Committee: Finance Committee	Date: 9th December 2014
Subject: Energy Targets 2014 – 2018 (CS/441/14)	**Public**
Report of: The City Surveyor	**For Decision**

Summary

The purpose of this report is to agree an energy reduction target of 9% for the period 2014/15 – 2017/18 based on 2008/09 energy consumption levels, which would bring the overall reduction to 25% since 2008/09. The adoption of this 9% energy reduction target is recommended in order to maintain the momentum of energy reduction saving already achieved and contribute to the overall 40% reduction target by 2025.

This report also highlights the risk to the City of London of rising energy prices. It refers to a consultant's report that proposes the establishment of an internal pilot "invest to save" Energy Efficiency Fund (EEF) scheme, to assist departments in reducing their absolute energy use. Such a fund would also assist in achieving the 9% reduction target.

A pilot EEF would provide funding of up to £0.5m per year for a 1 year initial pilot to fund energy efficiency projects which would typically pay for themselves within three to eight years. Energy reduction targets will be revised in the light of the success of the pilot EEF. Projects over £50,000 in value submitted for consideration under the EEF will be subject to the normal corporate project management process. A bid detailing the EEF proposal and how the funding will be resourced will be made to Resource Allocation sub-Committee in the near future.

Recommendation

It is recommended that Finance Committee:

- agrees an energy reduction target of 9% for the period 2014/15 – 2017/18;
- agrees that the City Surveyor should be tasked with bringing appropriate "invest to save" schemes through the Project Procedure;
- agrees that the City Surveyor should be tasked with revising targets (annually) for individual Chief Officers based on their savings potential;
- notes the work to establish an internal Energy Efficiency Fund (EEF) to provide funding of up to £0.5m for a trial period of 1 year for smaller energy efficiency projects; and
- notes the recommendations of the SER set out at Appendix 1.

Main Report

Background

1. The City's current energy bill (excluding vehicle fuel and water) is £15.1m and this is expected to increase by 40% over the next five years. This is principally due to energy infrastructure charges and major shift upwards in wholesale prices could exacerbate this scenario. A Strategic review of the City's energy usage was

undertaken in 2013 (Strategic Energy Review - SER). The SER identified 14 recommendations for the City's future energy use. These are summarised at Appendix 1. It also identified that a target of 9% energy reduction for the period 2014/15 to 2017/18 would be appropriate and achievable through a combination of 'Business as Usual' (BAU) and implementation of "invest to save" projects. An overview of these project scenarios is outlined in Appendix 2.

2. An independent study commissioned by the City of London in 2010 and revisited in 2013 forecast that even if wholesale energy costs remain the same, increasing energy infrastructure prices will see energy bills increase by up to 40% over the next five years.

3. The City of London Corporation is recognised as a leader in energy management and has succeeded in reducing its energy consumption by 16% since 2008/09. However, further work is needed to reduce the impact of the anticipated price rises.

Strategic Energy Review

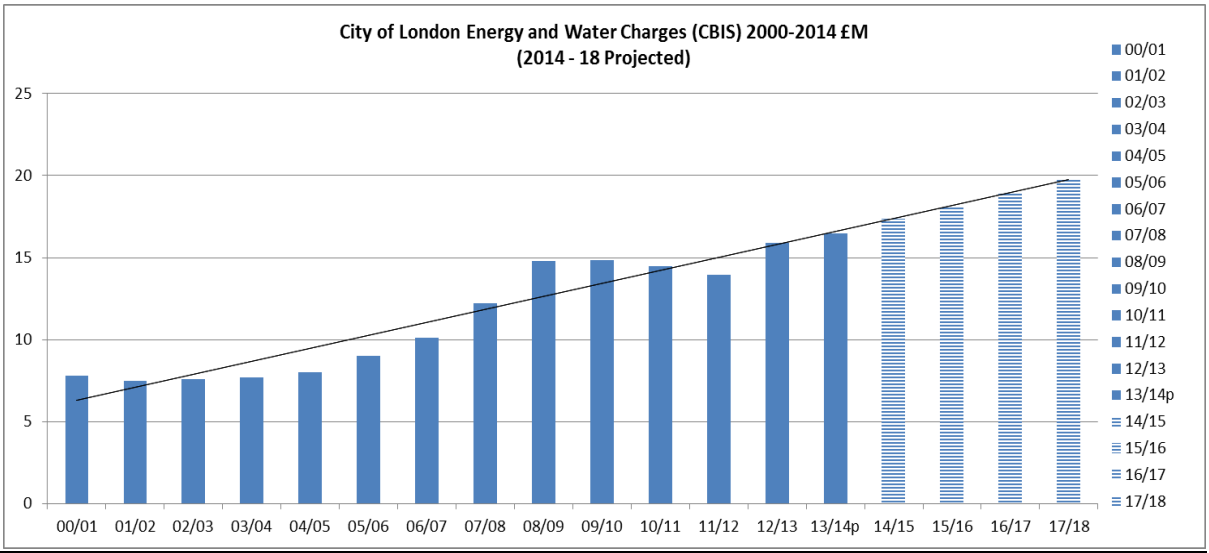

Fig 1. CoL Energy and Water Charges (excluding HRA water rates) 2008/09 (base year) – 2013/14 with projected energy costs to 2018 extrapolated from trend 2000 – 2014.

4. As can be seen in Figure 1 (above), despite the progress which has been made in managing energy demand, forward projection of energy price trends, indicate a growth in energy costs to £19.8m by 2018.

5. Managing energy demand is a complex task and, as the City of London Corporation has been working on this issue for decades, many of the quick wins and easy solutions for reducing our energy consumption have been found.

6. Over the summer of 2013 the City of London commissioned external consultants to undertake a review of energy use across the operational estate with a view to identifying strategic actions which could reduce the impact of the forecast price rises. A copy of the consultant's report, known as the Strategic Energy Review (SER), can be found in the Members' Reading Room.

7. In summary the SER confirmed that, with appropriate action the City of London could reduce energy use by 40% by 2025 and recommended that Departments should continue their energy reduction programmes.

8. The SER also recommended prioritising buildings, revising targets, and stripping out direct tenant energy usage from future reporting figures (this particularly applies to Markets). A priority list of technologies was identified and changes to the City's main building repairs and maintenance contract were suggested to incentivise the main contractor to identify energy savings.

9. A further recommendation of the SER (recommendation 10) was the establishment of an internal Energy Efficiency Fund (EEF) to provide capital funding for energy savings schemes outside of traditional building repair, maintenance and specific project budgets.

The Case for Investment

10. The SER identified that to continue on our BAU path would achieve further reductions of around 3% by 2017/18. Further energy reductions of 5-6% could be achieved by implementing targeted but relatively simple energy conservation measures with a payback period of less than 5 years. In total therefore there is a saving potential of up to 9% to be achieved if the City followed the short term recommendations identified under the SER. A brief description of the strategic approach identified up to 2025 is set out at Appendix 2.

11. As the City has already implemented many of the quick win measures under the BAU scenario, the further potential energy saving measures set out at appendix 2 (in particular scenarios 2, 3 &4) will take significant assessment to fully determine the costs and benefits of the schemes. It is proposed that the City Surveyor will develop these schemes and seek to bring them to fruition through the approved project procedure with individual projects being brought to Committee in due course.

12. The Efficiency & Performance Sub-Committee has previously indicated a wish for greater focus to be placed on identified "invest to save" projects, these projects being considered on a case by case basis as opportunities emerge. However, one mechanism to help departments to achieve further savings and to assist to fund the smaller invest to save projects identified in the SER, is the creation of an Energy Efficiency Fund (EEF).

13. The establishment of this fund was considered and approved (in principle) by the Efficiency & Performance Sub-Committee in September 2014, on the basis of a pilot project (subject to resource availability) and to test take-up.

14. Further work has now shown that if the City wants to meet a 9% energy reduction target by 2017/18, expenditure on scenario 1 in appendix 2 is likely to be necessary (i.e. £4.5m).

15. In these circumstances it is proposed that the EEF will act as a catalyst to deliver energy conservation projects to assist with the delivery of energy reduction targets and meet the challenges of increasing energy costs. In the current circumstances it is proposed for a pilot EEF to provide funding of up to £0.5m for one year to fund energy efficiency projects which would typically pay for themselves within three to

eight years. This would be reviewed after one year. One output of the EEF will be to determine how much more can be achieved. Projects over £50,000 in value submitted for consideration under the EEF will be subject to the corporate project management process. The target rate of energy reduction will be revised in the light of the outcome of the pilot EEF.

16. Given the risks associated with rising energy prices the current path of BAU is not considered appropriate and would not achieve our stated targets.

17. Funding the whole amount under scenario 1 is also not proposed as it is not considered practical at this stage however this will be reconsidered following a review of the progress of the pilot EEF.

18. A bid detailing the EEF proposal and how the funding will be resourced will be made to Resource Allocation Sub-Committee in the near future.

19. The 9% reduction target proposed in this report maintains the City's pathway towards the 40% reduction target by 2025, ensures the continued departmental involvement and co-operation, would assist in easing the City's financial position going forward and would yield in excess of £1m in annual energy cost savings at current energy prices at the end of the period.

Corporate and Strategic Implications

20. Whilst the actions recommended in this report are in line with the City of London Corporations stated desire to reduce carbon emissions, the primary motivation behind this programme of action is management of the risks associated with rising energy prices.

21. The recommended action therefore in accord with the second objectives of the City's Corporate Plan strategic aims:
    - *To provide . . . **efficient** and high quality local service . . . with a view to delivering **sustainable** outcomes';*

22. The Corporate Property Asset Management Strategy 2012/2016 was approved by the Corporate Asset Sub Committee in December 2012. The Asset Management Vision is to manage the City's operational assets effectively, efficiently and sustainably to deliver strategic priorities and service needs. The key objectives identified within the Strategy endorses that the City overall, in accordance with the CDP-09 achieves a 15% energy reduction by 2015. Reducing energy usage and carbon emissions allies with the City's core value:
    - *The right services at the right price.*

23. In addition its primary focus is in keeping with KPP2 of the Corporate Plan
    - *Maintaining the quality of our public services whilst reducing our expenditure and improving our efficiency;*

Conclusion

24. Reducing the impact of the forecast rises in energy prices will require stringent performance targets, and the encouragement of innovation and problem solving for departments. The establishment of the Energy Efficiency Fund will enable departments to identify and leverage opportunities which will assist the City of London to achieve its goal of reducing energy by 40% by 2025.

FOR INFORMATION

Contact: Paul Kennedy
Corporate Energy Manager.
City Surveyor's Department
Direct Line 020 7332 1130:
Email paul.kennedy@cityoflondon.gov.uk

Appendix One - Strategic Energy Review - Key Recommendations (non prioritised)

Recommendation 1: Building Prioritisation
From analysis of the operational estate (excluding residential buildings), the main focus of any energy efficiency activities should be on the Guildhall Complex and the Barbican Centre. Based on the data for 2012/13, these two buildings consume around 32% of the total energy for the operational estate (17% and 15% respectively).

Recommendation 2: Technology Prioritisation
As part of our review the study looked at a range of applicable technologies and the following recommendations for the priority energy reduction technologies to implement across a number of sites are:

- Building Energy Management Systems (BEMS): full audit, and optimisation of settings and controls
- Improved plant room and pipework insulation
- Savacontrols on refrigeration equipment
- Lighting: bulk lighting upgrades and improved lighting controls
- Upgrade street lighting from standard lanterns to LED lanterns, which could enable them to be dimmed overnight.

Recommendation 3: Space Utilisation
By adopting a sharing ratio of 80% (or 8 workstations for every 10 full time equivalent (FTE) workers) it is estimated that GNW could accommodate a further 193 FTE staff, over and above the current proposals for 771.

Following on from this, our recommendation is that CoLC should consider the potential and options for having a lower workstation sharing ratio to consolidate staff from the Walbrook Wharf, GNW and GWW buildings into one or two of those buildings, and/or bring more staff onto those sites from other buildings in the operational estate.

Recommendation 4: **Citigen Private Wire**
This relates to exploring the potential for taking private wire electricity from Citigen as originally intended and thereby by-passing certain distribution and transmission charges.

Recommendation 5: Planning Preventative Maintenance (PPM), Mitie and the BRM contract: using the BRM contract to drive energy savings
Recommended that CoLC should explore how to incentivise for the BRM contactor to bring forward proposals for energy reduction projects, identified as part of normal work through the BRM, could be increased, and a streamlined process developed for such proposals to be submitted, assessed, approved and funded.

Recommendation 6: Building Energy Management System (BEMS)
There is considerable potential for energy savings in key buildings from more optimised performance of the BEMS. There is a clear business case for having a dedicated BEMS engineer employed by CoLC whose role would be to systematically test, review, and reconfigure the BEMS within the key buildings in the operational estate, with a specific focus on delivering energy savings, whilst maintaining accommodation standards.

Recommendation 7: High Level Metering Strategy
This recommendation relates to the development of a high level energy metering strategy, in order to support future energy data analysis and BEMS improvements.

Recommendation 8: Server Room Utilisation and Cooling
If the server provision for the Guildhall were moved offsite this could reduce total CoLC energy consumption by about 1% and save about £140,000 per year in energy costs, based on 2013 prices. However, this would need to be offset against any additional costs charged by the IT providing an off-site solution.

The potential for moving server provision for the Police offsite should also be explored further, beginning with a more detailed assessment of the current electricity/ energy consumption of the Wood Street server room.

Recommendation 9: Soft Landing Approach
Adopting a Soft Landings approach for new building projects, to improve operational outcomes, reduce in-use energy consumption, and bridge the gap between design aspirations and actual in-use performance. Oversight of this could be implemented into the current CoLC capital projects Gateway system.

Recommendation 10: Energy Efficiency Fund
The CoLC should establish an Energy Efficiency Fund that could be used to fund the capital costs, and enabling work, such as feasibility and design fees, for energy conservation projects. The basis for establishing the fund would be “spend to save” as the measures it would fund would typical pay for themselves in 5-10 years.

The EEF should not have to compete with, or be seen to be competing with the capital required for the AWP. The former should be funded as a Spend-to-save initiative that can sit alongside and build on the AWP but is separate from it.

Recommendation 11: Sources of Funding
- Based on our review of sources of funding and finance, we recommend the following three approaches for CoLC for funding the EEF.
  - Internal funding.
  - Salix. The interest free loans offered by Salix are a good opportunity and should certainly be considered for selected projects with payback periods shorter than the loan maturity.
  - The use of RE:FiT. the main benefit comes from the OJEU compliant framework they have in place with ESCos which would not only reduce procurement burden but would guarantee project savings

Recommendation 12: Additional Works Programme and Cyclical Maintenance
Look to “piggyback” energy efficiency projects onto the AWP and other cyclical replacement activity, using supplementary funding from the Energy Efficiency Fund.

Recommendation 13: Annual Energy Reporting
Refine annual energy reporting, and assessment of progress towards targets, through the use of weather correction of energy data.

Recommendation 14: Photovoltaics
Conduct a feasibility study into the potential for installing large scale Photovoltaic (PV) arrays onto CoLC buildings with large unshaded roof areas not subject to listed building or significant planning constraints.

Appendix Two - **Strategic Energy Review – Approach to achieve a 40% reduction in energy by 2025/26**.

Scenario	Estimated Investment cost (£m) to achieve.	Details of spending scenarios	Estimated percentage (%) Energy reductions.		
			Achieved To date: 2008/09 – 2013/14	**SER Predicted 2013/14 – 2017/18**	**SER Predicted by 2025/26**
Business as Usual	Met within existing budget Scenarios	Continuing with a Business as Usual (BAU) scenario, the savings reduce significantly overtime as 'quick win' implementation projects diminish. The BAU scenario also includes accommodation changes as proposed (at the time of the study) for City Police, Walbrook Wharf as well as enhancements to the Freemen's and CoL School Girls and GSMD.	**16**[1]	**3.0**	**16.5**[2]
Scenario 1	**4.5**	This includes the uptake of small manageable energy conservation measures such as: lighting upgrades; thermal insulation of plant and pipework; building and occupancy control upgrades; motor control devices; refrigeration and air conditioning controls; occupancy and control set point optimisation.		**5.0 to 6.0**	**16.0**
Scenario 2 (incl. 1)	**1.0**	As scenario 1 above but including longer paybacks of up to 12 years (from implementation) for those applications with more complicated 'Ease of Implementation'.			**0.8**
Scenario 3 (incl.1 & 2)	**0.9**	As 2 above but with embedded cultural behaviour change amongst staff and management and other more strategic measures such as moving the computer servers off-site and major enhancements to street lighting.			**4.3**
Scenario 4 (incl. 1,2, 3)	**1.0**	As 3 above but further and more radical suggestions such as large scale solar photovoltaic (electricity) generation and significant space rationalisation.			**2**
Total	**£7.4m**		**16%**	**9.0%**	**39.6%**

[1] This figure is uncorrected for weather. See SER Recommendation 13 (Appendix 1) regarding weather correction. 2013/14 was a very mild year so energy usage was much less than anticipated. All future energy reports will be corrected to take into account prevailing weather conditions affecting energy used for heating.
[2] The consequence of note 1 means the overall impact of BAU by 2025/26 is likely to lessen over the period.