

Manchester City Council Report for Information

Report to: Executive – 18 January 2023

Subject: Large Scale Renewable Energy Generation – Solar Farm Purchase (Part A)

Report of: The Deputy Chief Executive and City Treasurer

Summary

This report provides on the progress of negotiation and Due Diligence for the purchase of a Large-Scale Renewable Energy Generation Project. To ensure the Council can achieve the CO₂ savings as set out in the Council's Climate Change Action Plan 2020-2025.

Recommendations

To note the contents of the report further details and recommendations are set out in Part B to this report

Wards Affected - All

Environmental Impact Assessment - the impact of the decisions proposed in this report on achieving the zero-carbon target for the city

Action 1.3 of the Council's Climate Change Action Plan 2020-25 targets 7,000 tonnes of annual CO₂ savings by 2025. The Plan sets out the actions that will be delivered to ensure that the Council plays its full part in delivering the city's Climate Change Framework 2020-25 which aims to half the city's CO₂ emissions over the next 5 years.

Our Manchester Strategy outcomes	Contribution to the strategy
A thriving and sustainable city: supporting a diverse and distinctive economy that creates jobs and opportunities	The transition to a zero-carbon city will help the city's economy become more sustainable and will generate jobs within the low carbon energy and goods sector. This will support the implementation of the Our Manchester Industrial Strategy and Manchester Economic Recovery and Investment Plan.
A highly skilled city: world class and home-grown talent sustaining the city's economic success	Manchester is one of a small number of UK cities that have agreed a science-based target and is leading the way in transitioning to a zero-carbon city. It is envisaged that this may give the city opportunities in the green technology and services sector.

A progressive and equitable city: making a positive contribution by unlocking the potential of our communities	Transitioning to a zero-carbon city can help to tackle fuel poverty by reducing energy bills. Health outcomes will also be improved through the promotion of more sustainable modes of transport and improved air quality.
A liveable and low carbon city: a destination of choice to live, visit, work	Becoming a zero-carbon city can help to make the city a more attractive place for people to live, work, visit and study.
A connected city: world class infrastructure and connectivity to drive growth	A zero-carbon transport system would create a world class business environment to drive sustainable economic growth.

Full details are in the body of the report, along with any implications for

- Equal Opportunities Policy
- Risk Management
- Legal Considerations

Financial Consequences – Revenue

The requirements to ensure that there is a strong client-side delivery team, and the costs associated with engaging the necessary external technical support means that costs will be incurred through the due diligence process, and it is currently assumed that these will be funded from existing budgets. There is a risk that if the acquisition does not proceed, some of the costs incurred may be abortive. Full costing of external support will be included within the next report to Executive and any additional costs will be considered as part of the budget process.

Financial Consequences – Capital

Details of the Financial Consequences are included in the Part B report

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Background documents (available for public inspection):

The following documents disclose important facts on which the report is based and have been relied upon in preparing the report. Copies of the background documents are available up to 4 years after the date of the meeting. If you would like a copy, please contact one of the contact officers above.

Feasibility Study and Options Appraisal for Large Scale Energy Generation for Manchester City Council – Local Partnerships (April 2021)

Large Scale Renewable Energy Generation Feasibility Summary Study - Report to Environment and Climate Change Scrutiny Committee, 14 October 2021 and Executive, 20 October 2021

1.0 Introduction

- 1.1 The Council's Climate Change Action Plan (CCAP) has a target to reduce direct emissions of CO₂ by 50% over the five-year period of 2020-25. In addition, the Council has committed to be zero carbon by 2038 at the latest. The updated action plan includes a commitment to: "Research and identify options for large scale renewable energy generation. To implement the findings of the feasibility study to deliver either a solar asset and/or suitable Power Purchase Agreements (PPAs). To achieve a traceable, renewable energy source to deliver CO₂ savings (target 7,000 tCO₂) and maximise long-term benefits for the Council."
- 1.2 This report sets out the background to the work undertaken to date; an assessment of the City Council's energy demand; this projects contribution to the Councils CO₂ emission reduction targets; relevant details of the potential purchase and the process for the Council to secure this site, subject to appropriate due diligence.

2.0 Background

- 2.1 Local Partnerships (LP) were appointed in November 2020 to deliver a feasibility study on how Manchester City Council could best meet its energy needs in line with its zero carbon commitments. The "Feasibility Study and Options Appraisal for Large Scale Energy Generation for Manchester City Council" was completed in April 2021. It concluded that the Council has two options: purchase a solar PV facility or negotiate a power purchase agreement (PPA). Both options were assessed to be better than the "do nothing" option. The outcomes of the feasibility study were reported to the City Council's Environment & Climate Change Scrutiny Committee and Executive in October 2021. Executive approved a recommendation for the Deputy Chief Executive and City Treasurer to establish a delivery team to develop the options, with a view to returning to the Executive with a proposal to progress the work.
- 2.2 In the *Feasibility Study and Options Appraisal for Large Scale Energy Generation for Manchester City Council – Local Partnerships (April 2021)* Solar PV was recommended as the most appropriate renewable technology. Onshore wind developments are very limited in availability and are often subject to planning challenges. Offshore wind is generally too large a scale and requiring much longer lead in times to be suitable for our needs.
- 2.3 The size of requirement needed to deliver 7,000 tonnes CO₂ annual savings is equivalent to ~33MW of solar PV. To deliver benefits beyond this point and to contribute more significantly to the Council meeting its target to be zero carbon by 2038, then ~45-50MW of solar PV would be required. The report recommended that the Council should consider adopting this size of requirement to future-proof residual emissions through to 2038, facilitating an earlier reduction of a greater proportion of the Council's (Scope 2) electricity

emissions and maximising the potential for carbon reduction through renewable energy.

- 2.4 An area of ~100 Ha of land is required to deliver the 7,000 tonnes CO₂ requirement. The Council has already deployed significant renewable energy generation capacity on its own buildings and is developing proposals to maximise this as part of the ongoing carbon reduction programme. There is no suitable land in Council ownership to deploy 45-50MW of solar capacity. No opportunities were identified within Manchester or the wider Greater Manchester area for a suitable project.
- 2.5 To provide the Council with a deeper understanding of the available options, Local Partnerships have used available industry pricing data to generate an options appraisal based on current and forecasted pricing. Net Present Value (NPV) calculations were appraised over an 8 year and a 25-year period and were compared to a 'do nothing' scenario, i.e., the Council's current green electricity tariff.
- 2.6 This calculation showed that all options have positive NPV outcomes compared with 'do nothing'. There is a solid value for money basis to either enter a suitable PPA or asset purchase agreement and the Council should therefore seek to change its current supply arrangements. Initially, the shorter-term nature of a PPA and the avoidance of large-scale capital expenditure and the obligations of ownership meant that there were advantages to using a PPA.
- 2.7 In October 2021, the Deputy Chief Executive established a working group and project team. The project team appointed Local Partnerships (LP) to support further project development. This included updating the findings of the feasibility study to reflect current prices and market availability, to carry out future energy demand analysis and to further explore financing options.
- 2.8 In January 2022 an update to Executive was provided on progress to date and the Executive granted delegation for the Deputy Chief Executive and City Treasurer, in consultation with the Leader, Executive Member for Finance and the Executive Member for Environment to negotiate for the purchase of a solar asset / PPA and any associated corporate documentation to establish a Special Purpose Vehicle if required. The report also highlighted the need to seek further capital approvals to increase the Council's borrowing limit, via full council approval, if a binding offer were to be made to purchase a large-scale generation asset.
- 2.9 The volatility in the energy markets linked to the war in Ukraine, combined with uncertain government energy policy over the summer and autumn of 2022 including a likely Government ban on new solar farm developments (since abandoned) plus the financial volatility arising from the UK Government's short-lived financial policies of September 2022 have all contributed to a volatile market over the past 12 months. During this period, the Council team have tracked the market for suitable sites and explored potential options when they have become available. The events have also very much shifted the balance in favour of asset purchase as it offers the following key advantages:

- Ensures long-term access to renewable zero carbon energy
- Provides price stability, breaking the link between the price of gas and the price of electricity bought from the open market.
- In common with many other local authorities, the Council has felt exposure to the volatile energy markets in recent months and is keen to obtain a more secure energy pricing framework. For example, the Council's electricity contract cost had risen by over 87% in the 2021 contract year and is projected to rise by roughly a further 70% in the 2022 contract period (both October to September); resulting in a projected contract uplift of over £25m over these two years. Manchester's operational estate accounts for approximately £10m of this. This project gives security of supply and a degree of long-term protection on future energy prices.

2.10 In November 2022, officers identified a suitable large scale solar PV facility available for purchase and submitted an initial non-binding offer to the developer. This offer has been accepted by the developer and the City Council has been invited to submit a Final Offer. The developer requires all bidders to clearly state that their internal approvals required are in place for their Final Offer. For MCC this includes Executive and for the capital budget increase and borrowing requirement, full Council. These approvals will be conditional on the outcomes of the due diligence and negotiations.

2.11 If the Council's final offer is accepted, the City Council will be granted exclusivity to complete full detailed due diligence following which a further report will be submitted to Executive before the end of this financial year.

3.0 City Council Energy Demand Assessment and Energy Purchasing Policy

3.1 The acquisition of a large-scale solar generation asset will give the early guarantee of long-term access to direct supply of renewable electricity generation, immediate overall CO2 reduction and significant financial certainty of future electricity prices to be paid by the Council.

3.2 In forecasting MCC's future electricity demand to 2038, a number of assumptions have had to be made. These assumptions are set out in Part B of this report and include the rate at which the national power grid is predicted to decarbonise, the City Council's migration to a fully EV fleet, an extrapolation of historical trends in terms of increased energy efficiency in our buildings and the switch from gas to electricity as our fuel of choice in order to decarbonise heating.

3.3 Whilst predicting future energy demands is difficult to do with complete accuracy the following points can be made:

- That without the early introduction of new zero carbon electricity generation MCC will exceed its carbon budget for the period 2020-25
- For the purposes of forecasting, factors such as EV roll out and heat de-carbonisation have been assumed to be linear. In reality the profile

may be different, but key to reaching the 2038 target is that the decarbonisation of heat happens, whether this is supported by the introduction of large-scale green generation or not.

- At the present time, the MCC operational electricity demand is approximately 36 million KWh pa. and would initially be more than fully met in volumetric terms by the solar PV generation output. By the early 2030's however the forecast suggests our demand to have risen to around 45 million KWh pa, thus matching the generation output. Around the same time, grid supplied electricity is forecast to have decarbonised down to de minimis level. By 2038, our electricity demand for the operational estate will have increased to 54 million KWh pa as gas heating is replaced by electrically fuelled alternatives. At the present time, it is anticipated that this increase electricity demand beyond the yield of our own generation asset will be met by then decarbonised grid power.

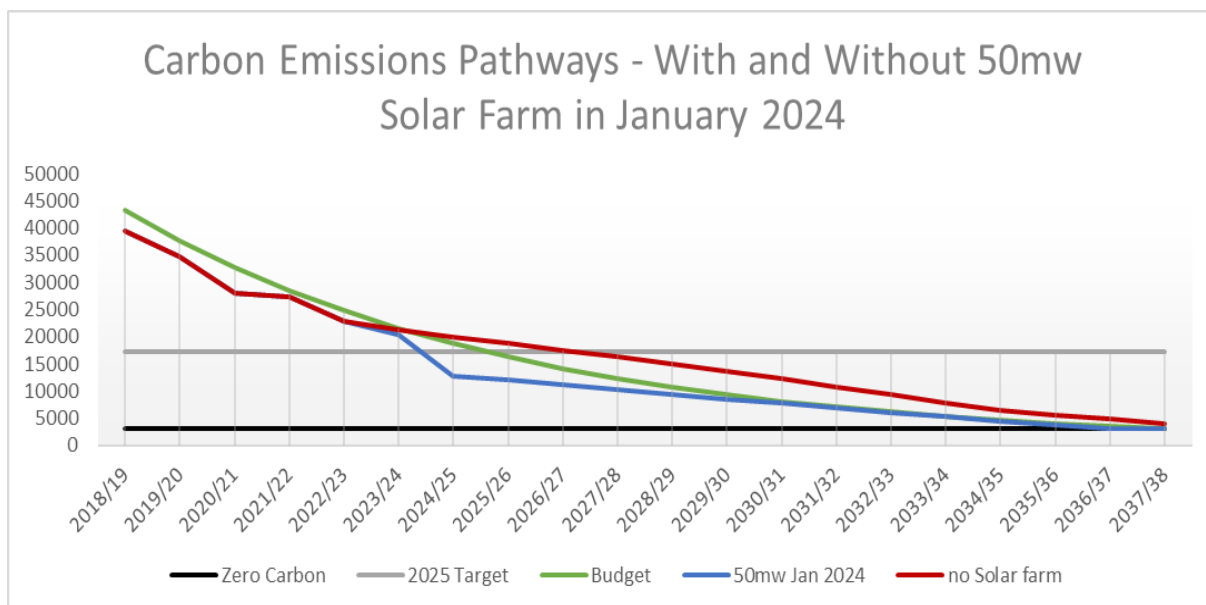
3.4 The proposals are future proofed as any surplus capacity can be sold back to the grid through a power spill contract or PPA or sleeved through the Council's supply contract to Manchester Schools, Academies and connected companies to aid their zero carbon actions. The Council's Energy Management Team will be putting in place new electricity procurement arrangements later in 2023 and prospective future suppliers' willingness, experience and practical delivery arrangements to accommodate these requirements will form a key part of the tender evaluation process.

4.0 Contribution to MCC Zero Carbon 2038 Objectives

4.1 Based on the projected energy demand assumptions stated above, progress to both achieving the interim target of 50% reduction in carbon emissions by 2025 and to our long-term science-based target to be Zero Carbon by 2038 at the latest has been mapped. In the years 2019/20 to 2021/22, MCC have consistently reduced CO2 emissions and are operating within the allocated annual carbon budget. From 2024, the addition of a significant renewable energy supply is a key component of achieving the zero carbon targets in the Plan.

4.2 The modelling summarised in Figure 1 shows that, if this proposed solar farm were to come online as expected by the developer in early 2024 and generate the projected levels of electricity, MCC would meet its target to halve its CO2 emissions by 2025. Figure 1 also shows that the renewable electricity produced should also considerably accelerate the Council's progress to meeting its 2038 targets in the following years, particularly between 2025 and 2030.

Figure 1 – MCC Carbon Emissions Pathway



4.3 After 2025, the renewable energy supplied by this solar farm would make a significant contribution to meeting the City Council’s Zero Carbon 2038 objective particularly in the period to 2030. As 2038 approaches, the effect of the solar farm is less pronounced, as government-projected decarbonisation of the National Grid reaches a consistently high level, although, as noted elsewhere in Section 3 of this report, progress on National Grid decarbonisation is a variable outside of the Council’s control. Without a source of renewable energy, achievement of the Council’s Zero Carbon 2038 objective will be largely dependent upon National Grid Decarbonisation.

4.4 The red line (marked – “No Solar Farm”) in Figure 1 shows a worst-case scenario of not purchasing this specific solar farm. In the event that this or another suitable solar farm purchase of c.50MW is not secured, the impact would need to be mitigated via seeking to purchase renewable electricity through other means such as a via PPA, with energy markets currently in a state of high uncertainty PPA costs will have risen sharply and do not offer the same long term price hedge and security of supply offered by the large-scale generation option.

4.5 It should be noted that renewable electricity alone will not fully decarbonise the Council’s operations and MCC will also still need to continue investing in a broad range of decarbonisation measures across its operations, especially moving away from gas for heating over this period.

5.0 Recommendations

5.1 Recommendations are set to at the beginning of this report.

6.0 Contributing to a Zero-Carbon City

6.1 Action 1.3 of the CCAP targets 7,000 tonnes of annual CO₂ savings by 2025 and is a key action to ensure that the Council plays its full part in delivering the city’s Climate Change Framework 2020-25 which aims to halve the city’s CO₂ emissions over the next 5 years.

7.0 Contributing to the Our Manchester Strategy

(a) A thriving and sustainable city

The transition to a zero-carbon city will help the city's economy become more sustainable and will generate jobs within the low carbon energy and goods sector. This will support the implementation of the Our Manchester Industrial Strategy and Manchester Economic Recovery and Investment Plan.

(b) A highly skilled city

Manchester is one of a small number of UK cities that have agreed a science-based target and is leading the way in transitioning to a zero-carbon city. It is envisaged that this may give the city opportunities in the green technology and services sector.

(c) A progressive and equitable city

Transitioning to a zero-carbon city can help to tackle fuel poverty by reducing energy bills. Health outcomes will also be improved through the promotion of more sustainable modes of transport and improved air quality.

(d) A liveable and low carbon city

Becoming a zero-carbon city can help to make the city a more attractive place for people to live, work, visit and study.

(e) A connected city

A zero-carbon transport system would create a world class business environment to drive sustainable economic growth.

8.0 Key Policies and Considerations

(a) Equal Opportunities

There are no equal opportunity issues to note that should arise from the content of this report.

(b) Risk Management

The key risk is to successful delivery of the Council's Climate Change Action Plan as action 1.3 is targeted to generate 7,000 tonnes of annual CO₂ savings by 2025 and the earlier this is delivered, the greater the contribution to staying within the carbon budget for the five-year period.

(c) Legal Considerations

The legal issues are as set out in part B of this report.

Legal Services will provide support and advice in regard to this project, seeking such appropriate expert technical and professional support and advice as shall be appropriate.