

Item No. 5.	Classification: Open	Date: 9 March 2020	Meeting Name: Housing Scrutiny Commission
Report title:		District heating outages	
Ward(s) or groups affected:		All	
Cabinet Member:		Councillor Kieron Williams - Cabinet Member for Housing Management and Modernisation	

RECOMMENDATION

1. The Housing Scrutiny Commission is asked to note the contents of this report.

BACKGROUND INFORMATION

2. Southwark Council owns and operates 120 district heating systems, consisting of 220 boiler houses and plant rooms, which provide the heat and/or hot water to circa 17,000 homes.
3. Many of these still consist of original plant and distribution pipework, and while investment has been undertaken it has been on a piecemeal basis, i.e. boilers/plant when required or when fails and can't be repaired, runs (of varying length) of underground distribution pipework. A complete system renewal has rarely been undertaken, meaning that above ground and indwelling pipework is still largely original.
4. Over the last five years the district heating investment budget has been set at £5m per year, and this has mainly targeted the replacement of unreliable boilers and plant, along with the replacement of deteriorated underground mains, i.e. Aylesbury, Acorn and North Peckham estates. This still remains the case going forward until 2021/22.
5. A 2016 case study into costs of modernising the boroughs district heating concluded that in most cases the current district heating systems should be retained and modernised. There is an estimated £350m capital investment required.

KEY ISSUES FOR CONSIDERATION

Performance

6. In terms of the performance of these systems, the average availability across all systems in the borough for the 2019 calendar year was at 97.6%.
7. The table below shows the top ten worst performing systems in terms of the individual systems actual availability during the 2019 calendar year. Some of our biggest and historically problematical systems are in this list.

System	Contractor	No. properties	% Availability
D'Eynsford	S&B	131	93.0%
Aylesbury	OCO	2,400	94.2%
North Peckham/Gloucester Grove	S&B	739	94.5%
Wyndham	OCO	1,220	94.9%
Lettsom	S&B	478	95.8%
Acorn	S&B	266	96.1%
Newington	OCO	429	96.2%
Brimmington	S&B	672	96.2%
Setchell	OCO	293	97.1%
Brandon 1	OCO	555	97.2%

8. The remaining systems availability ranges from 98.1 – 100%, with 74 systems between 99 and 100%.
9. 100% service availability is reduced by what we term outages. These are events that impact on the level of service provided and can be caused by leaks on distribution pipework, mechanical failure of plant, gas leaks, power spikes (which cause safety equipment to operate and shut down systems), planned preventative maintenance (PPM), and external influences, i.e. outages from other service providers such as UKPN, SGN or Thames Water.
10. The availability percentages in the table above include planned outages, which, unless urgent, are usually planned two weeks in advance. Residents are notified of these by letter, text and webpage updates. Planned outages are mainly done to allow for certain maintenance tasks that have to be undertaken when plant is shut down or cooler, for particular repairs to be undertaken, i.e. replacing pipe bursts/leaks, and sometimes to allow our building repair contractor, SBS, to replace stopcocks so baths, wc's and wash hand basins can be replaced.

Investment

11. Within the Housing Revenue Account (HRA) there is capital allocation for the maintenance of our homes. Part of this is currently known as QHIP.
12. The main capital QHIP programme is limited to approximately £70m pa which can be funded from revenue streams, so that borrowing can be used for new build and special schemes like Ledbury. £5m (7.14%) pa of this money is already allocated to the highest priority district heating

investment requirements but this is not enough to make the material improvements required.

13. In addition to the £5m per annum as part of QHIP, £3m was also allocated in 2019/20 and ongoing years to 2022/23 to support works arising out of the day to day responsive repair and maintenance of the district heating systems, i.e. replacement distribution pipework where failed, major boiler/plant repairs, for example at Lettsom above, and smaller capital repairs/replacements.
14. As the district heating strategy evolves, £5m per year over the next five years has also been made available for extension of SELCHP, and £7m available for the heat pump work starting next year.
15. Both of the strategies in paragraph 12 will decrease demand on existing boilers and assist the council with the zero carbon target.
16. The council is also investigating new funding streams as part of the works to develop the district heating strategy, as well as ensuring it continues to invest the money we do have in the best way possible.
17. The Council's engineering team has already prioritised the district heating major works programme, which addresses the known long term issues and the poorest performing systems. Please see table below:

System	% Availability	
D'Eynsford	93.0%	<p>We currently have issues with the main gas supply to this site. There are two 2930 Kw winter boilers and one 780 Kw summer boiler. Unfortunately because of the limited capacity mains gas supply, we are only able to run one winter boiler and the summer boiler together at the same time. We can hold service with this arrangement as there is enough output however it does mean that we have to cycle the duty of the two winter boilers manually. The solution to this problem would be to install a second gas stream on the supply side. This would have to be done by the National Grid via the supplier.</p> <p>Note that the summer boiler was replaced approx. 8 years ago, and a new burner and gas booster was fitted to boiler 2 (one of the winter boilers) in 2017. Partial re-tube works have also been done to both winter boilers in the last two years.</p>

Aylesbury	94.2%	Underground mains replaced 2014, Boilers/plant refurbished 2019. Currently considering options for future across life of estate
North Peckham/Gloucester Grove	94.5%	Underground mains replaced 2016/17, now planning to replace worst rising mains in 2020/21.
Wyndham	94.9%	Refurbished boilers 2019, phase 1 replacement of underground mains now and phase 2 in 2021/22.
Lettsom	95.8%	All three boilers have had major structural repair work in 2019 including new tubes and patch repairs to their respective furnace and shells. We have also fitted two of the three boilers with new burners (two new burners) and renewed all three gas boosters. A new pressurization unit was installed in 2018.
Acorn	96.1%	New energy centre installed 2018, underground mains replaced 2019/20.
Newington	96.2%	Planning to replace secondary mains 2021/22
Brimmington	96.2%	Underground mains replacement commenced
Setchell	97.1%	Planning to replace underground mains in 2021/22
Brandon 1	97.2%	All 9 plant rooms refurbished 2019/20, planning to replace rising mains at all towers in 2021/22

AYLESBURY ESTATE

18. The Aylesbury estate district heating system is the councils biggest, originally serving circa 2400 dwellings when the estate was first built. The numbers served by the system are in gradual decline as the estate is undergoing phased decant and is being regenerated. The number of dwellings currently served is at circa 720.
19. While Regeneration programmes have slipped, the district heating system plant and above ground distribution pipework has remained largely original, though most of the underground distribution pipework was replaced in 2014, and the boilers refurbished in 2019.

Major outage – January 2020

20. 3 of 4 boilers failed with bulges or splits in boilers – mostly caused by fresh water entering the system (as a result of leaks across the system) which damages the boilers.

21. Two of the three (no's 3 and 4) had recently been shut down following statutory insurance inspections, who then insisted on inspection of boiler no. 1 on 18/1/20 when the bulges were found and boiler could not be reinstated. Boiler no. 2 was already under a major repair. In order to facilitate inspection on 18/1/20, the system/boiler was switched off at midnight on 17/1/20.
22. Instructions were issued on 17/1/20 to move to a temporary boiler set up across the estate, but because gas was removed some years ago, at least from the taller blocks, the boilers needed to be oil fueled.
23. Original temporary boiler set up is set out below:
 - Taplow A – 3 x 600 kw units
 - Wendover B – 2 x 600 kw units
 - Wendover C – 2 x 600 kw units
 - Wendover D – 1 x 2 megawatt unit (also serving Ravenstone X via the existing mains)
 - Latimer E – 1 x 1.2 megawatt unit and another 600 kw unit to boost the return temperatures (now changed to 1 no. 2 MW unit)
 - Missenden F – 1 x 1.3 megawatt unit
 - Missenden G – 2 x 600 kw units
 - Gayhurst H – 1 x 2 megawatt unit.
 - School – 1 x 1.3 megawatt unit

Total containerised boilers – 15 live plus 2 spare.

24. There were 2 spare 600 kw boilers which have since been added to Wendover B and C to ensure consistent service.
25. The work to purchase, install, power and commission these temporary boilers and fuel storage was largely completed in 3 days from Friday 17th January to Sunday 19th January, but there has been the need to make adjustments and undertake balancing since.
26. While not providing 100% availability, as even new temporary boilers can break down, it is considered that the service has largely improved across the estate, though we continue to monitor this and act as necessary to improve.

Options going forward

27. A full technical assessment is underway which will explore all options around the satisfactory provision of heat and hot water to residents for the remaining life of the estate.
28. For the production of a fully costed technical options appraisal, the following key bullet points need to be taken into account, and where necessary incorporated:
 - All electric solution – looking at increasing the electrical capacity both within the blocks and across the wider infrastructure;
 - Provision of electric showers (as part of above);
 - Previous investment in the heat network;
 - Providing the most reliable and least disruptive service possible;
 - Risk and mitigation;
 - Stock condition data;

- Structural analysis (due end of February);
 - Fire safety data;
 - General repairs data;
 - Block by block;
 - Regeneration timelines.
29. While some of this work has been done or is underway, there is still much to do, particularly around the electrical capacity and associated costs, and the comparisons of options against the regeneration timelines on a block by block basis.
30. We expect to have a detailed options appraisal ready for discussion by the end of March 2020.
31. Other issues are also being explored and/or progressed, but outside this piece of technical work. These are:
- Review of the existing compensation criteria for tenants and leaseholders
 - Investigation in to having pre paid electric card/ top up facility available in the AHO to be issued to residents during outages (for additional energy use)
 - Review accumulative compensation possibilities for when outages occur on numerous occasions
 - Better reporting and signing off of repairs, including signing off by resident(s) when they are satisfied works are complete
 - Agreement on strategy for information flow, including to residents
 - Commencement of Estate/Regeneration Forum meetings

Independent review

32. The Housing and Modernisation department has also sought an independent review of this outage.
33. The Chief Executive of the City of London Corporation kindly agreed to provide that independent review through its City Surveyors department. This is being led by Peter Collinson, the Operations Group Director.
34. The Terms of Reference for this independent review are set out in Appendix 1.

BACKGROUND DOCUMENTS

Background Papers	Held At	Contact
None		

APPENDICES

No.	Title
Appendix 1	Aylesbury Estate Boilers Major Outage Independent Review - Terms of Reference

AUDIT TRAIL

Lead Member	Councillor Kieron Williams, Cabinet Member for Housing Management and Modernisation	
Lead Officer	Michael Scorer, Strategic Director of Housing and Modernisation	
Report Author	Tony Hunter, Head of Engineering, Housing and Modernisation	
Version	Final	
Dated	5 March 2020	
Key Decision?	No	
CONSULTATION WITH OTHER OFFICERS / DIRECTORATES / CABINET MEMBER		
Officer Title	Comments Sought	Comments Included
Director of Law and Democracy	No	No
Strategic Director of Finance and Governance	No	No
Cabinet Member	Yes	-
Date final report sent to Scrutiny Team		5 March 2020