

**REPORT TO:** Climate and Environment  
Advisory Committee

3 November 2020

**LEAD OFFICER:** Trevor Nicoll

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## **Greening South Cambridgeshire Hall - Update**

### **Executive Summary**

1. Since the project was approved by Cabinet in February 2020, planning approval has been secured which is a key milestone and the design details are now finalised. The project has adapted to the challenges of changes to the government's Renewable heat incentive (RHI) as well as responding to recommended works within the building on the existing heating, cooling, and ventilation plant. The project will close works contracts and mobilise within the next month. The project will complete by the end of Q2 in 2021, with key measures completed earlier to start realising energy and carbon savings as soon as possible. There will be internal communications to ensure everyone using the building is aware of any disruption, however the project will capitalise on the low numbers currently working from the office. External communications will focus on documenting the project and using the Council's experience to discuss how to reach zero carbon with communities, businesses, and other organisations.

### **Recommendations**

2. The Climate and Environment Advisory Committee is invited to note and comment on the update report for Greening South Cambridgeshire Hall.

### **Reason for recommendations**

3. The above recommendation is required to ensure that the Climate and Environment Advisory Committee is updated on progress towards completing the Greening South Cambridgeshire Hall project. It also provides an opportunity for the Advisory Committee to comment on progress.

### **Details**

4. The 'greening' project for South Cambridgeshire Hall (SCH) focuses on decarbonisation of heat and power, demonstrating the Council commitment to being 'green to our core' and showing leadership in transitioning to zero carbon. The project has developed over several years and utilises an Energy Performance Contract to guarantee the savings through a partnership approach

with an Energy Services contractor, Bouygues Energies & Services, procured through the Re:fit 3 Energy Services Framework, managed by Local Partnerships.

5. Initially there was limited energy data about the building but evidence that there was poor energy efficiency and a high carbon footprint. Within the initial assessment, Bouygues collected information and gained a better understanding of how energy is used in the building and then progressed to develop an Investment Grade Proposal (IGP). The proposals were 'checked and challenged' by officers and Members, as well as being reviewed by Local Partnerships.
6. The greening measures in the final IGP are:
  - Ground Source Heat Pump (GSHP) – a 313 kWh system reducing gas demand by at least 79% and including functionality to also provide cooling
  - Solar Carport – a 136.5kW solar photovoltaic system delivering at least 20% of the site's peak electricity demand
  - LED lighting upgrade – 1052 lights replaced with LEDs, realising an electricity saving of 15%
  - Building Energy Management System – including smart controls to maximise efficiency and maintain comfortable working environment
  - Smart electric vehicle charge points – 20(number) 11kW chargers to provide charging facilities within the main staff car park
  - Chiller efficiency measures – new controls to improve the efficiency
  - AHU Fan Upgrade – improving the efficiency by at least 18%
7. The carbon footprint of the building will reduce by at least 75% by 2030 and by at least 90% by 2050 compared to baseline 2019 levels (this incorporates projected decarbonisation of the electricity grid).
8. The IGP was approved by Cabinet in February 2020. Following this approval, the Project Team worked towards securing the next key milestone, obtaining planning approval for the GSHP and solar carport. Planning approval was obtained in August 2020. Also in the interim months, the Project Team have refined a number of key design details responding to changes in government renewable heat incentive, as well as identifying and managing several project interactions with other works programmed for SCH.
9. The GSHP proposed is eligible for government financial support, Renewable Heat incentive (RHI). Although it was known the scheme would end in March 2021, the unknown was that government put in place a mechanism to reduce tariff levels for certain technologies. In Q1 2020, there was a 10% reduction, which did not significantly impact the payback period for the project. However, in Q2 2020, there was a further 20% reduction and the combined reductions have increased the payback period to 19 years (from 16 within the original IGP). The Project Team has applied for a Flexible Tariff Guarantee to 'lock-in' the tariff rate and avoid any further reductions – the outcome of this request is expected mid-November.
10. Following completion of the IGP, colleagues undertook a Building Condition Survey for SCH. The report highlighted that several parts of the M&E, including

the chiller units, were at or nearing the end of their life. As a result, the GSHP was modified to incorporate cooling and negate the need for complete chiller replacement. There will be some chiller modifications which are aimed at increasing the efficiency. This will also address climate adaptation as peak daily temperatures rise each summer. The Condition Survey, alongside monitoring of the boilers over the last few months, have indicated that these are also at or nearing end of life.

11. The proposed GSHP is designed to meet the vast majority of the Site's heat demands and utilise the existing boilers to ensure business continuity, acting as temporary back-up during planned and unplanned maintenance of the GSHP system and providing supplementary heat in extreme winter temperatures. This is standard practice to provide 'redundancy' in the design of commercial heating and hot water designs to cater for such circumstances and to avoid a 'single point of failure'. Whilst this conventionally means duplicating plant equipment and adding available heat capacity in comparison to the 'design calculations', GSHPs are much more expensive than gas boilers and hence, duplicating the GSHP plant for 'redundancy' would result in the economic business case becoming unviable. The costs associated with the new boilers in the business case make up 2.5% of the overall contract cost. Furthermore, this additional GSHP would likely result in the need to completely overhaul the sites electrical distribution system which could incur costs that would significantly increase the total project costs.
12. The original IGP retained the existing gas boilers to provide redundancy however only in the specific circumstances; planned, and unplanned maintenance, and during extreme winter temperatures. Given that the existing boilers cannot be relied on redundancy, these will be replaced. The carbon and energy savings of the overall project are marginally increased from the original IGP as the replacement boilers will be more efficient. Utilising an Energy Performance Contract mechanism means there must be a focus on renewable heat generation and keeping gas consumption as low as possible to reach carbon reduction targets so this ensures the boilers are only being used as a 'last resort'.
13. The final development within the project design relates to lighting. The aim was to ensure the new lighting proposed focused on providing flexibility and control. The new LED lighting system has been refined to consider light uniformity, rather than directional with the current desk layout, and include full controls, to future proof for any change in layout and provide maximum flexibility.
14. Having reached these important milestones and made the final design adjustments for the points mentioned previously. The project now progresses to finalise works contracts and mobilise for a start in the next month. The project is projected to finish by the end of Q2 in 2021. There will be a programme of internal communications to ensure colleagues understand any disruption in advance, however the project should benefit from the low number of colleagues currently working from SCH. There will also be external communications to document the progress being made and offer advice to other organisations or businesses thinking about embarking on similar decarbonisation project.

## **Implications**

15. There are no significant implications.

## **Alignment with Council Priority Areas**

### **Growing local businesses and economies**

16. The procurement undertaken by the principal designer has sought to make opportunities available for the local supply chain to tender for services within this project, noting that several of the energy measures involve specialist materials and contractors.

### **Being green to our core**

17. The Greening South Cambridgeshire Hall project is a key project within the Zero Carbon Action Plan and shows how the Council is tackling its own carbon footprint. The proposed measures will ensure the carbon footprint of the building will reduce by at least 75% by 2030 and by 90% by 2050 (based on a baseline year of 2019).

## **Background Papers**

Cabinet Report February 2020 – Greening South Cambridgeshire Hall

## **Appendices**

None

## **Report Author:**

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