CASE STUDY

Heat pump installation: Grampian Housing Association

1 Project overview

Introduction

In 2022, Grampian Housing Association installed commercial air source heat pumps to create a heat network.

The system serviced 17 flats and three terraced houses. The Housing Association want to decarbonise their stock and are committed to being a net zero organisation by 2035. A key step in achieving this goal is to replace gas boilers that are nearing their end of life with zero direct emission heat pumps. They also installed solar PV, battery storage and loft insulation.

It was important that this project was a positive experience for tenants, leaving them with a more efficient and affordable heating system, to serve as an example to households involved in future projects.

Project name: Mackenzie Gardens Zero Emission Heating
Landlord: Grampian Housing Association

Installer: Easy Heat Systems Ltd
Project management: M-Four

Overall cost: £768,114
Funding source: Social Housing Net Zero Heat Fund: £381,500
Grampian Housing Association: £386,614

Heat technology: Heat network with three commercial air source heat pumps

Building archetype: 17 flats and 3 terraced houses
Year: 1990s
Tenure: Social housing

Location: MacKenzie Gardens, Turriff, North-east Scotland

Project timeline:

- Tenant engagement — Early 2022
- Installation — Summer 2022
- Heat meter installation — January 2023
- Evaluation results — Summer 2024

Measures

Three commercial air source heat pumps and a communal heat network were installed. This solution was proposed by project manager M-Four, who had worked on similar projects. The communal air source heat pump system would benefit from economies of scale; by pooling energy demand from this and other similar schemes, the housing association would be able to negotiate lower energy rates with suppliers. Keeping energy costs low was a priority for the housing association, who wanted to make sure the change from gas heating did not negatively affect their tenants.

Solar PV and battery storage were added to power the heat network, further reducing energy costs. Only one property required a top-up of loft insulation, and all properties already had cavity wall insulation, ensuring the fabric was suitably efficient for air source heat pumps.

2 Project management

Contractor

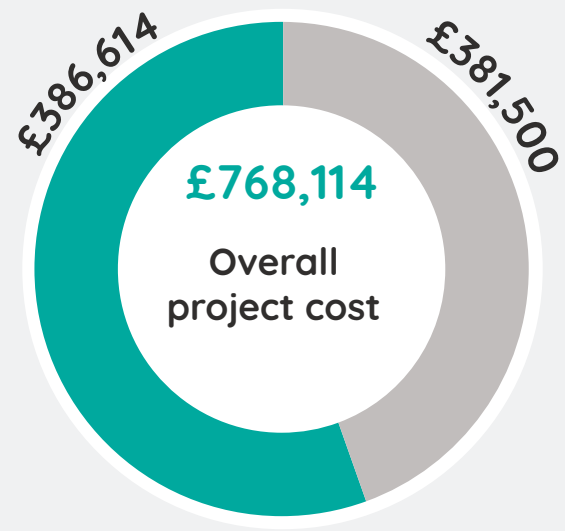
Easy Heat Systems Ltd were awarded the installation contract. The main consideration when selecting them as the primary contractor was their experience of delivering similar projects. M-Four were procured as the project manager. They helped advise and manage the project and apply for Government funding. They had worked with the housing association on another project previously.

Tenant engagement

Tenant engagement was conducted throughout the course of the project. M-Four provided a liaison officer as part of their contract. This open dialogue with tenants during consultations was successful in identifying concerns, a key theme of which was the potential impact on fuel bills. A vacant property was used as a tenant showroom to demonstrate the new heating system. This was particularly useful for those who did not have English as a first language.

At the start of the project, a survey was sent to tenants to gain an understanding of their experience of the existing heating system.

3 Costs



FUNDED BY

- Grampian Housing Association
- The Social Housing Net Zero Heat Fund

The project cost around £38,400 per unit. Most of the funding was allocated to the purchase and installation of the energy conservation technologies. Additional costs were allocated to a new electrical mains system and an acoustic enclosure for the heat pumps.

Cost breakdown:

Air source heat pumps and evaluation	£360,886
Solar and electrical work	£179,358
Building works and insulation	£43,630
Additional electrical services (mains connection)	£86,132
Additional planning requirements	£98,108

4 Project impact

Evaluation approach

The project manager, M-Four, was responsible for monitoring and evaluating the project. Environmental sensors were put into the properties to measure changes to the temperature and humidity. These were installed one year before the project began and will remain in until a year after the installation was completed.

The housing association will collect the meter data to measure the changes in the tenants' energy consumption. The properties were fitted with their new heat meters in January 2023 and monitoring will continue for 18 months following this.

The housing association also plan to carry out a comparison of EPCs before and after installation. However, post-installation EPCs have not yet been completed due to uncertainty of how to incorporate communal measures such as solar PV.

Results

Grampian Housing Association will have further information and conclusions in the summer of 2024 when they are able to analyse their data.

Anecdotally, tenants are very positive about the changes and there were no complaints regarding the installation process. Tenants reported that their properties heat up faster, which was attributed to the new radiators connected to the heat network.

5 Challenges and recommendations

Tenant engagement

Challenge:
Keeping tenants informed about the project and addressing any concerns.

Solution:
Grampian took a very hands-on approach with their Director of Asset Management and the Liaison Officer from M-Four working with tenants regularly. This work, in tandem with the creation of the showroom and consultations, kept tenants informed throughout the process. Using the void property as a showroom also helped visualise the changes.

Recommendation:
Having a show property helps to support engagement. While a void property may not always be available, the Housing Association suggested asking an engaged tenant who is willing to show others around their home. This can help give tenants clear and concise instructions on how to maximise the benefits from the technology.

Planning permission

Challenge:
Obtaining planning permission was the most significant challenge reported by the Housing Association. The use of commercial heat pumps resulted in significant delays to the work as the planners were concerned the noise would be greater than domestic heat pumps.

Solution:
The solution was to place the heat pumps in an acoustic enclosure. The cost of this was not initially budgeted for and was not covered by the grant.

Recommendation:
Landlords should engage with the planning authority from the application stage. Grampian Housing Association recommends that planning regulations are revised to make it easier to develop communal heat pump systems.

Meter requirements

Challenge:
Grampian Housing Association wanted to remove the gas meters to prevent standing charges from building up for the residents. Some gas suppliers charged £100 per meter for the removal, but the housing association did not want their tenants to bear the cost.

Solution:
Grampian Housing Association covered the cost of removing the gas meters. For tenants with a gas supplier with no standing charges, the gas meters were left in the properties.

Recommendation:
Plan and budget for the potential cost of removing gas meters. The housing association raised the issue of gas disconnection costs with the Scottish Government. A long-term solution is necessary as similar projects will become more commonplace.

6 Project contact

Grampian Housing Association welcomes enquiries about site visits from other social landlords. Please email Chris Hunt: **chris.hunt@grampianhousing.co.uk**

This is part of a suite of case studies that can be found on the ClimateXChange social housing decarbonisation project webpage, alongside a summary report, which gives an overview of the key learnings and recommendations.

climateXchange
Scotland's centre of expertise connecting climate change research and policy

Scottish Government
Riaghaltas na h-Alba

CHANGEWORKS.