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Fitting the Future

Leeds City Council

Job No. 700135

Summative Assessment Report

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1.0 Introduction

Leeds City Council (LCC) are committing to transforming the insulation of many back-to-back properties with the Transformational Insulation to Back-to-Back (TIBB) scheme to help reduce carbon emissions from these properties and improve the warmth and comfort for those occupying them. This can be linked to the UK's steps towards being net zero carbon by 2050, with local authorities playing a massive role in this plan becoming a reality.

In addition to the TIBB scheme, the Fitting the Future scheme will run in tandem. Both schemes are being part funded by the European Regional Development Fund (ERDF) and so both require a summative assessment, in line with the summative assessment plan and logic models, to identify where changes will be most beneficial.

This high-level report has been produced by Ingleton Wood in order to breakdown what Leeds City Council could do to effectively reduce carbon emissions from the properties identified and improve their occupant's comfort through improving the insulating methods and materials used.

1.1 Scope

The aim of the Fitting the Future project is to improve 160 newer system-built properties with a combination of innovative external wall insulation, loft insulation, solar photovoltaic panels with battery storage, smart heating controls and LED lighting.

Since the original bid for Fitting the Future was submitted, the project has been subject to delays for various reasons, including difficulties experienced in trying to find commercial partners with whom to fund and undertake the project and the global pandemic, which has led to a pause in capital works being undertaken by the council and a squeeze in manpower and supply chain capacity. Whilst these delays have taken place there have been changes to the regulatory environment such as the adoption of PAS2035 standards, which have increased the cost of a comprehensive package of works for each property.

The proposal was remodelled to take account of the above whilst ensuring that it continues to address the reduction of carbon emissions in an innovative way and the improvement of domestic energy efficiency.

1.2 Project Description

Electricity is vital to the way we live now. The current electricity grid was designed as a one-way system, large power stations supply electricity and consumers use this in a predictable though variable way. It was designed with a base generation of nuclear and coal-fired power stations, supplemented by gas-fired power stations supplying peaks. However, renewable energy, predominantly solar and wind power has largely replaced coal making power generation more variable and less controllable. Business hours have increased with more businesses operating 24 hours a day, changing peak times. The use of electricity has increased and with the introduction of electric vehicles is due to increase substantially again. The grid needs to adapt to this changing landscape in order to avoid rationing energy or risking power outages.

These changes can take place within the grid by increasing the amount of redundancy (i.e. more power stations) to increase resilience, which is expensive, or by changing the way we use electricity, though probably will require a combination of both.

This project was originally designed to explore domestic and small-scale changes that can be made, using insulation, solar PV, batteries, and smart controls to avoid the need for major strengthening of the grid, and teach us valuable lessons about how we can get the most out of these changes in the future.

Subsequent changes to the scope of the project mean that some of the technologies have been omitted such as the solar PV, battery storage and smart controls. However, electric vehicle charging points have been included instead.

1.3 Targets and Goals

Because of the UK's plan to be net zero carbon by 2050, the goals set for FtF are connected to reducing carbon emissions while improving the comfort and well-being of the property occupants. The main goals are:

- Reducing carbon emissions from the properties improved, using a suitable and verified computer application such as UNO to calculate the pre and post installation SAP ratings and carbon emissions.
- Increasing the warmth and comfort of selected properties to improve satisfaction of tenants, measured by qualitative surveys, reviews of pre and post installation energy bills and potentially the installation of equipment to monitor temperature and humidity etc… in a sample of homes.
- Reduction in condensation and humidity in the properties which for example, in turn helps reduce the chance of mould developing and reduces risk of potential harm i.e., health issues to tenants in the long term. This will be measured by survey information.
- Reducing tenants' expenses on heating, decreasing experience of fuel poverty for many. Fuel bill information will be collected from residents where available and fuel poverty information will be modelled by Leeds City Council using EPC data.
- Provision of new jobs due to extent of project. Newly created jobs will also be safeguarded.
- Demonstrating the benefits of a whole house approach, which combines energy efficiency improvements to the fabrics used in the housing with renewable energy generation and storage (increased solar PV energy production). Furthermore, electric vehicle charging stations to housing providers and residents, as well as the potential adoption of innovative energy tariffs.

The summative assessment for Fitting the Future schemes needs to assess whether these objectives are being fulfilled i.e., proving the efficiency and cost effectiveness of the sustainable energy measures installed.

The scheme will also be assessed regarding their overall management of projects and plans. Indicators of this could be: investigating whether targets were reached on time, the issues that have arisen and whether

they disrupted the smoothness of projects or if they were dealt with quickly and efficiently and any necessary changes to the projects during their duration.

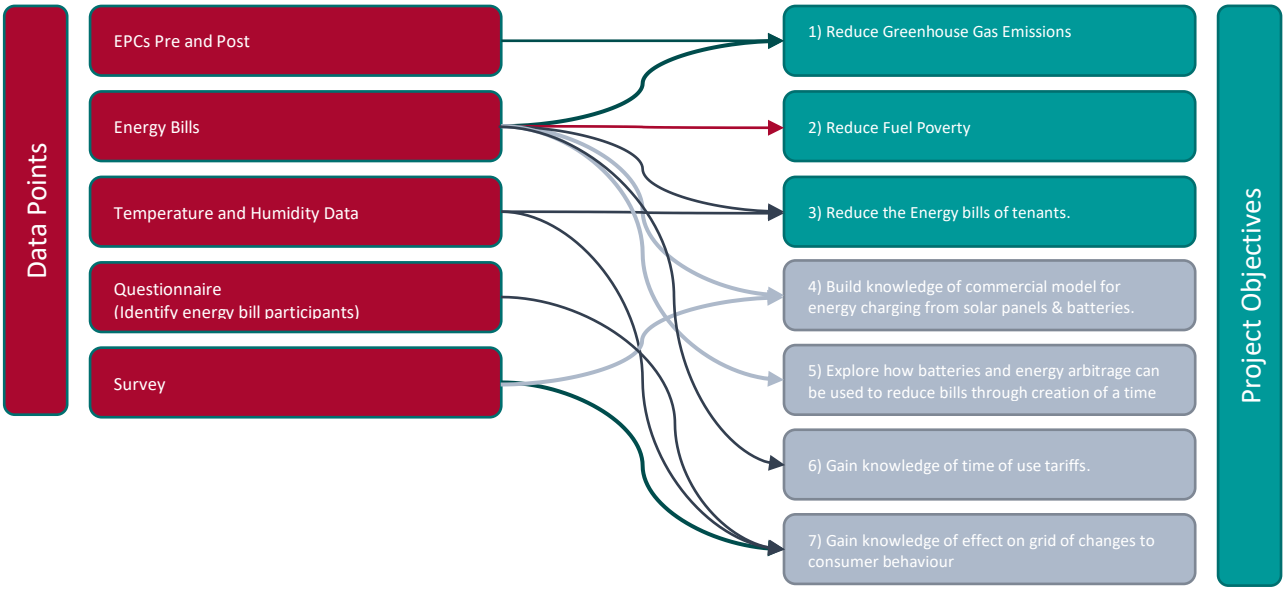

Figure 1: Diagram of ways to measure the success of the scheme objectives.

1.4 Measuring Success of Objectives

A number of datapoints are used to measure the success against the project objectives:

(1) EPCs (Energy Performance Certificate) Pre and Post – an energy efficiency rating from A (most efficient) to G (least efficient) and is valid for a total of 10 years. The EPC also gives tips for the most cost-effective ways to improve your homes energy rating. Using an EPC from before and after the improvements were made allows us to compare and assess whether the changes were a success. RdSAP is used to generate EPCs from survey data obtained from the property, the postproduction RdSAP and subsequent EPC, will include the wall insulation in the fabric values.

(2) Energy Bills – Using data from energy bills allows us to compare fuel costs from before and after the improvements were made. It also allows for assessment of where tenants could save more money, which can help reduce fuel poverty and potentially increase the warmth and comfort of the property by focusing funds on that variable if possible.

(3) Temperature and Humidity Data – We can collect both the temperature and relative humidity level of a property using specialised sensors in the properties. Having this data from before and after the changes allows us to assess whether the comfort and warmth of tenants has improved and whether humidity levels and energy bills have been reduced.

(4) Questionnaire – We can analyse the responses from tenants to understand how they perceive the works to have improved their properties and lives. A questionnaire would mainly be used to

measure whether the warmth and comfort of their property has improved, as this data is qualitative rather than quantitative.

(5) Survey – Completion of a survey before and after the implementation of the Fitting the Future changes allows us to assess whether these adjustments were suitable for the property and the survey provides us with clear proof of this. Again, this data is qualitative rather than quantitative.

2.0 Project Context

2.1 Fitting the Future Market Failure Assessment

The government now require utility companies to install Smart Meters, with their roll out being due to be completed in 2020, however this was delayed because of difficulties with the introduction of SMETS 2 meters. Introduction of Smart Meters both allows remote reading of meters in real time, to improve billing efficiency, and combats issues with inaccurate recording of solar export to the grid. This is because, the Standard Meters can't record how much electricity generated by solar panels is exported to the grid. It is therefore deemed that 50% of this electricity is exported, however the real figure is typically closer to 70% and so customers are underpaid for export.

Feed in Tariffs were abolished in April 2019, with no clear commercial or regulatory model to replace them. This has meant that payment to individual householders for generation and exporting of electricity has effectively stagnated. Where this has been used to bolster the business case to encourage the uptake of solar PV, it has effectively set back new installs.

The Targeted Charging Review identified that some users of the network faced disproportionate costs which may disincentivise development of the network. To improve, storage needs a clear definition, simplified planning and a modified generation license is required and exemption from non-applicable charges needs to be encouraged, but none of these are currently in place. In addition, transitioning to a battery system will move householders to using about 70% of electricity produced by their solar panels. However, it has not been made clear how new tariffs should work where renewables and storage are combined, which has delayed projects.

There is also a lack of development for Time of use Tariffs. Currently, most domestic tariffs have a standard price throughout the day, whereas electricity wholesale costs for energy suppliers vary during the day, to reflect supply and demand, with prices normally cheapest when supply outstrips demand. Changes were made to legislation to allow half hourly charging to domestic properties which allows more sophisticated Time of use Tariffs to be developed, but these are currently not available in the mainstream. However Octopus energy is running a number of beta time of use tariffs.

Shifting electricity demand away from peaks by incentivising use at off peak times, is known as 'peak load reduction', which avoids costs for building extra generation capacity. Additionally, large businesses can lower their energy bills further by offering grid balancing services to the National Grid and receive a fee to turn off electricity consumption when demand exceeds supply (or turn or demand when supply outstrips demand). Similar services could be offered at a local level.

Unfortunately, this local grid balancing market does not yet exist however will be opened by planned changes to the way local network operators work.

One of the main market failures that caused this is how expensive and difficult it is to insulate these properties. It costs roughly £11,000 to effectively insulate a system-built semi-detached 3-bedroom house, with non-standard wall construction, which is nearly 10x as much as it is for the same property with cavity walls instead (£1,178). People occupying these system-built properties in Leeds are twice as likely to be in fuel poverty, which leads to underheating of properties and in turn potential health issues for occupants. Furthermore, condensation build up on the cold walls can lead to mould growth which damages the property and can be a health risk.

Another key market failure is the lack of information on innovative external wall insulation for system-built properties. As a result, many occupants don't know anything about these innovative methods and this is a big reason for why such a small fraction of system-built properties in Leeds being are insulated effectively.

A further market failure is that in general low-income households have little to no financial incentive to undertake expensive external wall insulation. This is because, occupiers are earning less and therefore have less disposable income and in turn can't afford to go ahead with an expensive project such as insulation of the property's external walls.

2.2 Fitting the Future Rationale

The existing models for solar PV are no longer viable due to changes in the funding regimes. As a result, electricity discharged to the grid will potentially have no monetary value and so maximising the use of energy in the house is the best option. Introduction of the battery system will allow this and potentially help the case for use of renewables.

Involving an energy company means the electricity supplied to the grid has an owner and therefore the electricity discharged will potentially have monetary value again in its generation, along with transfer costs being avoided.

When the battery system is in place it can be used for energy arbitrage and other grid services, which may lower energy costs further. However, since a key part of strategy to keep individual energy costs low is the ability to change energy supplier, grid services will be offered outside the project, allowing people to take part without being committed to a long-term contract for energy imported from the grid.

Basing this project on homes owned by the same landlord (LCC) simplifies the scheme, avoiding much of the marketing and other scheme development costs that would otherwise take place. Clustering the houses into a few locations enables the grid effects to be monitored and measured. In turn, allowing confidence to be gained for a wider scale roll out of domestic energy storage in the future.

Improvement of building construction and materials is the most effective and efficient way of reducing energy usage for a feasible price. Improving the insulation of the targeted properties would lead to energy bills decreasing and would save every year on energy bills. This would also optimise the use of the smart heating controls, which work best in well insulated homes. In addition, introducing LED lighting into the

targeted properties helps maximise the effectiveness of the battery system to provide night-time energy requirements, which will also lead to huge savings on energy bills for occupants.

2.3 Meeting Expectations

In terms of context during the project, changes in time frame, technologies and research partners have posed difficulties and as such the focus of the project has shifted away from the installation and monitoring of solar and Time of use Tariff technology and instead focussed on energy reduction through external wall insulation installation.

Key changes have been:

- Anticipated procurement route ruled out by ERDF, hence meaning that the Commercial Partner withdrew support for the scheme, changing funding split from 33% to 50%
- Commercial property element removed
- Adoption of PAS 2035 increased survey and install costs
- Structural surveys presented issues with the roofs meaning new roofs needed installing prior to solar panels. Therefore, the cost of solar installations significantly increased making them unviable as part of the project.
- Project expanded, with a smaller scope per property, from 250 properties to 300
- Covid also interrupted the procurement/installation phase of the project.

Typical Installation of EWI

Despite the project not running on the intended timeframe, meaning a smaller quantity of data than initially intended was gathered and the few questions which still can't be answered in full confidence yet, Ingleton Wood believe the project was appropriately designed to achieve its objectives. Consequently, Ingleton Wood believe the targets set are achievable and realistic, however the changes in context seen above have consequently meant that the project has not met its full initial potential.

Ingleton Wood have done their best to be able to show the projects potential as a kick starter for many similar projects in the future, while showing that the current project is on the right trajectory for success albeit in reduced scope.

2.3 Logic Model

The logic model can be found in Appendix A. which sets out a number of activities including the following:

- Insulate 250 houses with external wall insulation
- Install solar panels and batteries, LED lighting and smart heating controls to 250 houses
- Install 50kW peak solar PV array to LCC depot
- Install 4 2 way vehicle charge points

The project has been updated to provide insulation to 300 properties.

The house insulation objective is underway, however has been delayed. To date 136 properties have been completed, with the remainder on track to be completed before end June 2023.

No solar panels are going to be installed as part of this project due to structural weaknesses in the property archetype roofs that meant that installation of PV was unviable within the scope of this project. This target is therefore legacy.

3.0 Project Progress (Costs)

3.1 Baseline Costs

The following is the expected project expenditure based on the current works programme at the last change request.

Capital	£7,178,353
Revenue	£20,000

Expenditure by the end of this quarter is expected to be:

Capital	£4,580,520.90
Revenue	£20,000

Indicators / Expenditure	Original Funding Agreement	Amount in most recent Funding Agreement Variation	Total achieved at time of evaluation	% of target	Projected to be achieved at Project Closure	% of target
Expenditure						
ERDF Capital Expenditure (£m)	£2,542,085.00	£3,589,176.50	£2,290,260.5	**64%**	£3,589,176.50	**100%**
ERDF Revenue Expenditure (£m)	£159,248.00	£10,000.00	£0.00	**0%**	£10,000.00	**100%**
Indicators (please select from dropdown)						
(C31) Number of households with improved energy consumption classification	250	300	109	**36%**	300	**100%**
(C32) Decrease of annual primary energy consumption of public buildings	35080	0	0	**#DIV/0!**	0	**#DIV/0!**
(C34) Estimated GHG reductions	644	473	87	**18%**	399	**84%**

Figure 2: Spend and Output performance Table

The project is expecting to spend the full £7,178,353 outlined in the most recent change request, for completion of 300 the full installations. The initial set of post installation EPCs seem to be returning around half the expected carbon reductions. This may be due to the properties being found to be more efficient from the pre-EPC than previously modelled. In the above table we have used our modelled greenhouse gas reduction figures for the projected end of project closure, which also suggests a smaller reduction than originally modelled, albeit less than the initial post EPC's are suggesting.

The initial project had a total budget of £4.9m for 250 properties, which is an average cost of £19.7k per property, however this included a suite of measures including solar PV and battery storage.

The re-shaping change request retained solar PV but removed battery storage and dropped the number of properties to 160. This also took account of the increased cost of PAS2035 and would have cost £3.9m altogether, or £24k per property.

The final spend is projected to be £7.1m for 300 properties. These are for EWI only with some EV charge points, which is an average cost of £24k per property.

4.0 Project Progress (Output)

4.1 Baseline Output

The objectives of this project seem reasonable and measured, however due to issues with an external energy supplier partner not taking part, and subsequent structural issues identified, the electrical elements of the project were not able to proceed.

The focus of the project has shifted to energy reduction due to external wall insulation through 2 change requests, this also increased the scope to 300 properties.

Reduce Greenhouse Gas emissions
The preliminary SAP data suggests that 36% of space heating energy will be saved by external wall insulation measures.
This represents projected savings of 2,218,181 kWh/yr and £80,520/yr savings across the 300 properties.
This is approx. 399 TCO_2/yr.

This is against a projected saving of £85,855 in the Logic Model, however considering the absence of solar PV offsetting energy costs, this is still 94% of the target which is a good result.

On a per property basis, this represents a saving of 7,393 kWh/yr, £268, and 1.3 TCO_2/yr.

Increase Solar PV Energy production
This objective is legacy due to change of scope.

Reduce Fuel Poverty in Council Tenants
The application of EWI for houses that wouldn't necessarily have been able to afford the capital costs, has reduced energy bills by £268/yr on average. It is highly likely given the reduction in energy bills, that comfort temperatures are more affordable.

Build Knowledge of Commercial model for charging from solar panels and batteries
This objective is legacy due to change of scope.

Explore how batteries and Energy arbitrage can be used to reduce bill through Creation of time of use tariff
This objective is legacy due to change of scope.

Gain Knowledge on effect of consumer behaviour
This objective is legacy due to change of scope.

4.2 Post Development Output

The figures shown in 4.1 are going to be verified using in use data points as described in 1.4.
The analysis uses RdSAP calculations to identify energy cost savings, however RdSAP uses a number of assumptions in a standardised assessment procedure which means that it can be remote from real world figures. The project is to continue collection of data to support and expand on the energy and carbon savings due to the external wall insulation as follows:

Energy Bill data will be collected for properties prior to and after installation. On its own this is subject to a number of issues, including moving through seasons, potential fuel poverty through the energy price escalation that meant that people may not have been using heating due to the cost, and potential green bounce-back effects where people start to change their comfort levels due to the perception that it is ok, because the home is now sustainable. This is to be verified by placing temperature and humidity sensors within the homes prior to and after the installation of EWI. This data can give valuable insights into whether the EWI has been effective in real life scenarios. A further interview with tenants will collect qualitative data, which will also assist in the evaluation of the effectiveness of the installation. As these data collection methods require pre and post datasets to be valuable, this data is not available at this stage for the summative assessment.

5.0 Project Delivery and Management

As a local authority, Leeds has a strong Governance process that means that any project has to be planned, costed and approved by an officer or body with an appropriate level of authority. As a project worth several

million pounds, the decision to go ahead with the external wall retrofit project was classed as a key decision and had to be authorised by the Executive Board of the council.

Procurement was undertaken in accordance with the council's Contract Procedure Rules and the Public Contracts Regulations 2015. However, the process was not as smooth as normal, which created quite significant project delays.

The council initially intended to use the Better Homes Yorkshire framework to appoint Engie (the single framework contractor) to undertake the works. However, an audit by the managing agent as part of the TIBB project identified a minor issue with record keeping and, even though the council demonstrated that this issue could not have affected the outcome of the tender, they ruled that the council could not use the framework for ESIF funded works. This included FtF.

As the approach planned with Engie was reliant on a partner who could both install energy efficiency improvements and operate Time of use Tariffs, it was clearly not a standard tender. The council therefore engaged with the market via soft market testing and received some positive results, but never managed to create a package which would mitigate risks.

The council therefore decided, in consultation with the managing agent, to remove the Time of use Tariff element from the tender and simply run a competitive tender exercise for the works.

Once Equans were contracted, Housing Leeds appointed a dedicated contract management team within the Housing Investment service to manage the contract with Equans. Housing Leeds also has specialist staff to manage asbestos and health and safety issues, and their proactive management of risk included dealing with some Health and Safety incidents and near misses and ensuring that lessons were learned by the organisation and the contractor.

As well as the project team outlined above, Housing Leeds has staff dedicated to tenant liaison who have worked with tenants to persuade them to sign up and then helped to identify and rectify any snagging issues.

In spite of several re-designs, once commenced the project has largely run smoothly, principally due to the robust mechanisms mentioned above, and a tight working partnership between all participants.

The main issues to arise over the lifetime of the scheme were due to the commercial partner pulling out of the project. This meant a change of focus from the electrical system elements to traditional external wall systems and focusing on the benefits that these systems would give to the occupants of the houses. It also meant that Housing Leeds had to re-build a new business case to increase their proportion of funding, increasing the lead-in timescale. The issues can be summarised as:

- Due to the procurement ruling, Engie pulled out of project, leaving no viable commercial partner
- As the electrical testing element was so watered down, Northern Powergrid also withdrew from the project
- Commercial building element was removed due to lack of commercial partner
- The lack of a commercial partner requiring Housing Leeds to build a new business case for the project using an increased proportion of their own budget, increasing the lead-in time

- Lack of commercial support focused the project away from multiple technologies to fabric first with Solar PV
- Structural issues identified on the roofs meant solar was economically unviable and not achievable in project timescales.
- Standalone repair programme to be undertaken to allow solar install in future outside of FtF
- Release of PAS2035 meant that surveys and install cost more to complete then envisaged
- Expansion of the EWI from 160 properties to 300
- The prevalence of winter weather delayed installation.
- Covid 19 Pandemic led to a backlog of works on existing projects which meant that commencement was pushed back due to limited resource

These issues have been worked through and resolved and have not impacted the overall quality of the project.

The horizontal principles of sustainability and equal opportunities have been embedded into the project from the start as the project is focused on improving insulation for residents in one of the most deprived areas of the country who would otherwise have difficulty heating their homes affordably.

We know that the project targeted system-built properties, whose residents are amongst the most at risk for fuel poverty in typically low-income areas. The contractors have also undertaken a number of environmental works such as tree planting to improve the local area.

6.0 Project Outcomes and Impact

6.1 Impacting Tenants

The preliminary SAP data suggests that 36% of space heating energy will be saved by external wall insulation and roof improvement measures, is an average saving of 7,393 kWh/yr, £268, and 1.3 TCO_2/yr per property.

In terms of tenants, these changes are likely to have the following benefits:

- Improved energy efficiency
- Reduced energy bills
- Reduced instances of fuel poverty
- Increased comfort levels within properties

As such, the project can be considered successful, as the external wall insulation has likely had a net positive effect on tenants. However, we will continue to work on verifying the impact that this has had on tenants through a combination of monitoring temperature and humidity, tenant interviews and energy bill analysis. This element has not been able to be completed for this summative assessment due to the timescales of the completion needed for post installation analysis.

To date, 136 households have had their energy efficiency improved so far, making a direct contribution to output indicators C31 and C34, although paperwork has so far been completed for 109 of these, which have been reported

Additionally, fifty of the above properties will have electric vehicle charge points, enabling current and future residents to take advantage of low carbon transport.

The contractor, Equans have also promoted employment and undertaken a number of exercises to improve the local environment:

Job Opportunities created:
Equans has created a new apprentice position for each year including in Oct 2022, Jan 2023 and another position in Jan 2024.

Social Value Impacts
The main contractor for the scheme has undertaken the following social value activities:

30/11/22 – Staff attended Farnley Academy in Leeds, to support year 11 students with Mock interview and career guidance

16/12/22 – Staff volunteered their time to attend Leeds City Academy careers Fair to give advice and knowledge about employment in the construction industry

31/01/23 – Trainee Social Value Officer Courtney Ward to record presentation discussing routes into construction and apprenticeships to be shared with Prince Henrys Grammar School and shown to students

06/02/23 – Attending Leeds Apprenticeship Recruitment Fair

28/02/23 - Attending Lawnswood High School – 'Guess my job' workshop with Year 8 pupils.

07/03/23 – Mock interviews at Pudsey Grammar School with Year 10 pupils.

08/03/23 – Attending Careers Fair at Pudsey Grammar School

7.0 Project Value for Money

7.1 Cost per Output Analysis

The scheme was originally targeting improvements to 250 properties, however due to various influences has been scaled back to 160, and subsequently increased to 300 on a reduced scope. Currently 136 properties have been improved with 300 projected for June 2023 completion.

The average cost for external wall insulation is £12k (energy Saving Trust).

The final costs for 300 properties is £24k per property, which is more expensive than an average EWI installation, however it must be remembered that these works are being undertaken to the equivalent of a PAS2035 standard which will have increased the cost of works due to increased ancillary costs including:

- Works on property soffits and fascia

- Replacement of inefficient windows and alterations to doors
- Mechanical ventilation
- French drainage

In addition to the above, system-built properties typically tend to require additional preliminary works to their structure, adding further costs. Given the changes in scope of the project as described above the project was likely to not have been as efficient as it could otherwise have been. However, it should be noted that the project has achieved further objectives:

Improved Energy efficiency of houses.
The energy performance of the buildings has been increased by an average of 14 SAP points. This is an aggregated cost of approx. £1,714 per SAP point improvement.

Energy bills Lowered and Households moved out of fuel poverty
The preliminary SAP data suggests that 36% of space heating energy will be saved by insulation measures. The application of EWI for houses that wouldn't necessarily have been able to afford the capital costs, has reduced energy bills by £268/yr on average.

On a simple payback, this represents a payback in 56.0 years. This is based on the SAP cost of 3.63p/kWh. Due to the recent rises in energy cost, the price of gas is 10.3p/kWh. This makes the saving £761/yr and increased payback to 19.7 years.

This is still a longer payback than is affordable to undertake for tenants of these types of housing, however goes a long way towards moving households out of fuel poverty by reducing the energy demand of the homes.

8.0 Conclusion

Overall, the project contained many strengths, not least because it had a strong strategic fit serving many objectives. Through energy efficiency measures, the project has brought affordable warmth to residents in one of the most deprived areas of the country.

It has also brought considerable investment in energy efficiency technology in the form of EWI.

The project was delayed and suffered changes early on, however with a renewed scope the project was well managed and employed a wide range of techniques to ensure that work remained on track.

However, issues did arise which required attention, including the initial commercial partner withdrawing support to the scheme and the pandemic, which prevented works from taking place in many properties and extended the scheme timelines. We have addressed this by extending the project timeframe, increasing the number of properties targeted but reducing the scope of the interventions provided.

The project has been a good example of close cooperation between organisations, including Leeds City Council, which has enabled any problems to be resolved and worked through and ensured the overall smooth running of the scheme, even during unprecedented world events.

Lessons Learned – Grant Recipient

- Grant recipients should secure funding partners early on with contingencies if a partner does not follow through with the project.
- Grant recipients need to ensure that there are robust contractual mechanisms in place to ensure that changes to the scope of the project can be implemented quickly and effectively.
- Grant recipients need to undertake robust contingency planning in case of major high impact/low probability disruptive events, such as pandemics.
- Grant recipients should consider implementing time recording practices for key staff so that they are ready to record their activities for future projects.

Lessons Learned – Scheme Designers

- Project designers should include robust contingency planning in case of major disruptive events such as the pandemic.

Lessons Learned – Policy Makers

- Policy makers should continue to ensure that a substantial proportion of development funding is made available to capital projects going forwards, particularly those aimed at improving domestic energy efficiency and bringing low carbon energy to cities.
- Policy makers should consider funding a higher proportion of works per property to enable whole house improvements to go ahead and to stretch housing providers budgets further. Whilst costly, his has a particularly high impact to tenants of these properties as the capital costs of works are a major barrier to reducing energy, energy bills and carbon. It also has the benefit of bringing tenants out of fuel poverty.

Ingleton Wood

Appendix A

Vision, form and function