

Item 5. Heat Network



- ▶ PG Contract requires Trident Park ERF to be CHP Enabled, including provision of space for necessary equipment
- ▶ The Facility Permit requires: The operator shall review the practicability of Combined Heat and Power (CHP) implementation at least every 2 years. The results shall be reported to NRW within 2 months of each review.
- ▶ Prior to implementation Viridor are required to submit a Contractor Change in accordance with Schedule 21

Partnership of Councils



Supporting Partner





Cardiff Heat Network

Gareth Harcombe – Energy and Sustainability Manager (CCC)

Jonathan Williams – Heat Network Project Manager (Carbon Trust)



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THE PROJECT AND BACKGROUND



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Major Benefits

Why are we doing it?

- **Existing heat as a source of saving/income**
 - Heat currently available at Viridor
 - Other potential waste industrial and natural heat sources within reach
 - Financial benefit for Council and/or customers
- **Major boost to decarbonisation targets**
 - WG “Carbon Neutral” ambition for public sector (avoiding penalties?)
 - Heat is the most difficult carbon challenge
 - Links to air quality
 - **Action to address Climate Emergency**
- **Driving economic development**
 - Low carbon city “branding” opportunity
 - Low carbon opportunities for businesses and development
 - Retaining significant energy spend in the local economy
 - Many competitor cities offering heat networks
- **Long term, secure heat supplies.**
 - 40 year minimum project life
 - Highly localised supply and demand



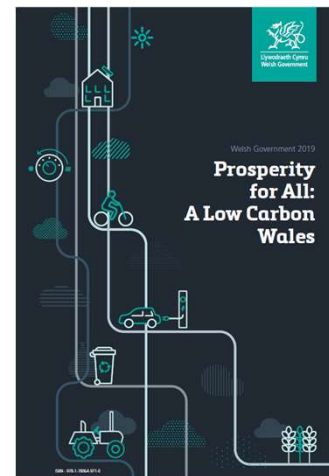
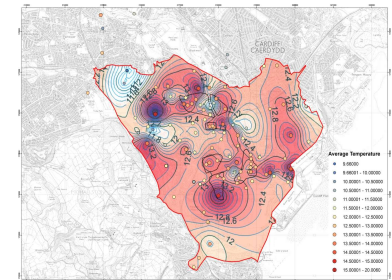
Trident Park
Energy from Waste Plant



Celsa waste heat??

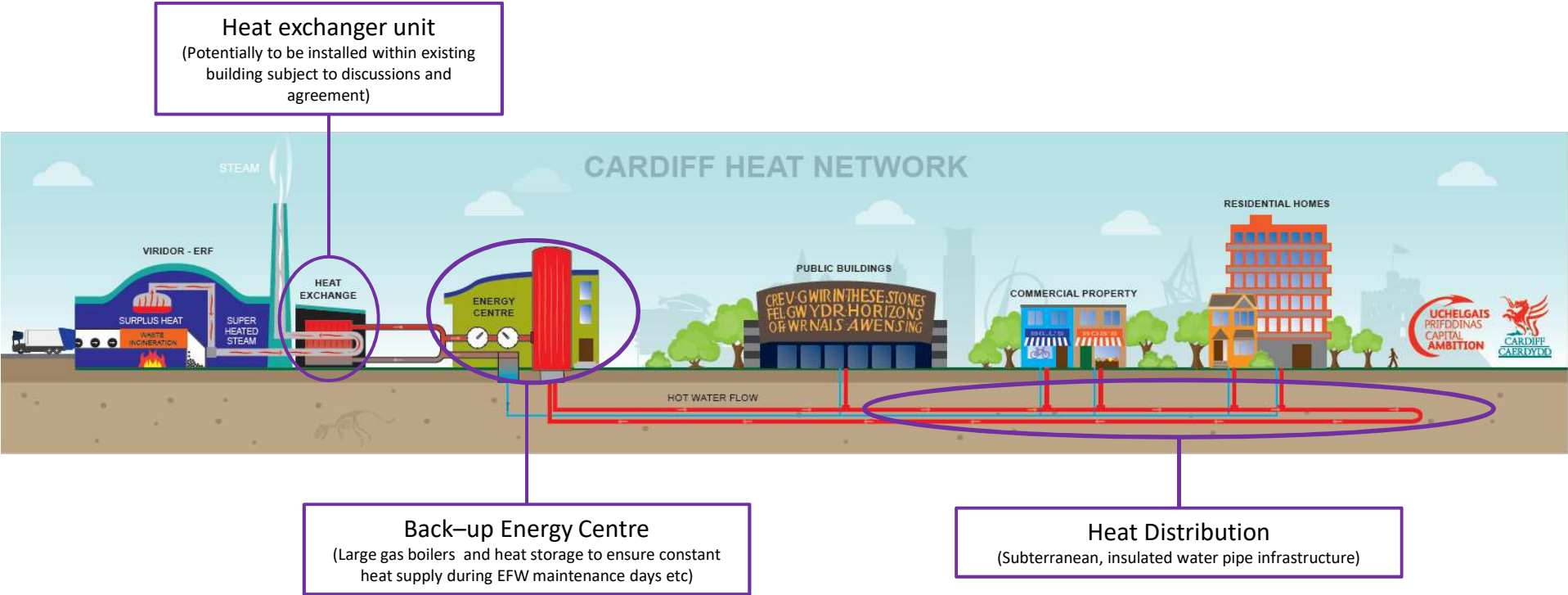


Groundwater resource??



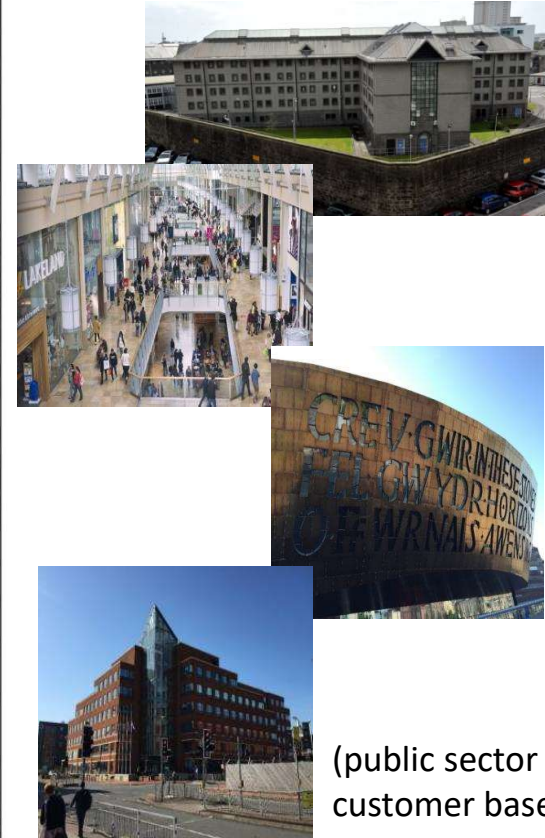
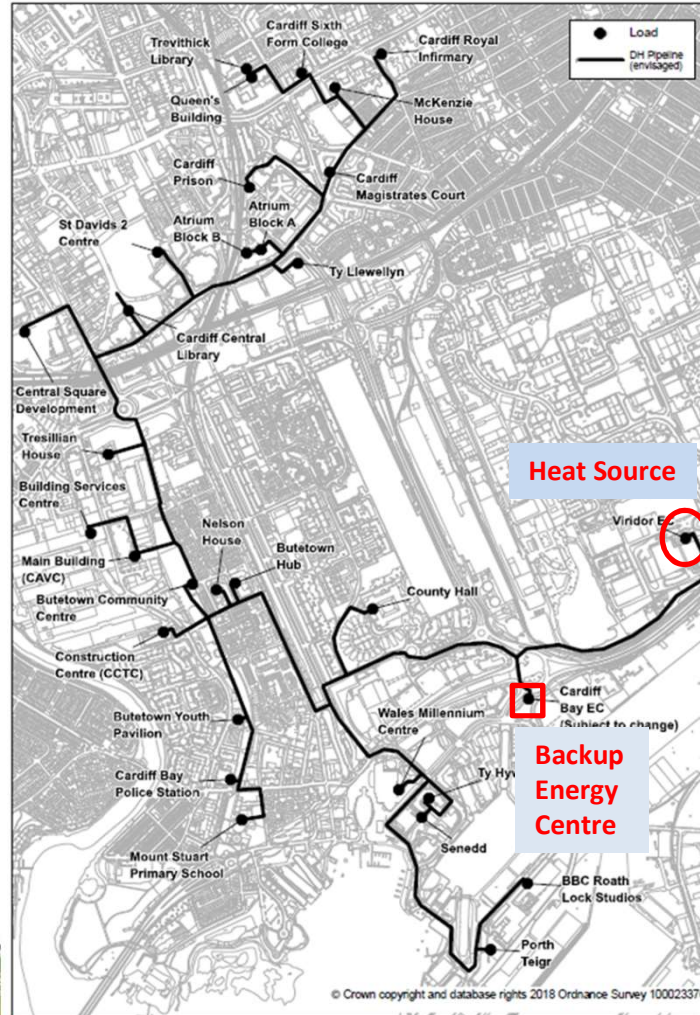
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Network illustration



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Proposed Heat Network



(public sector customer base)

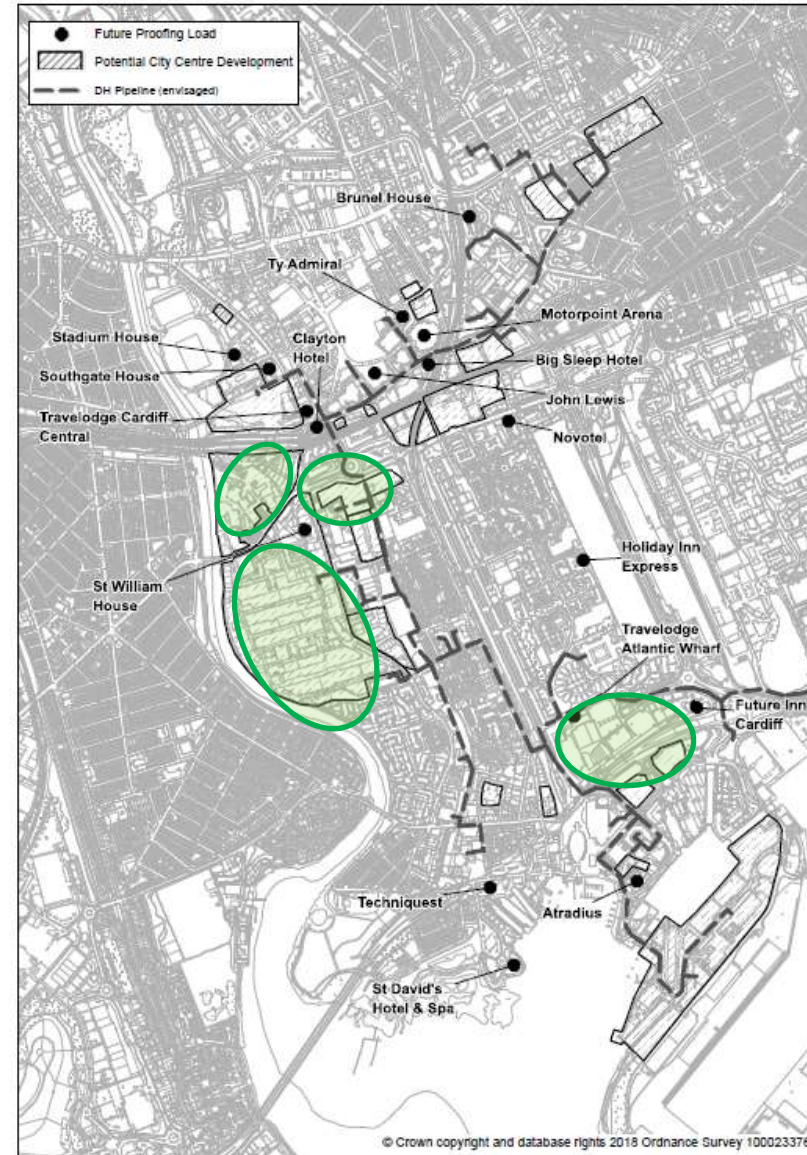
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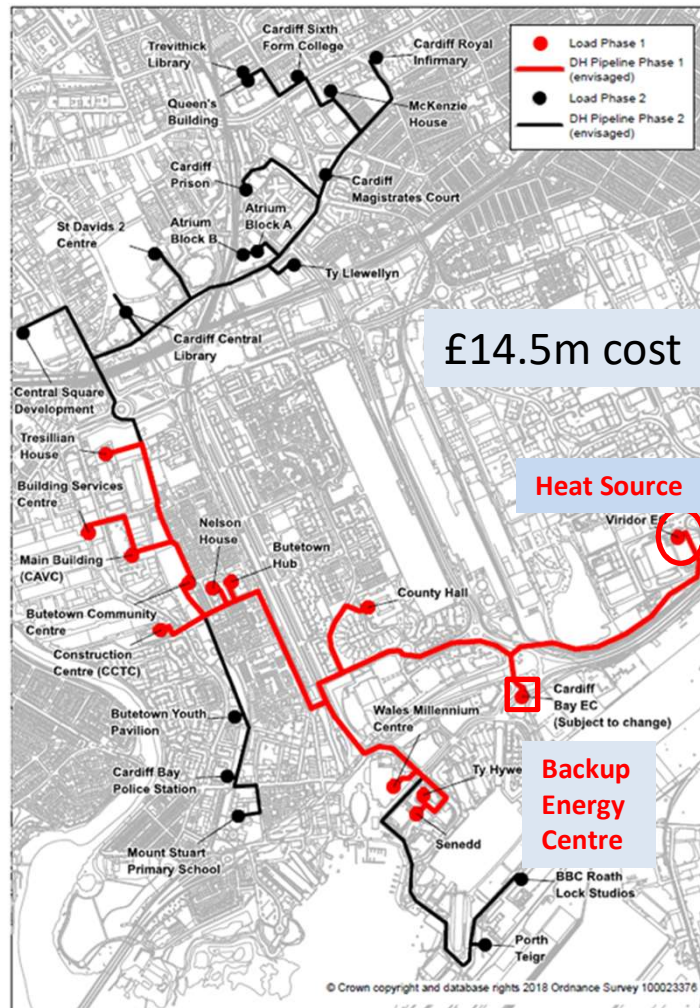
Potential Additional Private Sector Loads



- Existing Building types:
 - Hotels
 - Arenas
 - Offices
- But also new development areas:
 - Dumballs Rd
 - Callaghan Square
 - Brains Brewery
 - New Indoor Arena?
- Planning policy and/or land deals steering new connections



Cardiff Heat Network: Phase 1



4 Major Public Sector Customers

Most expensive phase

- Initial Viridor Connection cost
- Energy centre requirements
- Need to oversize pipes
- Lower density of customers

But ...

- A manageable customer base with interest already confirmed
- Phase 1 established this way increases future value of phase 2
- Gives certainty and credibility for future customers
- Most likely to attract Grant funding

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Outline Business Case approval



- Outline Business Case approved by Cabinet on 19th April 2018
- Approx £15 m costs for phase 1:
 - funded by a combination of Council capital, WG loan/investment and Central Govt Grant
- Approval also given for:
 - Further development of a **Final Business Case** for Cabinet approval subject to securing the appropriate funding as set out in the report
 - The project team be authorised to proceed with the **grant applications** in respect of HNDU and HNIP as set out in the report
 - The project team be authorised to progress further with **stakeholders** referred to in the report
 - Authority be delegated to the Director Planning, Transport and Environment to finalise the procurement strategy and **commence procurement** of a design, build, operate and maintain contract



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Delivery Team Established



- Internal oversight Team established (Finance, Legal, Procurement)
- External Project Management Team appointed (July 2018)
- External Special advisors to support DBOM and closing agreements:
 - Technical Advisors appointed (November 2018)
 - Legal Advisors (December 2018)
 - Commercial Model (April 2019)



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Welsh Government Funding



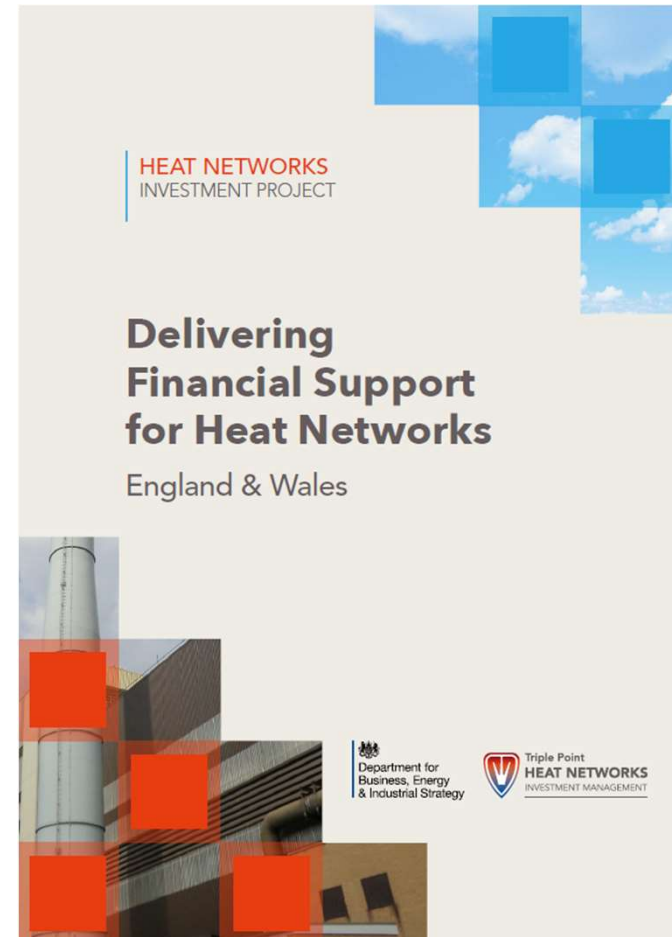
- Letter of support from Deputy Director for Decarbonisation and Energy at Welsh Government
- Liaising with WG regarding Funding Agreement
- **Cardiff project requires significant capital funding from WG**



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Heat Network Investment Project (HNIP)

- Capital grant funding programme
 - Up to 50% of capital cost
- Now open for applications
- Cardiff intends to apply for significant capital funding from HNIP
- Application planned later in 2019



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VIRIDOR AGREEMENT



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PURCHASE OF HEAT

Viridor negotiations



- Summary of Commercial Arrangements (SoCA) in preparation
- Further meetings planned
- Letter exchange to follow to give status to SoCA



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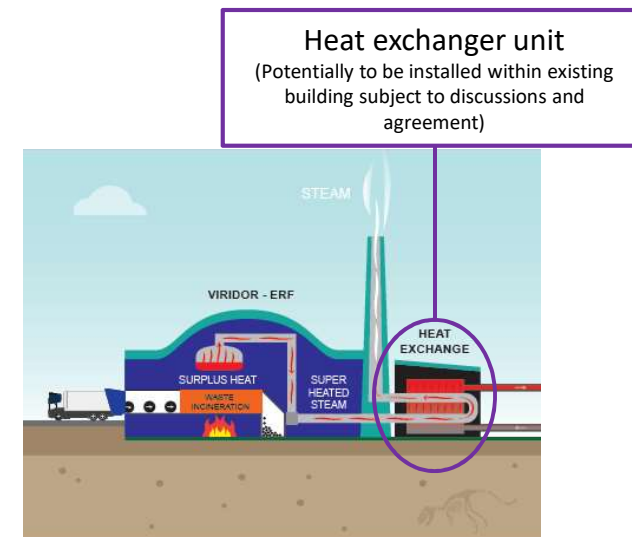
Heat Exchanger Installation

Fichtner commission



Feasibility: design and costs

- Split into two work packages
- Work Package 1:
 - Developed design, specification and budget for heat recovery to cover the Viridor Scope of Supply
- Work Package 2:
 - Develop operation, maintenance, repair and replacement costs for heat recovery equipment



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Heat exchangers



Potential Location?



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Planned activities



Milestone
Soft Market Testing
Completing Heat Purchase Agreement with EFW
Design for top-up energy centre to allow planning application
Confirmation of Stakeholder In Principle Commitment to project
HNIP Capital Application
Preparation of DBOM Tender Documentation
Start Procurement of DBOM Contractor(s)
Outcome of HNIP Capital Application
Final Business Case to Cabinet including outcome of tendering exercise



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