

ARROWFIELD LOW CARBON LIVING PROJECT EVALUATION (DRAFT)

SOUTHWAY HOUSING TRUST

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SECTION 1: INTRODUCTION

Southway Housing Trust ('Southway') commissioned Forever Consulting to undertake an evaluation of the Arrowfield Low Carbon Living Project ('the project').

The project

The project aimed to create a low carbon community across the Arrowfield estate in Chorlton, Manchester. It was devised following Southway's pledge to become a zero-carbon organisation by 2038. The project was a pilot to inform Southway's approach to replace gas boilers with low carbon heating technology across all their properties as well as increase overall awareness around climate change.

The project cost £4m and was funded through European Regional Development Fund (ERDF) (50%) and match funding (50%).

The evaluation

The purpose of the evaluation was to understand the impact of the project to inform future policy development and direct future funding decisions, as required by ERDF. Alongside this, Southway wanted to identify meaningful learning that can be applied to similar projects.

Research tasks included:

- ∞ A desk-based review of project documents, wider strategies and performance management data. This included: the project funding application, project change request (PCR), the logic model, and Southway's Zero Carbon 2038 Strategy 2020-2025.

- ∞ Eight interviews with the Southway project management team, contractors and local stakeholders (see Appendix 1) and 10 interviews with Arrowfield tenants.
- ∞ Analysis of feedback from a post-installation survey undertaken with 24 Arrowfield tenants.
- ∞ Identifying strengths and challenges of the design, management and delivery of the project.

This report consolidates our findings and sets out key lessons that can inform future projects.



SECTION 2: PROJECT CONTEXT AND RATIONALE

Context

There is a growing global concern around climate change and environmental sustainability. The UK was the first major economy to commit by law to reduce greenhouse gas emissions to net zero by 2050 (through the Climate Change Act 2008). The 2015 Paris Agreement saw many other countries also pledge to become carbon neutral by 2050.

In 2019, Greater Manchester declared a climate emergency. Its ambition is to be carbon-neutral by 2038, 12 years ahead of the Government's target for the UK.

Southway works strategically alongside Greater Manchester Combined Authority (GMCA) and Manchester Housing Partnership to improve the housing sector. Through this work, Southway recognised the scale of the housing sector's (including their own) contribution to Greater Manchester's carbon emissions. Southway saw an opportunity and an obligation to reduce their own carbon emissions and support Greater Manchester's goals.

Southway pledged to become a zero-carbon organisation by 2038. Moving their housing stock away from gas heating to more sustainable heating systems is one of their first key steps to achieving this.

Further to the environmental benefits of shifting to low carbon, Southway recognised the economic benefits for their tenants. Warmer homes and lower bills are high priorities for many people living in Southway homes.

The Arrowfield Low Carbon Living Project

The Arrowfield Low Carbon Living Project was devised as a pilot to help shape a Heating Replacement Strategy for Southway's properties - a viable starting point for their zero carbon plans. It was an opportunity for Southway to develop a new approach to installing low carbon technology and improving energy efficiency across a whole community.



Why Arrowfield?

The Arrowfield estate contains over 400 houses and low-rise flats, of which Southway owns 387 homes. Arrowfield was chosen as the pilot area for the project for the following reasons:

- ∞ The Government are banning gas boilers from being installed in new build properties from 2025 as part of the drive to net zero. The gas boilers in the properties across Arrowfield were coming to the end of their lifespan and at the top of the list to be replaced. Instead of replacing like for like, Southway saw an opportunity to install alternative energy and cost-efficient technology.

- ∞ The properties across Arrowfield were built from 1977-1980, and so are of similar style and design. This typically makes heating replacement projects more straight forward to plan and deliver.
- ∞ Arrowfield contains many residents experiencing economic deprivation and fuel poverty. Lots of residents have low incomes and would benefit from lower bills.
- ∞ Arrowfield is a good sized, contained estate with lots of green spaces and allotments. These aspects meant it was more likely to make community engagement and a community angled approach easier to deliver. It also has many opportunities for further green activity going forward.
- ∞ Southway saw an opportunity to improve the reputation of Arrowfield and give the estate a new image as one of the country's first low carbon communities.

SECTION 3: ABOUT THE ARROWFIELD LOW CARBON LIVING PROJECT

Aims and objectives

The Arrowfield Low Carbon Living Project aimed to create a zero-carbon community across the Arrowfield estate in Chorlton, South Manchester. It sought to reduce energy demand and consumption by:

- ∞ Maximising the energy efficiency of homes through retrofit works.
- ∞ Engaging tenants to raise awareness of the retrofit works and supporting them with how to use the new heating systems.
- ∞ Educating tenants to support behavioural change towards more sustainable living.
- ∞ The project aligned with ERDF investment priority 4c:

“Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector.”

Activities

Project activities were centred around two key areas: the physical retrofit works to Southway homes, and community engagement activities. The original funding bid reveals these activities to include:

Retrofit works:

- ∞ Improving the electricity supply to 367 homes, as needed to support Air Source Heat Pump (ASHP) technology.
- ∞ Removing gas boilers and installing ASHP systems in 367 homes.

- ∞ Improving loft insulation in 224 homes and cavity wall insulation in 18 homes.

Community engagement:

- ∞ A programme of drop-in community engagement events.
- ∞ Information sharing via newsletters, letters, emails and online communications (Facebook and the Southway website).
- ∞ One-to-one visits to 367 homes.
- ∞ Ongoing community liaison support.

Timescales

The project was originally intended to run from February 2021 to April 2023. Initial community engagement was scheduled to begin in February 2021 and capital works planned for September 2021 to April 2023. Project delays and changes (discussed in Section 4) meant that capital works delivery was delayed and timescales compressed. The ERDF funding for the project ended in July 2023.

Funding

In 2021, Southway secured £2m of ERDF funding. In March 2023, Southway submitted a PCR to the Department for Levelling Up, Housing and Communities (DLUHC) to increase the funding to £2.7m. This was to cover costs associated with the increased amount of insulation work needed than originally planned and the increased material costs due to the delays. The PCR was approved by DLUHC in May 2023.

Southway achieved a total project spend of £4m by completion, including an ERDF spend of £2m. This is 103% of the original project target and 74% of the revised PCR target. Table 3.1 shows the target (original and revised) and final project spend.

Table 3.1: Project Funding and Spend

	Original Target	Revised Target (PCR)	Final Spend	% of original	% of revised
ERDF Capital	£1.78m	£2.54m	£1.65m	93%	65%
ERDF Revenue	£0.17m	£0.17m	£0.35m	205%	209%
ERDF Total	£1.96m	£2.71m	£2.01m	103%	74%
Project Total	£3.91m	£5.41m	£4.02m	103%	74%

Source: Southway Housing Trust 2023

Outputs

Southway committed to two ERDF targets for the project: C31 and C34. These are shown in Table 3.2, alongside other non-funding related project target outputs.

Table 3.2: Project targets

Outputs		Original Target	Revised Target (PCR)
C31	Number of households with improved energy consumption classification (ECC)	367	367
C34	Estimated annual decrease of greenhouse gases (GHG) (in tCO2)	314	314
	Number of households with ASHP installed	367	N/A
	Number of households with improved loft insulation	224	N/A
	Number of households with improved cavity wall insulation	18	N/A
	Number of households with upgraded electricity supply	367	N/A

Source: Southway Housing Trust, 2023

SECTION 4: PROJECT MANAGEMENT AND DELIVERY

This section explores the key strengths and challenges of the project's design, management, delivery and tenant engagement. It is informed by feedback from interviews with Southway staff, delivery partners, and other stakeholders, as well as interviews and a post-installation survey with tenants.

Project design

There are examples of both successes and challenges in the design of the project. For example, Southway understood the importance of working with tenants, and activities to gain their support were built into the funding application. However, the design was based on a series of high-level assessments and assumptions, which meant the project needed to change throughout its lifetime. These areas are discussed in more detail below.

Southway took a considerate approach with tenants and planned meaningful engagement activities...

Southway understood that they were dealing with tenants' homes, not just Southway 'assets'. They knew that the works undertaken would affect the lives of their customers, so it was very important that tenants were on-board with their plans.

Southway planned to take a soft approach to gaining tenants' support. They wanted to gain their mutual agreement for the works to take place, rather than informing them and imposing a timescale. Anecdotally, partners mentioned that similar projects led by other organisations have taken a harder approach to gaining access to properties, to get the work completed quicker.

To achieve tenants' support, they sought to step away from traditional engagement methods and do something different. They recruited a Tenant Liaison Officer dedicated to the project, and designed a bespoke engagement programme. This included piggybacking onto activities that Arrowfield tenants were interested in (e.g., gardening) and going to places tenants already go (e.g. foodbanks and community meetings).



But the project design was not fully fixed in the beginning...

Some aspects of the project design submitted to DLUHC were based on high level assessments and assumptions, rather than detailed analysis. For example:

- ∞ An ASHP based communal heating system was originally planned for the flats – a similar but more sustainable approach to the existing gas fired communal system. More detailed analysis was undertaken after the project started, which revealed this approach was not viable. Planning permission was needed to deliver an alternative approach, based on individual ASHP units.
- ∞ The original assessment of the properties suggested the existing cavity wall insulation was mostly adequate, based on existing EPC certificates. Following detailed inspection, it was found this was not the case. A much greater level of fabric upgrade work was required than originally planned for.

These two examples alone affected the project quite drastically. The changes to the project design needed to be accommodated within the agreed scope, cost and timescales, which made delivery challenging.

That said, the Southway project management team, alongside many others involved in the project and in the wider industry, were trialling a project involving ASHP technology for the first time. It was a new learning experience for Southway and many of their partners, and it is reasonable to expect unknown challenges to occur.



Project management

Appropriate management and governance structures were put in place...

Appropriate management and governance structures were put in place at the start of the project. A steering group met to discuss the project quarterly and the strategic management team met monthly. A Project Manager, Tenant Liaison Officer and Clerk of Works were employed specifically to manage and deliver the project.

“Southway made a massive effort to organise the project and did everything they were supposed to do.” (Contractor)

But project challenges put pressure on staff and more resource was needed...

Feedback from many partners revealed that the project management improved as the project progressed. Many reported that it wasn't as strong in the beginning and progress was slower. In the final few months of delivery, there was a change in the project management team and more senior staff got involved. Partners felt these changes improved planning and communication and resulted in significant progress being made.

Many partners also felt that the project was under resourced. Southway commented that although three full time roles (Project Manager, Tenant Liaison Officer and Clerk of Works) were dedicated to the project, it wasn't enough to deliver a multifaceted project with delivery challenges.

“If we could do this again, we would have had two Tenant Liaison Officers.” (Southway Project Management Team)

Southway requested more resource in the project application to DLUHC, but it was not funded.

Feedback was mixed in terms of communication with stakeholders...

Partners generally reported they felt informed and up to date on the current project position. They said Southway staff were particularly responsive and proactive towards the end of the project.

Some noted that Southway staff willingly took feedback onboard and adapted the project activities accordingly. For example, the need for more tenant engagement, communication and support was identified. Southway responded in the following ways:

- ∞ Regularly attended the local food bank to engage with tenants and increase awareness and understanding of the benefits. This was suggested by a local councillor.
- ∞ Commissioned specialist services to assist with engagement and communication. This gave the Southway project management team more time to focus on individual tenants' needs and other project activities.

However, communication between Southway and DLUHC has been challenging. Some areas of miscommunication came to light towards the end of the project. For example, confusion around costs that could and couldn't be claimed for, and timescales for outputs. This put

added pressure on the management team in the final stages of the project.

The contractors were helpful, responsive, and flexible...

Two contractors (Rothwell Group Ltd and Concept Heating) were selected through a procurement process to deliver the project works on site.

Southway felt they successfully secured two good contractors. Their relationship with the contractors was good and both contractors delivered the project well. They were flexible and helpful, and they responded quickly when Southway requested an increased rate of delivery towards the end of the project. This was instrumental to the successes of the project.

However, the contractors and Electricity North West (ENWL) commented they struggled to engage tenants and gain access to properties at the beginning of the project. They felt they could have benefited from more intervention from Southway, given their existing relationship with tenants.

Project delivery

The project faced several challenges that caused delays to delivery and increased the scope of work involved. These are discussed below.

Covid-19 impacted planning and delivery from the start...

The Covid-19 pandemic started just after the application for ERDF funding was submitted. This put pressure on the project in the early stages, as lockdowns and social distancing hindered planning activities. The ensuing economic disruption also affected the project. For example, Southway couldn't issue a tender for contractor works

until March 2022, six months after the capital works were originally planned to have started in September 2021.

Complexities and delays around upgrading the electricity supply to properties...

The successful delivery of low carbon technology is dependent upon a sufficient standard of electricity supply.

ENWL was engaged early in the project process, before the application for ERDF was submitted, to upgrade the electricity network and supply to the properties. This work, and therefore ENWL's role, was critical to the project delivery and performance.

The extent of the upgrade works required could not be determined until the final project design was firmed up, which was after the project had started. This caused delays at the beginning of the project.

Throughout the project, ENWL experienced more difficulties than expected with engaging tenants and accessing properties to deliver the required works (this is discussed further below). This again impacted the speed of delivery to both electricity upgrades and the subsequent ASHP installations.

A requirement for planning permission to install ASHPs in the flats...

As previously noted, the final design for the installation of ASHPs in the flats required planning permission. The planning process took around five months, which was much longer than anticipated. This is due to the complexity of the project and new learning experience of all parties involved.

Feedback revealed:

- ✘ Southway’s planning application was more complex than other ASHP planning applications. Manchester City Council may not have received many applications of a similar nature or scale. This is likely to have impacted processing timescales and the extent of supporting information requested.
- ✘ The amount and detail of information requested by the Council was greater than expected, and there were many discussions and reworking of documents before the planning permission could be submitted.

Tenant refusals and difficulty gaining access to properties...

The number of tenants refusing the electricity upgrades and ASHP installation was much higher than anticipated. Feedback revealed this caused abortive work and frustration for ENWL and the contractors.

Refusals also had a knock-on effect. In some cases, one tenant refusing electricity upgrades meant a whole group of properties couldn’t be upgraded, and so neighbours who wanted an AHSP could not have it installed in their home.

“We’ve never done a full week of installations, there’s always been a resident that has pulled out.” (Contractor)

Feedback shows the two main reasons tenants refused works were the amount of disruption, and the negative perceptions of ASHPs – many of which came from others in Arrowfield estate.

Disruption:

The disruption for tenants started with the electricity upgrades undertaken by ENWL. Tenants reported frustrations with the estate

being dug up and barriers blocking roads and pathways for long periods of time.

One tenant told us her property was supported by the same electricity loop as her neighbours. She was told by ENWL all neighbours needed to be present for the unlooping process to take place. This took a long time, it was difficult to arrange, and was inconvenient for tenants.

Disruption continued for tenants during installation. The process of having an ASHP installed involves contractors working in their home for at least two days. Belongings needed to be packed and furniture moved so that flooring could be lifted and pipe work accessed. This can be inconvenient for tenants and prevents some people wanting to get involved. A particular concern for many tenants was the need for the laminate flooring to be taken up. They were concerned because they had paid for it themselves. In June 2023, Southway were liaising with around 40 tenants to resolve this challenge alone.

Negative perceptions:

Southway faced a big challenge in overcoming myths and misconceptions about the ASHP technology. These tended to come from stories in the media and some adverse experiences of tenants early in the project.

“The word on the street was ‘don’t let them in!’” (Local Councillor)

Arrowfield contains a close-knit community with many long-standing residents. Negative stories circulate quickly across the estate. For example, a local councillor explained how a tenant received a very high bill following the installation of the ASHP during the winter

months. This alarmed other tenants who were already concerned about rising energy bills.

Other concerns that are likely to have led to a greater reluctance and higher rate of refusals, include:

- ∞ Since the project began, the cost-of-living crisis has set in, and household energy bills have increased. Partners believe this has increased concern and anxiety amongst many people, particularly those on low incomes.
- ∞ Southway highlighted in their funding application that there is a lack of knowledge of new low carbon heating technology amongst tenants. They noted how many are unaware of the benefits it could bring and are concerned about moving away from the familiar gas heating system.

Tenant engagement

Perceptions were mixed around the extent and impact of tenant engagement throughout the project.

Southway reported that tenant engagement started well at the beginning of the project. However, the momentum they built up was quickly lost due to the delays caused by Covid-19. They felt it was difficult to regain interest and momentum post-pandemic.

The decision to set up a community hub was praised by many partners, but some felt the level of tenant support pre, during and post installation could have been better. This is discussed in more detail below.

Southway engaged tenants in a variety of ways...

Southway began engaging tenants at the start of the project through open days and events and sending out information through letters, newsletters, the Southway website and social media.

When Covid-19 restrictions were lifted, they set up engagement activities that both aligned with tenants' interests and allowed them to share information about the project. For example:

- ∞ Southway understood some tenants were really struggling with fuel poverty, so they ran projects alongside fuel poverty charities. They also gave out 'Winter Warmer' packs, which included supplies such as hats, gloves, duvets, and dried foods. The packs also included leaflets with contact details for support agencies tenants could reach out to if they wanted.
- ∞ Southway also understand their tenants have limited disposable income, so they worked with a charity that helps people to mend their clothes, and they provided free food at some information events. These activities were intended to share information about the project whilst also helping tenants with their daily challenges.
- ∞ Southway joined in with existing activities of interest to tenants, for example attending the local food bank and community meetings. They also set up activities of interest to tenants, including working with a charity called Greenfingers to facilitate gardening activities across the estate. These were good opportunities to speak with tenants, share information about the project and find out about any concerns.

“Communication and engagement with residents has been important to Southway and they’ve tried really hard.” (Local Councillor)

They set up a community hub to share information and educate tenants...

Southway converted a house on the estate into a community ‘Hub’. The Hub had ASHP technology installed and was used as a venue for open-day information events and ongoing drop-in support. Tenants were able to drop-in, see what an ASHP looks like, how to use it, discuss concerns and ask questions.

“Tenants appreciated there was somewhere they could go to with the Hub.” (Southway project team)

Feedback shows the Hub was used on an ad-hoc basis in the beginning of the project. Towards the end, the level and type of use increased. Southway and contractor staff operated from the Hub during normal operational hours and, anecdotally, the number of tenants visiting the Hub increased.

The Hub was also used as a tool to educate tenants on wider environmental issues. For example, it contained lots of information on how much energy various household appliances use and ways to save energy. This included simple money saving tips, such as switching off lights and turning off taps when they’re not needed.

Tenants generally felt informed...

Interviews with tenants revealed most knew about the project from seeing works going on on-site, speaking to neighbours, receiving a letter through the door, visiting the Hub, or contractors visiting their home.

Most tenants said the information provided by Southway was useful, but some felt they could have benefited from more information to answer questions like:

-  Does the gas standing charge still need to be paid?
-  How much does the ASHP cost to run?
-  What does it look like and how big will it be?
-  What are the benefits of having it installed?
-  How much mess will it cause and how much furniture do we need to move?
-  Two leaseholders also wanted to know how it would affect them.

Some tenants acknowledged they were told information but had forgotten it, or they could have found out more information themselves by visiting the Hub or speaking to Southway staff but chose not to.

Feedback on the information provided to tenants was mixed...

Partners reported mixed feedback on how easily digestible the information provided was for tenants who had no prior knowledge of ASHPs. Some partners reflected positively on the information provided:

“I’ve never seen such an effort been put in by an organisation. It’s the best information I’ve seen given to residents - not just about having a heat pump installed, but about other environmental benefits too.” (Contractor)

Others commented some of the information was too technical and confusing:

“One piece of information sent out was too complicated for average people. Pitch the information carefully so people understand.” (Local Councillor)

All agreed regular tenant engagement and simple, consistent messaging is important...

Partners emphasised that pre, during and post communication, engagement and support with tenants is crucial to the success of the project. For example:

- ∞ Tenants need to be engaged and informed before the installation begins so they understand why the retrofit is important, what will happen and what they need to do.

- ∞ They also need support during the installation, e.g., moving furniture, and possibly a warm place to stay. Bespoke support for people with disabilities and other challenges is also important.
- ∞ The aftercare with tenants is crucial, in particular ensuring tenants know how the technology works. A significant proportion of the tenants we spoke to said they weren’t confident in how to use the ASHP system.

Case Study:

We installed a heat pump for a tenant during a really cold weather spell in December 2022.

A heat pump takes a lot of energy to get running for the first time, but the tenant didn’t know this. She saw her electricity meter going up quickly so panicked and turned the power off. The weather was so cold that the pipework froze.

We then had to go back to the property to defrost the pipe work and reheat the system. This cost the tenant even more money in the end, as she practically heated the system up twice.

(Example provided by a contractor)

SECTION 5: OUTCOMES AND IMPACT

This section sets out the main outcomes and impacts of the project, based on an analysis of targets and feedback gathered from consultees.

Progress against targets

Table 5.1 shows progress against project targets and outputs.

Reduced energy consumption...

The project improved the energy consumption classification (ECC) of 333 households, achieving 91% of the ERDF target (C31).

The project has reduced energy consumption across Arrowfield by installing ASHPs in 225 homes. Although this is lower than the original target of 367 homes (61%), it is a good achievement considering project challenges.

Another big contribution to improved ECCs was the extent of insulation work delivered, which was notably higher than originally planned (based on what was understood to be needed). Southway improved the loft insulation in 225 homes (100% of target) and cavity wall insulation in 333 homes, which is significantly higher than the original target of 18 homes (1850% of target achieved).

Feedback shows that improving the insulation was straight forward. This is because tenants understand what it is and how it will benefit them. It isn't a long or disruptive task, and so tenants were keen for it.



Decreased greenhouse gases...

The project has decreased greenhouse gas (GHG) emissions by 371 tonnes of carbon dioxide (tCO₂). This is somewhat higher than the ERDF target (C34) of 314 tCO₂ (118% of target achieved).

Enhanced electricity supply...

The project enhanced the electricity supply to all households across Arrowfield by working with ENWL. This will have benefited both Southway Tenants and private householders, future proofing supply.

Table 5.1: Project target and achieved outputs

Outputs		Original Target	Revised Target (PCR)	Achieved	% of original	% of PCR
C31	Number of households with improved ECC	367	367	333	91%	91%
C34	Estimated annual decrease of GHG (in tCO2)	314	314	371	118%	118%
	Number of households with ASHP installed	367	N/A	225	61%	N/A
	Number of households with improved loft insulation	224	N/A	225	100%	N/A
	Number of households with improved cavity wall insulation	18	N/A	333	1850%	N/A
	Number of households with upgraded electricity supply	367	N/A	367	100%	N/A

Source: Southway Housing Trust 2023

Improved environmental awareness...

Tenant learning and education around energy efficient measures was a key aim of the project, although outputs were not put in place to measure it. Feedback suggests this improved in the latter stages of the project as more tenants had the ASHP technology installed, albeit not to the extent that was originally anticipated.

Many tenants consulted were already conscious of energy saving, for example by turning off lights and plugs, and some had experience of low carbon technology through the solar panels installed on their property. Some tenants told us since they had the ASHP installed they are more aware of how much energy they are using.

“I have been turning everything [electricity] off since I’ve had it installed!” (Tenant)

Impact on tenants

Anticipating warmer homes and cheaper bills...

The full impacts of the project have not yet been realised for tenants, given many have only had the ASHP installed for a short period of time. Nevertheless, interviews revealed the following benefits:

- ∞ Five out of the 10 tenants interviewed told us their home has been warmer because of the ASHP. Other tenants could not comment as they had the ASHP installed during the late spring and early summer when the weather was already warmer.

“Straight away it was heating the house more efficiently. There were less pockets of cold across the house and it felt warmer.” (Tenant)

- ∞ Two tenants said they are aware that they have saved money; however, at this early stage, the others have not yet noticed cheaper bills. Some are hopeful that cost savings will become more obvious over the winter months and the longer term, and already feel less worried as a result.

“I feel less stressed about bills as I know we’ll see the benefits of reduced bills in winter.” (Tenant)

“Before the ASHP was installed, I was constantly checking the gas meter and had to keep running back to the shop to top it up. I don’t have to worry now.” (Tenant)

- ∞ Two tenants explicitly revealed their health and wellbeing has improved and they feel less financial stress. Another tenant has noticed a positive change in her daughter’s health, although she concedes there is no evidence this is directly linked to the project.
- ∞ Some tenants benefitted from a new electric cooker for free; an incentive offered by Southway through the project.
- ∞ Southway told us some tenants have benefited from other improvements to their homes because of the project. For example, fixing roof leaks, damp and mould issues and adjusting and

resealing doors and windows to stop draughts and fixing faulty solar panels.

Case study:

A mother and her daughter had an ASHP pump installed in March, alongside new cavity wall and loft insulation. They have noticed that the house now heats up quicker since the ASHP has been installed.

“My daughter suffers with catching lots of illnesses and easily gets cold, so having a warm house is a big thing for us. It’s not an option to not have the heating on.”

The mother told us how last year her daughter was ill regularly. But this year, her health has been better.

“I’m not sure if that’s down to changes in the heating and insulation, or the warmer weather, but something has helped!”

A minority of tenants had adverse experiences during the installation process...

Most tenants were happy with the work completed and managed the level of disruption caused, but a small number of tenants reported:

- ∞ Problems with the ASHP system after the contractors had left, for example the water was running too hot, or the system was tripping out. In some instances, it took multiple attempts to resolve as staff are also getting used to the technology.

- ∞ Dissatisfaction with the amount of redecorating that needed to be done following installation (e.g. general paint work, holes in walls, wallpaper, tiles, pipes left exposed).
- ∞ Mess was made and left behind e.g. lots of dust, property tools and supplies left behind, carpets not put back down properly, screws left under the carpet.
- ∞ They couldn’t stay in their home during the installation because there were so many workers and activity was taking place throughout the property.

“I thought one corner of the house might have been left for me to sit in, but that wasn’t the case.” (Tenant)

- ∞ Limited support provided for more vulnerable tenants, including those with disabilities, young children and those with daily challenges or responsibilities. They felt that little was done to make the installation process and disruption easier for them.
- ∞ Anecdotally, the project caused conflict with neighbouring private tenants who had to have their drive dug up so Southway could install an ASHP in the house next door.

“Lots of neighbours speak to me about their heat pumps, everyone seems to have a different story to tell.” (Tenant)

Impact on the wider community

The project has had the following impacts on the wider community:

- ∞ Reduced annual GHG emissions in the local area by 371 tCO₂, which has lessened the negative impacts on the environment and air quality in the local community.
- ∞ The Hub has been used for other activities that benefit the community, including a space for community groups to meet and a venue for local councillors to hold a coffee morning.

“There’s no community centre on Arrowfield currently and the estate is lacking a community base. The Hub is temporarily filling that gap.” (Local Councillor)

- ∞ Partners involved in the planning and delivery of the project have built new relationships with other organisations and developed their internal skills and experience. For example,
 - One of the contractors revealed they have developed a relationship with a manufacturer they hadn’t worked with before. This has led to other opportunities and contracts with other housing associations.
 - Another partner said they have developed a new relationship with an acoustic consultant and, with the support of Southway, developed new relationships with Manchester City Council. Additionally, their team has learned more about ASHP technology and the organisation has a new project to showcase.

Impact on Southway Housing Trust

The project has had the following impacts on Southway as an organisation:

The project has created legacies...

- ∞ Southway will use the learning from this project to inform its Heating Replacement Strategy. They also anticipate it will inspire other housing providers to undertake large-scale retrofit projects. These organisations will also benefit from the lessons that Southway have learnt. Furthermore, a contractor mentioned they are changing the way they deliver similar projects because of their greater understanding of specific details and requirements. The benefits of this learning are being passed on to new clients. For example, the need for off-site facilities to store materials, which was a new experience for them on this project.
- ∞ It has future-proofed 225 of Southway’s properties.
- ∞ It has instigated learning and education around environmental change and energy efficiency that tenants will continue to benefit from.
- ∞ It has initiated an improved reputation for the Arrowfield estate and a new image as one of the country’s first low carbon communities.

Staff have developed new skills and experience...

The project management team have developed skills and gained experiences that can be carried forward to other projects. This includes: managing an externally funded contract, brokering and managing relationships with multiple delivery partners, persuasion

and negotiation and handling difficult relationships. They have also increased their knowledge about ASHP technology and the planning process. However, the team are on fixed-term contracts and so it is important that this knowledge is embedded across the organisation.

Southway staff from other teams were involved towards the end of the project when additional resource was needed to increase the rate of delivery. They helped raise awareness of the need to install ASHP amongst tenants. This has led to them honing their engagement skills, as well as increasing their knowledge of ASHPs and other energy efficiency measures in the home.

Stronger relationships and an increased profile...

Southway worked hard to engage partners and stakeholders and developed and strengthened many relationships, for example:

- ∞ They developed relationships with more tenants. The Hub and community events particularly helped with this.
- ∞ They developed relationships with local Councillors, who supported the project from the beginning.
- ∞ They strengthened existing relationships with contractors and ENWL. Whilst the relationships have had their challenges, Southway reported an honest and open relationships that improved over the project's lifetime.

The project also enabled Southway to raise the profile of their organisation. The project has been featured in articles published by Place North West and Climate Change Agency. Southway also worked alongside local charities throughout delivery, including fuel poverty charities and Greenfingers. This increased awareness of Southway across the local area.



SECTION 6: VALUE FOR MONEY

Value for money has been considered in two ways:

- ∞ By monetising the quantifiable economic benefit of the project - three FTE jobs.
- ∞ Calculating the cost per output (C31 and C34) achieved, compared to other similar ERDF projects.

This analysis is presented below.

Jobs and GVA Analysis

Three new full-time jobs were directly created (Project Manager, Tenant Liaison Officer and Clerk of Works). These gross jobs were adjusted to account for additionality and derive the net jobs. This means estimating the level of impact that would have occurred anyway without the activities funded by ERDF. The following factors were applied:

- ∞ Deadweight – a measure of the amount of outcome that would have happened even if the activity had not taken place.
- ∞ Displacement – an assessment of how much of the outcome was displaced from elsewhere.
- ∞ Leakage – an assessment of how much of the outcome benefitted those outside of the target area or group.

- ∞ Multiplier effects - further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases.

After additionality, the project supported 2.7 net FTE (full-time equivalent) jobs. This equates to an estimated £164,593 GVA contribution to the local economy because of the project.

Cost per output analysis

During interviews, some partners reported the project has cost more to deliver than they originally expected, and delivered fewer ASHPs. This is comparable to the experience of some other similar projects. For example, a value for money assessment of the ERDF funded Decarbonising Skipton Project¹ noted: “No, it hasn’t been value for money, it’s been more expensive than certainly we anticipated and has taken an awful lot of resource.”

Our analysis of project costs versus ERDF outputs shows the project achieved the following:

- ∞ £6,031 per household with improved energy consumption classification (C31)
- ∞ £5,413 per tCO₂ decrease in greenhouse gases (C34)

¹ Evaluation Of The Decarbonising Skipton Project - Final Summative Assessment Report, PFA Research Ltd, July 2022

We compared cost per output of the project to other carbon reduction projects with the same ERDF outputs. The benchmark comparisons are shown in Table 6.1.

Overall, this shows the project has cost more to deliver the ERDF outputs than most other benchmarks, suggesting a lower value for money. However, this should be considered in the context of the project and challenges faced.

The benchmark projects include a wider range of carbon reduction activities and different low carbon technologies to the Arrowfield Low Carbon Living Project. These technologies may be better known and understood across the industry.

Benchmark sources are as follows:

¹ Evaluation Of The Decarbonising Skipton Project - Final Summative Assessment Report, PFA Research Ltd, July 2022

² Summative Assessment of the part ERDF funded Energy Low Carbon Housing Support Ellesmere Port and Neston, Cheshire West and Chester Council, March 2023

³ Marches Renewable Energy Scheme - Summative Assessment, Herefordshire Council, September 2021

⁴ N2EG Summative Assessment for Nottingham City Council, Paula Rogers Consulting, January 2021

⁵ Summative Assessment of the ERDF-Funded: Worcestershire Low Carbon Opportunities Programme (Lopoc) - A Final Report For Worcestershire County Council, Kada Research, September 2019



Table 6.1 Cost per output comparisons

ERDF funded projects	Brief project description	ERDF Spend	(C31) Number of households with improved ECC	Cost per improved ECC	(C34) Estimated annual decrease of GHG (tCO2)	Cost per decrease in GHG (tCO2)
Arrowfield Low Carbon Living Project	Improving energy efficiency through ASHP technology and insulation.	£2.01m	333	£6,031	371	£5,413
Decarbonising Skipton Project ¹	Install carbon reduction and renewable energy technologies, including insulation, solar panels, ground source heat pumps.	£0.44m	0 (against a target of 6)	-	64	£6,880
Energy Low Carbon Housing Support Ellesmere Port and Neston ²	Reduce energy consumption and generate low carbon electricity through photovoltaic cells, battery storage and external wall insulation.	£0.93m	220	£4,214	240	£3,863
Marches Renewable Energy Scheme ³	Develop new renewable energy projects and support and educate businesses, local authorities and communities.	£0.76m	-	-	247	£3,095
N2EG ⁴	Enable SMEs to adopt energy efficiency measures, renewable energy solutions and low carbon technologies.	£1.19m	-	-	630	£1,889
Worcestershire Low Carbon Opportunities Programme ⁵	Provide SMEs with grants for investment in renewable energy and innovation in low carbon technology related products and services.	£1.10m	-	-	761	£1,446

SECTION 7: STRENGTHS, CHALLENGES AND RECOMMENDATIONS

This section presents our conclusions on the project's strengths and successes, as well as weaknesses and challenges. It informs the lessons that can be carried forward for future projects.

Strengths

- ∞ Southway was keen to gain tenant support early on. Community engagement was a key part of the project tenants were engaged in multiple ways.
- ∞ Southway took advice from specialists, community organisations and partners to achieve their tenant engagement aspirations. This helped them step away from traditional methods and deliver engagement activities that were valuable and interesting for tenants e.g. gardening, mending clothes and 'Winter Warmer' packs.
- ∞ A change in the project management team and increase in senior staff involvement towards the end of the project improved project planning, communication and overall progress. They took feedback onboard and adapted the project activities accordingly to ensure progress was made.
- ∞ The two contractors that delivered the works on-site were a key success of the project. They were flexible, helpful and responsive, particularly when Southway requested a higher rate of ASHP installations towards the end of the project.
- ∞ Another key success was the 'Hub'. It was open for tenants to visit and find out more information, as and when they wanted to. It helped to educate tenants more generally around energy

efficiency and was available as a space for community groups to meet, temporary filling an existing gap in community provision.

- ∞ The project performed well against the two defined ERDF targets. It improved the energy consumption classification of 333 households (91% of C31 target) and decreased greenhouse gas emissions by 371 tCO₂ (118% of C34 target).
- ∞ The project delivered low carbon technology within 225 homes and a greater amount of insulation work than originally planned. This has future proofed the properties for years to come and will continue to deliver environmental benefits.
- ∞ Many of Southway's staff and partner organisations developed new skills, experiences and learning. They have also built relationships with tenants and other organisations, leading to new opportunities and increased awareness of the organisation.

Challenges

- ∞ More detailed analysis to inform the project design was needed earlier in the project. Initial assessments were found to be unfeasible or insufficient after the project began. This led to an increased scope of work to be delivered, at an increased cost, but with little or no movement on delivery timescales.
- ∞ Southway staff were required to deliver a project with multiple challenges, whilst ensuring compliance with ERDF funding requirements. This put pressure on a team that was already under-resourced, as additional staff funding was not approved.

- ∞ ASHP technology is relatively new in the low carbon industry. The industry and many organisations involved are still learning. The project was Southway's pilot to retrofitting ASHP technology. Many partners involved were also new to the scale and complexity of this project.
- ∞ The project was dependent upon the work of ENWL in upgrading the electricity infrastructure and supply to all households. ENWL faced challenges throughout the project, given the extent of upgrade works required wasn't clear until the project had started, and difficulties gaining access to tenants' homes. This led to delays that had a knock-on effect on ASHP installations.
- ∞ A more detailed feasibility assessment found that planning permission was needed to install ASHPs in the flats. The planning process took longer and was more complex than Southway anticipated.
- ∞ More tenants refused electricity upgrades and ASHP installation than anticipated. Partners struggled to engage tenants and needed more support from Southway in the early stages of the project. Refusals were largely due to the level of disruption caused by the project (both across the roads and footpaths on the estate and within tenants' homes) and negative preconceptions of ASHPs (from stories reported by the media and adverse tenant experiences).
- ∞ Whilst significant tenant engagement and communication took place, we found that some tenants were not fully informed or needed things to be explained more clearly and needed more support post-installation.

Recommendations

Project design

- ∞ As demonstrated here, it is important that the project is based on as detailed evidence as possible from the outset. This will help mitigate project risks associated with making assumptions and changing evidence. It could be beneficial to divide the project into two stages: stage 1 - research and planning; and stage 2 - delivery. This may help to ensure sufficient resource and time for stage 1. It may help funders understand the extent of planning work involved in similar complex projects.
- ∞ Consider spending time on increasing the understanding of staff (and potentially partners) involved in the delivery of the project. Staff and partners may not know much about the new technology and the associated benefits, opportunities and complexities. It is important that delivery staff are fully educated so they can pass on accurate knowledge to tenants. This will also help staff to deal with issues quickly and confidently.
- ∞ Consider further synergy in partnership working where partners are doing the same work. For example, utilities aligning infrastructure plans to avoid multiple occasions of disruption within the community, joint marketing (or the development of assets that could be used), staff training and education around ASHP technology and successfully engaging tenants.
- ∞ Include sufficient flexibility within the project programme to allow for unexpected project activities and delays. Complex project like this one involve many aspects that can affect delivery and timescales. For example, the need for involvement from a Distribution Network Operator (such as ENWL), planning

permission, local surveys and ecological studies. As demonstrated, activities can take longer or be more challenging than expected on projects where industry experience is limited.

- ∞ Consider planning installations during the warmer months of the year. As shown through the project, the installation process can leave tenants without a heating supply for multiple days. Hence, the experience felt by tenants is more adverse during the winter months. Tenants are also often required to leave the premises whilst works are being undertaken. This is easier for tenants during spring and summer when the days are longer and warmer.
- ∞ Consider including the disconnection of gas services in the project design. This will help to avoid uncertainty for tenants around the need to retain a gas supply and pay the gas standing charge.

Project management

- ∞ Ensure there is sufficient staff resource, and they have relevant experience, particularly around multifaceted projects or those with complex funding requirements. It is important staff are familiar with the funding guidance and monitoring and evidence requirements. It's also important to ensure support from other internal teams is in place, e.g. communications and customer service teams. Ensure delivery staff are fully educated around the ASHP technology, including how it works and its benefits, so they can pass on accurate knowledge to tenants.
- ∞ Consider whether governance and decision-making processes can be strengthened at the start of the project. This can help to ensure appropriate control, direction of project delivery and offer new ways of thinking. Things to consider could be: Are the right steering or advisory groups in place? Are the right people with the

right skills involved? Would it be beneficial to include tenant representatives? Are clear processes in place for escalating issues encountered during the project?

- ∞ Identify methods for capturing, sharing and embedding learning throughout the project. This could include: regularly seeking feedback from staff and partners as their skills and experiences develop; consistently engaging tenants to understand their experiences; or involving other organisations to help identify learning from the beginning of the project.

Project delivery

- ∞ Consider how you can support tenants before, during and after installation, particularly vulnerable tenants. The process of retrofitting the heating system could be considered intrusive and disruptive to people. Consider ways that you can make the experience easier. This could include financial assistance to cover costs incurred as a result of the project, e.g. replacement laminate flooring, a storage unit (given the new system takes up more space internally than the previous gas boiler) or funding to cover the initial cost of heating the system for the first time. Or it could include physical assistance, such as providing a space for tenants to use while contractors are in their home, assistance with moving and covering up furniture, or a cleaner after installation.

Stakeholder engagement

- ∞ It is important to engage with all stakeholders early in the project process, including the Distribution Network Operator (i.e. Electricity North West), contractors, tenants, local councillors, planning authorities, planning consultants and others. Stakeholder buy-in and support is invaluable and can be vital to the success of

the project. Stakeholder input can provide learning, inspiration, build trust and promote efficiency that can benefit both the project design and delivery.

- ∞ Ensure to maintain engagement throughout the project. Ongoing engagement maintains momentum and interest in the project. It also ensures any issues are tackled and overcome quicker.

Tenant engagement

- ∞ Ensure enough staff resource is dedicated to community engagement and support. This is required before, during and after installation.
- ∞ It is important to inform and engage tenants regularly and consistently. Our experience of evaluating other programmes has found that messages must be shared multiple times before they are absorbed. Regular updates and information sharing also helps to maintain the project momentum and interest.
- ∞ It is important to use multiple techniques for engaging tenants as not all tenants like to engage in the same way. It can be helpful to consider what matters to tenants and engage them around this.
- ∞ It is vital that information is shared with tenants in a way they understand and is easily digested. All information needs to be in plain English, without technical jargon.
- ∞ Continue to create a community 'hub' for tenants to drop-in, see the ASHP technology, understand how it works and ask questions. Make sure tenants feel welcome and the hub is accessible outside

of standard working hours. Ideally, contractors could use the space as a base to aid partnership working.

- ∞ Furthermore, consider expanding the use of the community 'hub' to meet community needs e.g. space for community groups to meet or store supplies.
- ∞ Consider undertaking research with tenants to further understand the impact of the project. This could include gathering evidence on energy usage or the cost of tenants' bills before and 12 months after the project; or tracking and monitoring issues raised by tenants.

Final thoughts

The Arrowfield Low Carbon Living Project was an ambitious project of a scale that is relatively new to the industry. It has been successful in improving the energy efficiency of Southway homes across the Arrowfield estate and reducing greenhouse gas emissions. It has developed the ASHP knowledge, skills and experiences of everyone involved. It has made positive steps in educating tenants around energy efficiency and is a starting point for continued green activity across Arrowfield and other Southway estates.

Whilst there are some aspects that didn't go as well as planned, there has been a huge amount of learning generated that will be of use to Southway, and other housing providers across Greater Manchester and the rest of the UK. It is important this is shared.

APPENDIX 1: CONSULTEES

We would like to thank the following for their support and input to this evaluation:

Organisation	Name	Position
Concept Heating	Paula Byrom	Director
Electricity Northwest	Martin Edmundson	
Electricity Northwest	Matthew Savka	Design Manager
Electricity Northwest	Peter Barlow	Delivery Manager
Electricity Northwest	Tom Glasgow	Design and Policy
Manchester City Council	Dave Rawson	Councillor for Chorlton Park ward
Manchester City Council	Joanna Midgley	Councillor for Chorlton Park ward
Manchester City Council	Mandie Shilton Godwin	Councillor for Chorlton Park ward
Nexus planning	Heather Lindley-Clapp	Planning consultant
Rothwell Group Ltd	Steve Houghton	Operations Director
Southway Housing Trust	Abdi Ali	Tenant Liaison Officer
Southway Housing Trust	Karen Mitchell	Chief Executive
Southway Housing Trust	Matt Roberts	Strategic Director – Property and Development
Southway Housing Trust	Simeon Parker	ERDF Project Manager



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