

Health, Social Care and Housing Committee

10.00am, Tuesday, 19 April 2016

Housing Improvement Programme: Heating Replacement and Insulation in Multi Storey Flats

Item number	8.6
Report number	
Executive/routine	Executive
Wards	All

Executive summary

This report sets out the strategy for reducing tenant's energy costs through the replacement of heating systems and installation of insulation measures in multi storey flats across the city. Many of these blocks of flats are in mixed ownership.

On 21 January 2016, the Council agreed the Housing Revenue Account (HRA) budget strategy. The agreed strategy sets out to prioritise investment in measures that reduce the cost of living for tenants and to significantly expand the house building programme. The report advised members of the intention to take forward a number of feasibility studies where there are opportunities to maximise the impact of district heating developments.

Within this context, the plan outlined in this report reflects on the relative risks and costs of different approaches. It proposes a mixed approach that balances the cost of these programmes on tenants' rents, the timescales over which improvements can be delivered and the reduction in tenants day to day energy costs.

Links

Coalition pledges	P50 P52
Council outcomes	CP2 CP10
Single Outcome Agreement	SO2 SO4

Housing Improvement Programme: Heating Replacement and Insulation in Multi Storey Flats

Recommendations

It is recommended that Health, Social Care and Housing Committee:

- 1.1 Agrees to review the approach to the energy strategy for the multi storeys blocks in Craigmillar and Leith following the completion of feasibility studies on wider network district heating schemes in these areas.
- 1.2 Agrees to accelerate the installation of replacement heating systems in 12 further blocks over the next three years.
- 1.3 Agrees to work with the Council Energy Services Company (ESCO) and Our Power to procure an energy partner to transfer energy services currently managed by the Council.
- 1.4 Notes that tenants energy costs have reduced for tenants in Greendykes and Wauchope multi storey blocks.

Background

- 2.1 On 21 January 2016 the Council approved the five year Housing Revenue Account Budget Strategy 2016/17 to 2020/21. The strategy's core aims are to significantly increase the number of affordable homes in the city and invest in services that will reduce tenants' cost of living.
- 2.2 An extensive consultation with tenants on the HRA Budget was carried out in 2015. Over three quarters of all tenants believed that building new homes, improving the energy efficiency of homes and providing cheaper energy would have a profound impact on their living costs.
- 2.3 On 8 September 2015 the Health, Social Care and Housing Committee approved the Housing Transformation Plan 2015-2017. This sets out the Council's goal of being the most energy cost efficient landlord in Scotland and the UK.
- 2.4 Specific energy efficiency requirements are now set out in the Scottish Government's Energy Efficiency Standard for Social Housing (ESSH). The ESSH aims to encourage landlords to improve the energy efficiency of social housing by setting a single minimum energy efficiency rating, based on the dwelling type and fuel type. The Council's investment will be targeted to meet and exceed this standard by 2020, based on property Energy Performance Certificate (EPC) ratings.

- 2.5 There are 44 multi-storey blocks across the city, containing 3,032 tenanted flats and 551 privately owned homes. Since 2009, 22 of these blocks have had new heating systems installed. This has included new smart electric storage heating, retrofitted district heating with communal gas boilers and gas low pressure hot water (LPHW) systems.
- 2.6 In Edinburgh, around 1,200 social housing tenants (including 550 Council tenants) are currently connected to communal schemes. The Scottish Government has set a target for 40,000 connections to district heating schemes across Scotland by 2020.
- 2.7 Stand alone retrofitted district heating schemes became operational at Cables Wynd House in July 2012 and at Greendykes and Wauchope House in May 2013.
- 2.8 On 9 September 2014, Health, Social Care and Housing Committee considered a report setting out the final cost of the Greendykes/ Wauchope project, issues arising during implementation and the arrangements for charging tenants for their energy use. A further update on the operation of the system after 12 months was requested and this report seeks to discharge this.
- 2.9 On 16 June 2015 the Committee agreed to join Our Power, a membership based not for profit energy company established by housing associations and local authorities, and enter into an agreement with the company as the preferred supplier for its empty homes and noted the opportunities for collaborative working between Our Power and Energy for Edinburgh, the Council led Energy Services Company (ESCo), and the Housing Service.

Main report

- 3.1 This report sets out the strategy to reduce tenants living costs by reducing demand for energy through improving insulation and installing new efficient heating systems in multi storey blocks of flats. In doing so a balance has to be struck between the costs to install and maintain replacement heating and the savings generated for tenants.
- 3.2 Twenty of the 22 blocks which are due to have their heating replaced have traditional electric storage heating. This was installed between 1988 and 2004. It is planned that all of these heating systems will be replaced over the next five years. Appendix One shows the locations of the multi storey blocks. Appendix Two sets out the proposed improvements by block.
- 3.3 The remaining two multi storey blocks, Maidencraig and Westfield Court, have older gas communal heating schemes. The Council is a minority owner in these two blocks so the options for replacement heating are more complex and will be explored separately. Residents will be consulted during the course of 2016 to establish the preferred option for replacing the existing systems.

Reducing costs to tenants – value for money assessment

- 3.4 The strategy sets out the feasibility and suitability of installing smart storage heating or connecting to stand alone district heating systems on a block by block basis. Both options potentially save tenants money, make the homes more energy efficient and ensure EESSH compliance. A combination of heating upgrades and investment in insulation measures could deliver average savings on tenants' energy bills of between 20-25%.
- 3.5 However stand alone district heating systems have higher design, installation and maintenance costs than modern smart storage heaters. There is also a long lead-in time for design work, and at least a 10 to 14 month installation period for the communal system plant and distribution pipework around the building.
- 3.6 The capital cost of retrofitting district heating systems is significantly more than installing replacement smart storage heating systems. In summary:
- a) Retrofit of district heating scheme (industry estimates) £9,000.
 - b) Retrofit of district heating scheme (actual) £18,000.
 - c) Replacement by modern, SMART, electrical storage (actual) £3,000.
- 3.7 The capital cost of retrofitting district heating systems could range between £15 million, based on industry led estimates and £30 million which reflect the Council's actual costs from previous retrofitting projects. The capital cost of replacing heating systems with smart electric storage system is £5 million.
- 3.8 The annual cost to service the borrowing for a retrofitted stand alone district heating system would range between £728 and £1,456 per year. These costs increase to £878 and £1,606 per year when annual maintenance costs of £150 per year are added. In comparison the annual combined cost of smart electric storage systems scheme is £242 a year.
- 3.9 Changeworks, the Edinburgh based environmental charity, have estimated that tenants living in multi storey flats would generate potential annual savings of £240 for district heating is and £200 for replacement storage heating systems.
- 3.10 As well as the significant difference in cost, district heating is not considered suitable for many of the multi-storey blocks due to location and the space available for plant rooms and circulation pipework.
- 3.11 The conclusion is that stand alone retrofitted district heating systems do not provide value for money for tenants.

Retrofitted district heating schemes and wider area network proposals

- 3.12 It may be possible however to mitigate the higher costs and achieve greater value for money where multi storey blocks can be part of wider area district heating networks and costs can be shared with other commercial and public sector partner(s).

- 3.13 This report proposes taking forward two feasibility studies involving ten of the 22 multi storey blocks where there is a reasonable opportunity for blocks to become part of wider area networks of district heating. The two feasibility studies are set out below.
- 3.14 The Bioquarter study has been commissioned by Scottish Enterprise and includes university and business premises and a hospital. Phase 1 explores the viability of joining the communal heating system at Greendykes / Wauchope into the new network. Phase 2 will explore feasibility for adding another six Council-owned multi-storey blocks in the area (Castleview, Marytree, Little France, Moredun, Moncrieffe and Forteviot Houses. The electric heating in these blocks was installed between 1997 and 2000, and will be due for replacement in the next two to three years. This feasibility study will report later in 2016.
- 3.15 The Leith feasibility has been commissioned by the Low Carbon Infrastructure Transition Programme (LCITP) fund to explore a district heating network using water source heat pumps. This includes the potential to include Persevere and Citadel Courts. The heating in Persevere and Citadel Court was installed in 1988 and is now due for replacement. This feasibility study will also report later in 2016.
- 3.16 The results of these feasibility studies will be reported to committee with recommendations on whether or not to take forward participation in wider area district heating developments. This assessment will include an estimate of the potential timescale for development. It will include an appraisal of the options to procure an energy partner who would design and manage any future district heating system used by Council tenants.

Heating replacement in other multi storey blocks

- 3.17 Smart storage heaters will be installed in the remaining twelve blocks that are not located in, or near, a potential district heating network. Smart storage heaters have already been installed in nine blocks in Edinburgh. Customer feedback on ease of use and energy bill reductions is very positive.
- 3.18 This type of heating offers tenants reduced bills, easier controls, temperature displays and much more efficient charging compared with traditional storage heaters. There is minimal disruption for tenants as installation takes one day, with low capital costs, and negligible maintenance and repair costs. These installations are carried out along with offering user-friendly instructions, demonstrations on using the heaters and energy advice. Edinburgh Tenants Federation (ETF) have advised the Housing Service that tenants in blocks fitted with new systems have reported positive feedback, both on their performance, reductions in heating bills and their ease of use.
- 3.19 Smart storage heating also offers carbon emissions savings and is estimated to be 27% more efficient than traditional storage heating. Electric heating will become more sustainable as the proportion of renewable energy production increases and dependence on fossil fuels decreases. The intention is that the

heaters can be 'grid-enabled' in future so they can take energy when it is at its cheapest, for example on windy and sunny days when excessive renewable energy is generated. As energy companies develop their tariffs to respond to changing energy demands, residents' energy bills could be further reduced.

- 3.20 Holyrood and Lochview Courts are receiving smart shortage heating upgrades in 2016/17. They are also currently included in a feasibility study, funded by the Local Energy Challenge Fund (LECF), to explore the benefits of bulk energy purchase and urban community renewable generation from solar photovoltaics (PV). This scheme is being taken forward by Comas community development charity and Community Energy Scotland. The project is based on using energy demand data to get a reduced price from an energy company and will use off-peak electricity to charge storage heaters. If successful, this 'community electric heating' model could be replicated in other electrically heated multi-storey blocks across the city.

Improving the energy efficiency of blocks through insulation upgrades

- 3.21 The majority (34) of multi-storey blocks in the city already have external (EWI) or cavity wall insulation (CWI). Structural surveys and insulation designs are being carried out to enable the installation of EWI in four further blocks within the next two years. The possibility of installing wall insulation in the remaining six blocks is low, as the Council is in minority ownership in four blocks, and it is financially and technically challenging in the two deck access blocks (Cables Wynd and Linksvie Court) due to their construction type. The Council will continue to explore the options for improving these homes.
- 3.22 Top and bottom floor flats are most difficult to heat and tenants in those homes are at greatest risk of fuel poverty. Roof and under-floor insulation is required in the top and bottom floor flats for most of the multi-storey blocks in the city to ensure EESSH compliance. The cost of meeting EESSH is included in the rolling five year capital programme and reviewed annually.
- 3.23 Roof, wall and under-floor insulation will be installed where feasible. Insulation works will be fully scoped out before heating systems are developed, to ensure the systems are designed to the correct specification, minimising heat demand and reducing tenants' running costs.

Update on Greendykes and Wauchope communal heating system

- 3.24 The installation of the district heating system at Greendykes and Wauchope House formed part of a comprehensive upgrade of 172 Council flats in the two multi storey blocks. The upgrade also included extensive cladding to the building to improve insulation and energy efficiency, and replacement of kitchens and bathrooms in tenants' homes.
- 3.25 The average annual cost per flat of the energy used by the district heating system is £474.40. Prior to that it is estimated that tenants were spending between £700 and £800 on heating costs annually. Tenants in these blocks have further benefited from the decision to charge a introductory flat rate of

£1.00 per day. This was introduced to give tenants certainty over their future energy bills at a time when they expressed significant concerns about the risks of installing a new heating system and a new way of providing energy.

Measures of success

- 4.1 Accelerate the delivery of modern energy efficient homes to tenants.
- 4.2 Reduce tenants' energy costs in the most cost effective way.
- 4.3 Contribute to annual carbon emissions targets.
- 4.4 Exceed compliance requirements for the Government's EESSH standard by 2020.

Financial impact

- 5.1 The costs of investment in fabric upgrades and new heating systems forms part of the approved capital investment programme. Provision for funding it will be met from the revenue loan charges budget earmarked to meet overall capital investment programme borrowing costs.
- 5.2 The HRA will contribute to the costs of feasibility studies for district heating to include multi-storey blocks.
 - a. For Persevere and Citadel Court, work is underway through consultancy support provided by the LCITP and Resource Efficient Scotland which requires match funding of £15,000.
 - b. For the Bioquarter, Scottish Enterprise and the University of Edinburgh have started work on a feasibility study. The Housing Service is contributing £3,758, to fund detailed modelling of the 6 multi storey blocks at Moredun to be included within the study.
- 5.3 Implementation costs, affordability and value for money will be determined once the feasibility studies are complete. The Council will maximise any external funding available as schemes are taken forward.
- 5.4 District heating networks have high upfront investment costs. The Housing Service will seek to join larger scale projects led by partners, making a financial contribution proportionate to the number of flats that would be connected. There are also more opportunities, for larger scale projects with a range of industrial and commercial customers for the heating, to attract external funding and reduce overall costs.

Risk, policy, compliance and governance impact

- 6.1 Exploring the feasibility of district heating networks could delay the replacement of heating systems in some blocks and in some cases this would mean a delay of several years. To mitigate this and ensure tenants benefit from new heating and reduced bills, the blocks included in feasibility work for district heating networks are those which:

- a. do not require immediate heating replacement, and
 - b. are located in areas where there are reasonable opportunities to deliver wider area network district heating.
- 6.2 Citywide, district heating networks are being developed by the key partners within the city, including universities, Scottish Enterprise and private developers, and these projects are core elements of the Sustainable Energy Action Plan (SEAP) and Energy for Edinburgh.
- 6.3 For any system including Council homes, the Council will require an experienced partner to install and maintain the system and manage the heat metering and billing, to comply with the EU Energy Efficiency Directive (EED) with respect to the supply of distributed heat, cooling, and hot water, and the Heat Network (Metering and Billing) Regulations 2014.

Equalities impact

- 7.1 Upgraded insulation and new heating systems will benefit low income households living in the multi storey blocks. The programme will have a positive impact on equalities, and physical and mental health, reducing tenants' energy bills from their current levels and helping to reduce their living costs.

Sustainability impact

- 8.1 Heating replacement and fabric upgrades will reduce carbon emissions compared with the current systems. Alongside the improvement programme, advice and communications will raise awareness of energy efficiency and reduce emissions further.
- 8.2 There is a target date of 2030 for decarbonising the grid, and as this happens electric storage heating will get closer to being carbon neutral. While this is not the case for communal heating powered by gas, alternative sources such as water and ground source heat pumps will be explored for district heating.

Consultation and engagement

- 9.1 Evidence from the Tenants' Survey shows that the Council tenants who were most concerned about the impact of fuel bill rises lived in multi storey flats. Tenants who live in blocks where insulation and/ or heating upgrades have taken place have given positive feedback about the improvements.
- 9.2 There was extensive consultation carried out with tenants to inform the 'Housing Revenue Account Budget Strategy 2016/17-2021/22' which was approved at full Council on 21 January 2016. The consultation took the form of an online planning tool which enabled tenants to prioritise which initiatives they thought would best contribute to reducing tenants' living costs. More responses were received than ever before, with over three quarters of all respondents believing that building new homes, improving the energy efficiency of homes and providing cheaper energy would have a profound impact on their living costs.

- 9.3 The multi storey heating replacement programme will include opportunities to work with potential partners including Energy for Edinburgh and Our Power. The approach to multi-storey blocks set out in this report has been agreed with the SEAP project team.

Background reading/external references

[Energy for Edinburgh – Corporate Policy and Strategy Committee, 29 Sept 2015](#)

[Housing Revenue Account Budget Strategy 2016/17-2011/22, Health, Social Care and Housing Committee 10 November 2015](#)

[Invest to Improve, Invest to Grow – Finance and Resources Committee, 27 August 2015](#)

[Sustainable Energy Action Plan – Corporate Policy and Strategy Committee, 24 February 2015](#)

[Homes and Energy Strategy - Health Social Care and Housing Committee, 17 June 2014](#)

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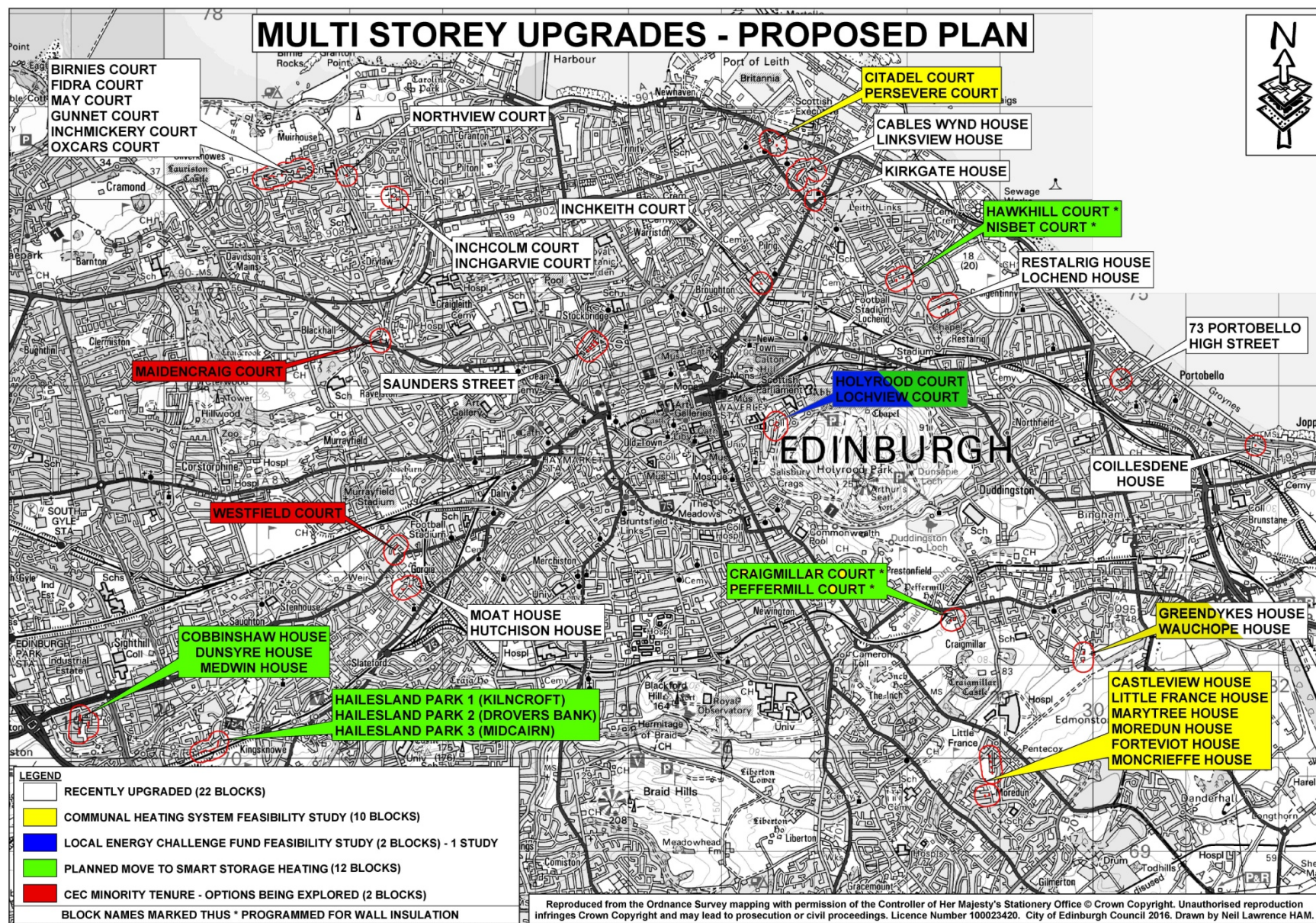
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Links

Coalition pledges	P50 - Meet greenhouse gas targets, including the national target of 42% by 2020
	P52 - Oppose industrial biomass incineration in Edinburgh
Council Priorities	CP2 - Improved health and wellbeing: reduced inequalities
	CP10 – A range of quality housing options
Single Outcome Agreement	SO2 - Edinburgh's citizens experience improved health and wellbeing, with reduced inequalities in health
	SO4 – Edinburgh's communities are safer and have improved physical and social fabric.
Appendices	1. Map of multi storey blocks
	2. List of planned improvements by block

Appendix 1: Map of multi storey blocks



Appendix 2: List of multi-storey blocks by type of heating system (as at 1 April 2016)

Table 1: Heating systems recently upgraded in 22 blocks

Council ownership	Block	Heating System	Date Installed	Heating replacement due	Wall insulation improvement
Majority	Hutchison House	Gas LPHW (low pressure hot water)	2009	2035	Completed
Majority	Lochend House	Gas LPHW	2009/10	2035	Completed
Majority	Restalrig House	Gas LPHW	2009/10	2035	Completed
Majority	Moat House	Gas LPHW	2009/10	2035	Completed
Majority	Cables Wynd House	Gas Communal	2011/12	2036	Technically/ financially challenging – deck access
Majority	Linksvie House	Gas LPHW	2011/12	2036	Technically/ financially challenging – deck access
Majority	Inchkeith Court	Gas LPHW	2013	2038	Completed
All Council owned	Greendykes House	Gas Communal	2013	Bioquarter DH study	Completed
Majority	Wauchope House	Gas Communal	2013	Bioquarter DH study	Completed
Majority	Kirkgate House	Gas LPHW	2014	2039	Completed
Minority (31 tenants)	Saunders Street	Gas LPHW	2012	2036	Yes - Majority private

					owners.
All Council owned	Inchmickery Court	Quantum - smart storage heaters	2015	2040	Completed
Majority	Oxcars Court	Quantum	2015	2040	Completed
Majority	Birnies Court	Quantum	2015	2040	Completed
Majority	Fidra Court	Quantum	2015	2040	Completed
All Council owned	Gunnet Court	Quantum	2015	2040	Completed
Majority	May Court	Quantum	2015	2040	Completed
Majority	Inchgarvie Court	Quantum	2016*	2041	Completed
All Council owned	Inchcolm Court	Quantum	2016*	2041	Completed
Majority	Northview Court	Quantum	2016*	2041	Completed
Minority (8 tenants)	Coillesdene House	Quantum	2016*	2041	Roof project starting. Explore wall insulation options.
Majority (16 tenants)	Portobello High St	Quantum	2016*	2041	Completed

2016* (installation Jan-March 2016)

Table 2: Currently heated by traditional electric storage heating – new heating systems required in 20 blocks over the next 5 years

Council ownership	Multi Block	Heating System	Date Installed	Heating replacement due	Fabric improvement required?
Majority	Persevere Court	traditional storage heaters	1988	Water source heat pump study	no
Majority	Citadel Court	traditional storage heaters	1988	Water source heat pump study	no
Majority	Dunsyre House	traditional storage heaters	1988	2016/17 (Quantums)	
Majority	Cobbinshaw House	traditional storage heaters	1988	2016/17 (Q)	
Majority	Kilncroft	traditional storage heaters	1989	2016/17 (Q)	
Majority	Midcairn	traditional storage heaters	1989	2016/17 (Q)	
Majority	Drovers Bank	traditional storage heaters	1989	2016/17 (Q)	
Majority	Medwin House	traditional storage heaters	1989	2016/17 (Q)	
Majority	Holyrood Court	traditional storage heaters	1990	2016/17 (Q)	
Majority	Lochview Court	traditional storage heaters	1990	2016/17 (Q)	
Majority	Craigmillar Court	traditional storage heaters	1997	2016/17 (Q)	Structural survey

					underway
Majority	Peffermill Court	traditional storage heaters	1997	2016/17 (Q)	Structural survey underway
Majority	Forteviot House	traditional storage heaters	1997	Bioquarter DH	Completed
Majority	Moncreiffe House	traditional storage heaters	1997	Bioquarter DH	Completed
Majority	Marytree House	traditional storage heaters	1997	Bioquarter DH	Completed
Majority	Moredun House	traditional storage heaters	1997	Bioquarter DH	Completed
Majority	Hawkhill Court	traditional storage heaters	1999	2019/20 (Q)	Planned EWI
Majority	Nisbet Court	traditional storage heaters	1999	2019/20 (Q)	Planned EWI
Majority	Castleview House	traditional storage heaters	2000	Bioquarter DH	Completed
Majority	Little France House	traditional storage heaters	2000	Bioquarter Dh	Completed

Table 3: Older communal heating systems

Council ownership	Multi Block	Heating System	Date Installed	Wall insulation improvement
Minority (5 tenants)	Maidencraig Court	Gas Communal	1975	Walls – large number of owners
Minority (36 tenants)	Westfield Court	Gas Communal	1990	Walls – large number of owners