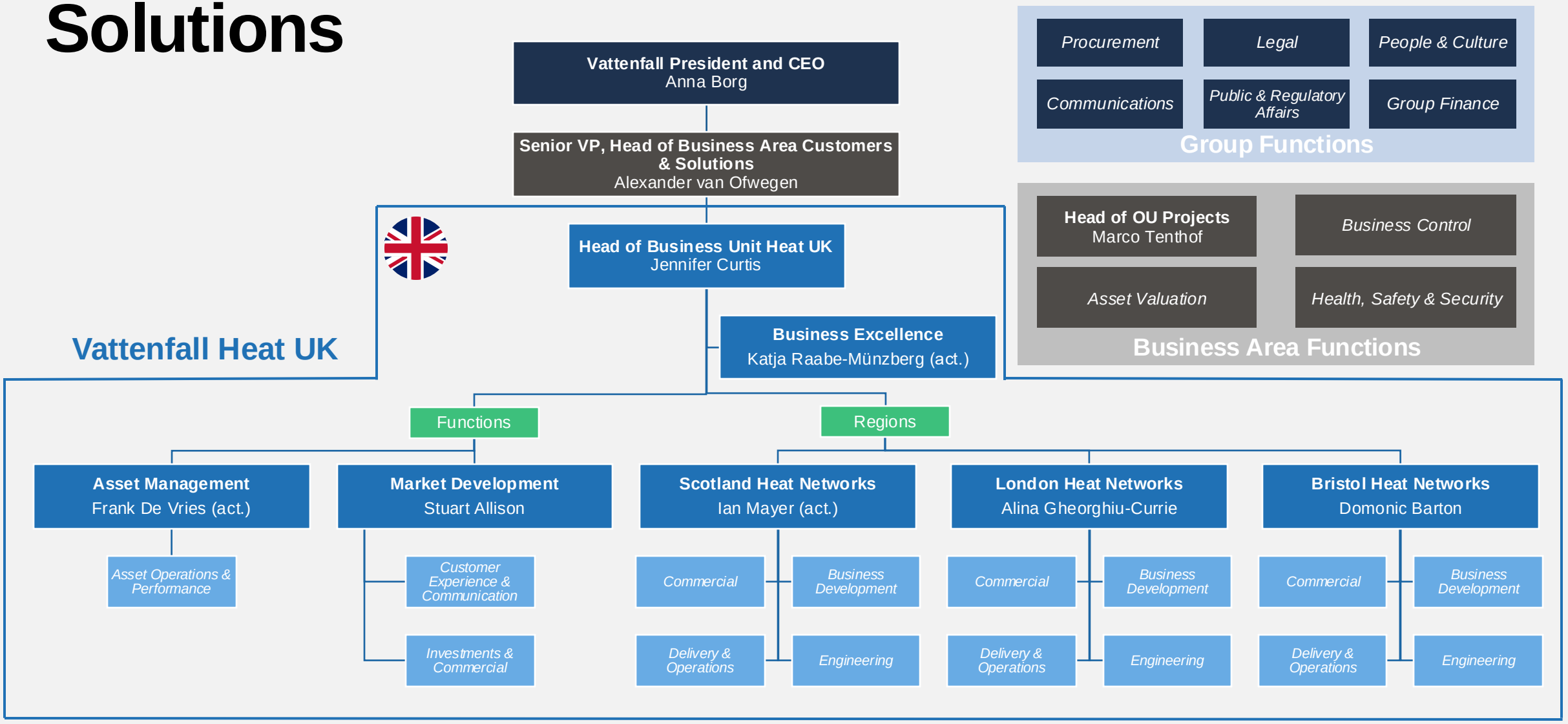
Empowering people

We to empower individuals to move, make and live fossil free while ensuring a just transition for everyone.

Ambition to grow

Our ambition is to invest £1 billion in building heat networks across the UK by 2030, in partnership with cities and local authorities.

Heat UK in Business Area Customers & Solutions

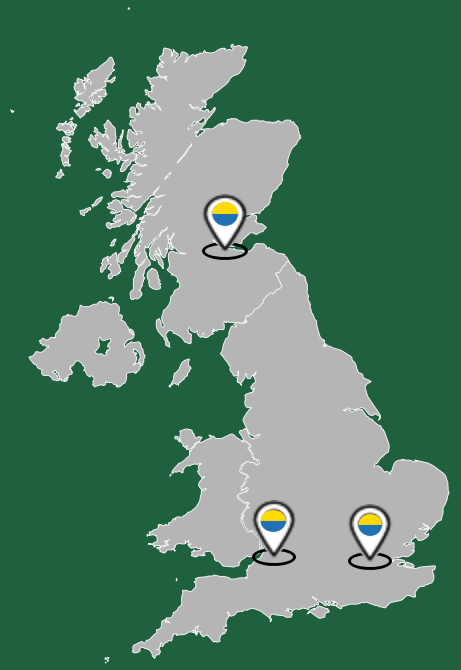


Our strategic ambition for in UK

1) Deliver Heat and Fulfil Commitments

Deliver our commitments to clients and customers in our existing concessions and contracts to supply reliable, sustainable and affordable heat in our three UK regions:

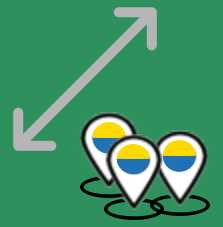
Bristol
London
Scotland



2) Expand Core Regions

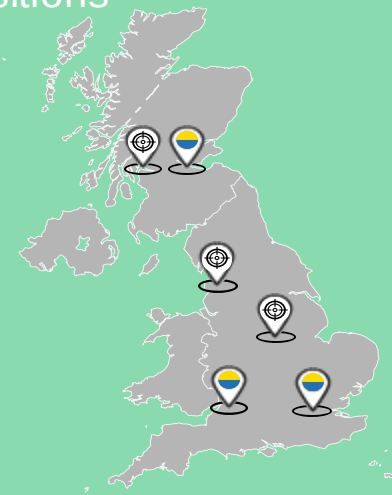
Expand our customer base and optimise our heating networks to increase our position in our core regions by additional organic growth activities in and around:

Bristol
London
Scotland

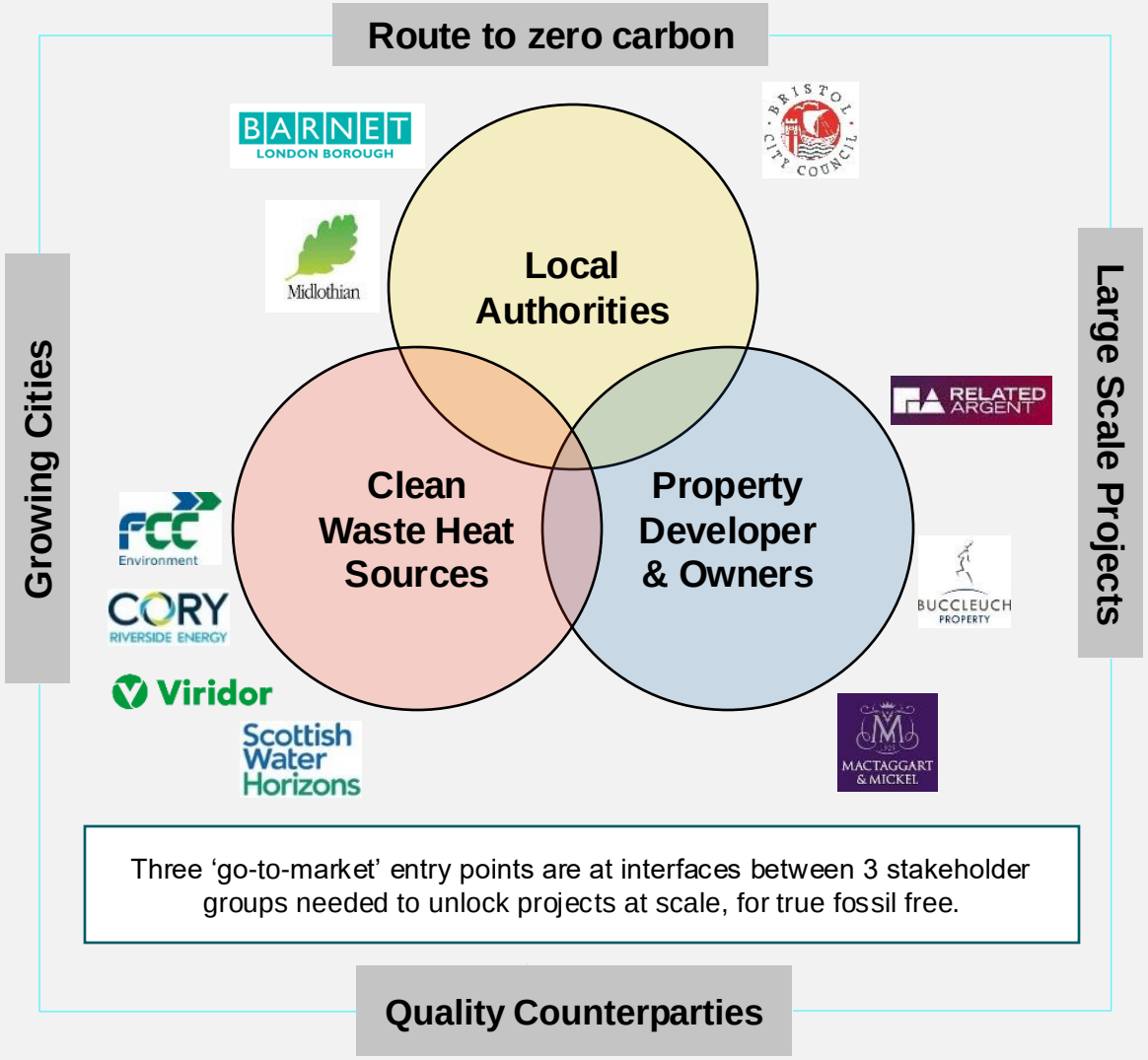


3) Grow in New Regions

Grow and enter more cities via strategic partnerships or acquisitions



We engage the market from three critical angles, with distinct propositions for each market actor to unlock the scale and value



Property Developers & Owners

Driving demand

- Demand for **new housing** driven by shortage in stock. Often compelled to connect to heat networks through planning.
- **Existing buildings** faced with decarbonisation challenge, seeking competitive offer for clean heat
- Scale and pace of construction rising, creating denser, cleaner urban areas well suited to heat networks.

Local Authorities

Bringing planning and strategic alignment

- UK cities are **declaring net zero targets** for 2030 and publishing action plans.
- Local Authorities **need to show delivery vs goals**.
- Heat networks are trusted route to show action is being taken, but LA’s **seeking capabilities and funds** through strong partner organisations.

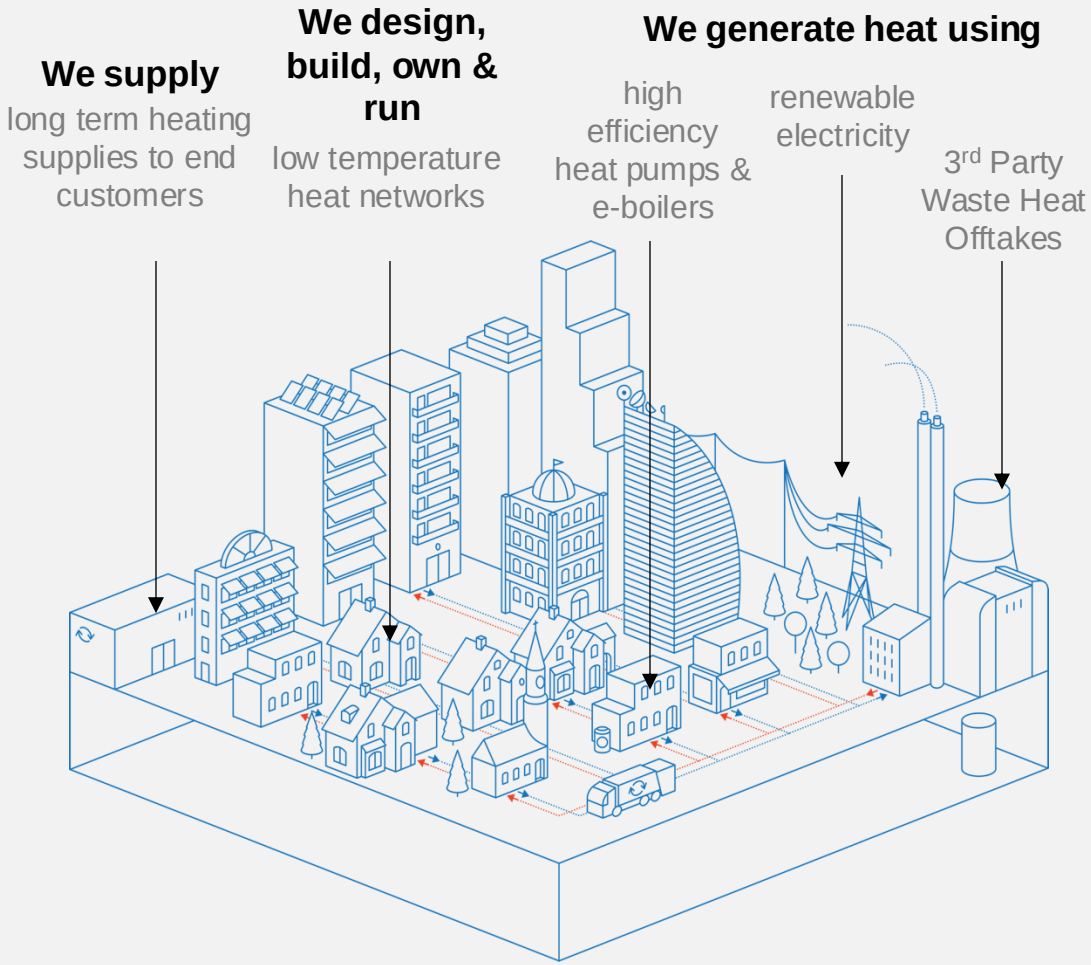
Clean Waste Heat

Key enabler of route to zero carbon

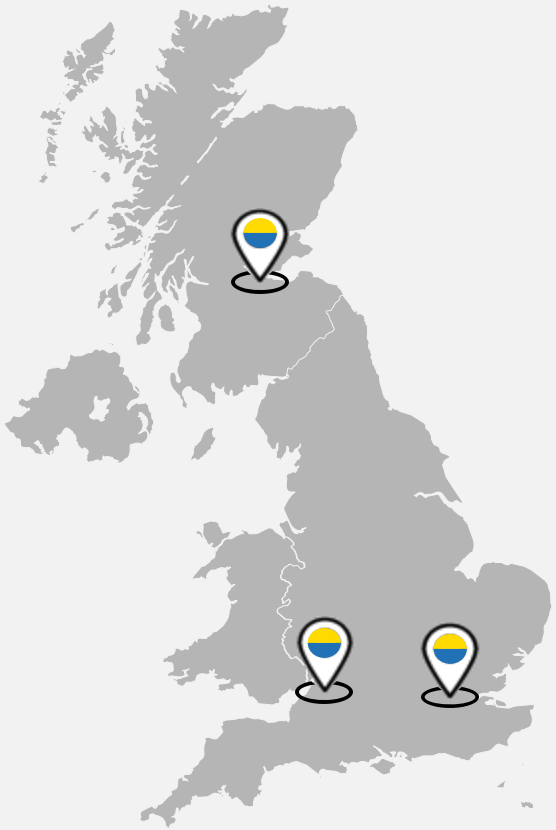
- Heat recovery & distribution using heat pumps supported by **local area planning.**
- Cities are mapping and **publishing waste heat sources**; helping planning of new heat networks.
- UK is **doubling EfW capacity in next 10 years** – low carbon future of EFW and waste sector linked to CCS and delivery of heat.

Our low temperature heat networks are a fairly-priced, low carbon & no regret technology

- Low-temperature networks enable the use of high efficiency heat pumps & integration of fairly-priced heat recovered from 3rd parties.
- Long term contracts are structured for transition to net zero against target trajectory.
- In some cases, projects may need to start with fossil gas boilers, combined with heat pumps to be cost competitive today. Gas is removed in line with a target trajectory.
- The heat transition can only be delivered if energy efficiency measures and decarbonisation of supply is happening in parallel, in the UK as well as other European countries.
- Our offer provides customers with fairly-priced heat, with a clear route to net zero for their building.



We are delivering new district heating networks in London, Edinburgh and Bristol - our foundation for further growth



Edinburgh / Midlothian

- 50:50 **joint venture with Midlothian Council** to co-develop a new heat network south of Edinburgh.
- Contracts signed for first connections; construction has commenced and first customers set for this year.
- **Fossil free heat supplied from EfW plant and** plans to include heat from mine water and local industry.

Bristol

- Vattenfall joined **20-year partnership to decarbonise and transform the city's energy infrastructure.**
- **Acquired two existing heat networks** in Jan 2023, now serving customers as the networks are expanded.
- Concession from Council passes **right/obligations to expand the networks** to achieve net zero targets.

London

- Vattenfall selected in 2018 to serve a major **regeneration project at Brent Cross Town,** delivering one of the largest heat networks in the UK with an all-electric energy centre.
- We are designing, delivering & running the **heating and cooling network,** powered by heat pumps and renewable electricity, to serve around 6,700 new homes & 3m square foot of commercial space.
- **Construction is underway** ahead of first customers being served later this year.

Midlothian Energy a Joint Venture

A 50:50 joint venture with Midlothian Council to co-develop low carbon energy infrastructure across the south of Edinburgh

- Unique opportunity via **exclusive access to low carbon heat** from a large new efficient EfW plant
- Designs prepared for a new low temperature heat network for the region with **20+ projects** identified
- **Exclusive access to future projects** without need for further procurement
- Our partner controls permitting and planning in region, mitigating risks.

Designated area for development in Edinburgh

Largest Public Sector contract in recent years to select energy partner

Secures development rights and access to customers & heat sources

2018 ✓ Heat UK set up

2020 ✓ VF wins competitive procurement and forms JV

2021 ✓ Fund JV / sign concession

2022 ✓ JV closes first projects and start construction

2024 ✓ First heat on achieved

Bristol City Leap is an innovative partnership, decarbonising the city by 2030

140,000 tonnes of carbon savings

327GWh of zero carbon energy generated

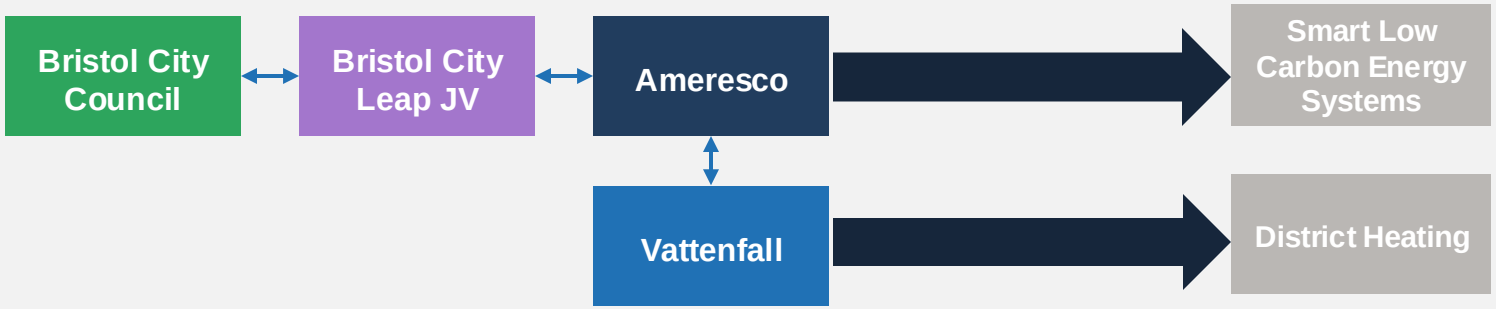
180MW zero-carbon gen. assets

£61.5m social value with £50m delivered by local supply chain

£1.5m Community Energy Development Fund

1000 new jobs, 410 of these created in Bristol

A 20-year tripartite concession agreement



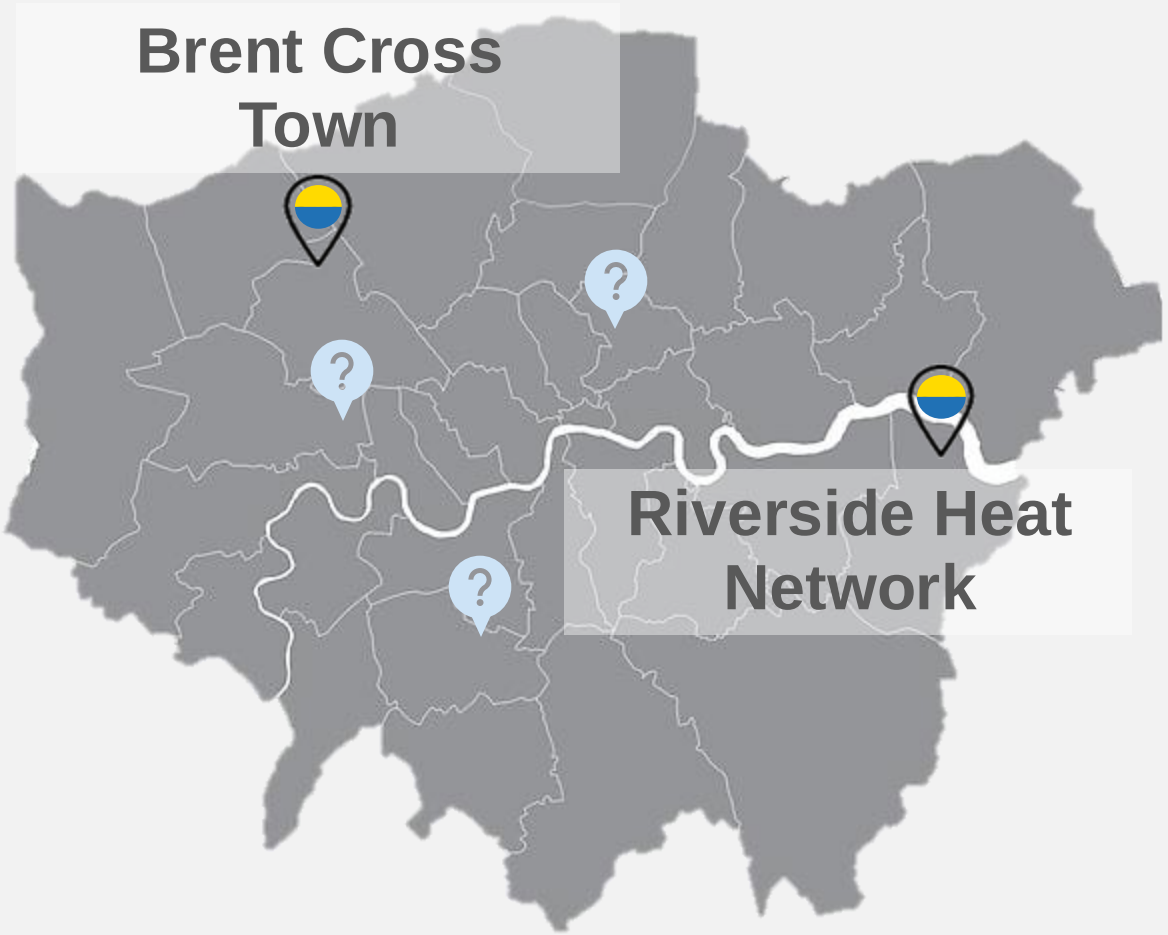
Vattenfall is developing and delivering heat networks in two London regions

Brent Cross Town

- Selected in 2018 to serve a major **regeneration project at Brent Cross Town,** delivering one of the largest heat networks in the UK with an all-electric energy centre
- Designing, delivering and running **heating & cooling networks powered** by heat pumps to serve around **6,700 homes.**
- First customers moving in 2024

Riverside Heat Network

- Developing the Riverside Heat Network, **a large-scale multi-borough heat network**, with partner Cory, one of the UK's leading recycling and waste management companies
- Access to the largest low carbon heat source in the area, connecting homes, businesses, schools and community buildings across **Bexley & Greenwich**



Brent Cross Town

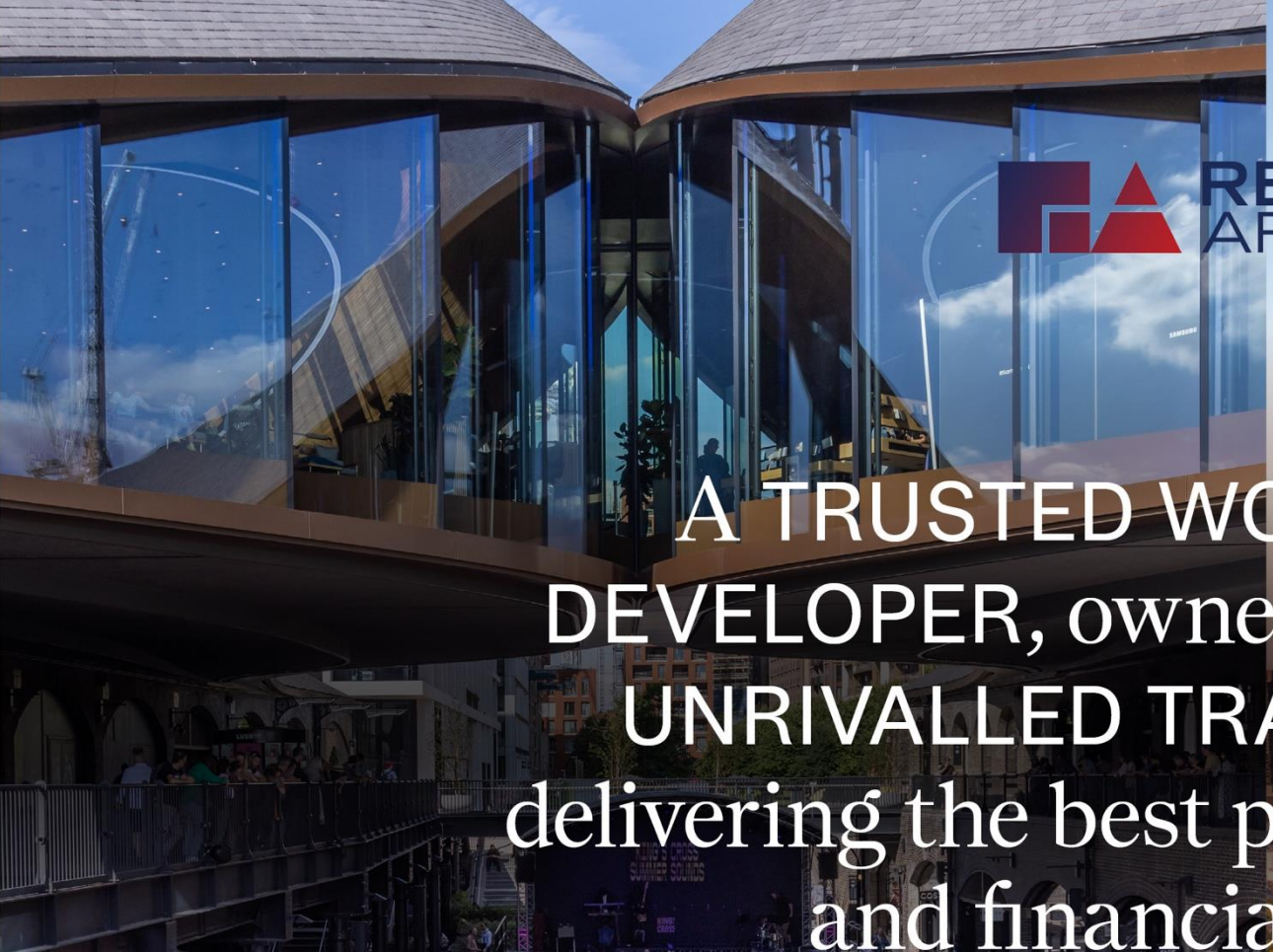
BRENT CROSS TOWN

Vattenfall / Related Argent
Warmtenetwerk The Netherlands

02 October 2024

RELATED ARGENT

A TRUSTED WORLD-LEADING DEVELOPER, owner, operator with an UNRIVALLED TRACK RECORD for delivering the best physical, community and financial outcomes.



WHO ARE RELATED ARGENT NOW?

21.5 MILLION SQFT GROSS MIXED-USE DEVELOPMENT

7.25 MILLION SQFT OF COMMERCIAL OFFICE SPACE

£13.4 BN GROSS DEV VALUE

9,700 NEW HOMES

220+ ACRES OF PRIVATE ESTATE UNDER MANAGEMENT

120 NEW AND RESTORED BUILDINGS

1 MILLION SQFT OF SHOPS, RESTAURANTS, CAFÉ, BARS AND LEISURE

180 UK REAL ESTATE PROFSSIONALS

86 ACRES OF PUBLIC SPACES

0

The idea of a park town at the very crossroads of North London is exactly the kind of inspirational, health-focused, integrated thinking we need for the future of London.”

BARNET COUNCIL

Brent Cross Town

BRENT CROSS TOWN A MAJOR REGENERATION

OFFICES

workplaces for 25,000 people

TOWN CENTRE

eight public squares and thriving high streets

HOMES

6,700 new homes

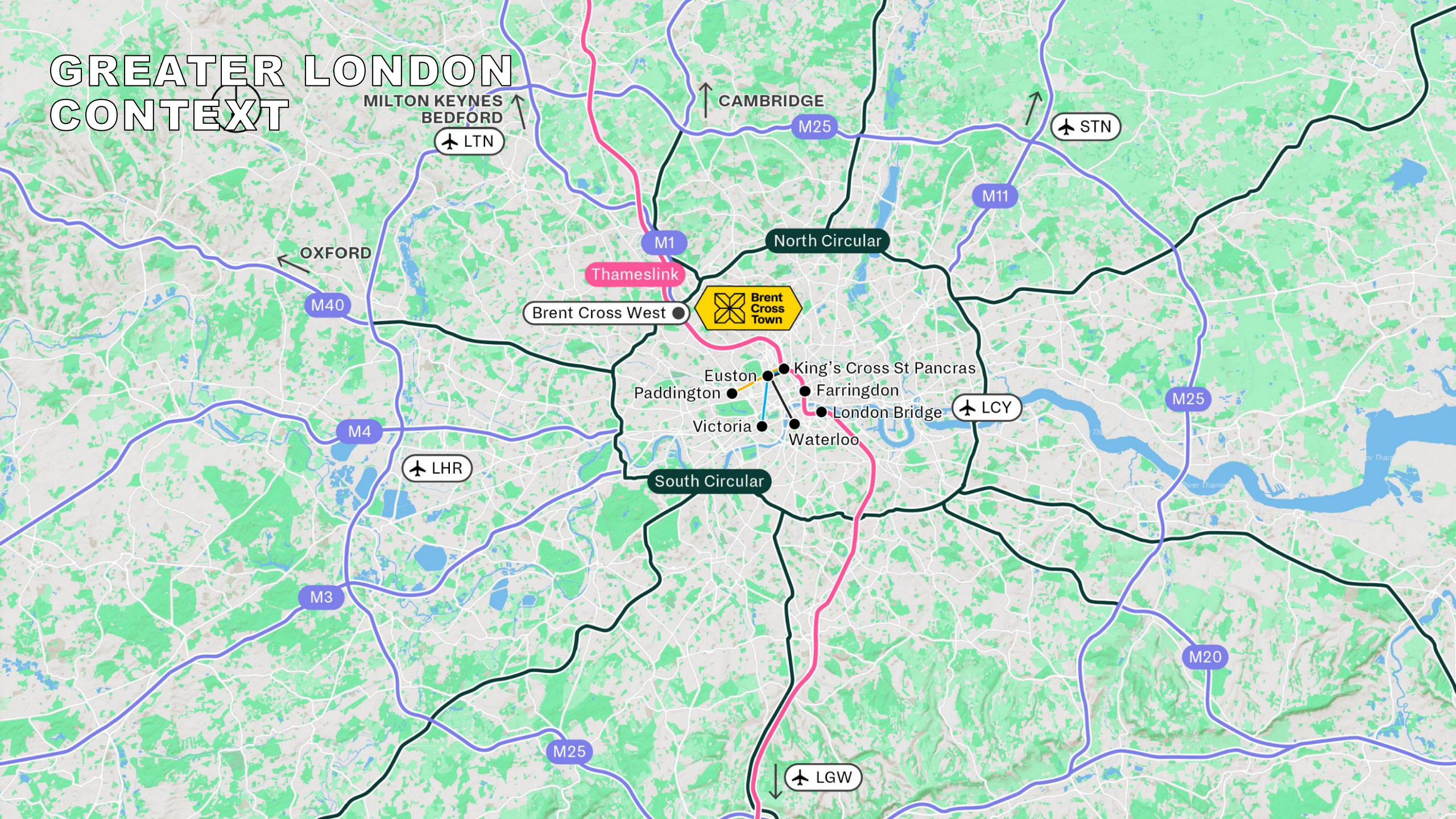
SPORT + PLAY

50 acres of green parks and playing fields

SCHOOLS

three local schools

BRENT CROSS TOWN MASTERPLAN


GREATER LONDON CONTEXT
MILTON KEYNES
BEDFORD
LTN
CAMBRIDGE
M25
STN
M11
OXFORD
M1
North Circular
Thameslink
M40
Brent Cross West
Brent Cross Town
Euston
King's Cross St Pancras
Paddington
Farringdon
London Bridge
LCY
M25
Victoria
Waterloo
M4
LHR
South Circular
M3
M20
M25
LGW

TRANSPORT CONNECTIONS

BRENT CROSS WEST

St Pancras and King's Cross in 12 minutes via new rail station

BRENT CROSS NORTHERN LINE

Tube to central London every five minutes

FIVE AIRPORTS

Heathrow, Gatwick, City, Luton and Stansted less than an hour away

MOTORWAY NETWORK

Adjacent M1 motorway leads to M25 and national road network

Brent Cross Town

VISION AND AMBITION

We're making FOUR PLEDGES to this NORTH LONDON neighbourhood

1. The place in London for sport and play
2. A town where all can flourish
3. A net zero carbon town
4. Greater connections into and out of London

1

We will create THE PLACE in London to participate in SPORT and PLAY

50 acres of parks and playing fields to unite people and transform lives


Up to 150,000 sq ft of indoor facilities
50 acres of green parks and playing fields

Clitterhouse Playing Fields

2

We will make a NORTH LONDON town where all can FLOURISH

A community that achieves inclusivity and neighbourliness, measured by our new flourishing index


We’re creating SOCIABLE and INSPIRING
natural spaces that bring DELIGHT,
BEAUTY and WONDER to the people who
live and work here


We’re designing A SOCIABLE and
CHARACTERFUL town centre
with everything our community needs

SCHOOLS

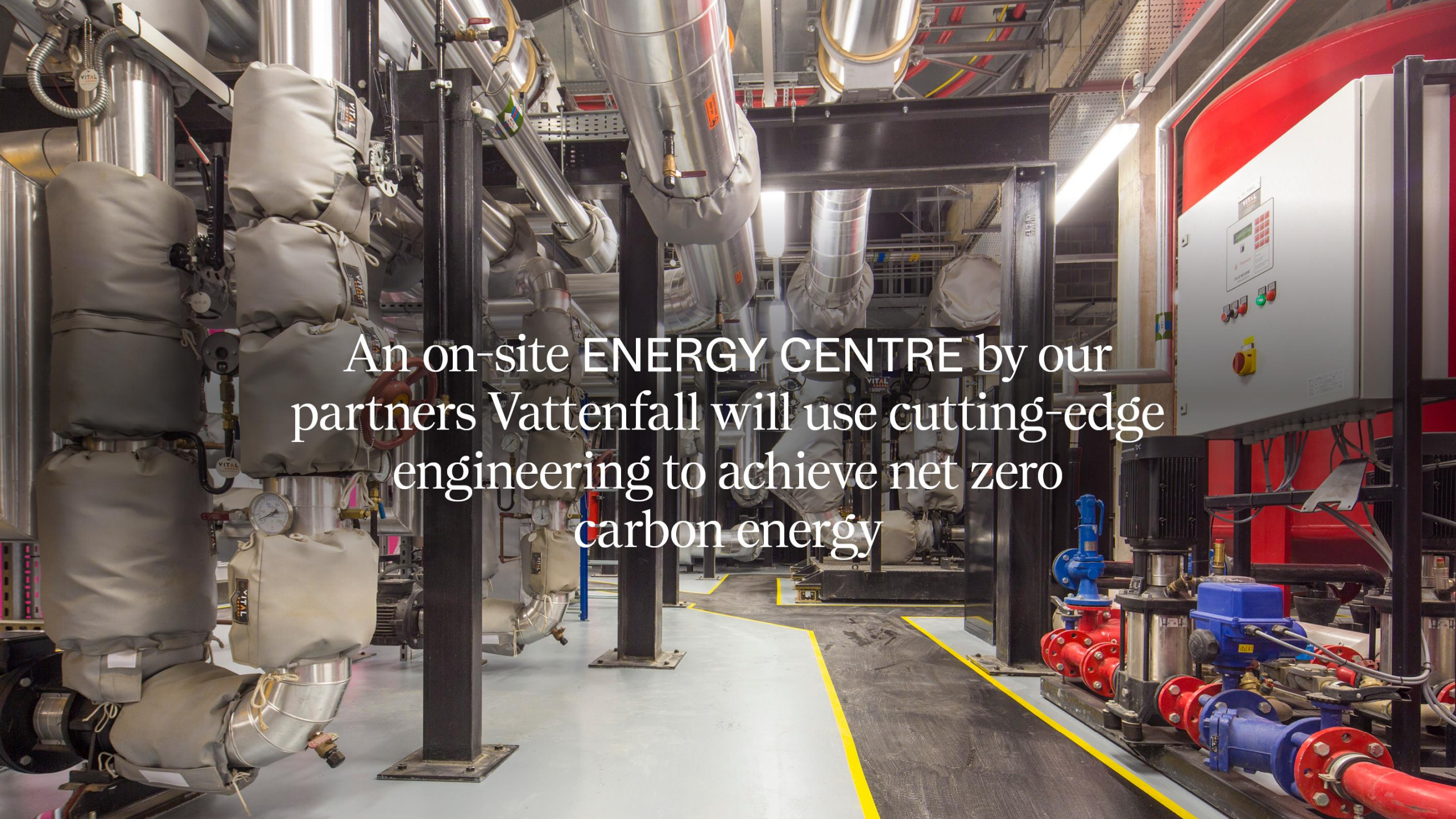
Excellent education for children of all needs and backgrounds, ambitiously improving three local schools

3

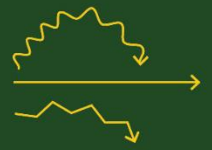
We will build a NET ZERO CARBON town

Addressing the global challenge of the climate crisis


We’re employing ambitious targets and
innovative CONSTRUCTION methods to
REDUCE EMBODIED CARBON,
including building with timber.

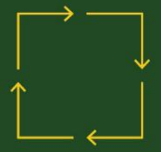

An on-site ENERGY CENTRE by our partners Vattenfall will use cutting-edge engineering to achieve net zero carbon energy

TIMBER construction to lower embodied carbon



Accountability through the Net Zero Carbon Buildings Commitment

Advanced energy modelling to maximise building efficiency

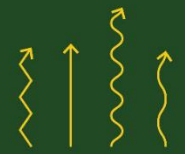


100% RENEWABLE electricity

On-site ENERGY CENTRE for heating and cooling

Carbon OFFSETTING

CIRCULAR economy



Food waste RECYCLING

Improved CYCLING and WALKING provision

4

We will strengthen CONNECTIONS with GREAT TRANSPORT into and out of CENTRAL LONDON

Central London in 12 minutes via a new rail station at Brent Cross West, and new walking and cycle networks for connecting locally


Central London in 12 minutes via rail,
local walking and cycle networks,
immediate access to the M1 and
five major airports within an hour


Routes to London’s FIVE MAJOR
AIRPORTS within ONE HOUR

We will improve cycling and walking infrastructure so that Brent Cross Town is integrated into surrounding communities

Brent Cross Town

"Providing a sitewide DISTRICT HEATING NETWORK to supply all BXT buildings with AFFORDABLE, reliable, low / zero carbon heat."

Brent Cross Town

Procurement

2018

Commercial and Legal Negotiations

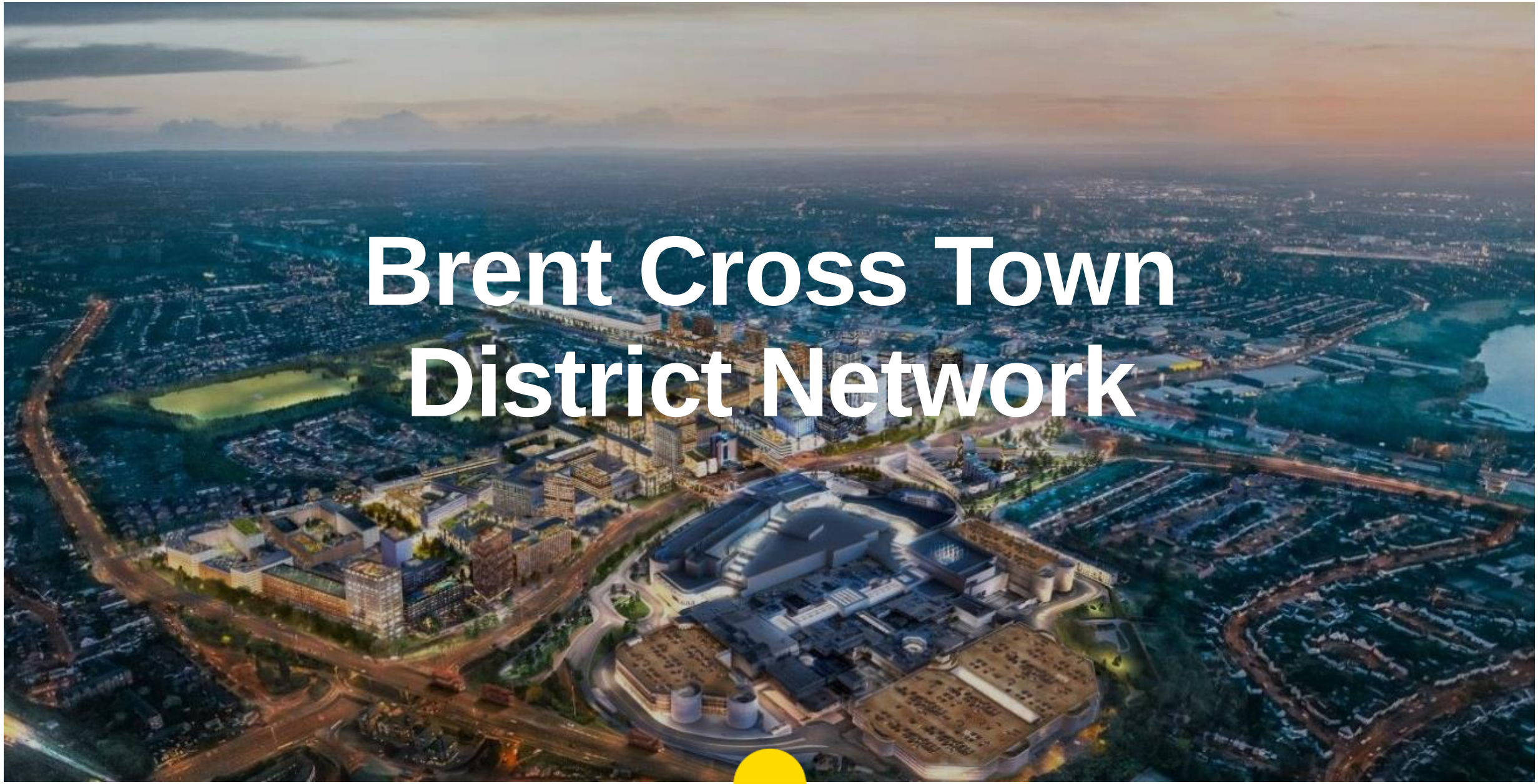
2019

Master Concession Signed

May 2020

Implementation / Delivery / Operation

2020 to 2067



Brent Cross Town District Network

VATTENFALL

Brent Cross Town District Network – one of Europe's largest all-electric energy centres in numbers

The Project

Key enabler of Brent Cross Town's Net Zero ambitions by 2030

6,700 new homes being built

3m square foot
office space plus new retail spaces

47-year contract to exclusively supply heat and cooling

Vattenfall's Solution

62% ↓ CO_2

Carbon reduction over a gas heating.
Over the contract life, all parties are obliged to push to reach **net zero carbon**

6,000 tonnes CO_2
saved annually

5km length of buried pipework

15MW heat pump capacity. Largest installation in the UK on a network, supplying 95% of the heat demand

The Customers

27MW heating &

17MW cooling

Build out continues to 2037

4000+ apartments

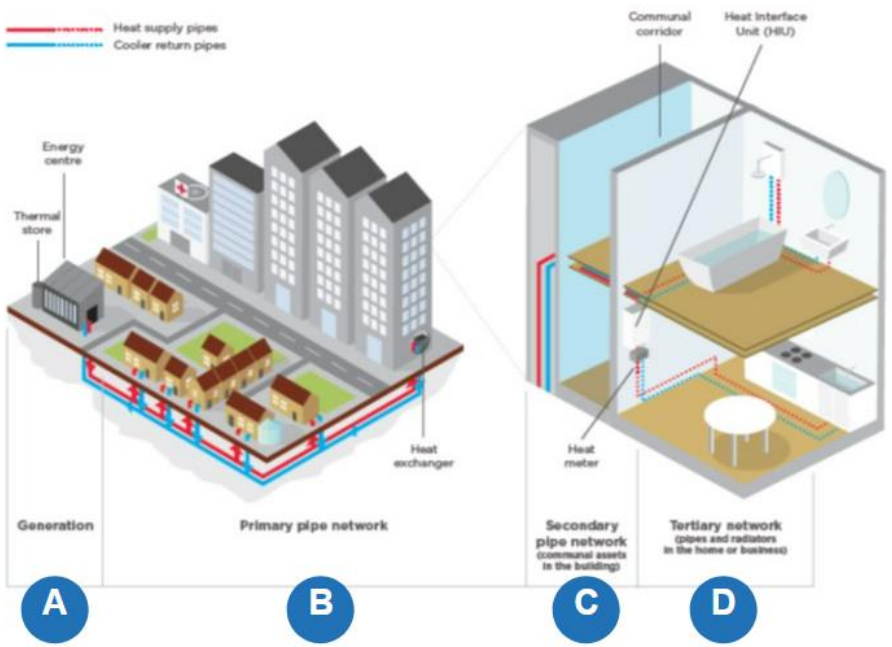
2000+ student accommodation

400+ hotel rooms

200+ later living

Brent Cross Town District Network – to deliver and operate a low carbon heat and cooling network

- Vattenfall has been appointed as the designated Energy Services Company (ESCO) by Related Argent (RA), the master developer (MD) under a 47-year concession.
- Develop low temperature heat network serving circa 6,700 new homes and 3million sq. ft. of office and retail space. Scope including generation, transmission, distribution, sale and service to end customers.



A **Temporary energy centres**
- **Master Developer** appoints Subcontractor to Design & Build (D&B)
- **Vattenfall** adopts infrastructure subject to adoption process & specifications; and operates it

Main energy centre
- **Vattenfall** design and builds and operates assets under lease arrangement.

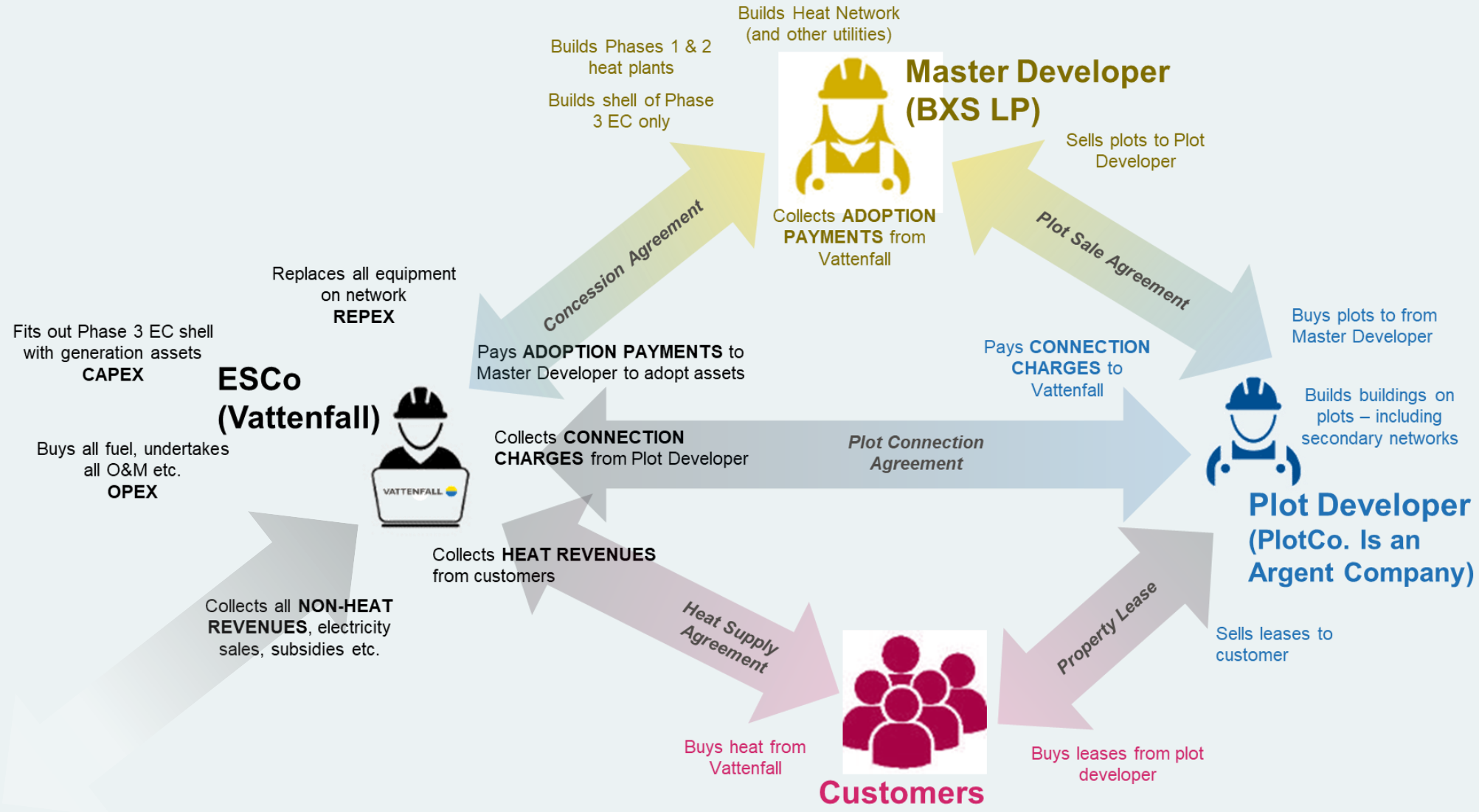
B **Primary & Secondary pipe network**
- **Master Developer** appoints Subcontractor to D&B

C
- **Vattenfall** adopts infrastructure subject to adoption process & specifications; and operates it

D **Tertiary network**
- **Master Developer** appoints Subcontractor to D&B
- **Vattenfall** adopts infrastructure (HIU – heat interface unit & meter) subject to adoption process & specifications; and operates it

Vattenfall pays Master Developer an adoption fee to have the right to operate the infrastructure built by others (non-Vattenfall)

Commercial Structure



Vattenfall undertakes three different roles across the lifespan of the network

DESIGN & BUILD

- Design and **build key infrastructure** in the project (Main Energy Centre)
- The infrastructure is **commissioned and handed over to operations**

ADOPTION

- **Master Developer or other parties** design and build temporary energy centres, pipework, secondary system up to apartments according to VHUK specifications
- Adoption process ensures assets are handed over **meeting Vattenfall's requirements**, and any outstanding issues are addressed accordingly
- **Vattenfall pays adoption payments**, at agreed milestones, to Master Developer for the right to operate the infrastructure adopted
- After adoption, the assets are **handed over to operations**

OPERATE

- Operate the assets based on **asset management and operational strategy**, and operational and maintenance regimes
- **Procure fuel** and other utilities required operate the network
- Carry out all **operations and maintenance (O&M),** from energy centre to customer heat interface units (HIUs)
- **Replace all assets** on the network as required based on asset replacement & maintenance strategies
- Vattenfall **generates and supplies heat** to end customers & **collects revenues**
- Vattenfall collects **non-heat revenues**

An all-electric energy centre meets heating & cooling demand while providing network resilience

Vattenfall installs **all-electric assets** in the main energy centre (MEC) to meet the peak **heating** (~27MW) and **cooling** demands (~17MW) and to ensure appropriate resilience.

The principal elements for generation of heating and cooling at the MEC include:

- **ASHPs** with externally located dry air cooler arrays, compressor units and plate heat exchangers. The heat pumps can simultaneously supply both heating and cooling
- **Electric boilers & chillers** for peak and back up heating and cooling demand
- Heating & cooling **thermal storage vessels** to support when necessary

The scale of infrastructure delivered

We will own and operate the MEC; 5km of pipework; all risers and laterals within residential lots; all block heat exchangers; all residential HIUs.

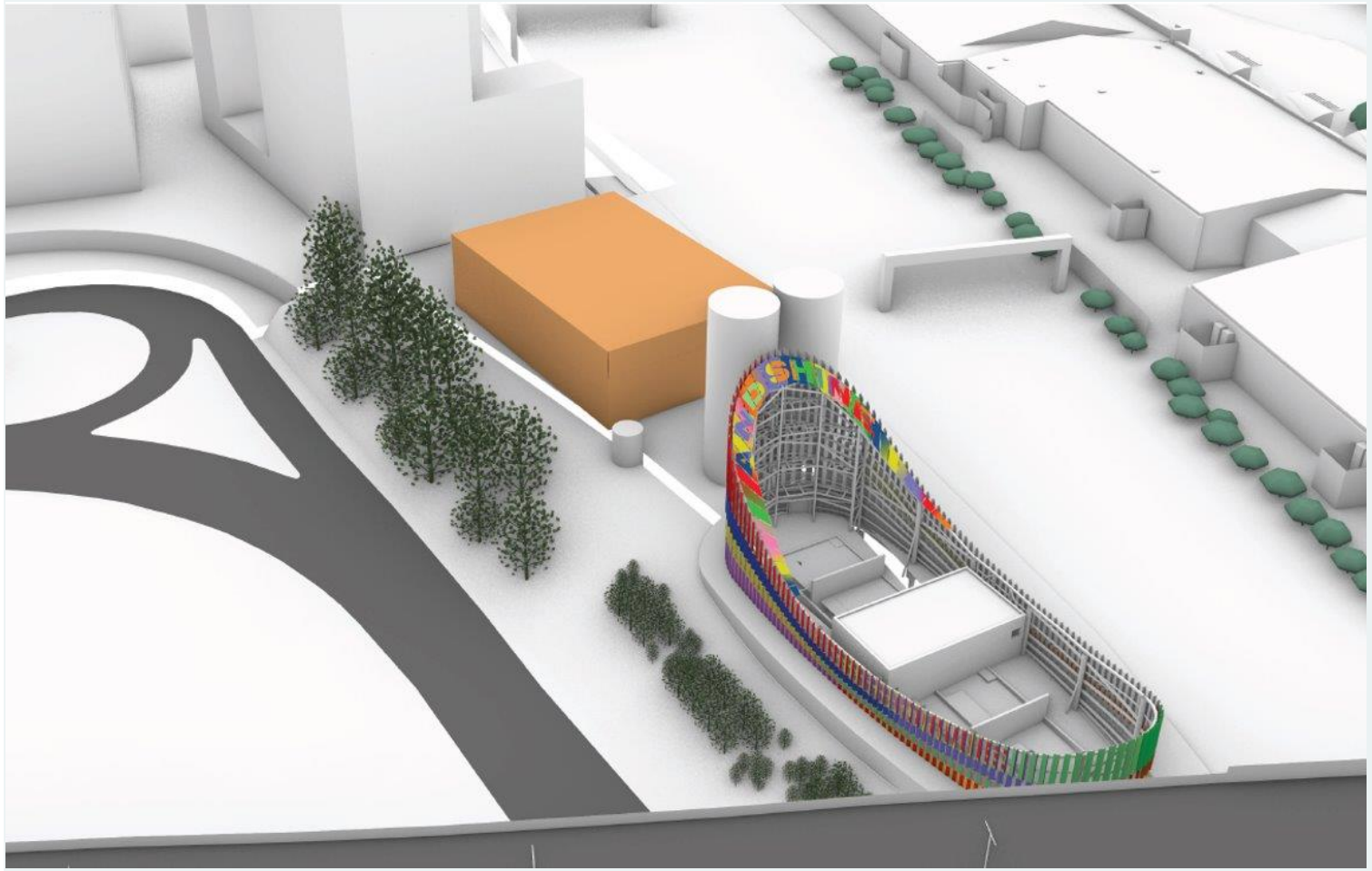
Pipework in storage

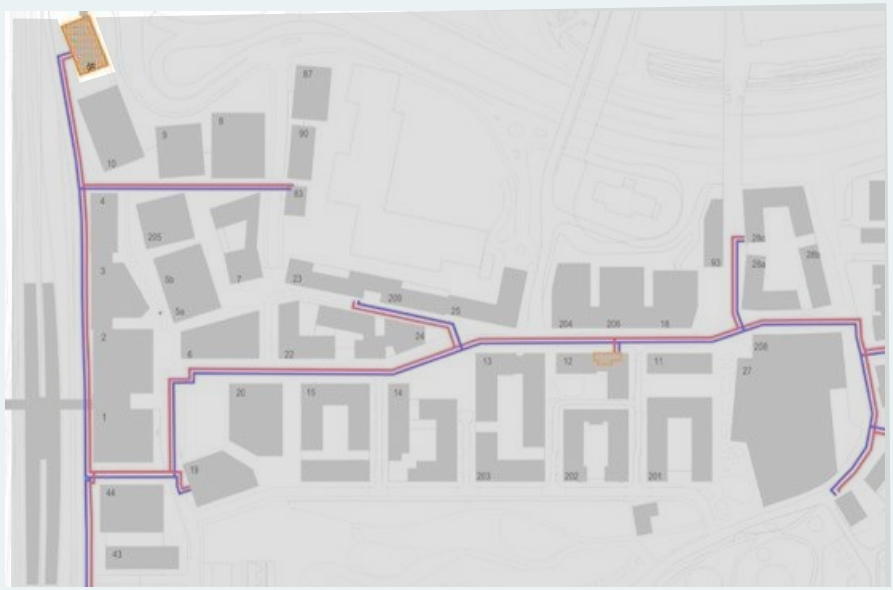
Heating and cooling pipework

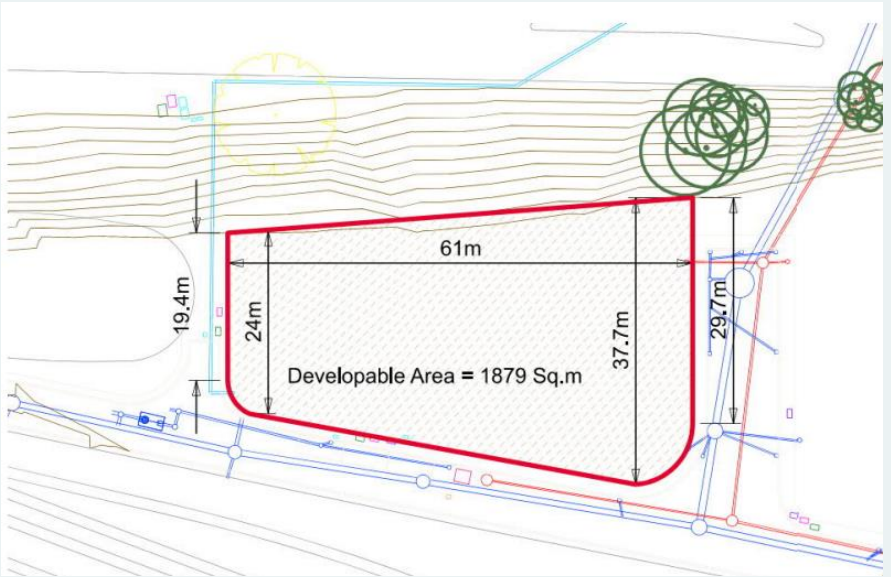
Underground connections for a commercial plot

First plot laterals ready for commissioning

MEC on Plot 59







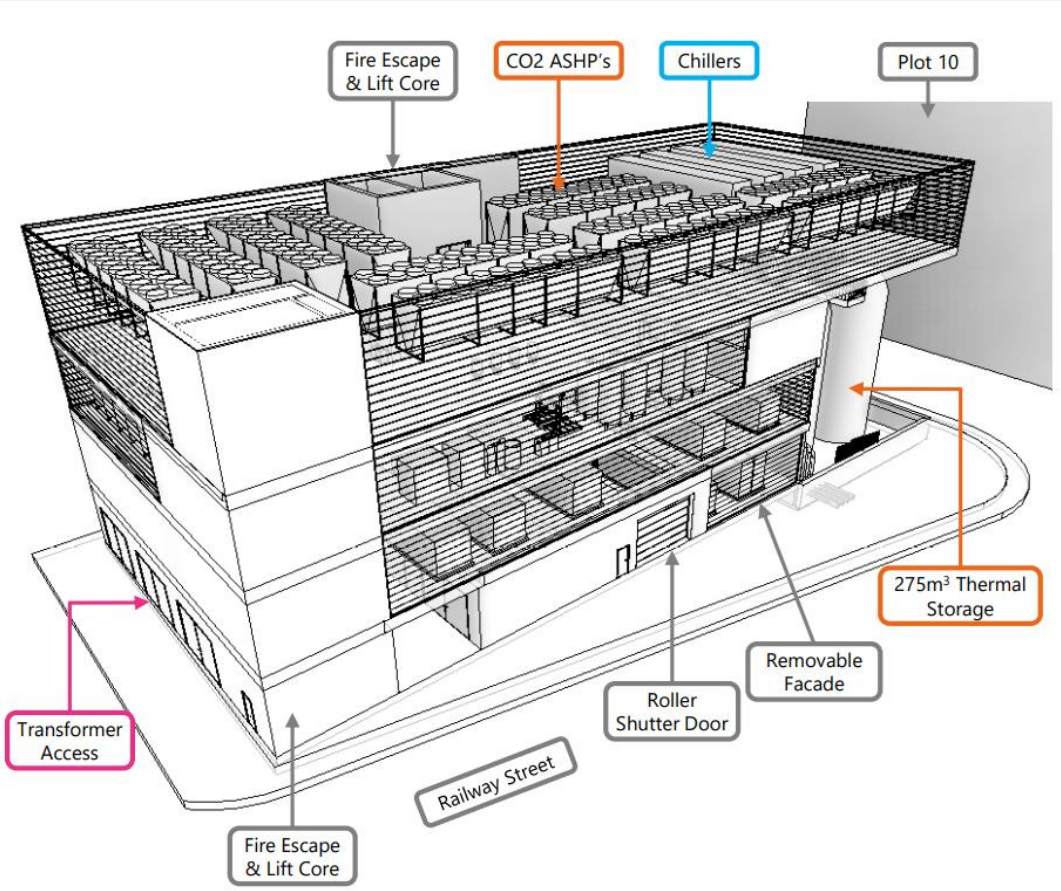
The Site

July 2023 drone footage facing east

The Site

July 2023 drone footage facing west

Approved concept is a mix of ASHP + WSHP + Storage + E-boiler + Chillers



Proposed Concept (1.1)	
Air Source Heat Pump (heat/cool)	6 x 2.1/1.6 MW
Water Source Heat Pump (heat/cool)	1 x 1.6/1.4 MW
E-boiler	2 x 3.6 MW
Chiller	4 x 1.0 MW
Hot Storage	4 x 275 = 1,100 m3 (12.9* MW)
Cold Storage	2 x 275 = 550 m3 (3.9* MW)

*based on Hysopt discharge capacity during peak winter and summer

Total Installed Heating Capacity: 21.4 MW (+12.9MW storage)
Total Installed Cooling Capacity: 15 MW (+3.9MW storage)

Architectural Concept

August 2024

Perspective View from Tilling Road

Perspective View from Staples Corner

Not Final – work in progress

Thank you for joining us