

**BRISTOL CITY COUNCIL
CABINET**

25 MARCH 2010

Report of: Strategic Director, Neighbourhoods

Title: Replacement of obsolete heat and hot water meters in flats **Ward:** Citywide

Officer presenting report: Steven Barrett, Service Director of Landlord Services.

Contact telephone number: 9223296

RECOMMENDATION

1. That the procurement of a E.U. tender for the replacement of meters in 47 high rise and 2 low rise blocks of flats be implemented at an estimated cost of £3.0 million with an annual maintenance and billing commitment at an estimated cost of £120,000 per year.

2. That the Strategic Director for Neighbourhoods be authorised to accept the most economically advantageous tender following consultation with the Executive Member for Housing and Service Improvement.

Summary

The report provides information on the existing heat and hot water meters, which are used as the basis for billing residents, proposals for replacement the systems, the reasons for the replacements being required, estimated costs, the procurement process and the consultation which will be undertaken.

The significant issues in the report are:

i. The present system of calculating bills to residents for heating and hot water based on "Clorius" evaporative meters can not be justified for the future on the grounds of accuracy, fairness, maintenance and energy savings.

ii. Pressure to provide a more accurate system comes from the Directive 2006/EC of the European Parliament Article 13 “metering and billing of energy consumption”. (see appendix) and from the need to be able to show that charges levied to customers in the blocks are fair. Leaseholders also have a right to receive bills based on meter readings.

iii. The total estimated cost of the installation works is £3.0 million.

iv. The estimated cost of the remote meter reading service and billing is £120,000 per annum over a 20 year contract.

v. Officer time answering queries over bills based on the existing system is expected to be substantially reduced.

vi. Open single stage tenders will be sought from contractors throughout the European Union selected in accordance with the Council's Procurement Regulations and with Public Contracts Regulations 2006.

1. Policy

Providing people with the means to monitor their energy use more accurately fits in with the policy to reduce carbon emissions by saving energy and helps contribute to a greener City. (A DEFRA consultation paper claimed that metered heating as opposed to a flat rate charge can save between 25 and 30%).

2. External consultation:

A Service User Group consisting of Tenants, Tenant representatives, Members, and Officers was established in 2009 with a brief to be involved in the process of replacing the Clorius systems. Residents of the blocks affected and members of the local Housing Forum will be consulted about the proposed works, timescales and arrangements during the contract works.

3. Context

3.1 The Council owns 48 tower blocks and 2 low rise blocks in which heating and hot water is supplied from communal boilers. Within the blocks are a total of 2940 flats having around 8,000 radiators between them. Each radiator in the high rise blocks was fitted with a Clorius evaporative meter although many are broken or missing. Similarly the hot water supply was metered and many meters are no longer serviceable. Readings are taken annually to record how many “units” of fluid has evaporated and this is used to calculate energy bills. The two low rise blocks are not currently metered and are recharged at a fixed amount.

- 3.2 Flow and return pipes within the flats, which supply the radiators and hot water, are not metered. The pipes supply heat which the residents can not control because they feed a number of flats. It is possible therefore for residents to switch off the radiators, which are metered, and use the heat from the pipes, which are not, thus gaining the benefit of heat from the system with minimal recharges.
- 3.3 Under the EU Directive on energy end-use efficiency, member states are required to provide end users with competitively priced individual meters that accurately reflect the final customer's actual energy consumption and provide information on actual time of use. Clorius systems in the Council's property are unable to meet this requirement.
- 3.4 Under the same Directive, Councils are expected to fulfil an exemplary role.
- 3.5 Leaseholders are entitled under their contract with the Council to receive bills based on meter readings, not a standard charge.
- 3.6 A service User Group formed to examine options for replacing Clorius meters recommended that a pathfinder pilot be tried on a tower block and Harwood House was selected for this purpose at random. The project, to install replacement digital meters to the pipes and the radiators, was completed in November 2009 and a "lessons learned" review exercise carried out.
- 3.7 The outcome was that the replacement digital meters were considered to be the best option currently available which would meet residents' expectations for a fair and accurate metering and billing system. The new system could also be shown to meet the EU directive articles 5 in respect of the public sector fulfilling an exemplary role in energy savings, and article 13 in respect of accurate billing.
- 3.8 Other local authorities and RSLs have expressed interest in the progress Bristol has made with installing digital meters in one Tower block.

4.Proposal

- 4.1 The proposal is to replace the Clorius meters with a non evaporative type of digital recorder able to be read remotely via a web site. Digitalrecorders can be fitted to radiators and flow / return pipes to measure the total amount of heat used in a flat from the communal system. Unlike Clorius meters the digital recorders are unaffected by other heat sources such as strong sunlight, TVs and other domestic appliances. They operate by measuring the heat coming from the radiator or pipe into the back of the meter.
- 4.2 By reading from all heat emitters in a flat it is possible to provide more accurate and fairer billing based on how much residents use the communal heating and hot water. There is a percentage of standard charge to cover the hidden distribution pipes and the main boiler circuits within the plant rooms which are apportioned.
- 4.3 People living in the flats will be given access to their readings on the web site via a password and will be able to compare their consumption with a “block average”. The readings are given at short time intervals and therefore satisfy the EU requirement in respect of the need for bills to provide information on the actual time of use of energy.
- 4.4 A preliminary timetable for the project, dependant on Cabinet approval in March and additional staff resource being provided as stated in 11.4, indicates design and specification complete by mid September 2010, E.U. tender and award stage complete by April 2011 and work stage complete by March 2013.

5.Other Options Considered

Three other options were considered by the Service Group.

- 5.1 Repair the Clorius meters, subject to confirmation of availability, price and whether spare parts can be sourced. If this option were adopted, we would be continuing the current position whereby residents are becoming increasingly unhappy with the accuracy of their bills. There would continue to be manual reading of meters, requiring access into every flat. It would also mean continuing problems with estimated bills due to meter readers not being able to access some of the flats.

- 5.2 Introduce Standardised Charges, established on an agreed basis with residents. Initial feedback from residents on the introduction of a standard or flat rate charge include concerns that low energy users would be subsidising high users. There are also environmental concerns over there being no incentive for tenants to minimise their energy use. It has been shown that when metering is introduced in a previously flat rate system, energy use can fall by between 25% and 30%. Conversely it is probable that ending metering would increase energy use, increasing both carbon emissions and the cost to the users. Leaseholders could object to this on the grounds that their bills were not based on meter readings.
- 5.3 Remove the communal heating and replace with individual systems. Removing the communal systems and installing conventional gas central heating or air source heat pumps in each flat would provide individual bills but would not be cost effective. Estimates are £3,700 per flat for gas central heating and £5,000 per flat for electric air source heat pumps, plus the cost of decommissioning the communal system, compared with around £1,040 per flat for a new metering system. Individual systems would require regular access for maintenance and gas safety inspections.

6.Feedback from the Harwood House Pathfinder project

- 6.1 Work started at the beginning of August 2009 and was planned to be completed within four weeks. Several unforeseen factors emerged to extend the completion date to the end of October.
- 6.2 Although there were technical problems fitting the system into the existing pipe-work layout and the installation revealed a number of maintenance items required, the main difficulty was access. A “lessons learned” exercise showed the need to divide a future contract into two, being the initial enabling works to modify and improve the existing installations, followed by the meter installations
- 6.3 To be able to fit and operate the new system properly certain enabling works have to be completed in the existing heating installation. These are taken from the lessons learned list from the Harwood House pathfinder project.

Check and replace if necessary all radiator valves.
Check and replace if necessary all cold water stop valves.

Remove Clorius meters and either repair or replace radiators where Clorius meters were fixed by drilling into the metal.
Check and if necessary replace main flow and return valves.
Install internet access in every block.
Check for asbestos in floor tiles and duct covers.

- 6.4 The initial estimated cost of the pathfinder was £65,193. The cost rose to £90,554 due to the circumstances listed above, equating to £1,040 per flat.

7.Risk Assessment

If the existing Clorius meters are not replaced it will become increasingly difficult to provide accurate bills to users in the blocks. Eventually the only option could be a flat rate charge. This would not only be open to challenge, it could also increase energy use and fail to meet the EC Directive.

8.Equalities Impact Assessment

Installing replacement meters would not disadvantage anyone by virtue of their age, sex, race, religion or other factors.

9.Legal and Resource Implications

Legal

- 9.1. By a Full Council resolution of 10th September 2002, a decision to implement a project with a total cost of over £500,000 requires a specific decision of the Council's Executive even if the project is already included in the Council's capital programme or revenue budget.
- 9.2 All procurement must comply with the Council's procurement rules and national and EU law.
- 9.3 The effect of Article 13.1 of Directive 93/76 is that the Council must
“ensure that so far as it is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for electricity, natural gas, district heating and/or cooling and domestic hot water are provided with competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use.”
- 9.4 It also says that,
“when an existing meter is replaced, such competitively priced individual meters shall always be provided, unless this

is technically impossible or not cost-effective in relation to the estimated potential savings in the long term”.

- 9.5 The provisions are even more stringent in the case of any new build or major renovation.
- 9.6 Even without these obligations, it would be very doubtful whether one could legitimately bill tenants and leaseholders for their use of a communal heating system on any other basis than according to the amount of heat they use. This rules out alternative option 5.2. So if the present system is both unreliable and time expired (alternative option 5.1), the only alternative to what is proposed would appear to be alternative option 5.3, installing individual heating systems in each flat.
(Advice provided by Dru Brooke-Taylor for Head of Legal Services)

10. Procurement

Open one stage tenders will be sought from contractors throughout the European Union in accordance with the Council's Procurement Regulations and with the Public Contracts Regulations 2006.

11. Financial comment

- 11.1 The current cost of producing the heating/hot water bills for tenants is a contracted amount of £55k pa, and an additional charge of approximately £13k pa for re-tubing the evaporation meters, this cost is recharged back to the tenants via a service charge contained within their weekly heating prepayments.
- 11.2 The estimated cost of producing tenants bills using the remote meter reading option is in the region of £100k to £127k, which is then recharged to the tenants. (This is based on the actual cost to read/produce the bills on the pilot scheme and there may be savings due to economy of scale).
- 11.3 To undertake the installation of this system to the remaining 2,853 flats that remain on the communal heating systems, it would require approximately £3.0 million of capital investment, of which £2.5 million is included in the current HRA business plan.
- 11.4 It is also estimated that an additional revenue cost of approximately £75k for 3years will be required to employ two

additional staff to undertake the survey work at each property and produce the tender documents for this project, this is not contained within the revenue budget proposals for 2010/11.

- 11.5 Under EU Directives, Article 13, the authority has the requirement to investigate all possible ways of accurately recharging heating/hot water to tenants, apportionment of heating/hot water costs seems not to be an option.
(Claire Burston Finance Business Partner.)

12. BUSINESS PLAN IMPLICATIONS

Heat metering installation replacement to the value of £2.5 million was built in to the Business Plan. The additional work takes the estimated cost to £3 million and the £500,000 increase has to be modelled along with other known charges eg subsidy settlement and capital receipts.

(Nicky Debbage, LBDU Manager.)

13. **Land** : There are no land issues arising from this report.

14. Personnel

Implementing the project will require a Heating Services Engineer and Liaison Officer full time for the duration of the pre contract stage and installation.

15. ECO impact assessment Summary

The significant impacts of this proposal are....

Negative impacts include

- Installation and Maintenance/billing contractor(s) will consume electricity, gas and fuel for transport during their contract delivery.
- New meters and associated works will be required at properties. Materials will be consumed during this process.
- The existing meters will need to be disposed of

The proposals include the following measures to mitigate the impacts .

The procurement of these contract(s) will include appropriate requirements and incentives to ensure that contractors mitigate the above impacts. For further details see the Environment Impact Checklist for this proposal.

The net effects of the proposals are

The anticipated reduction in tenant energy consumption together with a reduction in site visits resultant from remote metering and the above mitigation measures should result in a net environmental benefit from this proposal.

The degree to which this is achieved will depend upon how successfully this scheme is delivered.

16. Carbon reduction.

The Brunata type of charging system will result in a more equitable charging regime for tenants in the block as tenants will be charged according to consumption. Water heating accounts for approximately a third of the heating demand, for which tenants will have full control and, by metering and charging for hot water used, it is estimated that this would result in a reduction in usage of 20 to 25% compared to the flat rate charge previously employed. This will also result in corresponding carbon and cost savings for tenants. Although the heating controls for tenants will be limited, some reduction can also be expected in the space heating demand. (Policy & Project Officer Energy & Environment)

Appendices: Appendix 1 Environmental impact assessment checklist

ACCESS TO INFORMATION

Background Papers

Directive 2006/32/EC of the European Parliament Article 13 “metering and billing of energy consumption”

Appendix 1.

Environment Impact Checklist

<i>Title of report: Replacement of obsolete heat and hot water meters in flats</i>
<i>Report author: Steven Barrett</i>
<i>Anticipated date of key decision: 25th March 2010</i>
<i>Summary of proposals: To install replacement energy meters to measure the use of heat and hot water in 49 high rise and two low rise blocks of flats as a basis for recharging. Estimated installation costs are £3.0 million with an annual maintenance and billing commitment at an estimated cost of £120,000 per year over a 20 year contract.</i>

Will the proposal impact on...	Yes/ No	+ive or -ive	If yes...	
			Briefly describe impact	Briefly describe mitigation measures
Emission of Climate Changing Gases?	Yes	+ive	New meters are expected to reduce energy consumption from flats	<p>Existing metering arrangements are inadequate and frequently in disrepair. Replacing these with properly metered systems is expected to reduce tenant's energy use (A DEFRA consultation paper claimed that metered heating as opposed to a flat rate charge can save between 25 and 30%).</p> <p>Tenants will be able to access regular readings via a website, acting as a further incentive to save energy.</p> <p>The annual maintenance and billing contractor will be required to provide appropriate support to tenants to fully utilise the energy saving potential of the new meters.</p> <p>New meters will be digital and provide regular readings which can be read remotely from a website therefore</p>
			New meters are expected to reduce the consumption of fuel associated with	

			transport for site visits for meter reading and maintenance.	reducing the need to make site visits for meter reading.
		- ive	Both installation and Maintenance/billing contractor(s) will consume electricity, gas and fuel for transport during their contract delivery.	The procurement of these contract(s) will include appropriate requirements and incentives to ensure that contractors reduce their businesses' energy and transport impacts.
Bristol's vulnerability to the effects of climate change?	No	N/A	N/A	N/A
Consumption of non-renewable resources?	No	- ive	New meters and associated works will be required at properties. Materials will be consumed during this process.	The procurement of the installation works will include appropriate requirements and incentives to ensure that contractors reduce the consumption of non-renewable materials wherever possible.
Production, recycling or disposal of waste	Yes	- ive	Disposal of the existing meters	The procurement of these works will include appropriate requirements and incentives to ensure that contractor(s) fully utilise the waste hierarchy during the disposal of existing meters.
The appearance of the city?	No	N/A	N/A	N/A
Pollution to land, water, or air?	Yes	+ive	New digital meters will reduce the transport requirements for site visits to take meter readings.	
		- ive	Both installation and Maintenance/billing contractor(s) will produce transport pollution during their contract delivery.	The procurement of these contract(s) will include appropriate requirements and incentives to ensure that contractors reduce their transport impacts.
Wildlife and habitats?	No	N/A	N/A	N/A

Consulted with:

Alex Minshull, Steve King

Summary of impacts and mitigation - to go into the Cabinet/ Council Report**The significant impacts of this proposal are....**

Negative impacts include

iii. Installation and Maintenance/billing contractor(s) will consume electricity, gas and fuel for transport during their contract delivery.

iv. New meters and associated works will be required at properties. Materials will be consumed during this process.

v. The existing meters will need to be disposed of

The proposals include the following measures to mitigate the impacts ...

The procurement of these contract(s) will include appropriate requirements and incentives to ensure that contractors mitigate the above impacts. For further details see the Environment Impact Checklist for this proposal.

The net effects of the proposals are....

The anticipated reduction in tenant energy consumption together with a reduction in site visits resultant from remote metering and the above mitigation measures should result in a net environmental benefit from this proposal.

The degree to which this is achieved will depend upon how successfully this scheme is delivered and on-going work by Landlord Services to help tenants manage their energy use.

Checklist completed by:

Name:	Matthew Sands
Dept.:	Neighbourhoods
Extension:	25545
Date:	19/2/2010
Verified by Environment and Sustainability Unit	Alex Minshull 19/2/2010