

Low Carbon Heating Programme For Council Buildings

- To: Environment and Green Investment Committee
- Meeting Date: 14 March 2024
- From: Executive Director for Place and Sustainability
Executive Director for Finance and Resources
- Electoral division(s): Bar Hill, Cambourne, Littleport, Ramsey and Bury, Romsey, St Ives South and Needingworth, Whittlesey North, Whittlesey South, Wisbech East.
- Key decision: Yes
- Forward Plan ref: 2024/045
- Executive Summary: This report provides an update on the low carbon heating programme which is aimed to reduce carbon emissions from the Council's buildings. The report seeks approval to proceed with the next phase of the programme and to delegate authority for the procurement and contracting for the required works.
- Recommendation: The committee is recommended to:
- a) Agree to proceed with the projects, as set out in section 3.5 of this report; and
 - b) Delegate authority to the Executive Director of Finance and Resources, in consultation with the Chair and Vice-Chair of the Environment and Green Investment Committee to enter into grant agreements, and to award and execute the required contracts for the provision of design, consultancy services and construction services for the delivery of the programme.

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1. Creating a greener, fairer and more caring Cambridgeshire

- 1.1. 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.

This programme directly supports this ambition by cutting fossil fuel for heating and improving energy efficiency which reduces carbon emissions from buildings.

2. Background

- 2.1. The Council's annual carbon footprint report shows that heating of buildings with oil and gas accounts for the majority of the Council's direct carbon footprint from its own assets. These are known as Scope 1 emissions and are those that the Council has the greatest control over. It will not be possible to meet the Council's carbon reduction targets unless it replaces fossil fuel-based heating systems with low carbon alternatives.
- 2.2. Currently, the only technically feasible technologies for heating buildings from renewable sources are Air Source Heat Pumps (ASHPs) and Ground Source Heat Pumps (GSHPs). Air Source Heat Pumps work well even when the outside air temperature is very low. They are generally very reliable sources of heat and require very little maintenance. It is to be noted that whilst heat pumps do use electricity, they are very different to direct electric heating, in that the electricity is not the source of heat and so heat pumps are much more efficient. Heat pumps typically produce a heat output three to four times as much as the amount of electricity they use. Ground source heat pumps are considerably more expensive than air source heat pumps.
- 2.3. Within the Council's capital programme, an allocation has been made for the decarbonisation of its buildings; this is the Council's Decarbonisation Fund.
- 2.4. In July 2023, the Environment and Green Investment Committee approved revised investment criteria for the Decarbonisation Fund to enable the delivery of energy efficiency measures, solar PV installations and undertaking whole building retrofit works, alongside low carbon heating systems for Council buildings.
- 2.5. The current approved investment criteria for the Decarbonisation Fund are as follows:
- The site(s) are owned (either freehold or long-term leaseholds) and occupied by the Council;
 - The individual site is not planned to be sold, demolished or let out within the next five years (based on currently known and approved plans);
 - The proposed design must include a low carbon heating system such as air source/ water source/ ground source heat pumps. The heat demand of the building must be considered and heating systems sized appropriately to meet demand. Selection of air source heat pump models should consider the Seasonal Coefficient of Performance (SCOP) and those models with higher SCOPs are preferred, providing they meet other technical and practical requirements.

- The design may also include energy efficiency measures and upgrades to the fabric of the building (e.g. insulation, draught-proofing, LED lighting) or to other elements of the plumbing and heating system (e.g. radiators, controls), and/or on-site renewable energy generation (such as solar PV), where these are specifically recommended either in the site's Heat Decarbonisation Plan or in the site's Energy Performance Certificate (EPC) Advisory report or the Display Energy Certificate (DEC) Recommendation Report, and the measures demonstrate good value for money and energy savings.
- Design proposals must include information detailing the estimated financial costs of the works, current and expected energy usage, projected energy savings, projected operational cost savings or increases, and carbon reductions from the project;
- For sites where heating systems are at/nearing end of life and need to be replaced anyway, the Decarbonisation Fund will only pay for the additional capital cost over and above the cost of replacing with a like-for-like / comparable gas heating system.
- The Council buildings programme is expected to achieve a simple average payback of 20 years or better for the total portfolio investment, when taking into account the value of carbon. (Individual projects may exceed this as long as the average is maintained);
- If the capital cost contribution from the Decarbonisation Fund for any individual project for Council buildings decarbonisation is likely to be greater than £500,000, the business case will come forward to Environment and Green Investment Committee for approval. (Projects valued less than £500,000 may be approved by delegated authority to the Executive Director Finance and Resources, in consultation with the Executive Director Place and Sustainability and the Chair and Vice-Chair of the Committee);
- The total investment for the Decarbonisation Fund remains within the overall programme budget, taking into account committed projects at both council buildings and schools.

2.6. The government's Public Sector Decarbonisation Scheme (PSDS), administered by Salix Finance, offers grant funding to local authorities for heating decarbonisation projects. The grant application window usually opens once a year in Autumn and securing this funding helps extend the number of projects that the Council can implement. This scheme is extremely competitive. Nonetheless, the Council has been successful in securing around £3.4m of grant funding to date, contributing towards the cost of its low carbon heating programme for its own buildings. Separately, further grant funding was also awarded for some projects at schools.

2.7. Twenty-two projects were included in the Council's programme under phases 1 and 2 of the programme, between 2020-21 and 2022-23. All twenty-two sites have had low carbon systems installed to replace the old fossil fuel-based heating systems. Some sites have also required upgrades to the incoming electricity supply. These projects between them are expected to save around 357 tonnes of carbon emissions per year and reduce the Council's gas use by about one third. The total capital cost of these projects is forecast to

be £5.4m. This is funded through a combination of grants (approx. £3m) and the Decarbonisation Fund for Council buildings (which is funded through borrowing).

- 2.8. As part of the Council’s Climate Change and Environment Programme, two consultants were appointed to produce Heat Decarbonisation Plans for 40 more Council sites. These plans provide the information to assess the high-level feasibility and likely costs of installing low carbon heating and other energy efficiency and electricity generation measures at more sites in future.
- 2.9. The funding for the implementation of some of the Heat Decarbonisation Plans will come through a combination of further applications to grants and the remaining budget available (currently approximately £5.2m) for the Council buildings low carbon heating programme.
- 2.10. The Low Carbon Heating Programme is aligned with the proposed asset rationalisation proposals which were approved at Full Council in February 2024.
- 2.11. This report provides an update on progress to date on the low carbon heating programme and details of the next phase of the programme that is being planned for 2024-25 and 2025-26. This outlines which buildings have been selected for decarbonisation work and the estimated costs. The report also includes the level of Public Sector Decarbonisation Scheme grant applied for to part-fund the projects and the balance of costs that the Council will need to pick up via the existing Decarbonisation Fund. The overall outcome of the next phase of works is expected to deliver carbon savings of 178 tonnes CO₂e per year.

3. Main Issues

- 3.1. Programme Update: Three more projects (at St Neots Library, Tennyson Lodge and March Community Centre) are currently in progress on site at the time of writing. These projects are supported by phase 3b of the Public Sector Decarbonisation Scheme. The work for these projects will be mostly completed in 2023-24 and is being managed by Property Services.
- 3.2. Table 1 below provides a summary on the current projected cost of the programme and the level of external grant funding that has been secure. Appendix 1 provides a full list of sites included in the programme together with costs and carbon savings.

Financial Years	PSDS Grant funding received for Council buildings (£)	Decarbonisation Fund net expenditure for Council buildings (excluding grant funded portion) (£)	Total costs (£)
2020-21 to 2022-23 actual	3,036k	1,958k	4,994k
2023-24 forecast	360k	994k	1,354k
Total to date	3,396k	2,953k	6,348k

Table 1

- 3.3. There is currently approximately £5.2m left in the Decarbonisation Fund that is not yet allocated and available for more projects at County Council buildings. As of January 2024,

there were still 26 Council buildings heated by gas and 3 using oil, that do not already have a project in progress. This only includes buildings for which the Council is the energy bill payer. It does not include the commercial estate or schools.

3.4. Next phase of the programme: The Council submitted an application for phase 3c of the Public Sector Decarbonisation Scheme during the application window in November 2023, for funding towards the costs of low carbon heating systems and other energy efficiency measures (where appropriate) at 9 sites. In February 2024, the Council was notified by Salix that this grant application was successful and a Grant Offer Letter was issued. The projects specified in the grant application would be implemented over two financial years during 2024-25 and 2025-26, with design work commencing from April 2024 and the majority of physical works on site to take place in the Spring and Summer of 2025.

3.5. The projects included in the grant application, and estimated costs, are as follows:

Site	Measures included in proposed project	Estimated annual carbon savings (tCO ₂ e)	Estimated total project costs (£)	Grant value (£)	CCC 'Decarbonisation Fund' contribution (£)
Horizon Resource Centre, Cambridge	ASHPs, roof insulation, wall insulation, electricity supply upgrade	81.21	1,417,404	553,548	863,856
Whittlesey Youth Centre (Scaldgate)	ASHPs, roof insulation, wall insulation, solar PV, electricity supply upgrade	14.42	661,968	107,052	554,916
Ramsey Youth Centre (Ailwyn)	ASHPs, roof insulation, wall insulation, LED lighting, solar PV	8.02	552,796	64,716	488,080
Whittlesey Branch Library	ASHPs, roof insulation, wall insulation, double glazing, LED lighting, solar PV	13.89	531,843	113,368	418,475
Awdry House, Wisbech	ASHPs	10.22	396,851	66,400	330,451
Sackville House, Cambourne	ASHPs, LED lighting	34.59	551,329	224,831	326,497
Bar Hill Branch Library	ASHPs, double glazing, solar PV	9.43	381,572	64,270	317,303

Site	Measures included in proposed project	Estimated annual carbon savings (tCO ₂ e)	Estimated total project costs (£)	Grant value (£)	CCC 'Decarbonisation Fund' contribution (£)
St Ives Branch Library	ASHPs	2.75	267,419	17,846	249,573
Littleport Branch Library	ASHPs, roof insulation	3.91	277,108	32,520	244,588
TOTAL		178.44	5,038,291	1,244,550	3,793,741

- 3.6. The sites were chosen because they were among the highest carbon emitting sites owned and occupied by the Council, that met the Decarbonisation Fund criteria, after ruling out those sites not eligible for the PSDS grant under the grant scheme rules. The proposed site list also excluded those sites where the long-term future of the Council's occupation was uncertain. The measures to be included were selected based on the recommendations in the site's Heat Decarbonisation Plan, and the property's latest condition survey. However, the programme will be reviewed further to ensure that it does align with the Council's asset strategy before we finalise the commitments to enter into these projects.
- 3.7. The grant value is the maximum that the project would be eligible for under the scheme rules. This is based on a combination of the potential carbon savings, and the difference in costs compared to equivalent like-for-like costs of boiler replacement. The estimated total project costs are estimated based on a combination of the site Heat Decarbonisation Plans, experience of previous similar projects, and allowing for inflation and contingency sums. Final exact costs will not be known until the design work is completed and the projects put out to tender. For the combination of these nine sites, the maximum grant value would cover about 25% of the estimated total project costs. These allocations also allow for a contingency amount.
- 3.8. The overall programme across all Council sites is still within the agreed payback criteria (as set out in paragraph 2.5) for the Decarbonisation Fund. With the nine new proposed projects proposed, the portfolio payback is currently estimated at 17 years (including the value of carbon savings and based on the differential costs compared to replacing like for like with fossil fuel heating). If the value of carbon was not considered, then the projects may not pay back within 25 years. This is based on actual gas and electricity prices for 2020 to 2023 and forecast prices from ESPO for 2024 and from the Treasury Green Book for 2025 onwards. The payback period is dependent on the relative prices of gas and electricity and is likely to improve in future as gas and electricity prices are rebalanced.
- 3.9. The Decarbonisation Fund funding is included in the proposed business plan and capital budgets for 2024-25 and 2025-26.
- 3.10. Procurement implications: All project works will be carried out using an existing framework, likely to be the Eastern Shires Purchasing Organisation (ESPO) framework no.2664 for the design/consultancy work, and the Council's own property minor works

framework for the construction work. The most appropriate framework will be selected by the Property team on a case-by-case basis, depending on the size and nature of each project. The property framework is used for general minor construction works and mechanical/electrical work. This requires a secondary competition to award a contract, which ensures value for money.

- 3.11. The design work and project management and consultancy requirements will be procured using an existing framework in advance to enable the programme to be delivered (without obligation to appoint). This will enable the Council to have a design consultant appointed by April 2024, and enable swift progression with the projects, in line with the programme required in the grant conditions. Design work would need to start around April 2024 to keep on track with the timetable required by Salix in the terms of the grant offer, so the Council would preferably need to be ready to appoint a design consultant in April, having already gone through tender evaluation by then.
- 3.12. The proposed timetable for the new phase of projects is as follows:
- November 2023 – submit grant application – complete
 - February 2024 – notification of grant offer - received
 - February to March 2024 – complete preparations to start work in 2024-25 (including securing all required approvals and tender and evaluation for design consultant)
 - April to August 2024 – site surveys followed by detailed designs.
 - September to November 2024 – procurement of construction phase contractor
 - December 2024 – construction contractor appointed, and orders placed.
 - January to March 2025 – lead time for equipment and electricity supply upgrade applications
 - April to October 2025 – construction works on site (most sites – some may be done earlier)
 - October / November 2025 – final commissioning
 - 31 March 2026 – last date for all grant money to be spent.
- 3.13. Engagement and communications implications. The Council's Energy and Property FM teams have worked together to identify a list of properties to bring forward projects to replace oil or gas heating with air source heat pumps. The project teams have worked closely with building users to co-ordinate works at the sites where projects are taking place. The oversight for the Low Carbon heating Programme is provided through this committee and assurance shall also be provided to the Assets and Procurement Committee given the link to the development of the Council's asset strategy.
- 3.14. Public Health Implications. There are no significant implications within this category. However, reducing the Council's carbon footprint and helping to mitigate climate change has public health benefits in the long term.

4. Alternative Options Considered.

- 4.1. If we do nothing, then the Council will not be able to meet its climate target of net zero by 2030 for scope 1 and 2 carbon emissions.

- 4.2. Various other sites were considered but ruled out as they were not eligible for the public sector decarbonisation scheme grant (for example, they did not have a Heat Decarbonisation Plan, or the existing fossil fuel heating system was less than 10 years old) or other reasons (for example, the Property team were uncertain about the site's long-term future).
- 4.3. The PSDS 3c grant offer is specific to the sites and measures included in the application, so it would not be possible to add different sites into this phase programme, although it would be theoretically possible to reduce the programme and take out some sites or measures (with partial loss of grant) if necessary.
- 4.4. If the grant application had not been successful, that would have provided an opportunity to review the site list in the programme and the prioritisation of the Decarbonisation Fund. For example, we could consider sites that were not eligible for the grant, or sites that were uncertain at the time of the grant application could be added back in if their future occupation by the Council becomes more certain, once the Property Asset Strategy is finalised. Alternatively, the programme could be delayed until 2025-26 and another grant application made in Autumn 2024 (if and when further grant rounds are announced).

5. Conclusion and reasons for recommendations

- 5.1 Further investment in decarbonisation of heating systems is recommended in order to meet the Council's decarbonisation ambitions and specifically the target to reduce scope 1 and 2 emissions to net zero by 2030. The next phase of the low carbon heating programme will make a significant contribution to this ambition, whilst the external grant funding will provide part of the funding to enable those works. This programme aligns closely with the Council's asset disposal strategy (which in itself reduces the Council's total carbon emissions) to ensure that any remaining assets are decarbonised to achieve Net Zero.

6. Significant Implications

6.1 Finance Implications

The financial implications are set out in the report above in paragraphs 3.2 to 3.9.

6.2 Legal Implications

All building works will need to comply with Building Regulations and relevant Health and Safety legislation. Procurement and contractual matters are detailed in the report above in paragraphs 3.10 to 3.12.

6.3 Risk Implications

All building works will need to comply with Building Regulations, Health and Safety legislation and policies, and Property's pending Asset Strategy and Corporate Landlord Model.

6.4 Equality and Diversity Implications

Access to some buildings by staff and service users may, for some of the projects, be temporarily restricted whilst works on site are taking place. This could include temporarily closing buildings or relocating access routes, workspaces and services to other parts of the building or other buildings. Alternative plans will be put in place where required to ensure staff and service users with protected characteristics are not negatively impacted.

A completed Equality, Impact Assessment (EqIA) form is attached at Appendix 2 to this report.

6.5 Climate Change and Environment Implications

This programme will directly help to deliver energy efficient, low carbon buildings. The projects will enable more low carbon heating systems (such as air source heat pumps), energy efficiency measures (such as LED lighting, insulation, heating system controls) and renewable energy generation (such as rooftop solar PV) to be installed.

7. Source Documents

None.