

Committee(s)	Dated:
Corporate Asset Sub-Committee (CASC)	28 th April 2021
Subject: 2020/21 Energy Performance Q3 Update	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?	Yes
Report of: The City Surveyor	For Information
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Summary

This report presents the 2020/21 quarter 3 energy performance for CoL operational sites.

The Q3 result for 2020/21 was a **14.3%** reduction in energy consumption from Q3 2019/20 when corrected for the impact of weather. Compared to the 2008/09 baseline the energy consumption reduced by **32.7%** in absolute terms.

Since 2008/9 the operational CO₂ emissions have reduced by **27,900** tonnes, through a combination of energy reduction in buildings and grid decarbonisation.

This continued reduction in 2020/21 was largely due to the reduction in building related activities and operations as a result of the coronavirus lockdown. Work by the Energy Team, particularly on Building Management Systems has enabled these savings to be secured.

Recommendation(s)

- Note the performance of Corporate building stock in quarter 3.
- Note the receipt of £9.4m from BEIS grant, covering 100% of capital investment needed for the PSDS project.

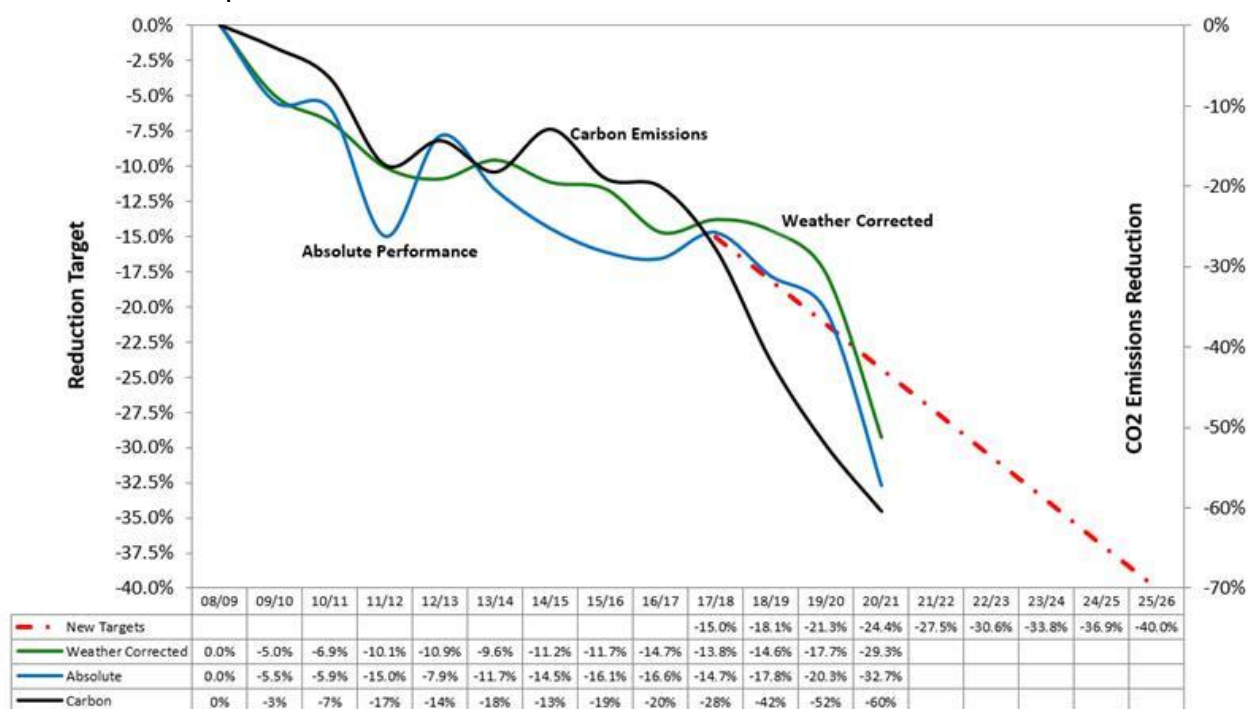
Main Report

Background

1. At CAsC on 18/11/20 the Q2 Energy performance report was presented. This identified the Q2 Energy Performance as an 11.4% improvement on previous the same period in 2019/20. This significant saving was largely due to the closure of buildings due to the Covid-19 lockdown which occurred across this period. The Carbon Descent Plan aims to reduce our weather corrected energy consumption by 40% by 2025/26. Aligned to the aims of the Carbon Descent plan, the recently adopted Climate Action Strategy has a goal of reaching Net Zero Carbon for Operational emissions by 2027.

Current Position
Performance Update

Chart 1. Overall performance Q3



2. **Long term:** Chart 1 presents an update on the long-term performance against target, including the interim performance up to Q3 20/21. Compared to the 2008/09 baseline the performance up to Q3 2020/21 indicates a 32.7% reduction in absolute energy consumption, translating to a 29.3% reduction when corrected for the weather and a saving of 27,900 tonnes of CO₂ or a 60% reduction from 2008/9. Additionally, our CO₂ emissions have reduced by 31% or 8,187 tonnes since 2018/19.

These figures show we are ahead of the target for the year and we are also ahead of our target to reach a 40% reduction in energy consumption by 2025/26. The savings since 2018/19 demonstrate a positive start for the Climate Action Strategy 2027 Net Zero Carbon targets.

Whilst we have benefitted from energy reductions due to the pandemic, building stock changes and improved control of our energy usage within buildings has played an important role in capturing these savings. In 2021/22 Investment in Energy Saving Measures will be stepped up as we deliver the Public Sector Decarbonisation Scheme Project, aiming to reduce emissions at key buildings (Barbican Arts Centre, LMA, GSMD & The Guildhall) by an additional 1,500 tonnes of CO₂e per annum. It is anticipated that this investment alongside close control of Building Energy Management Systems (BEMS) will enable us to keep on track to meet the 40% reduction target by 2025/26.

Table 1. Overall performance Q3 Top 5 and bottom 5 sites.

Weather corrected rolling 12-month comparison: 12 months to Dec-20 (20/21) compared to 12 months to Dec-19 (2019/20)				
Site Name	Dec-19	Dec-20	kWh Diff.	Diff. %
Top 5				
Smithfield	15,118,674	10,761,844	-4,356,830	-29%
BAC	18,392,319	15,389,946	-3,002,373	-16%
Guildhall	17,380,631	15,202,156	-2,178,475	-13%
Central Criminal Court	7,273,167	6,208,101	-1,065,067	-15%
GSMD Milton Court	3,283,278	2,547,057	-736,221	-22%
Bottom 5				
Walbrook Wharf	1,657,364	1,924,723	267,359	16.1%
Animal Reception	700,796	785,276	84,480	12.1%
21 New Street	1,813,859	1,867,491	53,632	3.0%
Open Spaces Parliament Hill	263,365	304,933	41,568	15.8%
Open Spaces Epping Forest	612,979	654,197	41,218	6.7%

3. **Table 1** provides a snapshot of the highest energy reductions and the greatest increases within the top 30 buildings over the past 12 months to December when compared to the previous 12 months. The full list of the top 30 site performance and performance overview for bottom 5 increases can be found within Appendix 1. The Energy team are in contact with sites in the bottom 5 sites to rectify issues.

Energy Team Activity

Progress on Energy projects

4. **The PSDS Project** includes works (26 sub-projects) to upgrade M&E building services (heating, cooling, ventilation, and lighting) and improve building controls and energy metering across the following four sites: Guildhall, Barbican Art Centre, GSMD, and the LMA. We estimate the projects will deliver carbon savings of c.1.5 ktCO₂e/yr and energy cost savings of c.£875k/yr. Over a projected 15 year lifecycle the estimated cost benefit from the PSDS project is as follows:

Table 2. Total expected CO₂ savings and estimated total cost benefit from PSDS Project over 15-year life cycle.

Grant Income	Total Energy Cost	Cost benefit	Carbon savings (tCO ₂ e)
£9.4M	£13.1M	£22.5M	7,740

Additionally, the PSDS project is expected to reduce the burden on the Cyclical Works Programme and Forward Maintenance Plan.

Table 3 provides a summary of the key project figures relating to each site, and further details on the specific projects are provided in the Appendix. Please note, N/A relates to software packages to support metering/control across all sites.

This project is 100% funded by a BEIS Public Sector Decarbonisation Scheme grant.

Table 4. PSDS project breakdown by building showing projected cost and carbon savings.

Site	Total Project Cost	Energy Cost savings (£/yr)	Carbon savings (tCO2e/yr)
BAC	£3,545,957	£311,815	516
GSMD	£3,129,723	£211,023	456
GHC	£2,484,072	£341,917	570
LMA	£97,257	£10,001	8
N/A	£188,939	£0	0
Grand Total	£9,445,948	£874,756	1,549

5. **Energy Management system replacement:** The Energy Team have complete the procurement of a new Energy Management system for the replacement of the outdated Systemslink software. The new system called “Team Sigma” will be rolled out in the coming months and is budgeted at £50,000 with 100% of costs being met by PSDS grant funding. Key stakeholder engagement activities have begun. It is anticipated the new system will be operational by June 2021, the previous system will be maintained during the transition between systems. Once the system is operational we will be able to review future reporting and align with the Climate Action Strategy and it’s reporting dashboard.
6. **Pandemic Impacts:** The Energy Team remain proactive at managing the energy usage within our buildings during the Pandemic. In the 12 months to December 2020, we have seen a 14.3% reduction from the previous 12 months. This compares to a current reduction in UK power demand of approximately 6% based on pre-pandemic levels. The UK has seen a rise in demand, which we expect to continue as we exit lock-down restrictions. The Energy Team anticipate that as buildings are re-occupied, our recent gains will be eroded. Having said this, our plans to improve and upgrade our control systems at key buildings (e.g. Guildhall and Barbican Arts Centre), through state of the art building management systems and low energy lighting installations, will help to mitigate against rising energy consumption following the re-occupation of buildings. Some increases may be seen in areas and the Energy Team will closely manage those sites affected. Appendix 4 provides a chart on UK weekly Power Demand 2016-2020 for more detail.
7. **Energy Supply contract procurement:** Gas and Electricity Contracts have been procured for the period October 2021 -2025. The energy purchases will be made using agreed “Purchase in Advance” pricing strategy via a LASER framework. This will ensure that sufficient trading opportunities will exist before the commencement of the contract to reduce any short-term purchasing risks. Significant cost savings are anticipated. Additionally, we have procured a new Meter Operator Contract under the LASER framework for the period 2021 – 2025. Savings of £20k expected for the contract duration and will improve visibility to our energy data.
8. **PPA:** The PPA contract has now been agreed with Voltalia UK Ltd., Work on site at the South Farm Solar site near Blandford Forum has begun with foundation tests and welfare facilities being established in April. As we are seeing rising electricity prices in the market the current price of £50.7 MWh for grid electricity means that we have achieved increased financial benefit through the PPA with a unit price 26% lower than this.

9. **Markets:** We have completed the reporting for Climate Change Agreement target period 4 (2019-2020) for Smithfield Market. This has resulted in a financial benefit to the market of £103,574 through exemption from the Climate Change Levy. This will be passed onto the market tenants.

Corporate & Strategic Implications

10. **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.
11. **Financial implications:** The savings in this report largely arise because of reduced energy usage due to the pandemic rather than improvements in energy efficiency and will be eroded as staff return to work. For longer sustainable gains the focus needs to be on improving efficient use of energy which is why projects such as the PSDS project are key to this objective.
12. **Climate implications:** Energy performance has a direct impact on the Climate. As such performance improvements are a key metric in measuring our trajectory to meeting the ambitions of the Climate Action Strategy and reaching Net Zero Carbon.

Conclusion

13. The Energy performance within Q3 has seen a sustained reduction in consumption across the corporation. Whilst the impact of the pandemic has been positive in respects to the energy consumption over the last 12 months, we anticipated a bounce back in consumption as we reoccupy our building. We have in place measures and will be delivering significant projects over the next year, to ensure the savings we have made are secured for the longer term.

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