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| Committee(s) | Dated: |
| Operational Property and Projects Sub Committee | 20 th July 2022 |
| Subject: 2021/22 Energy & Decarbonisation Performance Q4 Update for the Operational Portfolio. | Public |
| Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly? | 5,11 & 12 |
| Does this proposal require extra revenue and/or capital spending? | No |
| If so, how much? | £ n/a |
| What is the source of Funding? | n/a |
| Has this Funding Source been agreed with the Chamberlain's Department? | n/a |
| Report of: The City Surveyor | For Information |
| Report author: Graeme Low | |

Summary

This report presents the 2021/22 Quarter 4 energy performance for CoL operational sites.

The continued reduction in 2021/22 was largely due to the reduction in building related activities and operations. In addition, work by both the sites and the Energy Team has enabled these savings to be secured. Please note, for the purposes of comparable analysis we have also shown the reduction from 2019 figures.

- The Q4 result for 2021/2022 was a 10% increase in energy consumption from Q4 2020/2021 when corrected for the impact of weather. This is due to the expected rebound as the gradual return to normal conditions post pandemic.
- Compared to the 2018/2019 Climate Action Strategy (CAS) baseline year, energy consumption reduced by 18% in absolute terms.
- Since 2018/2019 the entire portfolio CO_{2e} emissions have reduced by 11,650 tonnes (32% reduction), achieved through a combination of grid decarbonisation, energy reduction in buildings, and disposals.

Recommendation(s)

- Note new carbon and energy targets for operational buildings derived from the CAS targets as shown in the Appendix.
- Note the progress of £9.4m BEIS grant, covering the majority of capital investment needed for the PSDS project.
- Note the large majority of the PSDS funded work is now complete.

Main Report

Background

1. At OPPSC on 30th May 2022 the 21/22 Q3 Energy performance report was presented. This identified the rolling 12-month energy performance to Q3 as a 16% improvement on the weather corrected values for the Climate Action Baseline year of 2018/19.

2. This saving was due to the continued closure of buildings due to the Covid lockdown initiatives which occurred across this period, site disposals and active management of the BEMS by the Energy Team.
3. The CAS targets have now been incorporated into the Energy Performance report, replacing the previous Carbon Descent Plan targets for the Operational buildings.
4. The Public Sector Decarbonisation Scheme (PSDS) projects have supported this goal and all projects on the PSDS programme have reached GW5 or beyond. The RA-W contract, covering the majority of PSDS works commenced in September 2021. Full completion of the projects are expected by November 2022.

CAS target alignment

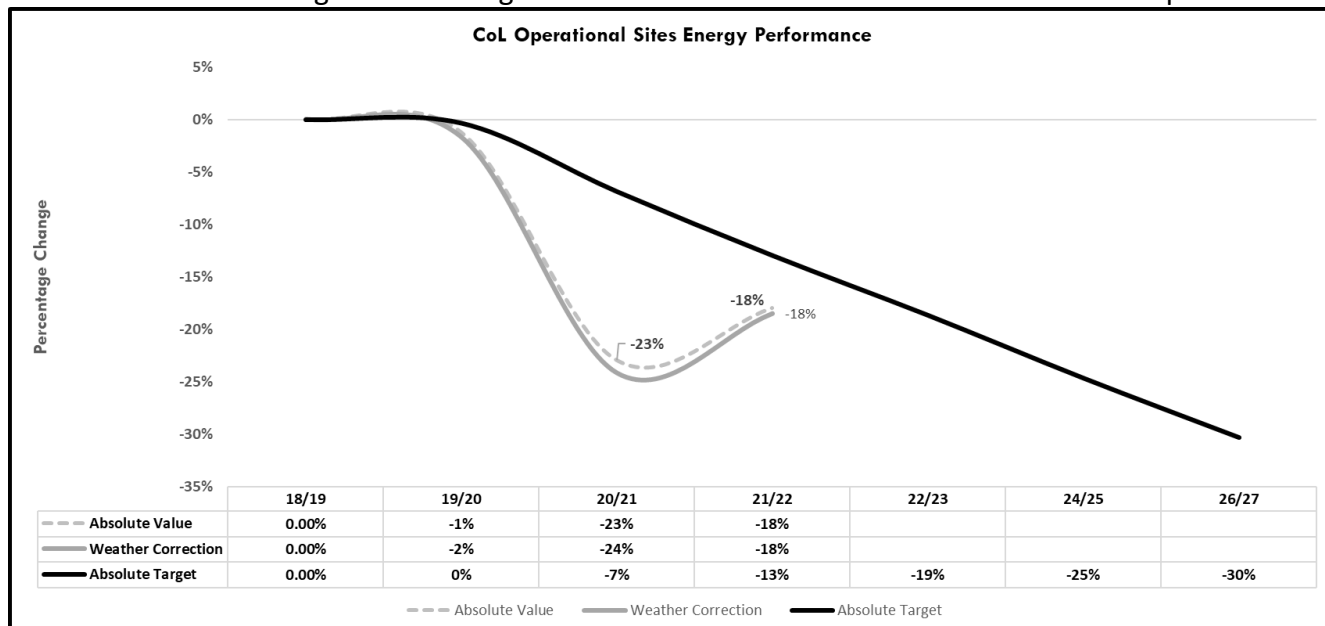
5. The Energy Team continue to collaborate with CAS on best practise methodologies for reporting KPIs and achieving overall CAS targets. The CAS buildings baseline includes the following:
 - Operational property portfolio; and
 - Landlord supplies to housing estates and investment properties
6. Approximately 60% of emissions relate directly to the operational property portfolio.
7. To achieve CAS Net Zero CO2 target by 2027, residual emissions are planned to be mitigated via land-based carbon sequestration from our green spaces. These targets are translated into energy and CO2e, see chart 1 and chart 2 below.

Current position

There has been a gradual increase in consumption since the previous quarter due to the return to normal operations. The impact of PSDS Energy saving projects will not be fully realised until later in 22. However, we remain on track to reach our CAS targets.

Performance update

Chart 1. Performance Against CAS Target: Absolute and Weather Corrected kWh Consumption

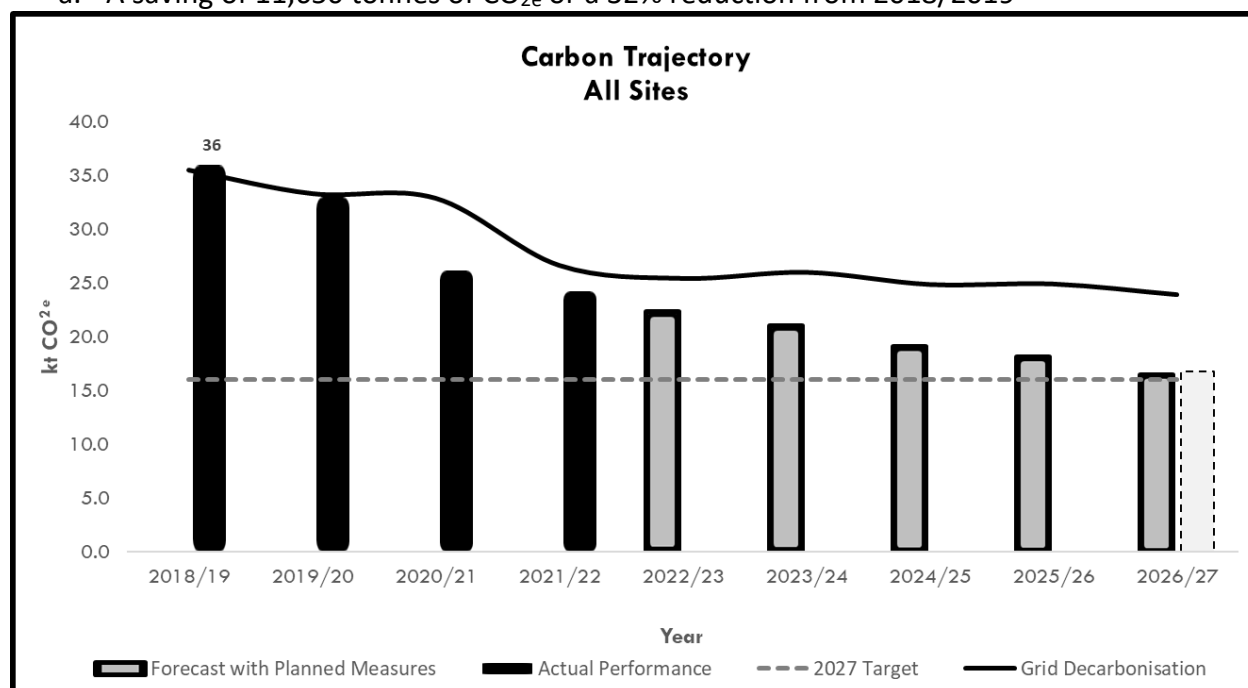


8. **Long term:** Chart 1 presents updated operational building targets to reflect 2018/2019 baseline data in conjunction with the Climate Action Strategy (CAS). It shows continued progress towards the interim target. Compared to the 2018/2019 baseline, the performance up to Q4 2021/2022 indicates:
- A 18% reduction in absolute energy consumption; and
 - A 18% reduction when corrected for the weather

A comparison of energy performance for Q4 2021/22 and Q4 2020/2021 shows an increase in weather corrected values by 10%. This was expected as we have returned to a normal mode of operations for the majority of 2021/22. However, we remain on track towards our CAS target. Further details can be found in table 1 of the appendix.

Chart 2. Carbon Trajectory presents progress towards the 2027 carbon target for the Corporation’s portfolio and shows:

- A saving of 11,650 tonnes of CO_{2e} or a 32% reduction from 2018/2019



The following provides a synopsis of Chart 2:

- The savings since 2018/19 demonstrate a positive trajectory for the Climate Action Strategy 2027 Net Zero Carbon target. Finalisation on the delivery of PSDS projects (table 4 of Appendix) will support continued reduction of emissions as we return to more sustained use of our buildings. The Energy Team recommends that sites continue to take active control of their energy consumption by ensuring proper maintenance of BEMS and staying on top of general operating/maintenance issues to ensure consistent reduction of carbon emissions.
- Building stock changes and improved control of our energy usage through Building Energy Management System (BEMS) control improvement within buildings has played a key role in capturing these savings. The PSDS project is expected to further enhance these savings upon completion.

11. Item 10 of the appendix provides an overview of the Operational property carbon performance, without landlord emissions for Housing and IPG portfolios. This currently shows 15.7 KtCO₂e of emissions, a reduction of 6.4KtCO₂e or 29% since 2018/19. This keeps the Operational property portfolio on track to support the City Corporation’s net zero carbon targets for 2026/27.

Table 1. Overall performance Q4 Top 5 and bottom five sites – weather corrected

| Top 5 Best Performing Sites Weather Corrected | Mar-19 | Mar-20 | Mar-21 | Mar-22 | Difference kWh 21 vs 22 | Difference kWh 19 vs 22 | Difference % 19 vs 22 |
|--|------------|------------|------------|------------|----------------------------|----------------------------|--------------------------|
| London Central Market (Smithfield) | 17,049,847 | 14,332,450 | 9,837,849 | 10,491,520 | 653,671 | -6,558,327 | -38% |
| Guildhall Complex | 17,810,289 | 17,306,302 | 13,787,993 | 14,319,976 | 531,984 | -3,490,313 | -20% |
| Barbican Arts Centre | 17,473,586 | 20,584,573 | 11,679,670 | 14,465,174 | 2,785,504 | -3,008,412 | -17% |
| Streetlighting | 3,622,410 | 3,124,297 | 2,212,522 | 1,983,340 | - 229,182 | -1,639,070 | -45% |
| Central Criminal Court | 7,825,308 | 6,853,478 | 5,771,230 | 6,631,306 | 860,076 | -1,194,002 | -15% |

| Bottom 5 Performing Sites Weather Corrected | Mar-19 | Mar-20 | Mar-21 | Mar-22 | Difference kWh 21 vs 22 | Difference kWh 19 vs 22 | Difference % 19 vs 22 |
|--|-----------|-----------|-----------|-----------|-------------------------------|----------------------------|--------------------------|
| New Street (21) | 1,807,820 | 1,902,878 | 1,793,435 | 2,545,050 | 751,615 | 737,229 | 41% |
| Walbrook Wharf Cleansing Depot | 1,727,333 | 1,902,766 | 1,769,201 | 2,124,381 | 355,180 | 397,048 | 23% |
| Open Spaces Epping Forest | 662,274 | 641,894 | 648,932 | 746,886 | 97,954 | 84,612 | 13% |
| Open Spaces Parliament Hill | 262,267 | 300,138 | 232,157 | 279,111 | 46,955 | 16,844 | 6% |
| Open Spaces Hampstead Heath Leisure | 656,692 | 702,492 | 513,847 | 671,636 | 157,789 | 14,944 | 2% |

12. Table 1 above provides a snapshot of the highest energy reductions and the greatest increases within the top thirty buildings over the past 12 months to March, when compared to the previous 12 months. The full list of the top thirty site performance and performance overview for bottom five increases can be found within table 1 of the Appendix.
13. The top sites have continued to show a reduction due to improved controls and implementation of energy saving measures and a decline in occupancy levels. Lighting upgrades have occurred at Guildhall and across streetlighting. Smithfield reductions are due to active management of the BEMS and reduced occupancy levels at the commercial offices. The Barbican Exhibition Halls have closed temporarily supporting further demand reduction.
14. The bottom sites can be attributed to increases in heating and refurbishment activities, as well as possible maintenance issues. Further, there has been an increase in occupancy levels due to a recruitment drive at 21 New Street. The energy team continue to collaborate with the sites to support reduction projects and provide training opportunities via webinars. Further information can be found in the Appendix.

Energy Team and other activity

Progress on energy projects

15. **The PSDS Project:** the scope of works included lighting upgrades, ventilation upgrades, building control upgrades and improvements, sub-metering, new energy management and building analytics software. These works are mostly complete across the Barbican Arts Centre, Guildhall, GSMD, and the LMA; with some remaining works and commissioning programmed up to November 2022. Verification of the savings is expected at gateway 6 in 2022.

16. **Energy Supply contract procurement:** Gas and electricity contracts have been procured using a “purchase in advance” approach for the period October 2021 -2025, this strategy is designed to return a market reflective price. We continue to procure volume for October 22 – September 23 via our Brokers (Laser Energy). Continued volatility in the marketplace has increased the likely impact of a significant impact into 23/24. The introduction of the City Corporation’s PPA will help significantly to mitigate the full impact of electricity prices rises when this begins operating in the Autumn.
17. **PPA:** The PPA contract with Voltalia UK Ltd. is in place and construction work on site at the South Farm Solar site near Blandford Forum is now very well advanced with completion expected by mid October 2022. Recently work has progressed with the electricity sub-station, grid connection is also due in October. Once operational, the PPA will provide over 50% of our electricity at ~ £37 MWh in 22/23 compared to the current market rates for electricity of ~£200 MWh. The PPA is expected to provide a £2.12m cost benefit in 2022/23 and a £7.35m cost benefit for 23/24 based on current market rates for grid connected electricity (Source: Mitie energy research).

Corporate and strategic implications

18. **Strategic implications:** Energy performance is linked to resilience and helps ensure business continuity through reduced pressure on the energy infrastructure within the square mile. We support a thriving economy through ensuring environmental responsibility in this way. Our energy performance helps to shape outstanding environments through the reduction of CO₂ emissions and our commitment to procuring clean renewable energy. In this way our energy performance helps shape outcomes 5, 11 and 12 of the Corporate Plan.
19. **Financial implications:** The savings in this report detail reductions in energy consumption and not against agreed budgets. For longer sustainable gains the focus needs to be on improving efficient use of energy, through targeted investment in energy saving measures. Note that savings from the PSDS project will be transferred to the Build Back Better fund for re-investment with further projects.

Conclusion

20. The Energy performance within Q4 remains on track with the long-term trajectory needed to meet our CAS targets for 2027. We continue to mobilise workstream (NZ1) related to operational buildings within the Climate Action Strategy and ensure delivery of the projects that form part of the PSDS project by Q2 2022/23. We remain confident that we can absorb the impact of the reoccupation of our building stock. Our new targets are challenging but achievable, requiring action in all areas of the Corporation to ensure we meet our planned objectives.

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