Cambridge City Council **Item**

To:	Executive Councillor for Finance and Resources	
Report by:	David Kidston, Strategy and Partnerships Manager	
Relevant scrutiny committee:	Strategy and Resources Scrutiny Committee	3/7/2017
Wards affected:	Market	

GUILDHALL ENERGY EFFICIENCY WORKS

Key Decision

1. Executive summary

1.1 In December 2015, the Council appointed an external contractor (Bouygues Group PLC) to identify energy efficiency projects within the Council's buildings and estate. Following extensive investigations, Bouygues have identified a package of proposed measures to significantly reduce energy consumption and carbon emissions from the Guildhall and deliver ongoing financial savings for the Council.

1.2 The proposed measures include: a solar photovoltaic (PV) installation; LED lighting; a Combined Heat and Power (CHP); improved heating control systems; mechanical works to the heating and hot water systems; and associated roofing works. Some of these measures were identified in the Council's current Carbon Management Plan, but others are new projects identified by the contractors. In addition to the anticipated energy savings and carbon emission reductions, it is expected that some of the measures will improve comfort for users of the building.

1.3 The budget for these works was approved at Council on 23 February 2017 as part of the Budget Setting Report for 2017/18. As it is anticipated that the value of these capital works will exceed £300,000, delegated approval is sought for the Strategic Director to award a contract for the works up to the value agreed at Council.

2. Recommendations

2.1 The Executive Councillor is recommended:

- To give delegated approval for the Strategic Director to award a contract for energy efficiency works, renewable energy works and associated roofing works at the Guildhall up to the value agreed in the Budget Setting Report at Council on 23 February 2017.

3. Background

3.1 On 18 January 2016, the Executive Councillor for Finance and Resources approved the Council's current Carbon Management Plan. The plan provides the blueprint for reducing energy and fuel consumption and carbon emissions across the Council's estate and activities between 2016/17 and 2020/21. The plan identified 22 carbon reduction projects for delivery during this period.

3.2 In December 2015, the Council signed access agreements to allow it to make use of the Greater London Authority's (GLA) RE-FIT framework agreement. This allowed the Council to access Bouygues Group PLC as a contractor to identify and deliver energy efficiency projects. The principle benefit of this arrangement is it operates on an energy performance contracting basis. This means that Bouygues will guarantee the energy savings predicted for projects that they deliver for the Council (subject to the new equipment being managed within defined limits). If the projects do not deliver the predicted savings, Bouygues would be liable for financial penalties under the terms of the contract.

3.3 During 2016, Bouygues successfully delivered two major projects included in the Carbon Management Plan: installation of LED throughout the Grand Arcade Car Park and Grafton East Car Park. Under the terms of the RE-FIT framework agreement, Bouygues have guaranteed that these two projects will reduce total energy consumption at the two car parks by more than 40%, which will reduce carbon emissions by an estimated 280 tonnes per year and save the Council an estimated £46,000 per year.

3.4 Bouygues have also investigated the potential for installing energy efficiency and renewable energy measures at the Guildhall. In September 2016, they provided an initial Desk Top Assessment (DTA), which identified the range of works possible, the estimated capital installation costs and the energy and carbon savings benefits of projects. Following detailed site investigations, Bouygues provided a more detailed Investment Grade Proposal (IGP) in May 2017, which

sets out a final package of proposed works, installation costs and predicted energy and carbon savings.

3.5 The key works at the Guildhall proposed in the IGP include:

- **Solar PV** – Installing a 30kW solar photovoltaic (PV) array on the upper section of the roof. This would provide a renewable source of electricity to be used in the building.
- **Re-roofing works** - to the upper section of the roof at the Guildhall including additional insulation and replacement roof safety system
- **LED lighting** - Replacing more than 670 existing light fittings with more energy efficient LED lighting. This includes replacement of lighting in civic rooms in keeping with the building to meet listed building requirements.
- **Combined Heat and Power (CHP)** – Installing a CHP unit in the plant room at the Guildhall. The CHP unit uses gas to generate electricity which is used on site. This achieves carbon savings, because gas is a lower-carbon source of energy than electricity. The CHP unit also makes use of excess heat generated through the electricity generation process, which would otherwise be wasted.
- **Building automation** - Implementing a number of measures to significantly increase the level of control the Facilities Team at the Guildhall have over the heating systems, including installing an electronic Building Energy Management System (BEMS). This will ensure that the level of heating provided can be adjusted more readily to reflect changes of temperature and usage levels in different areas of the building. In addition to reducing energy consumption and associated carbon emissions, this will improve comfort for users and occupants of the building.
- **Mechanical works to heating and hot water systems** - Replacing outdated, inefficient elements of the existing heating and hot water systems in the building with more up-to-date and energy efficient measures. This includes installing a plate heat exchanger to replace the existing large hot water tanks, and boiler head modifications to improve the efficiency of heating boilers.
- **Insulation –** Insulating pipework and valves in the plant rooms, which will minimise heat loss and reduce the load on both new and existing elements of the heating and hot water systems.
- **Secondary glazing** - installation of secondary glazing to those rooms that currently have single glazing.

3.6 Two of the measures outlined at 3.5 (solar PV and LED lighting) were included as projects in the Council's current Carbon Management Plan, but the others would represent additional new energy efficiency and carbon reduction projects.

3.7 Bouygues have estimated that the total cost of the measures outlined at 3.5 above is just over £572,000, although the precise costs will be refined as options are finalised and discussions with the Council's conservation team are progressed further. Overall, the capital cost of these measures would take 14 years to pay back through the savings generated (taking into account compound inflation on energy costs over the period). It is estimated at this stage that these measures would deliver the following benefits:

- Saving 427,269 kWh of energy per annum, which represents a 24% reduction in the annual energy consumption at the Guildhall.
- Reducing the Council's energy costs by £28,843, per annum, which represents a 33% reduction in the annual energy cost at the Guildhall.
- Reducing the Council's carbon emissions 109 tCO2 per annum, which represents a 40% reduction in the current annual carbon emissions from the Guildhall.

3.8 A total budget of £450,000 in 2017/18 for energy efficiency works at the Guildhall was approved at full Council on 23 February 2017 as part of the Council's Budget Setting Report. Of this budget, £300,000 is to come from the Council's Climate Change Fund and £150,000 from reserves.

3.10 A separate budget of £164,000 for re-roofing works to the upper section of the roof at the Guildhall was approved at full Council on 23 February 2017 through the Budget Setting Report for 2017/18. It is proposed that Bouygues would carry out the re-roofing works as part of the contract for the Guildhall energy efficiency works, under the terms of the RE-FIT framework agreement. Although the re-roofing works will include improved insulation, the energy and carbon savings associated with re-roofing the building are lower than for the other proposed measures. However, there are significant practical and cost benefits to carrying out the re-roofing and solar PV works at the same time. These include reduced costs and disruption associated with erecting scaffolding around the building, and reduced risk of damage to the new roofing when the solar PV array is installed.

4. Implications

(a) Financial Implications

As outlined at 3.8, the costs of the proposed energy efficiency and renewable measures would be met through the £450,000 budget allocated through the Budget Setting Report for 2017/18, which was approved at full Council on 23 February 2017. The re-roofing work outlined at 3.10 above would be met through the separate £164,000 budget allocated for this work through approval of the Budget Setting Report for 2017/18 at full Council on 23 February 2017

The proposed energy efficiency and renewable measures would reduce the Council's energy costs by £28,843 per annum. It would take 14 years to pay back the initial capital cost through the savings generated (taking into account compound inflation on energy costs over the period), but some of the measures would continue to deliver financial savings beyond this point.

(b) Staffing Implications (if not covered in Consultations Section)

There will be limited staffing implications associated with this project. Bouygues will design and deliver the energy efficiency and re-roofing measures proposed during 2017/18. Existing staff in the Council's Estates and Facilities will manage the contract and relationship with Bouygues effectively over the course of the project.

(c) Equality and Poverty Implications

An Equality Impact Assessment (EqIA) has not been carried out for this project, as it does not have a direct impact on residents, visitors or Council service users.

(d) Environmental Implications

This project will have a high positive environmental impact, because it will significantly reduce energy consumption and carbon emissions for the Guildhall. It will also help ensure that the building is better adapted to future changes in climate, by ensuring that the heating system is more responsive and easier to control, which will reduce the likelihood of the building over-heating.

(e) **Procurement**

The works described at 3.5 would be carried out by Bouygues Group PLC under the terms of the RE-FIT framework agreement outlined at 3.2.

(f) **Consultation and communication**

No public consultation has been carried out in relation to this project, as the measures proposed will not have a direct impact on residents or Council service users.

(g) **Community Safety**

There are no community safety implications to the proposed measures.

5. Background papers

These background papers were used in the preparation of this report:

- Cambridge City Council Carbon Management Plan: https://www.cambridge.gov.uk/carbon-management-plan

6. Inspection of papers

To inspect the background papers or if you have a query on the report please contact:

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