

## Manchester City Council Report for Resolution

**Report to:** Environment and Climate Change Scrutiny Committee – 14  
October 2021  
Executive – 20 October 2021

**Subject:** Large Scale Renewable Energy Generation Feasibility Summary  
Study

**Report of:** The Deputy Chief Executive and City Treasurer

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### Summary

The Council's Climate Change Action Plan (CCAP) has a target to reduce direct emissions of CO<sub>2</sub> by 50% over the five-year period of 2020-25. In addition, the Council has a target to be zero carbon by 2038.

Action 1.4 of the CCAP targets 7,000 tonnes of annual CO<sub>2</sub> by 2025 savings to be delivered via a “feasibility and business case for a large-scale energy generation scheme from large scale Solar PV or Onshore or Offshore Wind on Council land and buildings, or sites in third party ownership”.

Local Partnerships were appointed in November 2020 to deliver the feasibility study and their study, “**Feasibility Study and Options Appraisal for Large Scale Energy Generation for Manchester City Council**”, was completed in April 2021 and is attached as Appendix 1 to this paper.

The Feasibility Study concluded that the Council has two options: either purchase a solar PV facility or negotiate a suitable power purchase agreement (PPA). Both options were assessed to be better than the “do nothing” option.

### Recommendations

The Environment and Climate Change Scrutiny Committee is:

1. Invited to comment on the report and note the options in Section 3.1 available to the Council; and
2. Endorse the recommendation that the Executive is asked to agree that the Deputy Chief Executive and City Treasurer and the Chair of the Zero Carbon Coordination Group establish a delivery team to develop the options further, with a view to returning to the Executive with a proposal.

The Executive is asked to:

1. Note the options in Section 3.1 available to the Council; and
2. Agree that the Deputy Chief Executive and City Treasurer and the Chair of the Zero Carbon Coordination Group establish a delivery team to develop the options further, with a view to returning to the Executive with a proposal.

**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 1.4 of the Council's Climate Change Action Plan 2020-25 targets 7,000 tonnes of annual CO<sub>2</sub> savings by 2025. The CCAP 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 CO<sub>2</sub> emissions over the next 5 years.

<b>Our Manchester Strategy outcomes</b>	<b>Contribution to the strategy</b>
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
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### **Financial Consequences – Revenue**

It is expected that the Revenue requirements needed to take this forward will be met from existing directorate budgets; if this is not possible, the financial consequences will be that an additional funding requirement is needed to establish a delivery team, including the cost of engaging the necessary external technical support.

### **Financial Consequences – Capital**

It is not expected that there will be any immediate financial consequences to the Capital budget from the content of this report. However, it should be recognised that the outcome of the report options will have capital cost implications.

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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)*

## **1.0 Introduction**

- 1.1 Action 1.4 of the CCAP targets 7,000 tonnes of annual CO<sub>2</sub> savings via a “feasibility and business case for a large-scale energy generation scheme from large scale Solar PV or Onshore or Offshore Wind on Council land and buildings, or sites in third party ownership”.
- 1.2 Local Partnerships were appointed in November 2020 to deliver a Feasibility Study. A working group to inform, support and manage the study was established led by the Deputy Chief Executive with officers from Estates, Commercial Services, Financial Services and the Zero Carbon Team.
- 1.3 The Local Partnerships brief was to consider:
  - The amount of energy generation assets required to deliver the 7,000 tCO<sub>2</sub> annual savings.
  - The size and type of assets with the potential to deliver this, including options for Council-owned land and buildings, partnerships with other land and building owners or developers in the city as well as options both within and beyond the city boundary and Greater Manchester.
  - Funding and financing options including prudential borrowing, private financing, government grants etc.
  - The range of operating models available including power purchase agreements (PPAs), own and operate, etc.
  - The opportunity to deliver maximum, medium to long-term benefits for the Council in both commercial and climate action terms to, and beyond, 2025.
  - An assessment of the risks and benefits of individual opportunities.
  - The Council’s current and future capacity to deliver, including the administrative and specialist capacity requirements for the development, procurement, commissioning and operation.
  - An assessment of the different business models available in terms of investment cost, commercial risk and speed of deliverability supported by an option appraisal on Net Present Value (NVP), using commercially available data.
- 1.4 The study, “Feasibility Study and Options Appraisal for Large Scale Energy Generation for Manchester City Council”, was completed in April 2021.
- 1.5 Progress updates were presented to SMT in August and December 2020 and the final study was presented to SMT in June 2021. A briefing was held with the Leader, Cllr Craig and Cllr Rawlins on the 8<sup>th</sup> September 2021.

## **2.0 Key findings of the Feasibility Study and Next Steps**

- 2.1 Solar PV is 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 to be suitable.

- 2.2 The size of requirement needed to deliver 7,000 tCO<sub>2</sub> annual savings is equivalent to ~33MW of solar PV. To deliver benefits beyond this point and 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 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.
- 2.3 The Council has maximised capacity on its own buildings for renewable energy generation. 6.67MW is already scheduled to be installed via roof-mounted solar PV installations on the Council's estate. These are being delivered by Phase 1 of the Estates Carbon Reduction Programme, the Public Sector Decarbonisation Fund and the ERDF Unlocking Clean Energy project. The generation from these schemes is already accounted for in the CCAP.
- 2.4 There is no suitable land in Council ownership to deploy 45-50MW of solar capacity. An area of ~100 Ha of land is required to deliver the 7,000 tCO<sub>2</sub> requirement. The study examined 35 historic landfill sites across the city, concluding that many had been reclaimed as amenity spaces or were not suitable due to location issues, e.g. proximity to housing. They also looked at opportunities at Heaton Park and the adjacent reservoir, both excluded due to land use and heritage status. The study also explored Council-owned land adjacent to Wythenshawe Hospital which was excluded as it is allocated for employment in the spatial framework. Manchester Climate Change Partnership (MCCP) members were also canvassed and there was a review of planning applications to identify any schemes submitted with potential partnership opportunities.
- 2.5 No opportunities were identified within Manchester for a partnership project. Two ground mounted solar projects are planned in Rochdale (5MW) and in Salford (1.7MW). The size of these schemes is not large enough to facilitate collaboration. No other third-party developments were identified for acquisition.
- 2.6 Since the publication of the feasibility study, the GMCA Go Neutral project has assessed opportunities for small-scale renewable energy assets across the city-region. Based on initial findings it is estimated that ~7-14MW of additional capacity could be available on Council-owned buildings and small parcels of land in Manchester.
- 2.7 The feasibility study concludes that the Council needs to look out of area to deliver the required size of generation, given there is no local opportunities for solar PV at the required scale. Additionally, the study noted that where levels of irradiance are higher, solar PV schemes deliver a better return on investment (ROI). Irradiance levels are potentially 13% higher in the south of the UK compared to Manchester and would generate a higher ROI.
- 2.8 To provide the Council with a deeper understanding of the available options, Local Partnerships used data from Aurora Energy Research (provider of commercial modelling and forecasting data for renewable technologies) to

generate an options appraisal based on current and forecasted pricing. The 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 tariff.

- 2.9 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 into a suitable PPA or asset purchase agreement and the Council should therefore seek to change its current supply arrangements.
- 2.10 A budget of £27m–£30m is the estimated cost for an asset purchase. A solar asset is anticipated to have a life of 35-40 years. Should this option be selected, and a suitable facility identified, the Council would need to be prepared to move at speed as the numbers of projects of this kind coming to market are relatively few and are likely to be in high demand.
- 2.11 To progress effectively, we are bringing together a project team that incorporates appropriate internal capacity within our Corporate Landlord functions (including our Energy Management and Facilities Management Teams). We will supplement this by securing appropriate expert advice to implement the recommendations around purchase of a solar facility twin-tracked with a PPA. This twin-track approach allows us to progress the two recommended options in line with the findings of the feasibility study and is necessary to allow us to make the right purchase to meet our needs within the CO2 targets and timescales set in our Climate Change Action Plan.
- 2.12 The project team will develop a business plan which will be brought back to Executive to secure the appropriate approvals that will allow us to make any future asset purchase and / or enter into a PPA in a timely and effective manner.

### **3.0 Recommendations**

- 3.1 The Council will act on the findings of the feasibility study and undertake work to deliver the purchase of a solar PV facility, and alongside this, develop options to enter into suitable Power Purchase Agreements (PPAs). This twin-track approach is to ensure we meet the overall objective of reducing the overall emissions target as the availability of solar sites of the size required is dependent on market availability and the PPA option is also needed to ensure we can meet the target in full within the timescales set in the Climate Change Action Plan.
- 3.2 Carol Culley, as Deputy Chief Executive and Chair of the Zero Carbon Coordination Group is delegated to establish a delivery team which builds on existing Council capacity and skills and draws in necessary external experts to develop the options, with a view to returning to the Executive with a proposal having carried out appropriate due diligence work on these options.

### **4.0 Contributing to a Zero-Carbon City**

- 4.1 Action 1.4 of the CCAP targets 7,000 tonnes of annual CO<sub>2</sub> 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 half the city's CO<sub>2</sub> emissions over the next 5 years.

## **5.0 Contributing to the Our Manchester Strategy**

### **(a) A thriving and sustainable city**

- 5.1 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**

- 5.2 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**

- 5.3 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**

- 5.4 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**

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

## **6.0 Key Policies and Considerations**

### **(a) Equal Opportunities**

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

### **(b) Risk Management**

- 6.2 The key risk is to successful delivery of the Council's Climate Change Action Plan as action 1.4 is targeted to generate 7,000 tonnes of annual CO<sub>2</sub> 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**

- 6.3 The legal issues to note from the content of this report are that in regard to a an asset purchase, PPA or a hybrid it will be necessary to consider the relevant public contracts regulations and the Council's own Contractual Standing Orders in regard to procurement and the processes associated with procurement and associated decision making along with relevant decision making processes for the acquisition of an asset and any agreements entered into in association with any proposal. In this regard appropriate delegated decision making powers and approvals will also need to be considered. Legal Services will provide support and advice in regard to such matters and also in regard to the recommendations in this report seeking such appropriate expert technical and professional support and advice as shall be appropriate.

### **Appendices**

Appendix 1 – Feasibility Study and Options Appraisal for Large Scale Energy Generation for Manchester City Council – Local Partnerships (April 2021)