

<b>Committee:</b>	<b>Dated:</b>
Corporate Asset Sub (Finance)	30 January 2019
<b>Subject:</b> 2018/19 Q2 Energy Performance Update	<b>Public</b>
<b>Report of:</b> The City Surveyor	<b>For Decision</b>
<b>Report author:</b> James Rooke, Corporate Energy Manager	

### Summary

This report presents the 2018/19 Q2 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 12 months' performance estimate up to and including 2018/19 Q2 indicates a 15.2% reduction in weather corrected consumption when compared to the 2008/09 baseline.

The 2018/19 Q2 results show an overall weather corrected **decrease of 1.8%** compared to 2017/18. Energy saving initiatives at the Guildhall Complex, Central Criminal Court, and New Spitalfields Market have been the main drivers behind energy consumption reductions, whilst the energy consumption has increased at Smithfield Market, GSMD Milton Court, Bishopsgate Police Station and, in particular, CoL Freemans School where a new pool has been installed.

A reduction of 3.8% in 2018/19 is required to maintain the target reduction trajectory indicating that the 1.8% achieved in Q2 is close to meeting this target.

The report also provides an update on energy projects progress which identifies a savings potential of £1.5m annual savings.

### Recommendation

- a) It is recommended that a new method comparing the performance of the top 30 highest consuming sites is adopted for the next report. The new method would cover 98% of the Operational Portfolio's energy consumption and result in a more focused approach to energy consumption reduction measurement and targeting. The proposed format of the reporting is presented below in Table 2. Performance comparison: 2018/19 Q2 with 2017/18.
- b) It is further recommended to move to only reporting on Half Hourly data for electricity and gas sites that already are or shortly will be AMR capable. Benefits from this approach:
  - More accurate data
  - Reduced data lag
  - Reduced administrative effort which could be re-focussed on reduction initiatives

### Main Report

#### Performance update

1.1 The weather corrected energy consumption for Oct-17 to Sep-18 was 1.8% lower than the consumption over Apr-17 to Mar-18, as presented in Table 1 below.

Table 1. Performance comparison: 2018/19 Q2 with 2017/18

Department	Base Year: Apr-17 to Mar-18	Report Year: Oct-17 to Sep-18	Diff. kWh	Diff. %
Courts	8,743,215	8,093,528	-649,687	-7.4%
GHC	19,724,647	18,450,617	-1,274,030	-6.5%
CoL Boys	3,282,383	3,126,438	-155,945	-4.8%
OS	8,320,479	8,080,622	-239,857	-2.9%
DBE	6,094,863	5,945,968	-148,895	-2.4%
CoL Girls	2,208,074	2,167,275	-40,799	-1.9%
M&CP	29,965,774	29,594,069	-371,704	-1.2%
BAC	17,462,811	17,342,639	-120,172	-0.7%
Police	6,204,139	6,196,617	-7,522	-0.1%
TC	1,425,621	1,451,566	25,945	1.8%
GSMD	7,413,756	7,605,482	191,725	2.6%
Mansion House	2,189,797	2,279,551	89,754	4.1%
Walbrook Wharf	1,920,594	2,025,663	105,069	5.5%
CoL Freeman's	4,331,107	4,798,495	467,388	10.8%
City Surveyor's	27,754	38,733	10,979	39.6%
<b>Grand Total</b>	<b>119,315,014</b>	<b>117,197,263</b>	<b>-2,117,751</b>	<b>-1.8%</b>

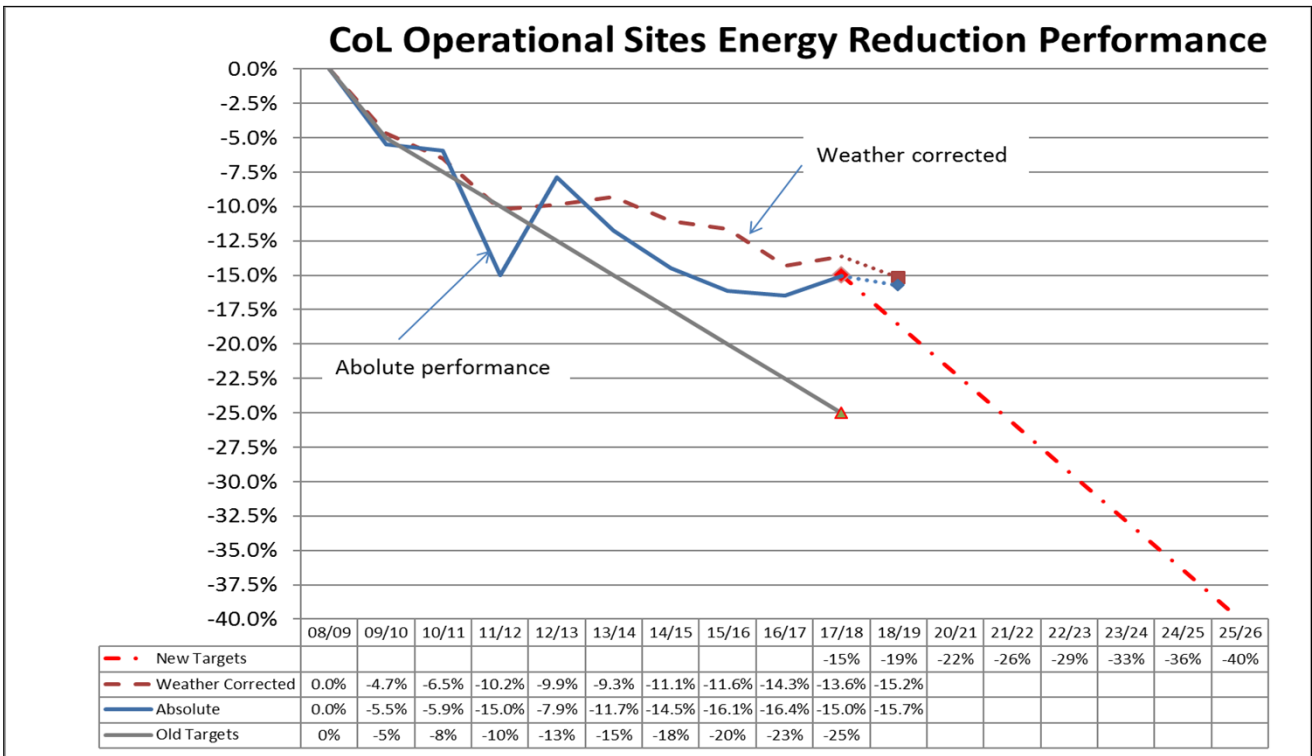
\*includes tenant's consumption, see Appendix B for tenant/landlord breakdown.

- 1.2 **Courts:** Central Criminal Court oil consumption for the old boilers providing heating and humidification has significantly reduced due to site FM operating a more efficient boiler management approach during times of low demand. Electricity for CCC also reduced, likely related to the more efficient new ventilation plant being phased in.
- 1.3 **GHC:** Actions taken to limit unnecessary summer time humidification resulted in a 25% reduction in gas for steam generation. Control improvements have also resulted in a ~6% reduction in Citigen heat consumption and lower electricity consumption related to the West Wing ventilation plant. There is continued reductions for the Old Justice Rooms, related to equipment decanting and improvements to the chillers operation.
- 1.4 **CoL Boys:** Gas consumption reduced following the installation of new gas boilers.
- 1.5 **OS:** Tower Bridge gas consumption reduced, likely related to the new gas boilers. Electricity consumption was also lower over the summer period, which may relate to changes in occupancy patterns or events/functions. The C&C saw lower gas consumption for the new crematorium, probably related to reduced service demand. This was partly offset by higher gas consumption for the Church probably related to heating control issues. Electricity reductions were seen at The Warren Offices and Harrow Road, related to the installed solar PV.
- 1.6 **DBE:** Street Lighting electricity consumption reduced due to upgrades to LED with smart controls. This was partly offset by an increase in electricity consumption at UTST due to an ongoing maintenance fault with the lighting.
- 1.7 **CoL Girls:** There were a number of small increases and decreases in energy consumption across the City of London School for Girls. The data indicates space heating to the pool hall was off over the summer period, this should be checked to ensure condensation does not

occur. One electricity supply shows an ongoing trend of higher electricity consumption since late 2017; this should be investigated further.

- 1.8 **M&CP:** Significant reductions in electricity consumption at New Spitalfields Market were supported by moderate ongoing reductions in electricity consumption for Billingsgate Market. In addition, HARC saw gas reductions related to improved heating control. This was partly offset by increased heat consumption at Smithfields relating to heating system issues, and increased electricity consumption relating to the P&G Market.
- 1.9 **BAC:** The data indicates an improvement in the cooling consumption efficiency, but this is probably a return to more normal performance following elevated levels over 2017 as a result of a temporary art exhibition. This was offset by an increase in electricity consumption for Exhibition Hall 1 which has increased significantly since Jun-18. This relates to issues with the old control systems being ineffective. Electricity consumption also reduced for the Theatre, possibly due to changes in event usage.
- 1.10 **CoL Police:** WSPS and Snowhill PS electricity consumption continues to gradually fall, as it has over the last few years. Meanwhile, Bishopsgate energy consumption has been increasing. These changes are related to accommodation and occupancy changes and will continue into 2019.
- 1.11 **TC:** LMA's gas consumption was marginally higher.
- 1.12 **GSMD:** GSMD Silk Street Citigen heat consumption increased and the data shows a higher constant base load, this is partly due to pressure from school management for higher temperatures and extended heating times in reaction to student satisfaction. There was also a small increase in general electricity and indicated higher peak and base loads, probably related to equipment being left on unnecessarily. Milton Court electricity consumption continues on an increasing trend which started in late 2017. Sundial Court gas consumption related to the back-up heating boilers has been higher than normal since the resolution of the Citigen supply disruption - this should be investigated by the site.
- 1.13 **MH:** Electricity increase significantly over July and August, likely related to maintenance issues preventing correct control of the chiller plant. Increased gas consumption may be relating to increased event usage and hot water but may also relate to a control issue the site is trying to resolve with the boilers and ventilation systems. Reduced catering gas consumption likely related to usage/events
- 1.14 **WW:** The increases relate to the Amey demise where electricity has been significantly higher. This may relate to the provision of temporary electric heaters due to the failure of the gas heating system. Gas consumption for the Amey demise was also higher in August-18.
- 1.15 **Freemen's:** The new swimming pool is the main reason for the significant increase in energy consumption at City of London Freemen's School. There was an increase in summer gas consumption, probably related to hot water demands. There was a notable reduction in electricity consumption for the Sports Hall, likely partly relate to the installation of Solar PV.

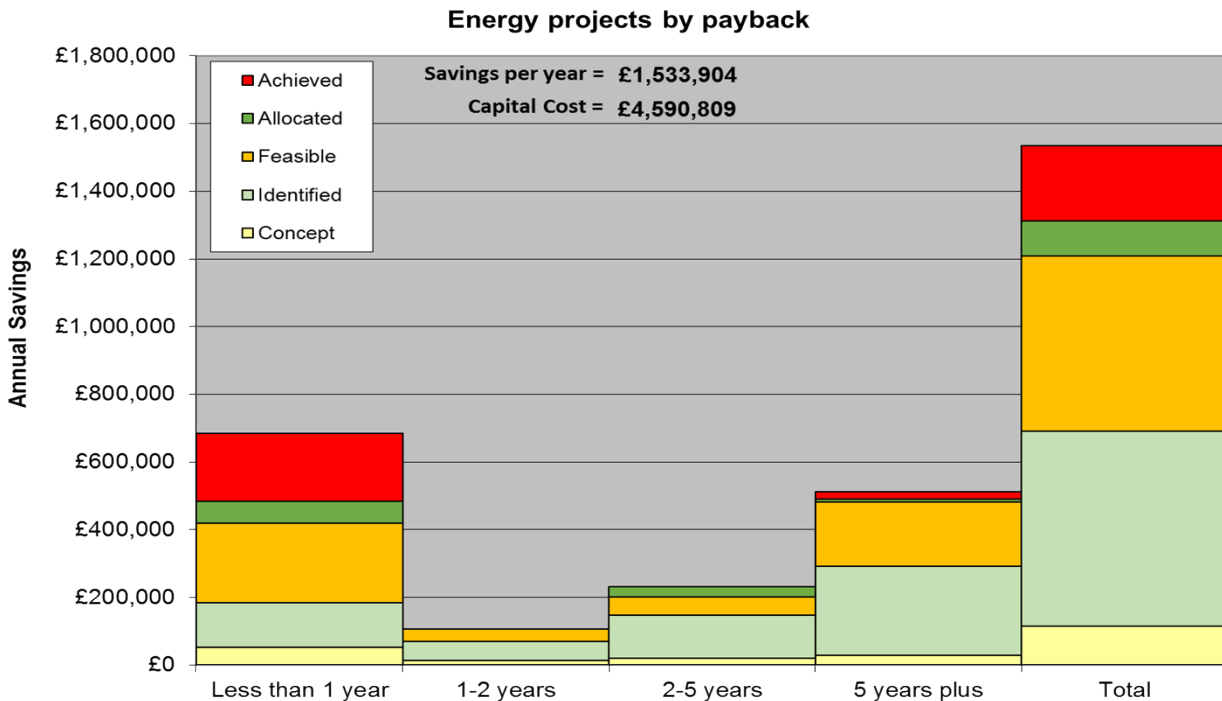
Chart 1. Overall performance change from the 2008/09 base year



### Projects update

1.16 To sustain the continued trajectory of energy savings, investment in both capital and resources is being pursued through the gateway process. A summary dashboard is provided below in chart 2 below\*. We anticipate that the first tranche of projects will be submitted via the gateway process in March 2019 with a value of circa £1m.

Chart 2. Energy projects dashboard



\*note this includes approximately £200k low cost initiatives already achieved.

## Conclusion

- 2.1 The Q2 results show an overall decrease of 1.8% in weather corrected energy consumption compared to Q2 2017/18.

**What this means:** For CoL to achieve a 40% reduction by 2025/26 from Q2 2018 performance a further 24.8% reduction is required. This equates to a linear reduction target of 3.8% per year (over remaining 6.5 years).

As the present 1.8% reduction relates to a 6-month period (Q1 & Q2 2018) this indicates a projected annualised decrease of 3.6% for 2018/19. This suggests that CoL are at present close to achieving the 3.8% target for the year if savings continue at current levels.

It will be necessary to invest further in capital and resources to maintain the desired savings trajectory. This is discussed in the projects update section above.

**Table 2. Performance comparison: 2018/19 Q2 with 2017/18**

Site	2017/18	2018/19 Q2	Diff. kWh	Diff. %
Guildhall Complex	19,724,647	18,450,617	-1,274,030	-6.5%
London Central Market (Smithfield)	18,065,158	18,230,978	165,819	0.9%
Barbican Arts Centre	17,462,811	17,342,639	-120,172	-0.7%
Central Criminal Court	8,508,787	7,876,241	-632,546	-7.4%
New Spitalfields Market (Landlords)	7,371,260	6,989,674	-381,586	-5.2%
City of London Freeman's School	4,331,107	4,798,495	467,388	10.8%
Streetlighting	3,873,631	3,677,211	-196,420	-5.1%
GSMD - Milton Court	3,486,020	3,615,133	129,113	3.7%
Bishopsgate Police Station	3,450,449	3,566,630	116,180	3.4%
Billingsgate Market	3,532,006	3,506,715	-25,291	-0.7%
City of London Crematorium	3,219,259	3,186,159	-33,100	-1.0%
City of London School	3,226,939	3,088,495	-138,444	-4.3%
Mansion House	2,189,797	2,279,551	89,754	4.1%
GSMD	2,229,534	2,264,611	35,077	1.6%
City of London School For Girls	2,208,074	2,167,275	-40,799	-1.8%
Walbrook Wharf Cleansing Depot	1,920,594	2,025,663	105,069	5.5%
Tower Bridge	1,862,501	1,732,900	-129,601	-7.0%
GSMD - Sundial Court	1,698,202	1,725,737	27,535	1.6%
Wood Street Police Station	1,706,546	1,670,024	-36,522	-2.1%
London Metropolitan Archives	1,381,826	1,407,798	25,972	1.9%
Snowhill Police Station	988,661	903,263	-85,398	-8.6%
Animal Reception Centre	880,726	745,024	-135,702	-15.4%
Open Spaces Hampstead Heath Leisure	703,225	698,384	-4,841	-0.7%
Open Spaces Epping Forest	661,946	656,763	-5,182	-0.8%
Tower Hill Coach & Car Park	497,707	535,514	37,807	7.6%
Open Spaces Golders Hill & Extension	430,468	363,961	-66,507	-15.4%
Upper Thames Street Tunnel Lighting	260,690	288,660	27,970	10.7%
Open Spaces Parliament Hill	287,167	276,998	-10,170	-3.5%
Minorities Car Park	239,952	252,274	12,322	5.1%
London Wall Car Park	215,808	221,797	5,989	2.8%
<b>Total</b>	<b>116,615,502</b>	<b>114,545,186</b>	<b>-2,070,316</b>	<b>-1.8%</b>

**James Rooke**

Corporate Energy Manager

City Surveyor's Department

E: [james.rooke@cityoflondon.gov.uk](mailto:james.rooke@cityoflondon.gov.uk)