



European Union
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ERDF SUMMATIVE ASSESSMENT PROJECT RENEW



FINAL REPORT JULY 2019

Summative Assessment Final Report

Introduction

The Project's core objective was to enable households to reduce energy consumption and utility bills, thus tackling fuel poverty and reducing carbon emissions whilst improving thermal comfort.

The aim was to find a cost effective and reliable way of delivering a comfortable, low carbon solution to 224 homes: first by improving the performance of the fabric and core building services, followed by the whole house energy solutions. The project RENEW helped to develop area-wide replicable solutions for hard to treat homes within Luton.

To ensure the tenants got the maximum benefit from the carbon saving initiatives, a direct communication and engagement strategy was included within the project. Specialist staff were engaged to advise tenants on how to save energy and heat their homes more efficiently.

As well as direct indicators (reduction in fuel bills and hence reduction in carbon emissions), indirect indicators were measured where possible. These included the reduction in number of households in fuel poverty, improvement in health, improvement in educational attainment, supporting the green economy, upskilling the local workforce and the creation of new jobs.

An understanding to barriers for uptake of energy efficiency measures will also be useful for informing future projects.

Section 1: Project Context

Background context

1.1 Luton has nine areas in the top 10% of the most deprived areas in the country and the 2011 Family Poverty analysis showed that nearly 25% of households can be classed as living in poverty.

The 2015 Index of Multiple Deprivation shows Luton ranked 59th out of 326 local authorities in terms of overall deprivation.

Local strategic drivers

1.2 The Luton Council Corporate Plan 2014-2017 has strategic priorities to “Empower, support and protect the vulnerable” and “Improve health and promote health equality”. Under the 2017 Luton Energy Strategy we committed to “continuing to improve energy efficiency” and to “significantly reduce fuel poverty”. Improving living conditions and helping to mitigate the effects of rapidly rising utility prices aids the realisation of these priorities. One of the headline strategic ambitions of the Luton Council Housing Strategy 2019-2022 is “quality homes and places”, which states our intention to reduce fuel poverty by 25% over three years.

1.3 In 2019, a new primary objective of eradicating poverty from Luton by 2040 was set, with the alleviation of fuel poverty playing a major part in this.

Present Position

1.4 Luton Council has approximately 2400 hard to treat properties. These are defined as those which are solid walled or have a cavity of less than 49mm. High rise blocks are particularly hard to treat and have traditionally only been rendered. Luton Council owns 10 such blocks. Any works to improve the thermal efficiency of the building envelope not only reduces the heating load in the winter but also protects against overheating in the summer.

1.5 Making the buildings more energy efficient will result in a decrease in carbon emissions through reducing the requirement for heating and comfort cooling. There will be less likelihood of tenants living in homes which aren't heated sufficiently, thus reducing the health issues associated with living in poorly heated and ventilated homes. This has wider social implications for health care, education and ability to work.

1.6 Spending less on heating and lighting improves fuel poverty levels with a knock on effect for the local economy.

Traditional external wall insulation system

1.7 The traditional way to apply external insulation to blocks of flats has been through the use of an external render. This is time consuming and messy as all works have to be completed onsite.

Project innovation

1.8 External insulation, internal heat exchange systems, LED bulbs and communal PV panels and battery storage provided a “whole site” approach to energy reduction measures

1.9 The innovative method for offsite manufacture of the external insulated cladding system, followed by fast onsite installation, provided an opportunity to test and develop a system

which could then be rolled out to more properties within Luton and also to other authorities across the region, stimulating growth in this market.

The technologies and delivery methods used in this project informed ourselves and others for future projects. A quicker and more efficient way of installing external walling cladding will enable us to accelerate our carbon reduction programme.

1.10 On project completion, the data obtained will be disseminated as per our stated dissemination plan to inform other authorities and organisations, as well as allowing us to inform and enhance the specification used in future council retrofit projects.

The battery storage system will provide valuable information on the financial value of adding storage systems to existing PV installations as well as providing a business case for installing battery storage as standard whenever PV is installed.

External wall insulation and rain screen cladding on high rise blocks is a new energy conservation solution for Luton Council. In particular the method of off-site manufacture and installation is a departure from the traditional rendering solution.

1.11 As we continue to collect data, we will be paying particular attention to the often seen performance gap between design performance and the actual performance post retrofit. Quality control and testing will ensure the correct performance of the system and analysis of key construction details and modelling have shown where improvements could be made in areas such as methods of fixings and thermal bridging.

1.12 On site, reducing construction time and minimising disruption to residents while maintaining quality was examined.

1.13 Residents were helped to understand the technologies and how they could make the best use of them to reduce their fuel bills and improve comfort.

Targets:

1.14 The original RENEW project was initially scheduled to begin in June 2016 with completion by June 2018. Delays in procurement resulted in the project commencement date being moved back to summer 2017.

1.15 The same week that works were due to commence, the Grenfell Tower fire occurred. The project was immediately put on hold while the proposed cladding system was sent for fire testing. Demand for test rigs was extremely high and resulted in a delay of 8 months before the necessary safety clearances were given. In addition, the scarcity of the specialist scaffolding (mast climbers) added another 4 months delay.

1.16 Prior to the initial tender at the start of the project, an abseil survey was performed to give an indication of the condition of the exterior of the buildings. This survey suggested that only minimal repairs would be necessary. Once the mast climbers were installed a more detailed examination was possible. This revealed that there was more extensive deterioration of the building than the original survey had revealed.

1.17 Testing indicated issues which resulted in engineers recommending further in depth testing.

1.18 This resulted in the proposed cladding rail system (to which the cladding is fixed) being redesigned. As a result it was deemed necessary to use stronger fixings (bolts) for the rail system.

1.19 These tests took longer than expected due to the necessity to test several types of fixings. Several fixing types failed due to incompatibility with the concrete. After testing three types of fixings, the correct fixing type to be used for the cladding rail system was identified.

1.20 It was also found that the concrete steel reinforcement is very near to the surface and therefore susceptible to corrosion. This triggered the requirement for further hammer testing to identify the locations of any hollow concrete. This element was started on February 2019 and took three weeks to complete before remedial works could begin.

1.21 These tests were essential for the safety and stability of the system and to prevent the possibility of future failures.

1.22 In addition, an existing balcony panel on one of our other similarly constructed blocks, detached and fell to the ground during strong winds. This prompted us to carry out further unscheduled surveys to the balconies on the blocks where cladding works were being carried out. This highlighted potential corrosion issues with the balcony rails which required remedial works.

1.23 Periods of strong winds and icy conditions during February and March 2019 caused further disruption with the loss of around 4 weeks.

1.24 The extension of the programme resulted in increased costs.

Section 2: Project Progress

Progress against targets

2.1 Over the course of the project, Luton Council submitted three project change requests (PCR): January 2018, September 2018 and June 2019. These changes primarily re-profiled the spend and output targets. No increase in grant funding was requested in any of the PCR's. These changes came about primarily as a result of the Grenfell disaster, which delayed the works. Although there were staffing issues within the team when one of the project team employed through an agency left the organisation, it did not cause any delays.

2.2 Overall, Luton Council anticipates meeting all targets, having made appropriate project adjustments throughout delivery. The following table summarises progress against project targets (targets as agreed in the Project Change Request June 2019):

	Forecast/Target	Actual Performance	Comments
Time Overall project timescales	Proposed start date: 01/04/16 Proposed completion (financial, activity, practical): 30/09/19	Actual start date: 1/04/16 Planned completion: 30/09/19.	Project was delayed due to Grenfell disaster and the new dates are as it is on the latest PCR.
Cost spend against target	Initially costed at £2,975,490	Overall spend to date at June 2019: £2,208,322.63 Projected spend for October 2019: £2,975,490	There have been no changes to the ERDF funding. Additional expenditure to the project is being borne by Luton Council and Engie.
Outputs Performance against agreed targets	Targets: • 224 Properties completion • 224 tonnes of CO ₂ reduction (1 tonne per property)	Summary at September 2018: • 0 Properties completed • 0 tonnes of CO ₂ reduction as at July 2019	The current status is in line with the latest PCR.

<p>Risks Any risks dealt with during the project</p>	<p>Risks identified in ERDF Full Application 2016:</p> <ol style="list-style-type: none"> 1. Lack of, or diminishing, corporate support for project outcomes 2. Lack of, or diminishing support from staff and managers for project outcomes 3. Lack of Member buy – in for project and its outcome 4. Financial - insufficient funds to complete project 5. Individual members of project steering group unable to commit time to deliver project outcomes 6. Service managers recalling officers back from project steering group 7. Loss of key members of staff 	<p>Actions to July 2019:</p> <ol style="list-style-type: none"> 1. Continued engagement corporate leadership team ensuring project is monitored at a strategic level, both in terms of works and financial outputs 2. Project change requests have re-profiled outputs in line with demand and delivery. Output level not reduced. Loss of Project Manager to alternative employment. 3. Support from Council Members is still maintained 4. Sufficient funds have been made available for the original works but additional funds were required for material cost increase due to the delays. 5. All present members of the steering group have maintained involvement within the project. 6. Service Managers have maintained their support to ensure successful completion of the project. 7. Loss of Delivery Project Manager during the project meant that Delivery Programme Manager allocated 	<p>Risks have been impacted significantly delays to the project and staffing. These issues have been mitigated as far as possible.</p>
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	8. Lack of appropriate skill set to deliver project outputs	more time to fulfil project obligations. 8. Lack of appropriate skill set has been addressed through seeking additional technical guidance from consultants and ERDF administration processes from the ERDF Contracts Manager.	
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Factors affecting performance

2.3 A key aspect affecting the performance of both delivery of outputs and spend targets have been the delay associated with Grenfell. The project completion date had to be moved significantly and as a result increased costs were incurred.

2.4 Overall, the original output targets were considered to have been practical and achievable for example the number of properties to be completed was based on the experience gained from similar projects. The contractor agreed to complete the works ahead of the original contract completion date as they had experience of working on high rise external cladding projects. In reality external factors such as the Grenfell fire and building condition affected the profile of outputs.

2.5 The level of inexperience within the project team delivering ERDF projects has initially affected making claims in a timely manner. However due to the collaboration between the project team and the ERDF Contracts Manager claims are now being made on time.

3.7 Access to residents' properties has impacted on some site activities. For example some properties were difficult to access and the contractor expended many resources trying to carry out critical works, such as extending boiler flues and installing heat recovery fans. However the intervention of the dedicated Customer Liaison Officer ensured maximum access for works.

2.8 Measuring actual consumption data was crucial to this project. With the assistance of the Luton Council's 'Energy Doctor' (wholly funded by Luton Council) data collection was maximised. This has proved to be a successful move for the project.

2.9 The condition of the concrete structure of the existing two blocks has also had a detrimental effect on project timing. Initial surveys of the blocks revealed some major issues with the concrete structure. A regime of tests and inspections were put in place to determine the extent of remedial works required. Results showed that a significant amount of work was required to ensure the new cladding could be safely secured.

Achievement of objectives

2.10 Reflecting on outputs and delivery, Luton Council feel that despite significant delays (due to the challenges mentioned above), there have been some important achievements. These include:

- a) Re-engaging with the tenants following the Grenfell disaster. By having consultations with residents to address their concerns about cladding, especially those that live in the high rise blocks.
- b) Performing fire safety tests and desktop studies on cladding material to give residents confidence on the performance of cladding system,
- c) Identification of potential problems with the concrete structure in order to inform future projects on similar structures.

Summary

2.11 Overall, the project considered to be on track to achieve expected spend and outputs. There have been a number of changes over the course of the project: mainly an increase in costs and re-profiling of spend and outputs. It is important to highlight that the cost increases were mainly as a result of the delays.

2.12 Project underspend on salaries have been due to the lack of a Project Manager for much of the project. It is to be noted that the Council have provided additional resources to the project in the form of the 'Energy Doctor', who has been working very closely with residents to maximise the resident's savings by providing invaluable advice on energy consumption and energy costs.

2.13 At project completion (October 2019), Luton Council is expected to have achieved its objectives.

Table 1 Standard Table Format: Spend and Output Performance

Indicators and 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)	£2,650,000.00	£2,650,000.00	£1,977,841.29	75	£2,650,000.00	100
ERDF Revenue Expenditure (£m)	£325,490.00	£325,490.00	£230,982.72	71	£325,490.00	100
Indicators						
No of Properties	224	224	0	0	224	100
Amount of GHG savings	224 tonnes	224 tonnes	0	0	224 tonnes	100

Section 3: Project delivery and management

Governance and management

3.1. The project is overseen by a steering group chaired by the Service Director for Housing. Senior team members also attend some progress meetings which are held with contractors.

3.2 The governance and management structure and the delivery team have been effective. It follows the same model as other internal projects that have been successfully completed in the past.

3.3 A key challenge identified by Luton Council was around the recruitment and replacement of the Project Manager.

3.4. By regularly attending the SEMLEP ERDF focus group, the ERDF and Delivery Programme Managers gained additional guidance from other attendees.

Luton Council team structure

3.5 The Luton Council team structure proposed within the ERDF funding agreement included 4 staff: ERDF Programme Manager (0.25 FTE), Project Manager (0.40FTE), Project Officer (0.40FTE) and Delivery Programme Manager (0.10FTE). The Project Manager post became vacant in September 2018 and, due to a lack of appropriately experienced candidates, these responsibilities were assumed by the Delivery Programme Manager and external consultants. Despite this the project delivery remained on track.

3.6 From the experience gained delivering this project, it was decided that future projects of a similar nature would benefit from the inclusion of the Energy Doctor in the delivery team.

Project delivery

Overview

3.7 At a strategic level, the ERDF and the Delivery Programme Managers report to MHCLG on project progress against targets, claims and any changes and guidance.

3.8 Operationally the Project Delivery Manager, Programme Manager (in the absence of the Project Delivery Manager) and the Project Officer were responsible for ensuring that progress on site was maintained and for carrying out general contract administration.

3.10 Regular health and safety audits meeting were held by the Contractor focusing on site safety. The consultant Principle Designer conducted regular Health and Safety audits on behalf of the Council, which showed no major concerns.

3.11 Customer Liaison Officer (supplied by the contractor as part of their contract) worked very closely with residents disseminating information, providing updates to works and also wider contribution to the social aspects of the project, for instance engaging with local schools and nurseries.

3.12 As the project is not yet complete, dissemination of knowledge gained from the project has been limited. So far there have been media reports on cladding installations and presentations to SEMLEP on the progress of the project.

3.13 Despite the delays and the challenges encountered, Luton Council along with the consultants, has ensured project momentum as well as quality.

Reflecting on improvements

3.14 Improvement that can be applied to future projects can be categorised as:

1. Building Works-

- a) Experience gained from the lengths of each phase of RENEW.

Better understanding of how long each aspect of the work takes will allow better programming of future works thus reducing potential delays.

- b) Concrete hammer testing can commence immediately after the erection of the access equipment. This element takes a significant amount of time which should be allowed for in the programme of works.

- c) The measurement of the panels should be carried out soon after the commencement of work on site.

2. Contract Administration

- a) Future tenders would be altered to include a requirement for a comprehensive concrete report (while the existing specification did have concrete repairs the extent was not known). This would result in less need for costly variations.

- b) There was an increased reliance on consultancy, however the money allowed on the ERDF was not enough and was re-profiled at PCR 3. A better understanding of the level of expert support required will ensure adequate funds are allocated to this category.

- c) The Luton Council team note that the sharing of best practice will form part of upcoming dissemination events.

Summary

3.15 Overall the governance and management structures were considered to be effective. Lack of experience of ERDF administration procedures, early in the project caused some difficulties but the ERDF and the Programme Manager gained valuable experience which will be applied to future ERDF projects.

3.16 Reduction in staff and thus capacity, meant that the delivery team did not operate as initially intended, although it continued project delivery effectively. The changes and challenges have generated learning for future delivery.

3.17 The procurement of a specialist consultant was very valuable in terms of expert technical support.

3.18 The themes of Equal Opportunities & Sustainable Development are integrated into all projects including project RENEW.

Project Beneficiaries

3.19 The two tower blocks selected for this project are occupied by social tenants. Luton Council's Housing Department are responsible for screening applicants for tenancy. The Housing Department then perform an audit in the first 6 weeks of the tenancy and continue to carry out tenancy audits throughout the tenancy. The Council cannot however evict tenants if their circumstances have changed and they are no longer suitable in terms of family size for that property as they have a secure tenancy and that is not one of the grounds for possession. We can, however, support tenants in making a transfer application or if they wish, make an exchange to a suitable home. Action can be taken if it is discovered that a fraudulent application for housing has been made.

Sustainable Development

3.20 The RENEW project supports and promotes the principles of sustainable development and complies with European environmental legislation. Its activities have a direct and quantifiable effect on the environment by reducing the energy demand and level of greenhouse gases of 224 households.

3.21 Luton Council is committed to sustainable procurement, as a minimum requirement. For any work streams which were sub – contracted, evidence was sought as to the supplier's commitment to sustainable development; this could be in the form of certified environmental management systems or public environmental statement. Also as part of any tender process we included an environmental commitment as part of our evaluation criteria.

3.22 As well as supporting the environmental principles of sustainable development, RENEW was also designed to support the goal of a more sustainable economy. The project aimed to create jobs in the local area and so offer a better financial future for tenants. Reducing the amount of money spent on utilities moves tenants out of fuel poverty and means more money is available for discretionary spend. Better heated houses will improve the health of tenants and improve their children's learning opportunities. This in turn improves the socio-economic outlook for the area.

3.23 The environmental impact during contract delivery was designed to minimise waste and to ensure that recycled materials were used wherever possible for promotional materials, events and communications with households.

3.24 We have considered equal opportunities in developing this project, and, as a local authority we believe strongly in a commitment to equal opportunity. This commitment is described through the Council's Equality and Diversity Policy which complies fully with the Public Sector Equality / Equalities Act 2010.

3.25 Our project was open to all and we aimed in the delivery of the project to ensure equality of access to all the nine protected characteristics as defined in the Equalities Act of 2010, providing additional support where needed to especially vulnerable groups. We cascaded this responsibility to any and all contractors engaged to deliver elements of this project.

3.26 Social housing tenants are often from the more vulnerable groups in the community, so this project offered additional support to the tenants where needed, to ensure that the improvements to the building offered maximum benefit to the residents. Fuel poverty is not just a problem for older households as is often suggested as families with children and other

working age households make up over 70 % of those in fuel poverty. Of these, families are by far the largest single group (45%), 34% of those in fuel poverty have a disability or long term illness, and may not be able to work. However, around 80% of people living in fuel poverty who can work do so. (www.gov.uk/government/collections/fuel-poverty-statistics)

3.27 Employment in the construction industry tends to have a male bias but we encouraged positive steps to recruit female candidates where possible.

Luton Council and/or subcontractors involved in this project were expected to commit to equality of opportunity. Evidence was obtained as to their commitment to preventing discrimination in the form of a public statement or a published policy. Also as part of any tender process we included a statement of equality and diversity and anti-discrimination commitment as part of our evaluation criteria.

Direct Discrimination

3.28 Luton Council is committed to equality and equal opportunities for all. To ensure that no tenants were discriminated against during the implementation of the project, the projects' progress was monitored closely. Monthly site reports were produced detailing any problems which had resulted in works not being undertaken at a particular property. The tenant liaison officer worked to ensure that access to flats was achieved so that energy conservation measures could still be installed. Care was taken that venues chosen for tenant engagement events were suitable for disabled participants and were culturally sensitive.

Luton Council recognised that residents with disabilities are more at risk of fuel poverty. We therefore ensured that these residents received extra help on energy efficiency and switching energy supplier.

3.29 Although not part of the ERDF funding, the RENEW project incorporated external adaptations, such as handrails and access ramps, during EWI installation. Individual needs were taken into account as part of our project and consultation and support provided as necessary. Advice and support for tenants on how to use the implemented technologies effectively were provided in a range of formats (audio, larger print etc.) and in different languages.

Section 4: Project Outcomes and Impact

4.1 This project supports ERDF programme indicators C31 and C34.

At project completion the outputs will be as follows:

C31 Number of households with improved energy	224
C34 Reduction in greenhouse gas (tonnes)	224t/annum

4.2 The energy conservation measures have a projected life of up to 30 years thus saving in the order of 6270 tonnes of carbon dioxide (CO₂).

4.3 EPC results benchmarking shows that the flats were originally rated at an efficiency rating of D or low C. Pre project each flat was calculated as producing about 2.5 tonnes of CO₂ per annum with space heating calculated at 4831 kWh per annum. An indicative post project EPC showed the impact of the various proposed energy conservation measures. Each flat was calculated to consume 2386 kWh per annum and produce 1.5t CO₂ thus producing a theoretical saving of 1t CO₂ per flat. Post project EPCs have not been completed yet. These will be done once all the energy conservation measures have been completed in each block.

Achieving Outcomes and Impacts stated in the Logic Model.

4.5 The logic model states that 224 flats will have reduced energy consumption, improved thermal comfort and see a reduction in energy costs when compared with unmodified flats. At present (July 2019) all flats have some energy saving measures installed (LED bulbs and heat exchangers) but the external wall insulation is not complete. Post retrofit data on energy consumption attributable to the heating (i.e. gas consumption) will not be available until the beginning of the 2019 -2020 heating season. Current energy consumption is being gathered to provide a baseline.

Are the changes in relevant impact and outcome indicators attributable to project activities?

4.6 No energy saving measures other than those stated in the project have been undertaken by the Council, although changes in occupancy profile can have an effect. Monthly consumption and cost data was collected from 10% of the tenants in each block. To minimise any other variation, post project data will be collected from the same tenants wherever possible.

Additional economic, social and environmental benefits of the project

4.7 The effect of poorly heated homes is difficult to quantify in absolute terms but in 2014 Public Health England issued a report (Fuel Poverty and cold home-related health problems) in which the price of fuel and the energy efficiency of homes were identified as contributors to fuel poverty.

In the report, it is stated that research on the cost of housing-related ill health, where poor housing conditions are a main contributor, estimates that the annual cost to the NHS is £2.5bn. This includes costs accrued by primary care services, treatment costs, hospital stays and outpatient visits.

4.8 The Marmot review team 2011 report for Friends of the Earth (The Health Impacts of Cold Homes and Fuel Poverty) states that, as well as direct physical and mental health effects, there are indirect impacts from cold housing and fuel poverty, such as children's

educational attainment, negatively affecting dietary choices and increased risk of accidents due to an adverse effect on dexterity.

4.9 The report also states the positive effects of stimulating the energy efficiency market on the local labour market and economy.

4.10 Environmentally, reduction in energy use directly impacts on CO₂ emissions and thus climate change.

Strategic Added Value

4.11 The project supports a number of national, regional and local priorities.

4.12 The call specification under Investment Priority 4c is to support energy efficiency, smart energy management and renewable energy use in public infrastructure, including public buildings and in the housing sector. Our project supports energy efficiency (both installation of technology and the education and support of the users) and the use of renewable energy, with the use of smart metering to analyse data from the solar panels and battery storage.

4.13 Nationally the government's Industrial Strategy (November 17) states that "achieving clean growth, while ensuring an affordable energy supply for businesses and consumers, is at the heart of the UK's Industrial Strategy" and in the Clean Growth Strategy is the reiteration that the Climate Change Act committed the UK to reducing greenhouse gas emissions by at least 80% by 2050 (compared with 1990 levels).

4.14 SEMLEP ESIF 2014-20 implementation plan priorities (2017-2020) include the "Low carbon and technology innovation support programme". This priority axis supports social housing retrofit to support energy conservation and generation in existing social housing. The intention is to utilise local and national expertise to deliver the best economic and carbon reduction solutions.

4.15 The strategy also aims to build the market for low carbon environmental goods and services. The innovative method for offsite manufacture of the insulated cladding system, followed by fast onsite installation, provides an opportunity to test and develop a system which can be rolled out to more properties within Luton and also to other authorities across the region, stimulating growth in this market. The RENEW project has given us an opportunity to refine the manufacturing and installation of the system.

Section 5: Project Value for Money

Assessing value for money

5.1 This project is deemed to be unique in that Luton Council has not carried out the same works to blocks of flats before.

5.2 The project's cost increased during the period of this contract. This was for several reasons:

1. The delay which immediately followed the Grenfell disaster due to necessity for further fire safety testing.
2. Ongoing rental charges for the site setup. Dismantling and reinstating the site would have cost significantly more.
3. Additional concrete testing required.
4. The cladding system had to be redesigned.
5. Limited availability of the access equipment (mast climbers and scaffolding) and associated labour became scarce and therefore more expensive.
6. Cost of material increased due to demand for non-combustible material especially aluminium.

The additional costs were borne by Luton Council and some by the principle contractor.

5.3 During this period a benchmarking exercise took place to see if any savings could be made. Two alternative material suppliers were considered, however the savings were considered insignificant and both were discounted. It also demonstrated that prices for non-combustible materials had rocketed and that the revised price was still competitive.

5.4 The delivery team identified some essential processes during RENEW which will be used for future projects. Although there were delays to the project due to Grenfell, there were other areas where much time could have been saved and this knowledge will be applied when working on blocks of flats of similar construction. These include fire testing the panels and establishing the most suitable fixings for the concrete structure.

Section 6: Conclusions and Lessons Learnt

6.1 Whole building approach to energy conservation measures maximised CO₂ and financial savings.

6.2 Carbon savings of 224 tonnes per annum will be achieved for at least the next 30 years.

6.3 Residents will save money on utility bills thus helping to move them out of fuel poverty.

6.4 Warmer drier homes will improve living conditions for the residents.

6.5 The enabling works and the cladding of the building will ensure a further 30 years of useful life.

6.6 Future tender specification should allow for full concrete testing and repairs within the costs.

6.7 It was found that building surveys need to be more extensive to ensure that costs and timelines are more realistic.

6.8 Lack of experience of ERDF administration procedures, early in the project caused some difficulties but the ERDF and the Programme Manager gained valuable experience which will be applied to future ERDF projects.

6.9 Staffing gaps within the delivery team (the Project Manager) increased pressures on other team members.

6.10 The Grenfell disaster caused unplanned delay to the project start. In turn the project timeline increased, and with it, project costs.

6.11 The increase in project timeline necessitated the need for three project change requests to be submitted, re-profiling financial and output indicators.

6.12 Access to residents' flats proved more difficult than originally anticipated. The dedicated customer liaison officer worked very closely with the residents' and the contractor to maximise access.