

**Manchester City Council
Report for Information**

Report to: Environment and Climate Change Scrutiny Committee – 8
December 2022

Subject: Local Area Energy Plan – Progress Update

Report of: Strategic Director, Growth and Development

Summary

GMCA is the first city region in the country to compile and complete Local Area Energy Plans (LAEP) from street to network level. The GM LAEP was adopted by GMCA in September 2022. This report provides Members with an overview of the city's LAEP and how this will be used to meet our target to be a zero carbon city region by 2038.

Recommendations

The Environment and Climate Change Scrutiny Committee is recommended to note the report.

Wards Affected: All

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| Environmental Impact Assessment - the impact of the issues addressed in this report on achieving the zero-carbon target for the city |
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| LAEP aims to accelerate the deployment of low carbon measures in the city. The issues set out in this report, and the development of workstreams to address them are key to driving a reduction in emissions and becoming a zero carbon city. |
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| Equality, Diversity and Inclusion - the impact of the issues addressed in this report in meeting our Public Sector Equality Duty and broader equality commitments |
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| The issues regarding retrofit and decarbonisation of energy as set out in this report, will lead to multiple benefits, including but not limited to: |
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| <ul style="list-style-type: none">• lower energy bills, and therefore reduced fuel poverty• improved health and wellbeing due to better thermal comfort during very cold and very hot periods of the year and better indoor air quality. |
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| Manchester Strategy outcomes | Summary of how this report aligns to the OMS/Contribution to the Strategy |
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| A thriving and sustainable city: supporting a diverse and distinctive economy that creates jobs and opportunities | The delivery of the retrofit and decarbonisation of energy ambitions as set out in the LAEP will provide long term employment opportunities to Manchester businesses and residents |
| A highly skilled city: world class and home grown talent sustaining the city's economic success | Demand for highly skilled retrofit labour will provide opportunities for training and upskilling both new and existing operators |
| A progressive and equitable city: making a positive contribution by unlocking the potential of our communities | The delivery of the retrofit and decarbonisation of energy ambitions to the city's housing stock will ensure healthier, more comfortable homes for Manchester residents and result in improved health and wellbeing for the city's residents. |
| A liveable and low carbon city: a destination of choice to live, visit, work | The delivery of the retrofit and decarbonisation of energy ambitions will address the transition of Manchester's existing housing stock to zero carbon, and ensure the available housing meets the needs of the city's residents and visitors. |
| A connected city: world class infrastructure and connectivity to drive growth | Investing in the provision of more opportunities to charge EVs will contribute to creating a greener and more attractive city utilising modern technologies. |

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

- Equal Opportunities Policy
- Risk Management
- Legal Considerations

Financial Consequences – Revenue

None at this stage.

Financial Consequences – Capital

None at this stage

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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.

- Manchester LAEP: Oct 2021 (adopted September 2022)
- Greater Manchester LAEP: June 2022 (adopted September 2022)
- Manchester Climate Change Framework: 2022 Update

1.0 Introduction

- 1.1 Greater Manchester (GM) has a target to be a zero carbon city region by 2038, twelve years ahead of UK Government's 2050 target. In 2020, the Manchester Climate Change Partnership developed a high-level strategy for the city to focus action that would help deliver on its climate change ambitions. The Manchester Climate Change Framework 2020-2025 has been recently updated and was the subject of a report to the September meeting of this Scrutiny Committee.
- 1.2 The Framework used a science-based targets approach to set a zero carbon date of 2038 and a carbon budget of 15m tCO₂ for the period 2018-2100 for the city.
- 1.3 The Climate Change Framework sets out that buildings are responsible for 76% of the City's direct emissions and ground transport for 24%, and the framework sets out the scale of action needed to reduce direct emissions from buildings and transport by 50%, and the scale of increase in renewable energy generation needed to support this.
- 1.4 The GM Local Area Energy Plan (LAEP), adopted in September 2022 sets out the current position and an energy roadmap towards that decarbonised future and describes a range of near-term, low regret, priority zones and opportunity areas for different technologies to address challenges presented by current energy type and usage. The term 'low regret' is used to describes measures that have a high confidence of succeeding based on current information and available technology.
- 1.5 The GM LAEP provides an overview of the ten LAEPs created for the city regions ten Districts with the Manchester LAEP providing an important tool for identifying and prioritising action to take on the areas identified in the Framework to help the city remain within its carbon budget.
- 1.6 The Manchester LAEP can be downloaded using the following link:

<https://gmgreencity.com/wp-content/uploads/2022/08/Manchester-LAEP-Final.pdf>

2.0 Background

- 2.1 In 2018, the Government invested in a new Prospering from the Energy Revolution Challenge fund via UK Research and Innovation (UKRI) to develop future smart energy systems and prove their use at scale.
- 2.2 The energy revolution challenge brought together businesses, research, and public sector to develop and demonstrate new approaches to provide cleaner, cheaper, and more resilient energy. This included providing energy in ways that consumers want, by linking low-carbon power, heating and transport systems with energy storage and advanced IT to create intelligent, local energy systems and services.

- 2.3 The Government invested in fast-tracking three practical local energy systems demonstrators and a number of whole system design studies. The design studies' objective was to create a pipeline of investable projects for the future.
- 2.4 The £5.9m GM LEM programme was one of the successful detailed designs, which included the production of the Local Area Energy Plans. GMCA worked with Energy Systems Catapult (ESC) to develop LAEPs for each of the 10 boroughs and a GM LAEP summarising the overall position.
- 2.5 The GM LAEP considers two future energy scenarios for Manchester and identifies a number of activities and technologies that can help meet the city's zero carbon target:
- the primary scenario which makes use of proven measures; and
 - the secondary, alternative future local energy scenario – which assumes the potential for hydrogen heating and energy becoming readily available
- 2.6 As well as setting out the scale of work required and identifying priority areas, both the GM LAEP and Manchester LAEP set out the estimated total costs of the measures with a modelled investment required of c£65bn GM wide, with the proportion within Manchester being c£13bn. It is noted that around 70% of this expenditure would be classed as business as usual and would be spent anyway on new equipment and upgrades and the vast majority of the cost relates to private sector properties.

3.0 Main issues

- 3.1 The GM LAEP aims to define the extent of the transformation needed (including a focus on identifying first steps to progress), and to provide a robust evidence base and plan to help engage businesses and citizens in accelerating towards the GM carbon neutral goal and Manchester's net zero goal. The GM LAEP sets out a number of focus areas and these are set out below:
- 3.2 Fabric Retrofit - Most homes across GM will need some level of fabric retrofit, and the case for this is likely to have increased with recent energy price rises, with at least a third of Manchester's dwellings require insulation retrofit in the plan. Fabric retrofit and solar PV are low regret measures (seen as having a high confidence of succeeding based on current information and available technology) to progress in the short term.
- 3.3 Heating systems and networks - Three heating options are explored to decarbonise buildings: electric heating (primarily heat pumps), hydrogen to replace natural gas, and district heat networks. For hydrogen to play a significant heat decarbonisation role, certainty would be required that hydrogen will be available to supply Manchester in a timeframe that supports the delivery of the GM carbon budget. Alternatively, heat pumps are estimated to be required to be deployed, serving most dwellings, except where district heat networks can supply a large share of buildings due to the higher density of buildings.

- 3.4 Transport and EV charging - The transition to electric vehicles (EVs) will require significant supporting infrastructure (and there is a separate Manchester EV Charging Strategy report elsewhere on the agenda). It is recognised that all areas of the region will require an extensive shift away from liquid fuels to electric vehicles for personal cars by 2038. Across all districts, all homes with off-street parking are expected to have EV charging facilities installed by 2038, with publicly available charging hubs offering a potential solution for charging for those homes that have no off-street parking. Co-ordination with GMCA and TFGM could offer opportunities for efficient roll-out programmes that could make use of economies of scale, whilst also continuing to consider emerging solutions for providing communal charging systems. Uptake of electric vehicles in Manchester is forecast to increase from c2,000 EVs today to over 140,000 by 2038 and this will continue to drive a demand for EV chargers to be installed across all areas, along with multiple public charging stations (or hubs).
- 3.5 Local Energy Generation and Storage - There is significant potential for local renewable energy generation within GM. It is more beneficial to deploy generation as early as possible, while the national electricity mix is more carbon intensive. Deploying such high quantities of generation will, however, be very challenging and may present challenges to the electricity network as well as requiring considerable coordination. To reduce emissions in line with the GM carbon budget, in Manchester local energy generation could increase significantly, consisting predominantly of the installation of solar PV on much of the available roof space
- 3.6 Energy Networks - Electricity: A net result of transitioning to low carbon will be an increase in electricity demand across all districts of GM and all scenarios by 2038. Understanding this impact in a whole systems approach is critical to how we model our transition.
- 3.7 Energy Networks - Gas and Hydrogen: As much of the existing network could be suitable for repurposing to hydrogen, understanding and identifying where the initial priority areas for hydrogen are likely to be within the region is key.
- 3.8 Networks - District Heat - Heat Networks have the potential to supply a significant proportion of buildings in GM and can be considered low regret (high confidence of succeeding based on current information and available technology). There may also be opportunities to consider expanding and even joining up heat networks across district boundaries and understanding the role Hydrogen may play in future as a valuable option for heating in many parts of GM, should it become available at the necessary quantities, cost, and carbon content

Ongoing work and next steps

- 3.9 There are a number of ongoing workstreams aligned to the LAEP focus areas including development of the Manchester EV Charging Strategy (for which there is a separate report on the agenda) and development of a Retrofit Plan

for all housing in the city as reported to the September meeting of this Scrutiny Committee.

3.10 The LAEP has also been an important component in providing evidence for wider pieces of work, such as setting out Manchester's investment needs and our work with 3Ci and Core Cities.

3.11 As part of the additional revenue secured through the 2022/2023 budget setting to provide additional capacity (12 new posts) to support delivery of the CCAP, two new posts have been created to provide support to drive forward work on the LAEP. These roles have been advertised and will be in post early in the new year and will focus on setting out how we deliver the proposals set out in the LAEP, both on our own estate and in the private sector working with partners.

4.0 Recommendations

4.1 The Environment and Climate Change Scrutiny Committee is recommended to note the report.