Agenda Item No: 4

Heat Pumps for Friday Bridge

To:	Environment & Green Investment
Meeting Date:	18 April 2024
From:	Executive Director Place & Sustainability
Electoral division(s):	March North & Waldersey
Key decision:	Yes
Forward Plan ref:	2024/012
Executive Summary:	This report provides findings from Phase 2a of the Heat Pumps for Friday Bridge project. The Committee is asked to consider whether to agree to proceed to installation of heat pumps.
Recommendation:	The Committee is recommended to:

a) Agree that the Heat Pumps for Friday Bridge project should proceed to installation works for the limited number of properties that have signed up for the scheme. This could be either:

i. Continuing as Phase 2b of the Heat Pump Ready programme, if DESNZ permit this

ii. Using Boiler Upgrade Scheme funding as outlined in Section 3.2

b) Agree that the Heat Pumps for Friday Bridge Consortium includes a private finance offer for residents wishing to proceed with a heat pump installation and requiring finance to do so and that residents be encouraged to compare this with other sources of borrowing (see section 3.3).

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1. Creating a greener, fairer and more caring Cambridgeshire

1.1 This report relates to *Ambition 1: Net zero carbon emissions for Cambridgeshire by 2045, and our communities and natural environment are supported to adapt and thrive as the climate changes*.

1.2 Decarbonisation of domestic heating is essential to meet the Council's Ambition of achieving Net Zero by 2045. Heat pumps are the key technology to achieve decarbonisation of space heating, with Air Source Heat Pumps (ASHP) being the most affordable and widely applicable type of heat pump for domestic use.

2. Background

2.1 Cambridgeshire's 2022-23 Annual Carbon Footprint identifies homes as producing 14% of the county's greenhouse gas emissions. Heat pumps are the key technology to decarbonise domestic heating, with Air Source Heat Pumps (ASHP) being the most affordable option. However, installing ASHPs is a far less straightforward process for consumers, and capital costs are higher, than a like for like boiler replacement.

2.2 The Government's 2021 Heat and Buildings Strategy identified that "*to meet Net Zero virtually all heat in buildings will need to be decarbonised*" and that "*in all future heat scenarios, 600,000 … heat pump installations per year is the minimum market size that will be required by 2028 to be on track to deliver Net Zero.*". Current deployment rates are far short of this at 22,616 installations between May 2022 and February 2024[1].

2.3 The complexity of the customer journey and finding trusted contractors are significant barriers to heat pump installation. Many homeowners are uncertain whether a heat pump would be suitable for their property. A survey is required to assess the following: property peak heat loss; capacity of radiators or underfloor heating; and pipework suitability. Multiple contractors could be required for survey, design, heat pump installation, radiator replacement, insulation upgrades and solar PV installation (to partly offset increased electricity demand). The installer base is much more limited than for gas boilers and, with many media reports of poor-quality installations, homeowners are nervous about finding an installer they can trust. The Government's 'Heat Pump Ready' Programme aims to develop innovative ways to support domestic heat pump deployment including by improving the customer journey.

2.4 A consortium led by City Science and including Cambridgeshire County Council and Fenland District Council, has secured two rounds of Department of Energy Security and Net Zero (DESNZ) Heat Pump Ready Funding. Heat Pump Ready is part of DESNZ's innovation programme. It aims to develop knowledge and understanding about tackling non-financial barriers to heat pumps installation at scale within an area.

2.5 £197K "Phase 1" funding was used to develop an "integrated stakeholder model" to support greater uptake of heat pumps through a place-based approach. Phase 1 included resident focus groups and door to door engagement in Friday Bridge. Over three quarters of residents surveyed wanted a government approved installer, ideally a local supplier who could also support servicing and maintenance. Research by Citizen's Advice[2] also concluded that there were multiple challenges to home energy improvement, across the

[1] Ofgem BUS Monthly Scheme Update

[2] Home Truths – The challenge and experience of making home energy improvements. Citizens Advice, March 2021.

different stages of the customer journey. In particular they found it was difficult for citizens to pick reputable installers and too many fall victim to rogue installers.

2.6 The £1.8m Phase 2 funding is to develop the Heat Pumps for Friday Bridge project to the trial and evaluate stage which will enable a One-Stop-Shop for retrofit domestic heat pump installations and affordable finance models.

2.7 In July 2023 the Committee agreed the procurement of contractor(s) for surveys and installation design. The Committee also agreed to review the outcomes of customer recruitment, surveys and installation proposals to decide whether to proceed further with the project. The report seeks approval to proceed to the next stage of installing ASHPs in Friday Bridge resident's homes under a Council supported scheme and to offer residents external financing under the scheme.

2.8 Contracts for installation works will be between the appointed contractor (Macbrook Gas) and the resident. Costs of installation will be met by a combination of £7,500 Government grant per installation and the resident's capital contribution. There will be no costs to the Council, however the Council's name is attached to the scheme and there are therefore reputational risks in the event of significant issues with installations.

3. Main Issues

3.1 Phase 2a Objectives & Conclusions

3.1.1 Phase 2a of the project aimed to set-up a One-Stop-Shop for heat pump installation including a website through which residents would be able to:

- Seek an initial assessment of their property's feasibility for an ASHP;
- Request a "whole house" survey and proposal for ASHP installation plus supporting measures e.g. solar PV, insulation, battery storage;
- Receive quotation documents from a contractor procured and vetted by the Council;
- Apply for affordable loan finance;
- Benefit from ASHP bulk purchase pricing;
- Book installation of an ASHP and supporting measures;
- Receive handover documents.

3.1.2 The design of the One Stop Shop and the hyper-local marketing approach within Friday Bridge aligns with the Behavioural Insights Team's EAST framework3 for promoting change (which suggests mechanisms for encouraging behaviour change should be Easy, Attractive, Social and Timely):

- **E**asy: The One Stop Shop aims to make installing a heat pump easier for residents by providing a single point of contact for obtaining property suitability assessments, booking surveys, receiving survey reports and recommendations and booking installations. The contractor appointed can deliver heat pumps, insulation upgrades and solar PV, avoiding the need to engage with multiple contractors. Installation of all measures on a typical property will take a single week.

[3] Four Simple Ways to Apply EAST Framework to Behavioural Insights. Behavioural Insights Team

- **A**ttractive: The One Stop Shop offer led with a free, no obligation, whole house retrofit survey, worth more than £500. All marketing is using the established Cambridgeshire Action on Energy branding.
- **S**ocial: Hyper-local marketing and community engagement events were designed to create a community "buzz" around the heat pump installation opportunity, with resident sharing of experience promoting further uptake.
- **T**imely: The whole house survey report will provide residents information on the immediate (and mid-term) energy bill impacts. The project is also being delivered at a time when grant funding for heat pumps has just increased to £7,500 per property.

3.1.3 Phase 2a aimed to complete customer recruitment and home surveys by the end of January 2024 (originally November 2023). Since July 2023, DESNZ's target uptake level has reduced from 25% to 15% of properties on one or more low voltage substation network. Installation designs, quotations and reporting back to DESNZ were to follow shortly after the conclusion of surveys.

3.1.4 The website (https://fb.actiononenergycambs.org/) has been established, the contractor for surveys and installation design has been appointed. A launch event with the community took place on 8th August and was attended by 40 residents. Four mailshots have been sent to households in the target postcodes, including raising awareness of the £5,000 to £7,500 increase in Government grant and flagging the end date for the free whole house assessment offer. Peterborough Environment City Trust (PECT, the community engagement consortium partner) have made 647 door knocks in Friday Bridge and held 100 doorstep conversations with residents. 14 whole house assessment surveys have been completed with the following key outcomes.

- Properties were suitable for ASHP installation in all except two cases (both commercial properties and ineligible for grant).
- The following additional measures were proposed:
  - Hot water cylinder, larger radiators and re-piping (all properties);
  - Mean capital cost before grant (ASHP, Hot Water cylinder, radiators & pipework) £15,020;
  - Top-up loft insulation (2 out of 12 properties);
  - Solid wall insulation (1 out of 12 properties);
  - Solar PV (10 out of 12 of properties);
  - Annual bill impact (£65 to £271 bill increase)

3.1.5 The mean ASHP installation capital cost is very similar to the average cost of £14,800 in 2021 from the Electrification of Heat study. Allowing for inflation the above cost appears good value.

3.1.6 The project split Friday Bridge into four areas, defined by the electricity substations that supply them. Information on the project and the availability of free home surveys has been provided to all properties in these areas. Within the smallest area, surveys have been requested on 13% of properties, just short of the revised 15% target. On the larger areas surveys have only been requested on 5-10% of properties. Surveys will still need to be converted into expressions of interest for installation works.

3.1.7 Even if all surveys are converted into expressions of interest for installation the project has not achieved the 15% uptake threshold set by DESNZ. Although this may seem like a failure, the percentages are well above the Boiler Upgrade Scheme application rate in the

East of England (since the scheme was launched in May 2022) which is currently 0.15% of households.

3.2 Proceeding Outside of Heat Pump Ready With Boiler Upgrade Scheme Funding

3.2.1 Quotations issued to residents have been issued under the Council's call-off contract with the contractor. Even though DESNZ's 15% threshold has not been met, ASHP installation quotations could still be kept open for residents to accept using Boiler Upgrade Scheme funding rather than Heat Pump Ready funding. Both schemes offer residents a £7,500 grant towards installation costs. In the case of the Boiler Upgrade Scheme the installer manages the grant claim process.

3.2.2 Under this option the scheme would still be a Council supported scheme, with some reputational risk e.g. in the event of a resident being dissatisfied with their installation. This is discussed in more detail in section 6.3. There would be no central Government funding for administrative costs in running the scheme e.g. maintaining the website for installation bookings and handovers, monitoring installation work, assessing operational performance, managing any customer complaints. These costs would instead be absorbed by the consortium members.

3.3 Finance Offer

3.3.1 Ongoing resident engagement in Phase 2a has shown the upfront cost of heat pumps remains a key barrier. The Lendology model discussed in the July Committee continues to be a credible finance offering for the longer term; however, deploying this model within the project time limit is not possible. This is because the Lendology approach requires the total capital cost to be known and raised in advance via a bond offer. Once bonds are issued the Council would be tied in to interest payments to bond holders. The uncertainty over resident uptake at the project outset and the project timescales dictated by DESNZ did not allow for this finance offer to be utilised.

3.3.2 As an alternative, City Science have accredited the project with Hiber Finance (which involved gaining FCA authorisation) to provide their financing products to consumers. Hiber are FCA authorised and are making the following two loan offers available:

i) 12-month interest free loan with no deposit. Equal monthly repayments are spread over 12 months. For an average installation cost after grant funding, this would equate to £627 per month for 12 months;

ii) 3-year loan at 6.9% interest. Equal monthly repayments are spread over 36 months. For an average installation cost after grant funding, this would equate to £231 per month. The loan is subsidised by the heat pump manufacturer (Daikin), without which the interest rate would be 12.9%. Residents are under no obligation to take up the loan offer and are free to take out alternative finance or fund the balance of costs (after the £7,500 grant) from savings.

3.3.3 Currently no residents have expressed an interest in the loan offers, but homeowners have only just received their home survey reports and quotations. Offering finance is part of the One Stop Shop approach, providing residents the option of applying for finance via the same platform as they request surveys, design, installation and receive handover documents in order to streamline and simplify the whole process. It is the consortium's preference to keep the finance offer available should it be required, as removing the option could prohibit an installation. The finance offer is 100% private finance, there is no financial

risk to the Council, although there remains a risk to residents if they are unable to afford repayments.

3.3.4 It will be made clear to residents that they should compare this finance option with alternative offers that may be available to them. The above interest rate is very competitive with commercially available home improvement loan offers. However, extending a mortgage may provide access to lower cost borrowing. Several mortgage providers offer existing customers specific borrowing rates for renewable energy/energy efficiency upgrades e.g. Nationwide and Santander, interest rates vary from 0 to 5.95%. Barclays offer existing mortgage customers £2,000 cash towards a heat pump installation. The majority of 3-year home improvement loans at present are in the 7-11% interest rate, one provider offers a 5.8% rate.

4. Alternative Options Considered

4.1 The following alternative options have been considered:

(a) Suspend the Heat Pumps for Friday Bridge project. Under this option the Council would not benefit from learning from Phase 2b on installation, grid reinforcement, customer relations management, operational experience and loss of potential case studies on ASHP installations. There may be criticism from residents that have expressed an interest in ASHP installation, either because they do not feel confident in going ahead with an ASHP installation outside of the project, are unable to access finance to do so or because they do not have the added assurance of Council oversight of the scheme. This option would also carry risk of reinforcing negative opinions about the viability of ASHP installation. This option has been discarded, as continued Council oversight of the project reduces risk for residents, is likely to result in more ASHP installations in line with Net Zero ambitions, is likely to generate some learning and avoids reinforcing negative views on ASHP viability;

(b) Signpost residents to commercial heat pump offerings instead of continuing with the Heat Pumps for Friday Bridge project. As above the Council would not benefit from Phase 2b learning. Risk to the Council from any potential installation issues would be reduced as we would have no relationship with commercial offerings. Some commercial offerings may offer residents lower capital cost of installation. There is anecdotal evidence that Octopus Energy's Get A Heat Pump scheme is offering installation at very low cost, although this would not include a solar PV. However, the Council would not be able to promote specific commercial offerings and would have no opportunity to review proposals or installation work. Any offering accessing Boiler Upgrade Scheme funding will have to ensure that loft or cavity wall insulation recommendations on an Energy Performance Certificate have been addressed. Commercial offerings would not necessarily include a whole house energy efficiency assessment. Provided that an MCS accredited installer is used commercial offerings would, however, include a heat loss assessment to ensure thermal comfort. This option is not recommended, as continued Council oversight of the project reduces risk for residents, is likely to result in more ASHP installations in line with Net Zero ambitions and is likely to generate some useful learning for the Council.

5. Conclusion and reasons for recommendations

5.1 The 15% resident uptake required by DESNZ for Phase 2b of the Heat Pump Ready

programme has not been achieved. This is likely to be due to the high capital cost of installation and many residents preferring to stick with their existing boilers where these still have life left in them. Nevertheless, a small number of residents may be interested in proceeding to install heat pumps. If DESNZ relax the 15% uptake threshold it is proposed that we should proceed to installation under the Heat Pump Ready programme, as this provides some additional funding for administrative support and external performance monitoring. However, if DESNZ do not relax the 15% threshold the proposal is to allow the contractor to proceed with installations, where requested by residents, using Boiler Upgrade Scheme funding. The Boiler Upgrade Scheme provides an identical level of grant as would have been available under Heat Pump Ready Phase 2b. Maintaining the contractor proposals allows residents to benefit from the reassurance that the contractor has been through a Council procurement process and has been suitably vetted.

5.2 Hiber/Daikin private finance should be made available as part of the One Stop Shop approach, but residents will be encouraged to compare this with alternative offers including borrowing from their mortgage provider and make their own decision about how best to finance the balance of installation costs.

6. Significant Implications

6.1 Finance Implications

- No significant costs to the Council are expected. Grant funding covered the setup of the One-Stop-Shop and the cost of surveys and installation design have been covered by City Science and grant funding.
- Council staff costs to date have been covered by grant funding. Staff costs to manage the contractor during installation works would have to be met by CCC, but, in view of the small number of properties involved, staff time required is not expected to be more than four hours per month.
- Phase 2b installation costs will be met by a combination of Boiler Upgrade Scheme grant funding and resident contributions (some of which may require private finance arrangements).

6.2 Legal Implications

- All building works will need to comply with Building Regulations, Health and Safety legislation and permitted development rights for domestic heat pump installation.
- The installation contractor will be responsible for ensuring compliance with Building Regulations and Health and Safety legislation. Rooftop solar PV and air source heat pump installations are covered by permitted development rights under Schedule 2 Part 14 Class A and Class G respectively of the Town and Country Planning (General Permitted Development (England) Order 2015. Planning consent is only required in exceptional cases and would be the responsibility of the homeowner to obtain. The terms of the Framework require the contractor to make the homeowner aware that planning consent, if required, is their responsibility. Installations for all 12 properties currently surveyed are viable within permitted development rights.

6.3 Risk Implications

- The installation contractor has been procured on a call-off basis and any contracts for installation work will be between the contractor and resident. The contractor is, however, contractually required to fully comply with the terms of the Framework.
- Reputational risk to the Council in the event of installation problems, delays or operational under-performances is managed by the following:
    - The appointed contractor is Trustmark, Microgeneration Certification Scheme and Publicly Available Specification 2030/2035 accredited to ensure they are fully qualified for the installation work.
    - Installations are subject to a 12 months workmanship warranty.
    - We will closely manage the call-off contract to ensure the contractor complies with the requirements of the contract and the Framework under which it was procured.
    - City Science, the consortium lead, will provide quality assurance on installation work.
    - Heat pumps will be sourced from a reputable supplier (Daikin).
- Residual risk is as low as it can be and lower than it would be for installations procured outside of the project.
- If we do not proceed to Phase 2b there is also a reputational risk of criticism from residents that were keen to proceed to installation. However, they could still install independently, using Boiler Upgrade Scheme grant funding and the same contractor, if they were not reliant on accessing finance via the One Stop Shop to fund this. The Council withdrawing from the scheme could be perceived as undermining confidence in heat pump technology.
- Heat pumps are a different proposition from gas boilers. The installations are all low temperature heat pumps. These heat a space by supplying heat at a lower temperature over a longer period than a gas boiler would. Radiator temperatures will be noticeably less hot than residents are used to. There is a risk that residents may perceive these differences as faults. We will review the content of the contractor's proposals and draft supplementary Council briefing to make residents aware of these differences, and possibly ask residents to sign the briefing to confirm they have understood, as a means of managing this risk. Briefing will also provide residents information on the contractual commitment that they are entering into with the installer.
- A risk register is attached as Appendix A

6.4 Equality and Diversity Implications

- Friday Bridge is within the third decile on the Indices of Multiple Deprivation i.e. it is within the top 30% most deprived areas in England, but not within the top 20%. The project could therefore impact on socio-economic inequalities.
- Heat Pumps for Friday Bridge will make heat pumps more affordable to install. Heat pump running costs can be higher or lower than a gas boiler depending on the property and relative prices of gas and electricity. Residents have been provided with projected

energy bill impacts in the heat pump installation proposals and are under no obligation to accept proposals. Average bill impact from survey results is a £65 to £271 increase at current energy prices. This is made clear in the survey reports. Residents are only likely to proceed with installations where they value the carbon savings benefit and have taken a view that the increase in energy bills is affordable. Contractors are prohibited under the Framework from hard-selling proposals.

- If the Government's proposed rebalancing on gas and electricity prices takes place, this is likely to make heat pumps cheaper to run than gas boilers for most properties.
- An EqIA e-form has been completed and is attached as Appendix B.

6.5 Climate Change and Environment Implications (Key decisions only)

- Heat pumps are an energy efficient, low carbon source of heating. Because they supply, on average, 2.8 units of heat per unit of electricity they use, they are 68% less carbon intensive than gas boilers, even at current electricity grid carbon intensity. They will become even lower carbon as the grid is further decarbonised. Insulation upgrades proposed alongside heat pumps will also deliver (smaller) carbon savings.
- Installation work will give rise to waste from boilers and radiators removed and packaging from new equipment installed. The contractors will collect and recycle waste as far as possible to minimise impacts.
- In principle replacement of fossil fuel boilers with heat pumps has a small impact in reducing emissions of air pollutants, in particular NOx. However, residential, commercial & public sector combustion is a small contributor to NOx emissions nationally (12%)[4] and 70% of NOx at NO_2 exceedance locations originates from road transport[5]. Air quality benefit is therefore negligible.

7. Source Documents

1. https://www.ofgem.gov.uk/publications/bus-monthly-scheme-update
2. https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/FINAL_%20Home%20Truths.pdf
3. Four Simple Ways to Apply EAST Framework to Behavioural Insights | The Behavioural Insights Team (bi.team)
4. https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2210251052_DA_Air_Pollutant_Inventories_2005-2020_FINAL_v1.2.pdf (see Appendix F1)
5. Emissions of air pollutants in the UK – Nitrogen oxides (NOx) - GOV.UK (www.gov.uk)
6. https://es.catapult.org.uk/project/electrification-of-heat-demonstration/

[4] Air Pollutant Inventories 2005-2020. DEFRA
[5] Emissions of Air Pollutants in the UK – Nitrogen Oxides (NOx). DEFRA