

Manchester City Council Report for Information

Report to: Environment and Climate Change Scrutiny Committee – 11
November 2021

Subject: Manchester City Council Estates Decarbonisation

Report of: The Head of Estates and Facilities

Summary

This report describes the activities and progress to date on the decarbonisation of Manchester City Council's operational estate. It describes the Carbon Reduction Programme, including MCC and grant funded retrofit projects delivered under the Public Sector Decarbonisation Scheme, as well as major capital schemes that are delivering energy efficiency and carbon reduction measures. The report also describes projects that are in development. The Council's Climate Change Action Plan 2020-25 includes a target to reduce annual emissions from the operational estate by 4,800 tCO₂. The projects described in this report that are currently in delivery are expected to achieve 74% of this target. If the set of projects described as 'in development' are delivered, this will achieve at least 92% of the target. A number of other refurbishment projects are underway that are above and beyond the Carbon Reduction Programme. These will contribute further to the overall target. Officers are actively looking at further proposals to build on the momentum of the existing work and deliver further phases of carbon reduction projects.

Recommendations

The Committee are recommended to note the activities and progress to date on the decarbonisation of Manchester City Council's operational estate; and to note the pipeline of future projects that are in development.

Wards Affected: All

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

The Council's property assets are a significant area of focus in efforts to achieve the zero-carbon target for the city. In terms of the Council's direct carbon emissions, in 2019/20 the Council's operational buildings accounted for around 75% of the total emissions. The Council's direct CO₂ emissions overall reduced by 54.7% between 2009/10 and 2019/20. Emissions from energy use in Council buildings have reduced again in 20/21 compared to the same period the previous year; this has been driven by the installation of energy efficiency measures and renewable energy generation capacity, and further affected by the decarbonisation of the national grid and the changes to building use caused by the Covid-19 pandemic. This report includes an update on projects underway to deliver carbon reduction activity on the estate.

Our Manchester Strategy outcomes	Summary of how this report aligns to the OMS
A thriving and sustainable city: supporting a diverse and distinctive economy that creates jobs and opportunities	The delivery of carbon reduction activity to the Council's estate in Manchester will support the local construction supply chain and in particular the low carbon sector.
A highly skilled city: world class and home grown talent sustaining the city's economic success	The delivery of carbon reduction activity to the Council's estate in Manchester will support the development of new skills within the Council and supply chain, specifically around heat pump technology.
A progressive and equitable city: making a positive contribution by unlocking the potential of our communities	Everyone has a role to play in tackling climate change, and learning from the Council's carbon reduction activities can be shared to support and inspire other schemes across Manchester's communities.
A liveable and low carbon city: a destination of choice to live, visit, work	The delivery of carbon reduction activity to the Council's estate will directly contribute to reducing carbon emissions in the city.
A connected city: world class infrastructure and connectivity to drive growth	The Civic Quarter Heat Network provides infrastructure to drive green growth in the city centre, and the delivery of the Public Sector Decarbonisation Scheme in Manchester includes delivering battery technology that can support the cities electricity infrastructure to become more sustainable.

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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.

Resources and Governance Scrutiny Committee – 20 July 2021: Delivery of the Public Sector Decarbonisation Scheme

Environment and Climate Change Scrutiny Committee - 9 September, CCAP Annual Report 2020-21 and Work Programme 2021-22

1.0 Introduction

- 1.1 The Council declared a Climate Emergency in July 2019 which recognised the need for the Council, and the city as a whole, to do more to reduce CO₂ emissions and mitigate the negative impacts of climate change. It also demonstrated the Council's commitment to be at the forefront of the global response to climate change and to lead by example. The Council had already adopted a science-based carbon budget for Manchester of 15 million tonnes of CO₂ between 2018 and 2100 following analysis by the Tyndall Centre for Climate Change Research. This also committed the city to become zero carbon by 2038 at the latest.
- 1.2 The Council's Climate Change Action Plan 2020-25 (CCAP 2020-25) was developed to ensure that all aspects of the Climate Emergency Declaration were converted into clear actions with tonnes of CO₂ savings included where applicable. The plan builds on over a decade of previous activity which has seen the Council's direct CO₂ emissions reduce by 54.7% between 2009/10 and 2019/20.
- 1.3 This report describes the activities and progress to date on the decarbonisation of Manchester City Council's operational estate. It briefly describes the nature of the operational estate and sets out the emissions data since April 2019. It describes the work that is being delivered to reduce carbon emissions across the operational estate, both as part of the Carbon Reduction Programme, as well as other projects and areas of work that are underway. The report also describes some future projects that are in development.
- 1.4 The Council's Climate Change Action Plan 2020-25 includes a target to reduce annual emissions from the operational estate by 4,800 tCO₂. The projects described in this report that are currently in delivery are expected to achieve 74% of this target. If the set of projects described as 'in development' are delivered, this will achieve at least 92% of the target. There are a number of projects in development where design is not yet sufficiently advanced to include a specific savings target. As these progress they will contribute further to achieving the overall target. A number of other refurbishment projects are underway that are above and beyond the Carbon Reduction Programme. These projects do not have specific targets captured in the Council's Climate Change Action Plan 2020-25, but will contribute further to meeting the overall target. Officers are actively looking at further proposals to build on the momentum of the existing work and deliver further phases of carbon reduction projects.

2.0 Background

- 2.1 The emissions associated with the Council's operational buildings are reported against in the Buildings & Energy section of the CCAP 2020-25. 316 buildings of varying age, condition and function are currently reported against, although this number does vary to account for acquisitions and disposals. These buildings include offices, including the Town Hall Complex, as well as depots, leisure centres, libraries, markets, properties that provide social care services

to adults and children, and buildings in parks, including a number of heritage properties such as Heaton Hall and Wythenshawe Hall. It also includes a number of high profile buildings owned by the council but operated by third parties, for example the Bridgewater Hall, the National Cycling Centre, and the National Football Museum. Schools and social housing are not included in the operational estate.

- 2.2 The total emissions associated with the operational estate in 2019/20 were 24,071 tCO₂, approximately three quarters of the total emissions from Manchester City Council as a whole. The CCAP 2020-25 requires carbon emissions from the Council’s buildings to reduce by a minimum of 4,800 tCO₂ per annum by April 2025. For context, the target of 4,800 tCO₂ is approximately equivalent to the combined total annual emissions of the Town Hall Extension, Manchester Aquatic Centre and Manchester Art Gallery combined.

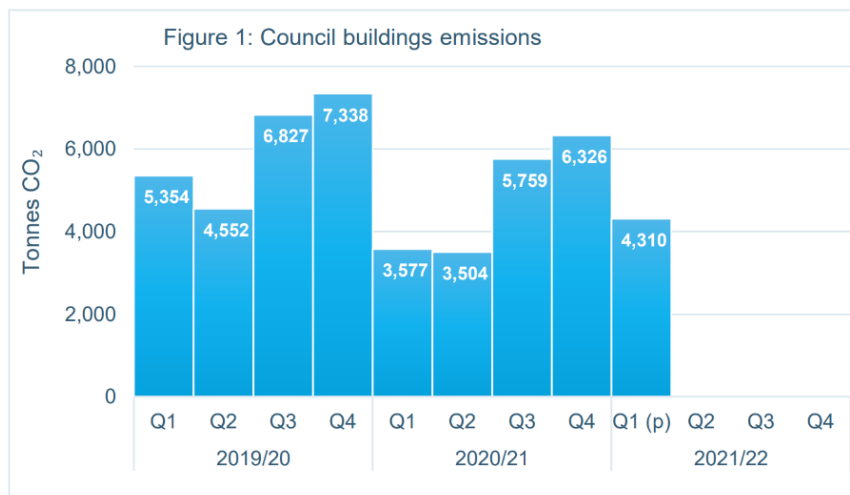


Figure 1: Council Building Emissions from 2019/20

- 2.3 Figure 1 shows a quarter-by-quarter view of building emissions from April 2019. It shows both seasonal differences, e.g. energy consumption and emissions peaking in winter, the impact of COVID-19 on overall trends. Two years of data are shown as COVID-19 meant that emissions in 2020-21 aren’t representative. It is more meaningful to compare Q1 in 2021-22 to Q1 in 2019-20, rather than to last year. This shows that emissions from energy use in Council buildings in Q1 2021- 22 are currently 19% lower than in Q1 2019-20. It should be noted that emissions data for the latest quarter has to include some element of a best estimate, for example where accurate billing or monitoring data will become available in future periods, hence the figure is marked as (p) for provisional.

3.0 Carbon Reduction Activity

- 3.1 A Carbon Reduction Programme has been established to oversee the delivery of a wide range of energy efficiency and low carbon energy generation measures throughout the estate.

3.2 The table below demonstrates the total in flight and planned work of the Carbon Reduction Programme. These are projects commissioned specifically to improve energy efficiency, decarbonise heat or install renewable energy generation and storage. Appendix 1 provides a further breakdown of the individual technologies associated with these projects. Currently there are £29m of projects in flight, 89% of which are already complete or due to complete by Q4 2021/22, with the remainder due to complete by Q1 2023/24. Once complete these projects are forecast to save circa 3,500 tCO₂ per annum. To date a pipeline of additional projects of around £6.6m have been identified for delivery from 2022/23 onwards, saving a further 800 tCO₂ per annum once complete. In total these projects represent 92% of the Buildings savings target in the CCAP 2020/25.

Building	In Flight		Pipeline		Total	
	£ Investment	tCO ₂ Saving PA	£ Investment	tCO ₂ Saving PA	£ Investment	tCO ₂ Saving PA
Arcadia Leisure Centre	£ 1,427,841	117	£ -	-	£ 1,427,841	117
Belle Vue Sport Centre	£ 441,581	169	£ -	-	£ 441,581	169
East Manchester Leisure Centre	£ 1,831,359	220	£ -	-	£ 1,831,359	220
Hough End Leisure Centre	£ 1,629,914	154	£ -	-	£ 1,629,914	154
Manchester Tennis and Football Centre	£ 380,829	61	£ -	-	£ 380,829	61
Moss Side Leisure Centre	£ 1,061,046	78	£ -	-	£ 1,061,046	78
North City Leisure Centre	£ 1,825,265	260	£ -	-	£ 1,825,265	260
Space Studios	£ 2,703,804	145	£ -	-	£ 2,703,804	145
Sharp Project	£ 2,835,117	348	£ -	-	£ 2,835,117	348
Town Hall Extension	£ 1,453,628	169	£ -	-	£ 1,453,628	169
Wythenshawe Forum	£ 2,875,791	483	£ -	-	£ 2,875,791	483
Manchester Aquatic Centre	£ 2,807,487	505	£ -	-	£ 2,807,487	505
National Cycling Centre	£ 5,755,030	600	£ -	-	£ 5,755,030	600
Zion Arts Centre	£ 1,011,652	79	£ -	-	£ 1,011,652	79
Hammerstone Rd Depot	£ 782,945	169	£ -	-	£ 782,945	169
Heathfield Resource Centre	£ 55,936	5	£ -	-	£ 55,936	5
Harpurhey District Office	£ 53,437	5	£ -	-	£ 53,437	5
Longsight Library and Learning Centre	£ 55,693	5	£ -	-	£ 55,693	5
Chorlton Sure Start	£ 23,518	2	£ -	-	£ 23,518	2
Harpurhey District Office	£ -	-	£ 474,293	38	£ 474,293	38
Active Lifestyle Centre	£ -	-	£ 282,752	29	£ 282,752	29
Claremont Resource Centre	£ -	-	£ 384,977	43	£ 384,977	43
Didsbury Library	£ -	-	£ 319,238	41	£ 319,238	41
Hall Lane Resource Centre	£ -	-	£ 837,372	105	£ 837,372	105
The Place at Platt Lane	£ -	-	£ 340,712	22	£ 340,712	22
Arbeta	£ -	-	£ 1,833,588	216	£ 1,833,588	216
National Football Museum	£ -	-	£ 1,429,582	188	£ 1,429,582	188
Bridgwater Hall	£ -	-	£ 741,781	179	£ 741,781	179
	£ 29,011,873	3,574	£ 6,644,295	861	£ 35,656,168	4,434

3.3 The table below demonstrates how the works above are being funded. The Council has been successful in securing just over £20m of grant funding from both the Public Sector Decarbonisation Scheme (PSDS) and the European Regional Development Fund, with bids for a further £4.5m submitted and awaiting decision. Manchester was awarded the highest proportion of PSDS funding in Greater Manchester during the first round of bidding.

Funding	Value
MCC Capital Funding (including match funding)	£10,304,917
European Regional Development Fund	£1,208,202
Public Sector Decarbonisation Scheme Round 1	£19,673,768
Public Sector Decarbonisation Scheme Round 3*	£4,469,281
	£35,656,168

*Nb. Bid submitted in Oct21

- 3.4 The Carbon Reduction Programme is being delivered in several different phases. The first phase of works was developed on a spend to save basis and funded with MCC Capital Funding. In total £6.6m of carbon reduction works were identified, with a forecast carbon saving of circa 1,400 tCO₂ per annum and a payback period in the region of 10 years. Delivery of this initial phase of works was delayed slightly by the first COVID-19 lockdown but works are now largely complete, with any outstanding projects due to complete by the end of this financial year.
- 3.5 The programme focused on Leisure Centres, as they are some of our most energy intensive buildings, and eight were upgraded with energy conservation measures as part of the Carbon Reduction Programme: Wythenshawe Forum; East Manchester Leisure Centre; Hough End Leisure Centre; Arcadia Sports Centre; Moss Side Leisure Centre; North City Family and Fitness Centre; Belle Vue Sports Centre; and Manchester Tennis and Football Centre. The improvements cover a range of measures such as upgrading to LED lighting, improving lighting controls, upgrading Building Management Systems, and installing variable speed drives, as well as solar panel installations at seven of the sites, and an energy efficient combined heat and power plant at the Wythenshawe Forum. In addition to the leisure estate, the lighting in the Town Hall Extension, our largest building, was upgraded to LED, and new controls installed. The large buildings at the Space Project and Sharp Project are also being improved, the former with a large solar panel installation, the later with solar panels, LED lighting and a new building management system. Throughout this phase of work, 2.5MW of renewable energy generation capacity was installed, and 9,000 LED light fittings were installed.
- 3.6 The second phase of the Carbon Reduction Programme is a project called the Unlocking Clean Energy In Greater Manchester (UCEGM) Project. This is a consortium of partners including Energy Systems Catapult and five Greater Manchester local authorities - Manchester, Rochdale, Salford, Stockport, and Wigan. The project has two key parts, first the installation of renewable generation assets partly funded by the European Regional Development Fund grant, and second, the development of new business models to promote self-consumption of energy by the Local Authorities. The aim of these business models is to improve the business case for renewable energy generation projects by improving the value of energy generated, lowering the cost of energy supply and reducing the carbon intensity of electricity in the local area.

- 3.7 Through its participation in this project, the Council successfully attracted over £1.2 million of European Regional Development Fund which is being matched to the Council’s capital investment to deliver a large rooftop solar scheme and battery at the Hammerstone Road depot in Gorton, and Solar PV on car ports at the National Cycling Centre, saving an estimated 415 tCO2 per annum when complete. Both projects are in flight with designs being developed currently. Both projects have dependencies on wider refurbishment projects and are working to a deadline of 30th June 2023 for completion.
- 3.8 The third phase of the Carbon reduction Programme was a bid to the The Public Sector Decarbonisation Scheme (PSDS). This scheme is run by the Department for Business, Energy and Industrial Strategy (BEIS) and administered by Salix. The PSDS provides capital grant funding for energy efficiency and heat decarbonisation projects in non-domestic public sector buildings.
- 3.9 Working with partners in the Greater Manchester Combined Authority, MCC successfully secured £19.67m of funding from Phase 1 of the PSDS to invest in a range of heat decarbonisation, energy efficiency and generation projects. The funding was approved in March 2021. Projects across 11 buildings have been commissioned and are underway, and when complete these are expected to save 1,700 tCO2 per annum. The buildings included in this phase of work are summarised in the table below. Again, Leisure Centres were a key part of the bid as they are some of the council’s most energy intensive buildings. The technologies included in this phase of work include Air Source or Ground Source Heat Pumps, solar panels, and battery storage systems.

PSDS Phase 1 Buildings	Forecast tCO2 Saving PA
Arcadia Leisure Centre	58
East Manchester Leisure Centre	119
Hough End Leisure Centre	80
Moss Side Leisure Centre	55
North City Leisure Centre	182
Space Studios	33
Sharp Project	53
Town Hall Extension	-
Wythenshawe Forum	188
Manchester Aquatic Centre	505
National Cycling Centre	354
Zion Arts Centre	79

- 3.10 The deadline for all PSDS Phase 1 funded works to complete is the 31st March 2022. It should be noted this is a challenging deadline for works of this type and scale. Each project has demonstrated how it can achieve this deadline, but minimal float has been allowed to achieve this. The PSDS funded works at the Manchester Aquatics Centre, National Cycling Centre and Zion Arts Centre are to be completed as part of wider refurbishment projects being managed by Capital Programmes. Contracts are

in place for these projects, and works at all three of these locations are underway. Designs are complete and contracts have been agreed for the works at Arcadia, Moss Side, North City, Wythenshawe Forum, Sharp and Space and the contractor is preparing to start on site. Designs are being finalised for Hough End and East Manchester Leisure Centres.

- 3.11 A 'Carbon Cost Threshold' was a condition of the funding. At a portfolio level, the investment must cost no more than £487 per tCO₂ saved. The amount of carbon each individual measure saves is calculated by taking the annual carbon saving and multiplying this by its expected lifespan, as defined by Salix (the fund administrator). This target was set at bid stage, and as detailed designs complete and practical constraints are worked through, there is a risk this target is exceeded, meaning some match funding from the Council is required to meet the required threshold. This is being monitored closely with a final position expected to be confirmed in November 2021. Capital funding from the Carbon Reduction Programme is in place to manage this risk.
- 3.12 The decarbonisation of heat - removing our dependency on carbon intensive gas by installing electrically powered heating solutions - is perhaps the biggest challenge to overcome on our journey to reduce carbon emissions from the estate. Typical alternatives to gas boilers, for example heat pumps, come with practical restrictions that need to be overcome before mass adoption of low carbon heat can be achieved. These include the need for larger radiators or underfloor heating; building fabric improvements for better thermal performance and air tightness; and external space for bulky equipment. There are also financial issues to overcome, including higher capital costs, and higher revenue costs, as gas is cheaper than electricity.
- 3.13 Innovative technologies are expected to be required to enable this transition to take place. The carbon Reduction Programme has been working with a company called HydroZero to install an innovative new boiler pilot in Gorton Library. The completely electric HydroZero boiler produces heat through a process of electrolysis, and has the potential to overcome the typical practical constraints described above. The pilot is now installed and generating heat, performance and efficiency levels will be assessed over the winter period.
- 3.14 In addition to the Carbon Reduction Programme, there are a number of other projects that are being delivered which are supporting the decarbonisation of the estate.
- 3.15 The Civic Quarter Heat Network provides a highly efficient, environmentally-friendly heat and power solution for some of Manchester's most iconic buildings, making significant carbon reductions. The network will initially serve seven city centre buildings with the potential to connect more in the future. The buildings connected to the network include the Town Hall, Town Hall Extension and Central Library; Manchester Central Convention Centre; the Bridgewater Hall; Manchester Art Gallery; and Heron House. Heat and power is generated by a 3.3MW Combined Heat and Power (CHP) unit based in a new energy centre near Manchester Central Convention Centre, at the

junction of Great Bridgewater Street and Lower Mosley Street. The energy centre's five flues have been incorporated into a 'Tower of Light' a new sculptural landmark for the city which was designed by award-winning architects Tonkin Liu. The project has installed a 2km network of insulated pipework and cables, to distribute the electricity, heat and hot water to connected buildings - one of the most cost-effective ways of reducing carbon emissions from heating. The network has been designed to enable future expansion, with efficiency and carbon savings increasing as more buildings join. The CHP unit will initially run on gas with the potential to introduce hydrogen into the mix in future to further reduce carbon emissions. The energy centre is currently completing final testing and commissioning and enters full operation in November 2021. The CQHN is forecast to reduce annual carbon emissions by 1,600 tCO₂.

- 3.16 As part of the overall Estate Strategy, a number of major construction projects are underway. These projects are not part of the Carbon Reduction Programme, as they are being delivered to achieve a range of benefits, such as improving customer access to services, rationalising the estate, improving the condition, quality and lifespan of our buildings or meeting new service needs. However, all of the projects include significant opportunities to reduce carbon emissions, over and above the retrofit work carried out by the Carbon Reduction Programme, by installing energy efficient systems and energy generation infrastructure. Some of the most energy intensive buildings in the estate have recently been refurbished, in the case of Alexandra House; or are under refurbishment or construction, including the Town Hall, the Hammerstone Road Depot in Gorton, the Abraham Moss Leisure Centre in Crumpsall, the Gorton Hub, the National Cycling Centre and the Manchester Aquatics Centre. Carbon savings achieved by these projects are not specifically included in the targets set out in the in the CCAP 2020/25, so the benefits delivered by these projects will be over and above these targets.
- 3.17 Alexandra House, our largest office outside the Town Hall Complex, has been comprehensively refurbished and re-opened in February this year. The refurbishment introduced fabric improvements, including improving roof and wall insulation, replacement of windows with double glazing, improved insulation to heat distribution pipework, improved mechanical and electrical systems and LED lighting, and improved building management controls, which are expected to reduce carbon emissions from the building by around 70%.
- 3.18 The Town Hall is currently under refurbishment, and is due to reopen in 2024. The refurbishment of the Grade 1 listed building includes a number of measures to reduce carbon emissions, including insulating the roof and all heating pipework; removing and repairing windows to reduce air leakage, and to make best use of natural ventilation to reduce cooling requirements; connecting to the Civic Quarter Heat Network, and replacing the heating system; fitting LEDs throughout, including heritage luminaires and external lighting; installing a new building management system with zone controls.

- 3.19 Hammerstone Road Depot is undergoing a major refurbishment project which is due to commence fully in December 2021. The project includes a rationalisation of accommodation across the site, consolidating several inefficient remote buildings into one energy efficient hub. In addition to the ERDF funded solar panel scheme already described above, the project includes a range of energy efficiency measures including a new insulated roof, window replacement, wall and cladding insulation, new mechanical and electrical installations including LED lighting, building controls, energy monitoring and expanded electrical vehicle charging infrastructure.
- 3.20 The project to replace Abraham Moss Leisure Centre and Library commenced in early 2021 and is a full demolition and rebuild of a large mixed use leisure centre. The old leisure centre was some 50 years old and whilst it had been refurbished and improved in phases over a number of years many parts of the building fabric and services installation had come to the end of their economically viable life. The new building will be purpose designed to meet high levels of energy efficiency and low carbon in use, including efficient building services, high levels of insulation and rooftop solar electrical generation. The demolition aspect of the project includes wherever possible the recycling of metal, timber and plastic elements and in the case of the concrete elements they are being crushed and recycled on site for use as aggregate below the new building and hardstanding areas minimising waste, reducing site traffic and reducing the need for new quarried materials.
- 3.21 The Gorton Hub is a new multi-agency public sector hub being constructed in Gorton and opening from October 2022. The new building will be an efficient modern environment designed to consolidate a number of users from older, energy inefficient properties. Whilst the primary aim of the project is to deliver high quality public services, the new purpose built building will provide a low carbon operating environment including a well insulated building, modern high efficiency heating systems, LED lighting, high levels of daylighting with associated automation of the artificial lighting installation, rooftop solar electricity generation and a fully zoned and controlled building.
- 3.22 The refurbishment of the National Cycling Centre seeks to address the mechanical and electrical installations of the velodrome and associated areas along with elements of the building fabric which are now at the end of life. The replacement and updating of heating, lighting and power installation along with improvements to the building fabric will significantly reduce the power use and carbon impacts of this immensely successful venue. As already noted above, the full refurbishment is being carried out in parallel with energy efficiency works carried out as part of the Public Sector Decarbonisation Scheme, and the ERDF funded project to install car ports with solar panels in the car parks.
- 3.23 The refurbishment of the Manchester Aquatics Centre, constructed some 20 years ago for the 2002 Commonwealth Games, includes not only an update of the pool operating features to keep in line with latest competition standards but also the introduction of a number of high tech solutions aimed to reduce cost in use and the carbon footprint of the building. Using a mixture of MCC and Central Government grant funding the boilers and heating plant and lighting

installations will be replaced that not only meet modern standards but also significantly reduce energy use and carbon emissions. Alongside the updating of existing installations there will be new initiatives including electrically powered air source heat pumps to generate heat without using gas, solar photo voltaic cells to generate renewable electricity from the roof top arrays and battery storage to maximise the use of power on site whilst more actively managing the electricity usage and modulate power demand so as to reduce peak loads and thereby reduce cost of the externally purchased electricity.

- 3.24 In addition to these larger schemes, electric vehicle charging points have also been installed at the Hooper St, Hammerstone and Longley Lane Depots, to support the increasing electrification of the Council's vehicle fleet, including supporting new electric refuse collection vehicles.
- 3.25 The Capital Gateway approval process and the Capital Strategy have been amended to reflect the Climate Emergency and Climate Change Action Plan. The Manchester Low Carbon Build Standard has been developed and is now implemented in Capital Programmes. The standard contains design guidance for Manchester City Council's new build and refurbishment projects. The areas covered include fabric improvements, decarbonising heat, energy efficient lighting, controls and metering, ventilation, renewable energy generation, reducing water consumption, use of low energy equipment, performance monitoring and recycling. All new projects put forward for inclusion in the Capital Programme must now demonstrate how they comply with the new standard as part of the business case process.

4.0 Future Projects in Development

- 4.1 The Carbon Reduction Programme is a long term investment and commitment to improve the performance of our buildings. Work is ongoing to develop and commission a pipeline of new projects, examples of which are described below, and which will run from April 2022 onwards.
- 4.2 As already highlighted in Section 3.2, above, officers submitted a funding bid to the third round of the Public Sector Decarbonisation Scheme in October 2021, as part of a GMCA consortium. The Manchester element of the bid was for c£4.47m of grant funding, with MCC match funding of c£1.43m, for a total scheme of c£5.9m. At time of writing, a decision from Salix is awaited. The bid includes heat decarbonisation, energy efficiency and low carbon energy generation for eight buildings, including Arbetha (MCDA), National Football Museum, Harpurhey District Office, Denmark Road Active Lifestyles Centre, Claremont Resource Centre, Didsbury Library, Hall Lane Resource Centre, and The Place at Platt Lane (Library). The total carbon saving associated with the bid was 680 tCO₂ a year.
- 4.3 A study is already underway exploring the feasibility of installing a roof mounted Solar PV system on the BMX section of the National Cycling Centre. If feasible, this could see a 600 kWp system installed, saving circa 100 tCO₂ per annum.

- 4.4 A feasibility study has been completed to install LED lighting at the Bridgewater Hall, with an expected carbon saving of around 179 tCO₂ a year. Further proposals are in development to upgrade lighting to LED at Central Library and Etrop Court. Officers are developing a rolling programme of LED light replacements in our smaller buildings, to be delivered by our Facilities Management maintenance provider, Equans.
- 4.5 A programme of work is being developed to expand and improve the use of Building Management Systems across the estate. A building management system (BMS) is a computer-based control system that controls and monitors a building's mechanical and electrical equipment such as ventilation, lighting and power systems. Systems linked to a BMS typically represent 40% of a building's energy usage; if lighting is included, this number approaches to 70%. Therefore, BMS systems are a critical component to managing energy demand.
- 4.6 The projects described in paragraph 4.3, 4.5 and 4.6 will be worked up into full business cases between November 2021 and March 2022, and will move forward into delivery from April 2022.
- 4.7 The Council's Climate Change Action Plan 2020-25 includes a target to reduce annual emissions from the operational estate by 4,800 tCO₂. The projects described in this report that are currently in delivery are expected to achieve 74% of this target. If the set projects in development, described under the PSDS 3 bid, and the LED upgrade at the Bridgewater Hall are delivered, this is expected to achieve at least 92% of the target. The other projects described in Section 4 will move MCC even closer to achieving this target.
- 4.8 To date the Carbon Reduction Programme has focused largely on the most energy intensive and largest buildings in the estate, to achieve the maximum carbon reduction benefit in the shortest time. However, most of the estate (in terms of quantity) is made up of a high volume of smaller buildings in the community. Work is underway with the Council's maintenance contractor, Equans, to commission a programme of energy audits across the whole estate. This data is expected to inform the long-term strategy for investment, the total scale of opportunity and key challenges.
- 4.9 The next phases of activity will be increasingly challenging, as they will increasingly involve a larger set of smaller projects across smaller buildings with varying overall physical conditions. However, building on lessons from the first phases of delivery, and equipped with condition and energy audit data, officers will continue to develop proposals to drive down carbon emissions from the estate.
- 4.10 The programme will continue to work with colleagues and partners to identify and take advantage of any external funding opportunities that may emerge. Experience to date is that very little notice of funding opportunities and eligibility criteria is provided, application windows are very short and deadlines for the delivery of works are hard to achieve. However, these opportunities are seen as particularly important to enable the Authority to

accelerate plans to decarbonise heat which accounts for roughly half of all building emissions.

5.0 Conclusions and Recommendations

- 5.1 This report sets out the activities and progress to date on the decarbonisation of Manchester City Council's operational estate. The Council is on track to achieve the overall target of saving 4,800 tCO₂ annually through the Carbon Reduction Programme. The Climate Change Action Plan 20-25 included a baseline figure of 25,789 tCO₂ emitted from the operational estate. The plan anticipated a reduction of 4,800 tCO₂ annually from the Carbon Reduction Programme, and a further reduction of 1,600 tCO₂ from the Civic Quarter Heat Network. The plan forecast a reduction of around 800 tCO₂ from decarbonisation of the National Grid, and a further saving of 7,000 tCO₂ through decarbonising the MCC electricity supply through a large scale generation asset, as described to this Committee in October 2021. These projects will leave residual emissions in the region of 11,500 tCO₂, and officers will continue to develop proposals beyond 2025 to tackle these, through a combination of retrofit activity, decarbonising heat, installing local low carbon energy generation and decarbonising our overall power requirements.
- 5.2 The Committee are recommended to note the activities and progress to date on the decarbonisation of Manchester City Council's operational estate; and note the pipeline of future projects that are in development.