

Committee:	Dated:
Corporate Asset Sub-Committee (CASC)	5 th June 2019
Subject: Annual Energy Performance Report 2018/19	Public
Report of: The City Surveyor	For Information
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Summary

This report presents the 2018/19 Annual Energy Performance Report with the results of the energy consumption for CoL operational sites and an update on the annual trend to meet the energy reduction targets set out in the Corporation's Carbon Descent Plan.

The weather corrected energy consumption for the CoL operational sites **decreased 2.5%** in 2018/19 compared to 2017/18. The Guildhall Complex was the main contributor to the energy reduction, supported by reductions at New Spitalfields Market, Central Criminal Court, Barbican Arts Centre and City of London School. This was partly countered by significant increases in energy consumption at CoL Freeman's School, GSMD Milton Court and Tower Bridge.

The annual performance up to 2018/19 indicates a 19.4% reduction in absolute energy consumption, translating to a 16.5% reduction when corrected for the weather against the 2008/09 baseline. This is short of the target by ~1.5% for a 18% reduction in weather corrected energy consumption by 2018/19 in order to be on course for a 40% reduction by 2025/26.

Recommendation

That the Sub Committee receive the report as information.

Main Report

Performance update

1.1 The weather corrected energy consumption for Apr-18 to Mar-19 was 2.5% lower than the consumption over Apr-17 to Mar-18, as presented in Table 1 below. Appendix 1 presents the performance of the top 30 sites which account for ~98% of the consumption.

1.2 Table 1. Performance comparison by site group: 2018/19 with 2017/18

Group	2017/18	2018/19 up to Q4	Diff. kWh	Diff. %
Walbrook Wharf	1,933,581	1,699,369	-234,211	-12.1%
GHC	19,650,648	17,318,337	-2,332,310	-11.9%
CoL Boys	3,412,625	3,123,012	-289,613	-8.5%
Police	6,202,265	5,855,872	-346,393	-5.6%
Courts	8,561,132	8,239,862	-321,270	-3.8%
M&CP*	29,936,343	29,271,739	-664,604	-2.2%
TC	1,425,386	1,389,152	-36,234	-2.5%
BAC	17,420,016	17,096,058	-323,957	-1.9%
BE	6,003,994	6,007,297	3,302	0.1%
CoL Girls	2,224,762	2,244,760	19,998	0.9%
Mansion House	2,199,224	2,306,203	106,979	4.9%
OS	7,588,232	8,037,101	448,869	5.9%
GSMD	7,390,072	7,867,222	477,149	6.5%
CoL Freeman's	4,316,320	4,874,703	558,383	12.9%
City Surveyor's	28,816	37,349	8,532	29.6%
Total	118,293,417	115,368,037	-2,925,380	-2.5%

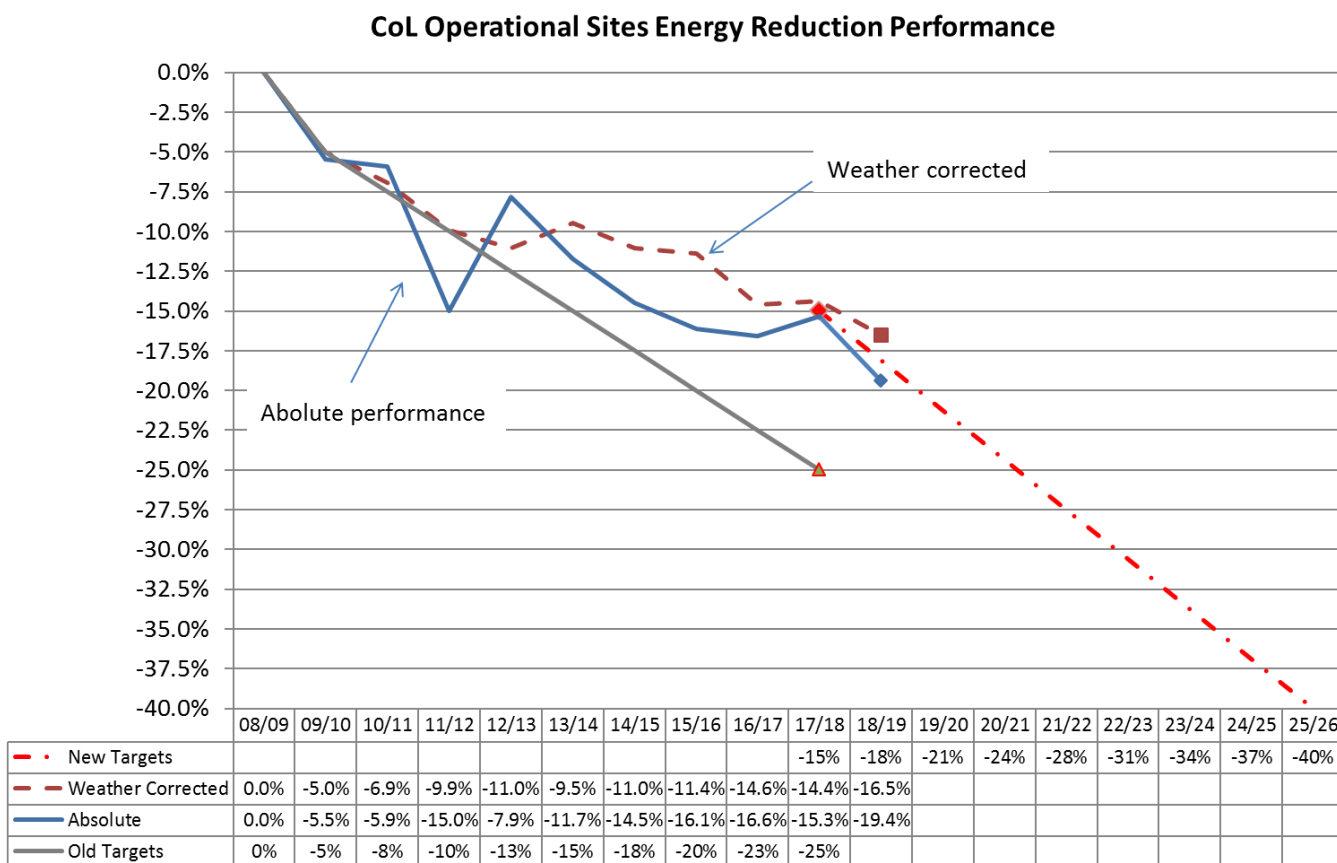
*includes tenant's consumption

- 1.3 **Guildhall Complex (GHC):** over half the energy reduction at GHC relates to the gas steam generators whose consumption has reduced by 40% due to a combination of site FM actions to minimise unnecessary usage (especially over the summer period) and partly due to cessation of generation for half of the site due to plant faults. The Energy Team have worked closely with site FM to implement improvements to the BEMS control of the HVAC. This has contributed to an overall reduction of heat consumption of 11% and electricity consumption of 3.5%. Further savings are being achieved as the Energy Team continue to optimise the building controls which will be accelerated through the support of a new BEMS specialist from Jun-19. The Energy Team are progressing opportunities for future options for site-wide cooling and humidification, improved sub-metering, and investment into ventilation plant upgrades.
- 1.4 **Walbrook Wharf:** overall energy consumption was down mainly due to a reduction in gas consumption as a result of the workshop space heating system being replaced. This was countered by an increase in electricity due to temporary heating in use. Electricity use of the main office block has reduced, likely due to occupancy changes. In the next few months, we are expecting a rise in the energy consumption is likely to increase in the short-term as site occupancy increases and Veolia commence their electric vehicle charging.
- 1.5 **LCM (Smithfields):** cooling consumption was significantly higher over the unseasonably warmer summer period but continued to be higher over the autumn. The Energy Team investigated and adjusted BEMS controls and this has shown a 30% reduction in cooling consumption since implemented. Smithfields electricity consumption has reduced ~3.5%, mainly driven by improvements to the car park ventilation control initiated by the Energy Team and further supported by new LED lighting and resolving HVAC maintenance issues. These savings were partly offset by a 10% increase in electricity for the Poultry & General market due to new tenant refrigeration. The Energy Team have identified significant further savings potential relating to the zoned and seasonal control of heating and cooling and will be working closely with the site to achieve these.
- 1.6 **New Spitalfields Market:** an 8% reduction in electricity consumption at New Spitalfields is probably a temporary reduction related to reduced tenant refrigeration equipment, and further reductions from this source are unlikely to carry forward into 2019/20.

- 1.7 **Barbican Arts Centre (BAC):** the site has seen significant reductions in energy consumption across its services and areas. Based on typical weather conditions cooling consumption is down 8% due to site FM improvements to control settings. Excluding the Exhibition Halls, the electricity consumption is down ~5% again related to improved cooling control but also new efficient ventilation fans/motors for the Concern Hall, Catering and library and replacement pneumatic air compressors. The closure of the Art Gallery for refurbishment has also partly contributed to this reduction. The HVAC controls at the Exhibition Halls are past their economic life and systems are now unable to function efficiently and require regular manual intervention which remains barrier to energy reductions. The Energy Team are working with site FM to progress a range of measures including LED lighting, pump and motor/fan upgrades, and further control strategy improvements.
- 1.8 **GSMD (Silk St. & Milton Ct. & Sundial Ct.):** the heating consumption has been significantly higher over the last year, especially for Milton Ct. (up 32%) due to occupant requests for higher space temperatures and longer heating hours. Electricity consumption increased by ~3% overall, mainly related to the John Hose Annexe and Silk St. Cooling consumption for Milton Ct. has been reducing significantly over recent months, probably due to control improvements undertaken by BAC FM. The Energy Team have completed several audits of the sites and are progressing measures including LED lighting, ventilation motors, and BEMS control strategy improvements.
- 1.9 **Central Criminal Court (CCC):** heating oil consumption reduced by 20% following an ongoing lower trend since Apr-18 when site FM actions, supported by the Energy Team, have been taken to improve the operation of the old boiler boilers with further improvements in progress. This has been supported by an energy audit of the CCC and specific steam system survey. LED lighting upgrades, improved BEMS settings, and chiller controls are being considered. As the phased refurbishment continues, energy should reduce, but significant reductions will only come once older heating and cooling plant is decommissioned at the end of the programme.
- 1.10 **Mansion House:** energy consumption increases relate to HVAC maintenance issues; some have now been resolved. The Energy Team are working with site FM to progress issues around the seasonal control of the chillers and the control strategy for the ventilation plant.
- 1.11 **Freemen's:** most of the increased energy relates to the new swimming pool, but also significantly higher heat consumption for Philp House due occupation changes to support site redevelopment. An energy audit has been completed by the Energy Team and measures for LED lighting and improved building control are being considered. The Energy Team will also be working with the site to improve HVAC control settings.
- 1.12 **CoL Boys:** Gas consumption reduced by 17% related to new gas boilers and improved heating control. An energy audit has been completed by the Energy Team and measures for LED lighting, ventilation motor controls, and improved building control are being considered.
- 1.13 **CoL Girls:** overall electricity consumption was slightly higher, mainly a result of increase off-peak heating which will be investigated. The Energy Team have provided an energy audit for the school and work particularly focused on a more efficient swimming pool plant.
- 1.14 **CoL Police:** in line with the accommodation changes, there were reductions at Snowhill and Wood St. and increases at Bishopsgate. It should be noted that currently the department's consumption excludes 21 New Street, which is being occupied from 2018 for about 8 years during the accommodation changes.

- 1.15 **Tower Bridge:** Gas consumption doubled, possible relating to the new gas boilers providing increased heating services. The Energy Team will investigate the heating control to see if any improvements can be made. The main electricity consumption decreased by 15% probably as the result of electric heating being replaced by the new gas boiler system.
- 1.16 **London Metropolitan Archive (LMA):** electricity for the offices reduced by ~8% and appears to relate to improvements to the comfort cooling systems. However, there was increased electricity consumption within the archives, and data indicates excessive usage over Jan-19 which the Energy Team will investigate. The Energy Team have undertaken an audit of the LMA and are considering an improved zoned HVAC solution for the archives.
- 1.17 **CoL Cem. & Crem.:** the main cremators consumed slightly less gas this last year. There was an increase in electricity consumption for the workshops, probably related to increased electric vehicle charging.

Chart 1. Overall performance change from the 2008/09 base year



Conclusion

2.1 The 2018/19 annual performance shows an overall decrease of 2.5% in weather corrected energy consumption compared to 2017/18. This is ~0.5% short of the annual target for a ~3% reduction per year. Compared to the 2008/09 baseline the performance up to 2018/19 indicates a 19.4% reduction in absolute energy consumption, translating to a 16.5% reduction when corrected for the weather. This is short of the target by ~1.5% for a 18% reduction in order to be on course for a 40% reduction by 2025/26.

2.2 Please note, this annual report provides an update on all CoL operational sites. As previously agreed, future quarterly reports (Q1, Q2, Q3) will focus purely on the quarterly progress of the

top 30 sites which account for ~95% of the energy consumption. Appendix 1 provides an update on the performance for each of the top 30 sites for 2018/19 Q4.

- 2.3 Please also refer to Appendix 3 providing information on energy intensity metric and benchmarking that was presented at the last Property Investment Board (PIB) committee. It was agreed to support and prioritise the sub-metering project for Guildhall.
- 2.4 Finally, to make progress on the 40% energy reduction target by 2025 will require funding and support to prioritise energy efficiency opportunities identified for big consuming sites. At present, the Energy Team is developing a project pipeline needing investment worth £1.8m. Various funding routes are being explored including the Gateway report and Salix, an interest free loan available to public sector to carry out energy efficiency projects.

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