

**Name of meeting:** Cabinet  
**Date:** 16<sup>th</sup> February 2021  
**Title of report:** Huddersfield District Heat & Energy Network

**Purpose of report:**

- To brief Cabinet on the findings of the Huddersfield Phase 2 District Energy feasibility study and the required Detailed Project Development (DPD) stage.
- For Cabinet to accept the offer of grant funding from the BEIS Heat Networks Delivery Unit and agree corresponding capital match funding.
- To request approval to commence a procurement exercise to engage a consultant to commence the delivery of the next feasibility stage, Detailed Project Development.

<b>Key Decision - Is it likely to result in spending or saving £250k or more, or to have a significant effect on two or more electoral wards?</b>	<b>Yes - expenditure greater than £250,000</b>
<b>Key Decision - Is it in the <u>Council's Forward Plan (key decisions and private reports)?</u></b>	<b>Yes</b>
<b>The Decision - Is it eligible for call in by Scrutiny?</b>	<b>Yes</b>
<b>Date signed off by <u>Strategic Director</u> &amp; name</b>  <b>Is it also signed off by the Service Director for Finance?</b>  <b>Is it also signed off by the Service Director for Legal Governance and Commissioning?</b>	<b>Colin Parr</b> 19 <sup>th</sup> January 2021  <b>Eamonn Croston</b> 2 <sup>nd</sup> February 2021  <b>Julie Muscroft</b> 1 <sup>st</sup> February 2021
<b>Cabinet member <a href="#">portfolio</a></b>	<b>Cllr Paul Davies – Culture &amp; Greener Kirklees</b>  <b>Cllr Naheed Mather – Environment</b>  <b>Cllr Peter McBride – Deputy Leader and Regeneration</b>

**Electoral wards affected:** Huddersfield Town Centre (Dalton & Newsome)

**Ward councillors consulted:** N/A

**Public or private:** Public

**Has GDPR been considered?** Yes

## **1. Summary**

- 1.1. In January 2019, Kirklees Council declared a Climate Emergency and proposed an ambitious programme of activity to address the emergency. This requires significant societal changes to how we all live and work, with an urgent need to dramatically reduce our emissions and to adapt locally to a changing climate.
- 1.2. Kirklees Council wishes to rise to this challenge and be a leader to achieve this change with our local partner organisations, businesses and residents with the help and support of the national government and regional partners and aligned to our corporate ambitions for People, Places and Partners. This will be a challenging ambition, but it is also a great opportunity to improve our quality of life and create a borough that is healthier, more sustainable and fairer for everyone.
- 1.3. This report describes the work undertaken to date regarding a Huddersfield District Heat Network, one of the Council's key carbon reduction projects. It sets out a roadmap of proposals and gateways for the next phase including a detailed project development report which will provide an outline business case for how the Council can achieve the successful delivery of a Heat Network.

## **2. Information required to take a decision**

### **Background**

- 2.1. Heat Networks or district energy networks involve the generation and supply of heat and electricity (and in some cases cooling) over a distribution network to multiple buildings, with the generation close to the point of supply.
- 2.2. District heat networks feature a system of insulated pipes which distribute hot water from a centralised heat generation plant to a number of different buildings to provide space heating and hot water. Instead of individual boilers, each building has a heat interface unit (HIU) which supplies heat from the network to the local building distribution system.
- 2.3. Schemes can range in size from simply linking two buildings together, to spanning entire cities. In some countries the use of district heating is widespread. For example, in Denmark around 60% of the country's homes are connected to heat networks, including a scheme which supplies the whole of Copenhagen (these larger schemes tend to 'grow' incrementally over time as more heat sources and customers are added). For power, a local 'private wire' electricity network is installed to connect generator to customers; this type of generator to customer connection avoids national, regional and/or local transmission and distribution infrastructure.
- 2.4. In the case of Huddersfield, the favoured source of heat and power would be 'waste heat' from the Town's Energy from Waste plant, which is already processing the district's domestic non-recyclable waste.
- 2.5. Generating and distributing heat at a district scale allows lower carbon forms of heat generation to be used which would not be viable at a building scale, including the capture

and delivery of waste heat from power generation, energy from waste, or the transition to technologies such as combined heat and power engines and heat pumps.

2.6. The development of a Huddersfield Heat Network (HHN) offers many potential benefits to the town including:

- **Reduction in energy prices**- increased efficiencies can lead to reduced energy costs for customers. This can mean improved competitiveness for local businesses and reduced energy bills and the alleviation of fuel poverty for households.
- **Energy security**- the higher efficiencies combined with the ability to provide alternative forms of heat generation means that district heating can increase energy security and reduce reliance on, or long-term lock in, to gas. A network is a comparatively long-lasting piece of infrastructure with a lifespan of 50 plus years. As such, in terms of heat source, a network is expected to have connected to successive sources of heat over its lifespan. This means that heat networks are particularly suited to facilitating the decarbonisation
- **Local dividends** - depending on the business model profits from the sale of energy from district heating networks may accrue to local authorities, communities, and/or businesses when they are stakeholders, rather than to national or international businesses.
- **Local economy**- the construction and operation of a network can create employment opportunities and opportunities for local businesses to be involved in the supply chain.
- **CO2 emissions** - the combination of more efficient heat generation and the ability to use alternative technologies and fuels means that district heat networks can provide significant CO2 reductions.
- **Emissions reductions in hard to treat buildings** - where retrofitting fabric improvements to existing stock is challenging (e.g. for listed buildings), district heat provides an alternative method by which to reduce CO2 emissions.
- **Reduced environmental taxes** - policies such as the Carbon Reduction Commitment (CRC) and the EU Emissions Trading Scheme place a value on CO2 emissions (effectively a carbon tax) and it is expected that the effect of such policies may increase in future as the pressure to reduce emissions increases and the cost of emitting CO2 rises. A reduction in CO2 emissions will therefore also provide economic benefits.
- **Opportunity to deliver CO2 reductions in partnership with the local business or private sector** - revenue opportunities from the sale of energy attract investment from the private sector, transferring some or all of the financial risk (but also control and profits) of projects from the public sector.

2.7. The Council has already made a number of significant achievements in relation to address these challenges, such as through the roll-out of next generation street lighting, meeting its 2020 carbon reduction targets (set in 2010) in 2019 (a reduction of 53%), through the ongoing development of the Climate Commission along with other climate emergency priorities.

2.8. In line with the Corporate Plan, our commitment to people, partners and place runs throughout the response to the climate emergency. How we engage, educate, support and challenge to bring people along with us, especially young people, is critical to success – as human activity is a significant contributor to emissions – and more importantly it is people who suffer the harmful effects of emissions.

2.9. We continue to work with our partners, as we recognise that tackling emissions cannot be done by the local authority alone. Places and place based working will be integral to our activity, as we need to shape our places in a way which reduces emissions and supports our businesses and residents to be clean and green. The Huddersfield Heat Network provides an opportunity to facilitate the development of an important and resilient local energy infrastructure asset that will continue to benefit the district's largest town over its lifespan (typically over 50 years).

2.10. Kirklees has a good track record in delivering carbon reductions, but it is recognised that a step-change is required in order to meet increased ambition across the country and the district. The Council has the following targets (to align with the then national target of an 80% reduction from 1990 levels under the Climate Change Act 2008):

- A 40% reduction in Council carbon dioxide emissions by 2020-21 based upon a 2005/06 baseline. By 2019-20, the Council had already achieved this target with a reduction of 53.5%.
- A 40% reduction in District carbon dioxide emissions by 2020-21 based upon a 2005/06 baseline. Progress on this indicator uses the Government's local authority level dataset. As of 2018 (the most recent data available), the district has achieved a 38.7% reduction.
- In November 2020, the Council adopted a new 'net zero' carbon emissions target of 2038 in line with external advice from the Tyndall Centre for Climate Change Research and aligning with the WYCA 2038 target.
- This aligns with the West Yorkshire Combined Authority's pledge for the Leeds City Region to achieve net zero carbon emissions by 2038, with significant improvements by 2030.

2.11. Heat Networks are recognised by government as a key infrastructure to help deliver the decarbonisation of heat and power. The Government has recognised this through the establishment of the Heat Networks Delivery Unit (HNDU), which both provides project feasibility grant funding and also has developed and formalised a best practice roadmap for the development of heat network projects. In parallel to this, the Government has also established a capital grant/loan scheme, the Heat Network Investment Project (HNIP) to help fund borderline schemes. The HNIP is expected to be succeeded in April 2022 with a new Government 'Green Heat Network Fund'.

## **2018 Feasibility Study**

2.12. The Council has previously received grant funding from the HNDU in order to undertake an initial feasibility study in 2017-2018.

2.13. The 2018 Feasibility study was undertaken by AECOM consultants who were procured via a competitive tendering exercise. This study confirmed that an economically attractive heat network opportunity exists in Huddersfield to provide heat and power from

the Huddersfield Energy from Waste Plant to council, public sector and private partner premises in the town centre. The study identified three options for progressing the heat network, in decreasing order of preference (detailed at figure 1 below):

- a) Utilising heat and power (electricity) from the Diamond Street Energy from Waste (EfW) Plant. This is the most economically attractive option and also the option that delivers the most significant carbon savings. A detailed ‘dashboard’ summary of this preferred option is included at Appendix 1.
- b) EfW until 2037 (potential end of life of the facility) then an independent gas combined heat & power (CHP) unit; and
- c) Full independent Gas CHP with no heat or power sourced from the EfW. (Options b) & c) are included in the study to manage the risk in case agreement cannot be reached with the EfW operator to supply the network, or if the EfW ceases to be a viable asset and is not replaced).

Table 1 HHN Heat Source Options

Scenario	Order of Preference	Project lifetime		25 years	30 years	40 years
EfW	1	CAPEX £,000	All phases	£16,505		
			Phase 1	£13,888		
		IRR (Gross)		10.9%	11.4%	11.7%
		NPV £,000	3.5% discount rate	£15,186	£18,995	£25,335
			6.0% discount rate	£8,156	£10,119	£12,860
		Ave. CO <sub>2</sub> Reduction (Tonnes/Year)		2,623	2,731	2,872
EfW until 2037 then gas CHP	2	CAPEX £,000	All phases	£20,414		
			Phase 1	£15,287		
		IRR (Gross)		9.1%	9.7%	10.1%
		NPV £,000	3.5% discount rate	£11,514	£15,105	£20,484
			6.0% discount rate	£5,210	£7,061	£9,378
		Ave. CO <sub>2</sub> Reduction (Tonnes/Year)		1,485	1,190	821
Gas CHP	3	CAPEX £,000	All phases	£20,257		
			Phase 1	£17,640		
		IRR (Gross)		8.4%	8.9%	9.4%
		NPV £,000	3.5% discount rate	£11,774	£15,716	£21,653
			6.0% discount rate	£4,677	£6,708	£9,305
		Ave. CO <sub>2</sub> Reduction (Tonnes/Year)		1,056	871	639

2.14. To put the figures into context, the financial viability of the scheme is such that it should be possible to attract external capital investment for the project, without relying on council capital (a caveat is the extent to which the council wants to retain control of the network and steer its aims – which would then be likely to require investment).

2.15. The Feasibility study has been produced on the basis that the HHN should be complementary to the Council’s Waste Disposal Contract and existing relationship with the operator of the EfW, Suez or future waste contractors.

2.16. All options for the HHN requires an 'Energy Centre', separate to the EfW (this is to house pumps, water treatment, gas boiler backup and water accumulators). The current favoured site for this purpose is 37 Old Leeds Road. However, a key sensitivity is the eventual development of Southgate – whilst this may offer opportunities for the HHN, it may also present constraints for the energy centre. Consequently, a shortlist of potential sites is being maintained, which will be explored in more detail at DPD stage.

2.17. Connections to the network for heat and power will be phased so that the network can develop incrementally and in a sustainable way. Key customers are the Council's own town centre premises and also key external HHN stakeholders, which are the University, College, Cummins, The HD One/Stadium and Southgate site (and any other significant future development sites that come forward in the town centre). This represents the initial vision for the heat network, but given the long lifespan of the installed infrastructure, it is considered likely that a successful network would continue to grow and have further partner and premises added over time. The proposed heat network route map identified in the feasibility study is included at Appendix 2 (N.B. this may be subject to some revision during the next stage of feasibility).

2.18. The Feasibility study has identified the most economically viable heat network for Huddersfield. This has meant that some potential sites have been excluded due to having a detrimental effect on the project viability, but that may offer wider benefits for the HHN. The main examples are:

- Town Estate Council Housing – Close to the EfW, but the costs of connecting would outweigh the income generated. The council will need to consider if social benefits (such as the alleviation of fuel poverty) would outweigh the impact on economic viability.
- John Smith's Stadium & Stadium Sports Centre are not currently included due to having their own existing efficient Gas CHP system and an 'erratic' demand profile for the network. However, should the HD One development progress, then this may reduce the cost of extending to the Stadium and Sports Centre and make this more worthwhile.

2.19. The feasibility study Heat Network identified a number of benefits to Huddersfield:

- The first is resilience, in that the network will utilise local energy generation delivered to Town Centre sites. This will be backed up with full gas boiler back up for heat, and connection to the national electricity grid as a back-up for the provision of electricity.
- The feasibility study has also been conducted on the basis that the network should provide competitively priced energy and has assumed that the cost of energy will be 10-15% cheaper than business as usual (i.e. independent gas boilers), adding to the competitiveness of the organisations that connect.
- Finally, and crucially, the heat network is a low carbon source of heat, particularly when utilising a 'waste' source, such as the EfW. The favoured EfW option for the heat network will save an estimated 2,600 tonnes per year of carbon dioxide when compared against the status quo. To put this into context, this should reduce the carbon emissions from the council assets managed by Corporate Landlord by approximately a quarter from where they are now. In addition, the decarbonisation of heat is significantly more challenging than electricity, so having the EfW as a heat source represents a significant opportunity in carbon reduction terms.

2.20. Following the successful 2018 feasibility study the council has been successful in applying for an additional £309k funding from the HNDU in order to undertake the 'Detailed Project Development' (DPD) stage of heat network feasibility. This follows on directly from the earlier Feasibility study and will refine the proposed network design and de risk the options identified. This will continue the feasibility process for the heat network and will result in an outline business case for the council to consider whether or not to proceed to network delivery.

### **Key Considerations**

2.21. Cabinet is asked to agree to progress the HHN project to the 'detailed project development' phase of feasibility. This is the final stage of feasibility and will result in an outline business case for the council to consider whether to proceed with the scheme.

2.22. The project will be delivered by the Environment & Climate Change Directorate and currently reports to the Council's Major Projects Board. This is currently being reviewed as part of a long-term alignment with the priorities of the Directorate.

### **Options**

2.23. The first option is to progress the HHN, the Council will progress the project to the final stage of Feasibility, Detailed Project Development. The Council has been successful in applying to HNDU for further feasibility grant funding to achieve this. The DPD stage will further refine the outcomes of the previous feasibility study and also consider any significant changes in the town centre since the previous study, such as significant schemes and development arising from the Huddersfield Blueprint.

2.24. The key output from the DPD stage will be an Outline Business Case, in line with the HM Treasury 'five case' model (i.e. Strategic, Economic, Commercial, Financial and Management cases) , which will allow the council to decide whether it wishes to progress to implementation and delivery of the HHN and consider potential sources of capital investment. To achieve this, the council will need to appoint specialist technical, financial, commercial and legal consultants.

2.25. The second option would be to cease consideration and development of the HHN scheme.

2.26. Subject to the next stage of the project being successfully completed, a future decision will be required at the completion of the DPD stage whether or not to progress to the implementation of the network.

### **Cost breakdown**

2.27. The anticipated total cost for the DPD stage of feasibility is £461k, which has been determined in close consultation with the HNDU.

Table 2

HNDU bid	£309,265	67%
Council Capital (match funding)	£152,325	33%
Total	£461,590	

- 2.28. The Council has been successful in applying for HNDU grant funding as above and has also identified the related Council Capital match funding.
- 2.29. Of the above, £60k has already been committed to procure the provision of external project management support for developing and delivering the scheme.
- 2.30. The future full capital cost of the network (c.£16m) will be influenced by a number of factors, not least the extent to which the council wishes to retain control/influence over the network. However, it should be noted that the economic viability of the network is such that external/private capital investment is considered feasible. Current sources of capital are considered to be:
- Heat Networks Investment Programme (HNIP) – government capital grants for heat networks (but primarily designed for more borderline schemes than HHN).
  - External Investors – HNDU and the LCR LEP maintain pipelines of schemes in development and liaise with potential investors (e.g. institutional investors, energy companies).
  - Council Capital investment to deliver the network (Council investment in the scheme may also be dictated by the level of control it wishes to retain over the network, for example in mandating the future expansion of the network and where it expands to).

## Timescales

- 2.31. Subject to Cabinet agreeing to progress the project as detailed in this report, the council will move immediately to procure the specialise consultants required to deliver the above. A compliant procurement route has been identified to facilitate prompt delivery.
- 2.32. It is expected that the DPD delivery will be completed by Autumn 2021, with Cabinet to be updated at the end of the year or in early 2022.

## Expected impact/ outcomes, benefits & risks

- 2.33. As noted above, the Heat Network is expected to deliver substantial long-term benefits to the town in the terms of the following:
- Provision of lower carbon heat and power (electricity) to council and partner premises, contributing towards ‘net zero’ targets
  - Provision of heat and power priced below ‘business as usual’ (anticipated to be 10-15% lower)
  - Increased resilience from a local energy supply (heat will have full gas boiler backup capacity, and power can still fall-back on the national electricity grid)
  - Part of a long-term waste strategy to make better use of the waste that the town generates.
- 2.34. Due to involving a complex process of infrastructure development, a proactive approach will be taken in relation to managing project risks for this stage of feasibility:



- Potential unavailability of the EfW as a source of heat and power. Mitigated through the development of parallel project options that do not depend upon this facility.
- Lack of potential customers. Mitigated through involvement of external stakeholders and partners to ensure a balance of heat and power customers appropriate to the available heat and power produced by the energy source. Project viability – consideration of a range of funding options to reflect the different scenarios for operating the network and the degree of control which the council may wish to retain.

2.35. Overall scheme risks are equivalent to any significant infrastructure development and can be summarised as follows:

- Requirement for space for an ‘energy centre’ (typically housing water pumps and back-up gas boilers). The council has identified a shortlist of potential sites for this purpose, with the finalised site to be confirmed as part of this proposal.
- Requirement for the installation of large diameter insulated pipes under the ground to transmit the hot water. This DPD stage study will address any known constraints to the preferred route or alter the network configuration as needed.
- Potential for heat losses from this piping. This will be minimised by ensuring that the network is developed in accordance with modern quality standards, agreed as appropriate with the Heat Network Delivery Unit
- There is an ongoing cost involved in ultimately setting up and running the network and associated infrastructure. These will all be included as part of the scheme business case and will be included as part of the ongoing operating costs for the network, to be balanced against income from energy customers.
- The need to secure commitment from key external network stakeholders to sign up and receive heat and/or power from the heat network via relatively long-term agreements. This can be mitigated by carefully designing the network offer package for customers– i.e. to be competitively priced relative to the current ‘business as usual’ supply and by explaining the reduced maintenance required by replacing an individual boiler with a heat network connection.

### Services & agencies involved

Table 3

Internal Stakeholders	<ul style="list-style-type: none"> <li>• Environment &amp; Climate Change- including Climate Change &amp; Air Quality, Waste &amp; Recycling, Highways Maintenance</li> <li>• Business engagement and Commercial Development</li> <li>• Planning Policy &amp; Development Management</li> <li>• PRP – Corporate Landlord, Asset Maintenance</li> <li>• Finance</li> <li>• Legal Services</li> </ul>
BEIS Heat Networks Delivery Unit	The funder and also the regional Project Lead who can help provide best practice advice.

Specialist Consultants	Specialist technical, financial, commercial and legal consultants with expertise in heat network development and project management.
Public and private sector partners and potential HHN customers (for heat or power or both)	The Council and other public sector partners, including Cummins Engineering, Huddersfield University, Kirklees Active Leisure and Kirklees College

### 3. Implications for the Council

#### Working with People

3.1. Addressing climate change and air pollution are both areas that need to be addressed by working with members of the public. The Heat Network will help provide 'enabling infrastructure' for Huddersfield to adapt to a low carbon future – once established, the network is likely to have a significantly longer lifespan than the individual sources of heat, such as the EfW. As such it can be regarded as a 'bridging' infrastructure that will help the people of Huddersfield adapt to the challenges of reducing carbon emissions.

#### Working with Partners

3.2. This initial establishment phase will involve close collaboration with the partners outlined above, to ensure that the network is as viable as possible in its initial phase.

#### Place Based Working

3.3. The nature of the heat source and the infrastructure involved dictate that this scheme is confined to the centre of Huddersfield and its hinterland, with the focus of the initial phase being the establishment of an economically viable network. However, over time, depending on the model chosen, the network may expand over time and include connection to smaller partner organisations. Furthermore, the learning from the development of the Huddersfield network may also be able to be applied to other decentralised energy and community energy schemes that may be considered across the district.

#### Climate Change & Air Quality

3.4. Climate change is an issue that will impact across the district. The Heat Network will play an important part in reducing the carbon emissions from the district's main town. Crucially, this will be primarily through the decarbonisation of heat, which is a much more challenging area of the energy industry to decarbonise relative to electricity. As the infrastructure of the network itself is likely to outlast several sources of heat, it is also considered a key enabling technology for future low carbon heat sources.

#### Improving outcomes for children

3.5. Children and young people are a key group of stakeholders for the district and in terms of acting on climate change and the Council has committed to developing and hosting a youth summit on this theme. The Council recognises that by addressing the climate emergency by considering projects such as the heat network, we will help secure our children's future. The Heat Network can be considered a key piece of 'enabling

infrastructure' to help develop and secure the low carbon future of Huddersfield, which the town's young people will benefit from.

#### **Other (eg Legal/Financial or Human Resources)**

3.6. As noted above, this paper and decision covers the next and final stage (DPD) of feasibility for the HHN project. As such, it will firm up and confirm the assumptions made so far to a significantly greater detail and result in an outline business case for the Council to consider different options for proceeding to implement a heat network.

3.7. This will include the legal and financial considerations for establishing a heat network and the appropriate routes and potential vehicles for implementing and managing the resulting network.

3.8. The proposed spend presented in this report covers the specialist support required to complete the feasibility process and produce an outline business case for the council to consider.

#### **4. Consultees and their opinions**

4.1. The relevant Kirklees Portfolio Holders have been updated on progress to date on a regular basis and are supportive of this proposal.

#### **5. Next steps and timelines**

- Following the 16<sup>th</sup> February 2021 Cabinet: to proceed immediately to procure the specialist support needed to complete the DPD study and complete the outline business case for the heat network.
- Autumn 2021: Completion of the DPD study
- Late 2021-Early 2022: To update Cabinet and present the findings of the completed outline business case.

#### **6. Officer recommendations and reasons**

6.1. That the positive results of the 2018 feasibility study are noted.

Reason: To allow Cabinet to recognise that the 2018 feasibility study has identified that an economically viable heat network opportunity exists for Huddersfield. These has been independently verified by the Department of Business, Energy and Industrial Strategy (BEIS) Heat Networks Delivery Unit (HNDU). Positive results include the established economic viability of the network and income making potential as well as significant carbon savings derived from heat and power supplied from the EfW.

6.2. That Cabinet accept the grant funding for this project from the BEIS Heat Network Delivery Unit (£309,265) and agree to the corresponding capital match funding (£152,325) for the DPD stage of feasibility, as identified in the Capital Plan, in order to allow the heat network feasibility process to be completed and produce an outline business case.

Reason: Following the successful outcome of the 2018 feasibility study, for Cabinet to understand that a successful funding bid to the HNDU has been undertaken aligned with

corresponding council match funding to allow the council to undertake the next stage of feasibility and produce an outline business case.

- 6.3. That Cabinet delegate authority to the Strategic Director- Environment & Climate Change to immediately undertake procurement of consultants for the future delivery of the detailed project development stage (i.e. up to Outline Business Case) of a Huddersfield District Heat & Energy Network

Reason: To allow officers to progress the delivery of the detailed project development stage of heat network development, resulting in the production of an outline business case.

- 6.4. That Cabinet delegate authority to the Strategic Director- Environment & Climate Change for delivering the above and any minor alterations to ensure that the project is delivered up to Outline Business Case completion.

Reason: The nature of the feasibility process is that sometimes minor alterations are required in order to keep the project on track, possibly in response to unexpected or unanticipated events. This delegates authority to the Strategic Director in order for the project to be delivered as envisaged, up to outline business case stage.

- 6.5. That a further update is brought to Cabinet following the completion of the DPD stage outlined above to present the completed findings of the feasibility process and present the outline business case for consideration.

Reason: Once this study has been completed, to present the findings and the outline business case to cabinet in order to consider whether the scheme should progress to delivery.

## **7. Cabinet Portfolio Holder's recommendations**

- 7.1. The following portfolio holders have been briefed on this proposal on 27<sup>th</sup> January 2021 and all are supportive.

Cllr Paul Davies, Portfolio holder for Culture and Greener Kirklees

Cllr Naheed Mather: Portfolio holder for the Environment

Cllr Peter McBride: Portfolio holder for Regeneration

## **8. Contact officer**

John Atkinson – Project Manager, Energy & Climate Change

Shaun Berry – Operational Manager, Air Quality, Energy & Climate Change

## **9. Background Papers and History of Decisions**

**Link to the 'Climate Emergency' Council Motion**

<https://democracy.kirklees.gov.uk/mgAi.aspx?ID=10123>

## **Link to the Council's initial Climate Emergency Response**

<https://democracy.kirklees.gov.uk/documents/s32319/Item%207%20Kirklees%20Climate%20Emergency%20Report%20002.pdf>

## **Appendices**

**Appendix 1:** Scheme Dashboard for the favoured heat source option of the Energy from Waste Plant

**Appendix 2:** Feasibility Study identified heat network route map

## **10. Service Director responsible**

Sue Procter, Service Director - Environment

**Appendix 1: 2018 Feasibility study Scheme Dashboard for the favoured heat source option of the Energy from Waste Plant**

**Huddersfield Project Dashboard: EfW (no CHP)**

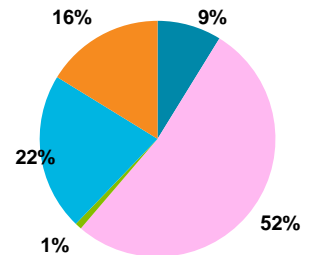
Network Characteristics		
Flow Temperature	80-90	°C
Return Temperature	50-60	°C
ΔT	30	°C
Peak Heat Load	9,989	kW
Annual Heat Load	27,613	MWh/yr
Heat Losses	2,510	MWh/yr
EfW heat generation	19,678	MWh/yr
CHP heat generation	0	MWh/yr
Top-up heat generation	7,935	MWh/yr
%Low carbon heat	71%	
Load Factor [1]	32%	

Network Length	5.18	km
Network Energy Density	5.33	MWh/m

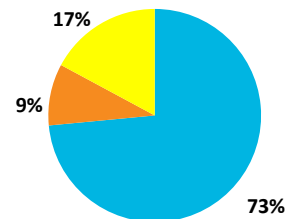
Annual Electricity Delivered	43,962	MWh/yr
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Energy Centre Plant	Now	Future
Gas CHP	●	●
Biomass Boiler	●	●
EfW plant	●	●
Industrial waste heat	●	●
Water Source Heat Pump	●	●
Ground Sourced Heat Pump	●	●
Sewage/wastewater heat recovery	●	●

Proportion of energy load by sector (heat and power)	
Council Existing	9%
Council Future	0%
Other Public Existing	52%
Other Public Future	0%
Residential Existing	0%
Residential Future	1%
Private Existing	22%
Private Future	16%



Quality of energy data received (heat and power)	
Real Half Hourly	73%
Real Monthly	9%
Real Annual	0%
Benchmarked	17%



CHP Thermal Rating	0	kW
CHP Electricity Rating	0	kW
EfW Thermal Rating	4,000	kW
EfW Electricity Rating	10,270	kW
Biomass Thermal Rating	-	kW
Retained Boiler plant	NA	kW
New Boiler Plant	12,242	kW
Estimated energy centre footprint	475	m <sup>2</sup>
Estimated thermal store volume	0	m <sup>3</sup>

Network Analysis			
<b>IRR</b>		<b>Grant funding required to achieve hurdle rate of 6%</b>	
25 year IRR	10.9%	%	£m
30 year IRR	11.4%	NA	NA
40 year IRR	11.7%	NA	NA

Net Present Value (3.5% discount rate)			Predicted CO <sub>2</sub> savings		
25 year NPV	£15.19	millions	25 yr CO <sub>2</sub> saving	2,623	tonnes/yr
30 year NPV	£18.99	millions	30 yr CO <sub>2</sub> saving	2,731	tonnes/yr
40 year NPV	£25.34	millions	40 yr CO <sub>2</sub> saving	2,872	tonnes/yr

Network Costs		
Total Capital Cost	£16.51	millions

[1] Derived by dividing the total heat generated per year by the product of the peak output of the plant and the number of hours in a year (8760).

Appendix 2: 2018 Feasibility Study proposed heat network route map

