

**Project NIHR135923 : PHIRST Evaluation of Cosy Homes in Lancashire (CHiL)**

**STUDY PROTOCOL**

V3

**Start date: 01/12/2023**

**End date: 28/02/2025**

**Duration: 15 months**

**Purpose**

The purpose of the Protocol is to describe the study/project and provide information about the procedures for entering participants into the study/project (**if applicable**). Every care has been taken in drafting this protocol; however, corrections or amendments may be necessary.

**This protocol has been authorised by:**

**Name**

Peter Craig

**Signature**



**Date**

18/12/2023

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## Glossary of abbreviations

Blackpool Health Determinants Research Collaboration (HDRC)

Cosy Homes in Lancashire (CHiL)

Local Authorities (LA)

Lancashire Home Energy Officers Group (LHEOG)

Low Income Low Energy Efficiency (LILEE)

## 1. Amendment history

Amendment No.	Protocol version no.	Date issued	Author(s) of changes	Details of changes made

## 2. Study summary

This protocol outlines the approach and methods that will be used in the PHIRST Fusion evaluation of Cosy Homes in Lancashire (CHiL). CHiL is a countywide affordable warmth initiative delivered by all 14 Local Authorities (LAs) in Lancashire. It is funded from national and local sources of funding, and offers a straightforward means of accessing grants to fund new heating measures, insulation and renewable technologies in domestic properties. The PHIRST evaluation will cover Home Upgrade Grant 2 (HUG2), Affordable Warmth, and Winter Warmth funding within CHiL as a focus for gathering information about what helps or hinders uptake. The evaluation will employ a mixed methods approach using quantitative data collected from existing programme monitoring and outcome measures, as well as interviews to collect primary qualitative data to explore reach and uptake, as well as perspectives and experiences of professional stakeholders and households. A key feature of this evaluation is the use of peer researchers (Community Co-Researchers) in data collection. The findings of the evaluation will help CHiL and Lancashire LAs to better appreciate variation in take-up and disparities, especially among the private rented sector, and to understand barriers and facilitators that could improve reach to this group.

### **3. Introduction**

#### **3.1 Background to the PHIRST scheme**

The study is funded by the National Institute for Health and Care Research (NIHR) and will be led by University of Glasgow as part of the Public Health Intervention Responsive Studies Team (PHIRST) Fusion team. The PHIRST Fusion team's approach to evaluation follows a 5-step process: brokerage, work allocation, research, reporting & knowledge mobilisation, and continuous improvement, which includes evaluability assessment methodology and embedded research with local government practitioners. This protocol outlines the approach and methods that will be used in the PHIRST Fusion evaluation of Cosy Homes in Lancashire (CHiL) initiative. This will be delivered in collaboration with Blackpool Health Determinants Research Collaboration (HDRC).

#### **3.2 The Evaluability Assessment process**

We used evaluability assessment (EA) methods to co-develop the evaluation design. EA is a rapid, systematic, and collaborative way of deciding whether and how a programme can be evaluated, and at what potential cost (Craig & Campbell, 2015; Leviton, Khan, Rog, Dawkins, & Cotton, 2010). An EA was facilitated by PHIRST Fusion in June and July 2023. We undertook two workshops with key stakeholders involved with the CHiL initiative to ascertain their understanding of how CHiL uses national funding to offer households across the country to access grants to fund new heating measures, insulation and renewable technologies in domestic properties. Each workshop lasted about two hours. The first workshop was held in-person on 1st June and the second on 4th July was an online workshop. Workshop participants included: staff from CHiL and across all Lancashire LAs, including energy and public health officers, members of the Blackpool HDRC, and members of the PHIRST Fusion research team. During the workshops we explored:

- The underpinning aims and assumptions of CHiL
- The CHiL programme theory of change (Appendix A)
- The CHiL customer journey map (Appendix B)
- Stakeholder thoughts and perspectives around how CHiL may lead to health and related outcomes, and reasons for disparities in uptake
- Data availability and access for any planned evaluation
- Evaluation design options and different potential methods

A mixed-methods evaluation study was agreed as the design of the PHIRST Fusion evaluation aimed at understanding the reach, uptake and disparities in uptake of CHiL support.

### 3.3 Overview of the intervention: Cosy Homes in Lancashire (CHiL)

'Cosy Homes in Lancashire' (CHiL) is a countywide affordable warmth initiative. CHiL was developed in 2014 by 15 Local Authorities in Lancashire with the backing of their Chief Executives and Directors of Public Health. It was founded following a review into home energy efficiency in Lancashire in 2013 by the Lancashire Home Energy Officers Group (LHEOG) and Blackpool Public Health. One of the recommendations was for the development of a Lancashire-wide scheme so as to access national funding for improving home energy efficiency more effectively, as well as to facilitate applications by households who have to navigate a complex home energy efficiency funding landscape. CHiL covers all council backed energy saving initiatives and seeks to offer a straightforward means of accessing grants to fund new heating measures, insulation and renewable technologies in domestic properties. Funding for the scheme comes principally from nationally distributed grants. The rest are from local authority as well as private (e.g., National Grid) sources.

Table 1 Summary of current CHiL sources of funding

Scheme Name	Funding provider	Total Funding Received
Home Upgrade Grant Phase 2 (HUG2)	UK Government	£41,000,000
Winter Warmth	Local Authority	£450,000
Lancashire County Council - Affordable Warmth	Local Authority	£1,000,000
Connect4U (Community Interest Company)	Donations from Electricity North West / Local Authority / Third Parties	Variable
Energy Company Obligation (ECO)	Energy Providers	Data unavailable
Connected for Warmth - Warm Homes Fund	National Grid	£150,000,000

Source: CHiL

Other than the national ECO and HUG2 grants which have fixed criteria, CHiL has more discretion over how the other funds are spent to support applicants. To be eligible for CHiL support, as of April 2023, people need to be in receipt of certain qualifying benefits or have a household income of less than £31,000 a year, and live in a property with an EPC of D to G.

### 3.4 Cold homes, fuel poverty, and impact on health

Cold homes affect health throughout the life course (Marmot, Geddes, Bloomer, Allen, & Goldblatt, 2011). Evidence suggests that older people who live in cold and damp homes have a higher risk of strokes and heart attacks. Respiratory diseases like flu, are more common, as are falls, injuries, and hypothermia (Balfour & Allen, 2014). Children are at

increased risk of meningitis, asthma, and slow growth, which is linked to later coronary heart disease. As well as a greater chance of experiencing mental health and behavioural problems, children who experience the conditions face lower educational attainment and have a greater likelihood of future unemployment and poverty (Harker, 2006)

Defined as spending more than 10% of net income on fuel, more than half of households in the UK were in fuel poverty in January 2023. Based on the same measure, in the North West and Merseyside region, the number of households estimated to be living in fuel poverty was 1,889,000 (59.4% of all households) (Bradshaw & Keung, 2022). The 10% income threshold used to be the metric in England but in 2021, this was changed to the Low Income Low Energy Efficiency (LILEE) metric.<sup>1</sup> Based on LILEE, winter 2020 fuel poverty statistics revealed that 14.2% of households (93,842) were fuel poor in the Lancashire-14 area, and 13.6% (72,491) in the Lancashire-12 area; both are higher than the estimated 13.2% of households (3.16 million) in fuel poverty in England (Lancashire County Council, 2022).<sup>2</sup>

In the Lancashire-14 area, Pendle (17.3%), Burnley (16.4%), Blackburn with Darwen (16.4%) and Blackpool (16.3%) had the highest proportion of fuel poverty while South Ribble (10.8%) and Fylde (11.2%) had the lowest proportion of fuel poor households. Blackpool had the largest number of households who were fuel poor (11,748) in the Lancashire-14 area. In the Lancashire-12 area, Lancaster had the largest number of fuel poor households (9,382) and Ribble Valley had the fewest fuel poor households (2,995) (Lancashire County Council, 2022).

Nationally, among those experiencing fuel poverty, there is a further disparity. While fuel poverty in 2010 was similar for households in off-gas and gas connected dwellings (22.9% vs 20.0%) (Department of Energy & Climate Change, 2014), the latest figures from 2022 show there has been a reduction in gas dwellings to 12.3% while fuel poverty remains at 20.1% for off-gas properties (Department for Business, 2023). The high rate of fuel

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<sup>1</sup> According to the LILEE metric, a household is in fuel poverty if: their home has a Fuel Poverty Energy Efficiency Rating (FPEER) of band D or below AND if, after subtracting their modelled energy costs and housing costs, their residual income is below the poverty line (Office for National Statistics, 2023)

<sup>2</sup> The **Lancashire-12** area is comprised of the 12 local authorities that fall within the Lancashire County Council administrative boundary. These are: Burnley Borough Council, Chorley Borough Council, Fylde Borough Council, Hyndburn Borough Council, Lancaster City Council, Pendle Borough Council, Preston City Council, Ribble Valley Borough Council, Rossendale Borough Council, South Ribble Borough Council, West Lancashire Borough Council and Wyre Borough Council. The **Lancashire-14** area incorporates the two additional unitary authorities of Blackburn with Darwen and Blackpool and has the same geographic footprint as the Lancashire Local Enterprise Partnership (LEP) area.



poverty in off-gas properties is the result of multiple factors, such as the disproportionate number of low-income dwellers in off-gas vs gas connected homes (Walker, McKenzie, Liddell, & Morris, 2014). While some off-gas properties are fuelled by renewable energy, most are not and are likely to be fuelled by energy sources such as oil which is both less energy efficient and more expensive than gas.

### **3.5 Current national policy**

There have been several schemes to improve energy efficiency of households across the UK, with different eligibility criteria, conditions, and uptake. At the start of 2022, local authorities across the UK competed for funding from two schemes: Local Authority Delivery phase 3 (LAD3) and Home Upgrade Grant phase 1 (HUG1). (Department for Business, 2021). These were bundled into one funding known as the Substantial Warmth competition with a focus on improving EPC ratings of households. The Government has a target of improving inefficient properties to EPC band D by 2025 and EPC band C by 2030. Successful local authorities of the Sustainable Warmth competition could distribute funds to low-income households (annual household income <£31,000 gross income) living in energy inefficient dwellings (EPC band D-G) who applied and aimed to improve their efficiency scale. LAD3 (total available funds = £200M) focuses on dwellings on the gas main grid and provided a maximum subsidy of £10,000 per home. HUD1 (total available funds = £150M) provided a maximum subsidy up to £25,000 to homes not on the main grid. Households occupied by the owners did not contribute to upgrading properties, while landlords had to contribute 33% of costs to upgrades of households occupied by private renters. In the autumn of 2022, the UK government announced that local authorities could bid on the second phase of HUG (HUG2), which had a budget of £950 million to be spent from 2023-2025 (Department of Business, 2021). As with HUG1, applicants to funding from HUG2 must be dwellings which are not connected to the main gas grid (known as 'off-gas') are eligible. (Department for Business, 2023) Off-gas properties account for around 20% of the properties in England ("English Housing Survey," 2022) and predominantly use electricity, oil, and LPG, though may use other sources of fuel (Department for Business, 2021) (e.g., heating oil, household coal, smokeless fuel, wood, propane, bulk LPG, community heating from boilers/CHP/ waste heat).

### **3.6 Barriers to uptake**

Improvements in warmth and energy efficiency can impact positively on the health of low-income groups (Sawyer, Sherriff, Bishop, Darking, & Huber, 2022). However, uptake of such support schemes is poor in the UK. In 2020, less than 15% of the £2.8 billion budget per year for Winter Fuel Payment (WFP), Warm Home Discount (WHD), and Energy Company

Obligation (ECO) for improving energy efficiency and assisting with fuel bills in England was received by fuel poor households (Committee on Fuel Poverty, 2023). With the highest proportion (23%) living in non-decent homes (compared with 10% in the social rented sector and 13% among owner-occupied homes), the private rented sector can potentially benefit greatly from energy efficiency and warm home schemes (Department for Levelling Up Housing & Communities, 2022a). However, take up of such schemes is poor in this sector. For example, although landlords own 32% of homes rated D or below, only 14% of Green Homes Grant have come from landlords, less than half the rate expected.

Research on barriers to uptake of energy efficiency measures has tended to focus on barriers experienced by households who are making rational economic decisions. The assumption goes that barriers simply need to be identified and removed for households to fulfil pre-existing demand for energy efficiency measures. Such assumptions inform recent policy initiatives like the Green Deal and ECO. Such approaches however misrepresent who makes renovations decisions, how, and why (Brown D., Kivimaa P., Rosenow J., Martiskainen M., & Bird, 2018). Brown et al. (2018) argue instead for a broader list of four interrelated challenges to include broader social and contextual factors: 1) Information, engagement, and trust; 2) Uncertain benefits and quality; 3) Complexity, disruption, and timing; and 4) Capital costs and split incentives. The following 4 sub-sections draw on Brown et al.'s (2018: 9) review of the literature.

### 3.6.1 Information, engagement, and trust

Widespread lack of awareness about the various options and advantages of retrofitting continues to persist among households in the United Kingdom. Despite the existence of numerous technologies and tools for upgrading existing buildings, their adoption remains limited, primarily due to a lack of interest among households. Efforts through public engagement and marketing initiatives have been made to stimulate demand, but they have often been top-down, short-term, and focused on specific subsidy programs. Consequently, this has led to a supply chain that heavily depends on short-term policy incentives. Additionally, complex government programs like the Green Deal have frequently proven challenging for households to comprehend. When households do decide to undertake retrofitting, they often have to deal with multiple tradespeople and installers who influence their technology choices and subsequent usage. The difficulties in obtaining appropriate advice, concerns regarding post-retrofit performance, and issues related to subpar workmanship have eroded trust within the broader public.

### 3.6.2 Uncertain benefits and quality

The projected energy and cost savings resulting from retrofits are typically derived from modelled energy performance. However, a persistent "performance gap" consistently exists between these models and the actual energy performance achieved. This phenomenon is characteristic of an industry known for its subpar quality and a lack of significant penalties for failing to meet performance expectations. Furthermore, retrofit interventions can alter the existing features of a building, potentially disrupting household routines and practices, such as changes in heating schedules and controls. This alteration can make homeowners hesitant to embrace these modifications. Focusing exclusively on financial savings, policies have often overlooked the fact that retrofits can be promoted with an emphasis on aesthetics, comfort, and well-being. A growing body of evidence indicates that individuals who undertake energy retrofits are motivated not only by economic factors but also by non-economic sources of value. These include concerns about the environment, a desire for enhanced comfort and living standards, the longevity and visual appeal of their property, and the overall aesthetics of the retrofit.

### 3.6.3 Complexity, disruption, and timing

Whole-house retrofits encompass a multitude of tasks conducted by various contractors and consultants. Managing this intricate process can be arduous and time-consuming for homeowners. In addition to the substantial disruptions caused by extensive renovation efforts, this complexity can dissuade many from pursuing such upgrades. As a result, households might opt for a gradual retrofit approach, even if it entails higher expenses and a lengthier timeframe, simply to minimize disruption. Consequently, energy retrofit projects might only be contemplated when integrated with more comprehensive home renovations. Recognizing these opportune "trigger points" could, therefore, encourage retrofit adoption in specific situations, such as when moving into a new residence.

### 3.6.4 Capital costs and split incentives

While retrofits ultimately yield substantial long-term energy savings, whole-house retrofit projects often demand a significant passage of time before the initial investment cost can be recuperated through energy savings. Consequently, a considerable number of households face a challenge in obtaining the necessary upfront capital, and the benefits of such investments are often not realized, especially in cases of changing residences or in landlord-tenant arrangements, a situation commonly referred to as "split incentives." Although recent policy initiatives in the UK have primarily focused on addressing the upfront cost barrier, the economics of long-term financing are highly sensitive to interest rates, particularly when aiming for energy bill neutrality. Moreover, households may express a preference for funding

that encompasses a broader spectrum of non-energy-related measures, such as general repairs, yet the majority of policies tend to concentrate their resources on energy efficiency measures exclusively.

### **3.7 Rationale**

Much of the research described above are based on national-level studies with less granular information in the Lancashire context. We need to understand the context, barriers and facilitators to uptake of sustainable warmth measures, especially for private rented properties so that we can better understand disparities in uptake. The latest research suggests dwelling and tenure characteristics account for greater variation in energy efficiency ratings in homes than household characteristics (Norman & Regan, 2023). Across the UK in 2021-22, 35% of households were outright owners while a further 30% were mortgagors. The private rented sector makes up 4.6 million or 19% of households. The private rented sector also had the highest proportion of non-decent homes (23%) (Department for Levelling Up Housing & Communities, 2022b). The data also suggests that 36.6% of all fuel poor households will live in the private rented sector (Department for Energy Security & Net Zero, 2023). In the whole Lancashire-14 area in 2022, the total dwelling stock was 699,832 of which 87.4% was owner occupied or privately rented (Lancashire County Council, 2023). This evaluation will help us to identify practical ways of improving uptake in Lancashire, as well as to provide feedback that can improve national policy.

### **3.8 Aims/objectives/research questions**

The aim and objectives are informed by the evaluability assessment (EA) process with CHiL and the literature review (sections 3.3-3.6). The overall aim of the evaluation is to explore disparities in uptake of CHiL support in Lancashire. This is needed to understand how to better support underserved sectors (eg., private rented) and improve take up. The evaluation will focus on two sources of CHiL funding – Home Upgrade Grant Phase 2 (HUG2) and local authority discretionary funding (Winter Warmth and Affordable Warmth) so as to increase its evaluability due to data accessibility constraints to the other nationally funded schemes. Given the eligibility for HUG2, we focus on describing the barriers faced by landlords and private renters to uptake to improving the energy efficiency of off-gas properties. Many of these barriers to uptake will likely be relevant to sustainable warmth measures with different eligibility criteria. To fully address the aim of the evaluation, the following questions need to be answered:

Overall Research Question 1 (RQ1): How can the reach and uptake of CHiL (HUG2 discretionary funding) be improved?

- How can more people be reached and supported, to apply to and be successful for CHiL, HUG2, and discretionary funding?
- How can underserved groups like private sector landlords and tenants be better supported?
- How can the design and delivery of CHiL, HUG2, and discretionary funding be improved to provide more equitable service provision?
- What policy implications arise (from RQ2-4)?
  - What lessons learnt about CHiL off-gas (HUG2) and discretionary funding in Lancashire may apply to a national setting?

To answer RQ1, the following 3 more detailed research questions (RQ2-4) need to be answered:

Research Question 2 (RQ2): What is the reach of CHiL, HUG2, and discretionary funding?

- *Reach is defined as the extent to which the target audience come into contact with CHiL, HUG2, and discretionary funding (ie., applications received)*
- What is the eligible population for CHiL, HUG2, and discretionary funding support and how many people apply?
- What are the facilitators and barriers to applying for CHiL, HUG2, and discretionary funding support?

Research Question 3 (RQ3): What is the uptake of CHiL, HUG2, and discretionary funding?

- *Uptake is defined as the proportion of eligible households who receive a grant*
- What is the success rate of CHiL, HUG2, and discretionary funding applications?
- What are the facilitators and barriers to successful CHiL, HUG2, and discretionary funding applications?

Research Question 4 (RQ4): What is the disparity in CHiL, HUG2, and discretionary funding reach & uptake and what explains it?

- How do successful and unsuccessful applicants differ?
- What are the key characteristics of a successful application?
- What is the acceptability of CHiL, HUG2, and discretionary funding to applicants and providers?

- What is the appropriateness of CHiL, HUG2, and discretionary funding to applicants and providers?
- What are the perspectives and experiences of applicants and service providers?

## 4. Study Design/Methods

### 4.1 Study Design

This study will adopt a mixed methods approach and is designed to run in the following phases (See also Table 3):

- Phase 1. (Jan-Sept 2024) Quant data retrieval & analysis
- Phase 2a. (Feb-Jun 2024) Qual Key Stakeholder recruitment & interview
- Phase 2b. (Jan-Mar 2024) CCRs Induction & Co-design
- Phase 2c. (Mar-Sept 2024) Residents recruitment & CCR peer interviews
- Phase 2d. (Sept-Dec 2024) Analysis of quantitative & qualitative data

In Phase 1, we will use routinely collected CHiL service data to undertake descriptive data analysis of applications, process, and outcomes, and explore the possibility of undertaking statistical data analysis of differences among applicant groups (RQ 2-4). In Phase 2a, we will collect primary qualitative data via semi-structured interviews with key stakeholders in CHiL (eg., service staff and contractors like RHEA Projects – A boiler and central heating installing company which is the procured Managing Agent delivering CHiL) as well as individuals in the Lancashire energy and housing policy sector (eg., local authority energy officers, elected councillors, staff from third sector organisations). After a short period of induction in Phase 2b, we will also work closely with peer researchers in Phase 2c (e.g., co-develop interview topic guides) and support them in interviewing individuals who are eligible, have applied for, and have been successful with obtaining CHiL support (i.e., in obtaining HUG2 or discretionary funding) so as to better understand their perspectives and experiences (RQs 2-4). We will also ask applicants for their views of how CHiL services can be improved and made more equitable (RQ1). The quantitative and qualitative data are designed to inform our research questions (see Section 3.3 above). Both types of data collection will therefore have an emphasis on understanding variation in reach and uptake, experiences, perspectives, and outcomes among different applicants. Their analysis in the final Phase 2d will help us address the overall research question (and all the three other RQs). We will be supported at all phases by the PHIRST Embedded Researcher, a staff member from CHiL, seconded part-time to the PHIRST research team.

## **4.2 Setting**

The setting of the research is the entire Lancashire-14 area served by CHiL.

## **4.3 Sampling**

There are two separate study populations in this evaluation. The first are CHiL stakeholder working professionals who have practical or/and policy interest/experience in the delivery of CHiL. The second population is Lancashire residents eligible for CHiL support.

### **4.3.1 CHiL stakeholder working professionals**

We will seek to interview stakeholders with a practical or policy interest/experience in the delivery of CHiL. The target sample is based on a stakeholder analysis using a power/interest grid (Appendix A below). Up to 10 CHiL stakeholders will be recruited from a purposive sample for semi-structured interviews in Phase 2a. These will include CHiL staff delivering the programme, including staff from the managing agent, Rhea Projects Ltd. They will also include relevant staff throughout the 14 LAs involved in CHiL, especially energy officers (i.e., from the Lancashire Energy Officers Group), housing, and public health officers. Efforts will be made to reach stakeholders who attended the EA workshops, as well as invited stakeholders who were unable to participate. Snowballing will also be used to ask interviewees for recommendations, especially from the wider stakeholder community including elected councillors, staff from third sector organisations and other local community groups.

### **4.3.2 Lancashire residents eligible for CHiL support**

The second population group comprises Lancashire residents eligible for CHiL support. They will be interviewed in Phase 2c. The initial selection criterion is households who live in the eligible 14,000 postcodes. We break these down into 1) those who are eligible to apply but haven't done so yet; 2) those who have applied but were unsuccessful; 3) and those who have applied leading to successful installation. We will consult existing CHiL data and with respondents from the first group of interviewees described above, who may also be gatekeepers in the community to recommend potential interviewees, especially those who are eligible for CHiL but have not applied. Participants will also be recruited with the support of the Blackpool HDRC's Community Co-researchers (CCRs) who bring local knowledge and insights to the project. Since recent research suggests tenure characteristics and dwelling type account for greater variation in home energy efficiency ratings than household characteristics (Norman & Regan, 2023), the secondary criteria is tenure type and dwelling type.

Table 2 Lancashire resident sample matrix

		Eligible (Not yet applied)		Applied - Rejected		Applied - Installed	
		Landlord	Private Tenant	Landlord	Private Tenant	Landlord	Private Tenant
<b>Dwelling</b>	End or Mid Terrace	1	1	1	1	1	1
	Detached or Semi-Detached	1	1	1	1	1	1
	Flat	1	1	1	1	1	1
	Bungalow	1	1	1	1	1	1

Since owner occupiers are over-represented in previous research (Norman & Regan, 2023) and so as to keep the sample size manageable, we exclude owner occupiers from the study sample. We aim to recruit no more than 24 participants for Phase 2c interviews. Table 2 above represents the target achieved sample and we will initially identify a larger sample of potential participants to allow for non-response. We expect to significantly under-recruit successful applied-installed respondents due to current low levels of successful applicants.

#### 4.4 Study Procedures

In the first phase, scheduled to begin in Mid-January 2024 upon receiving University of Glasgow (MVLS) ethical approval, CHiL data will be accessed with the help of the PHIRST CHiL Embedded Researcher.<sup>3</sup> The necessary paperwork like Data Sharing Agreements and Data Management Plan to facilitate this process should begin as soon as the recommended evaluation design is approved. CHiL Data will be collected, categorised and analysed. Referring to Table 3 below, preliminary analysis of Phase 1 data will also inform sampling of interview participants for Phase 2c. Stakeholders from Phase 2a will also be asked to suggest interviewees for Phase 2c, which will involve in-person semi-structured interviews starting in Late-February 2024. In Phase 2a, which runs alongside Phase 1, key stakeholders will be selected in consultation with key CHiL and HDRC stakeholders via a stakeholder analysis (using a power/interest grid) for interview on their perspectives and experiences on reach and disparities in uptake of CHiL support. HDRC CCRs will support interviews in Phase 2c. CCRs will be well placed to reach and engage with the expected rural/seldom-heard nature of participants. Interviews for both working professional

<sup>3</sup> The Embedded Researcher is a local authority staff member seconded to the PHIRST research team to participate in the evaluation study so as to better link research and practice.



stakeholders and CHiL applicants will be a mixture of in-person and online (MS teams) whichever more convenient.

Table 3 Evaluation design linking questions, criteria, procedure and timeline

RESEARCH QUESTION (RQ)	CRITERIA	DATA COLLECTION TOOLS	DATA ANALYSIS	TIMELINE	NOTES
<p>RQ1: How can the reach and uptake of CHiL be improved?</p> <p>RQ2: What is the reach of CHiL?</p> <p>RQ3: What is the uptake of CHiL?</p>	Data on number of eligible, successful and unsuccessful applicants	CHiL routine data, National census, English Housing Survey	Number and percentages of applicants at each stage of process (customer journey map), profile (demographic, dwelling type, tenure etc) of (non) applicant type	Phase 1: Jan-Sept 2024	Data access and sharing agreements and procedures to be facilitated by Embedded Researcher
RQ4: What is the disparity in CHiL reach & uptake and what explains it?	Data on perspectives and experiences of key stakeholders	Semi structured interviews	Thematic analysis using Framework approach to compare and contrast data by themes across cases, while also situating each perspective in context by retaining the connection to other aspects of each individual's account.	Phase 2a Feb-Jun 2024; Phase 2b Jan-Mar 2024; Phase 2c: Mar-Sept 2024	Phase 2a: Non-probabilistic purposive sampling of key stakeholders will be done using a stakeholder analysis (see appendix) in close consultation with CHiL and HDRC. Expected sample size: 10. Phase 2b: Induction & co-designing topic guides with CCRs. Phase 2c: Purposive sampling of CHiL applicants from multiple sources; will also done via consulting stakeholders (snowballing) who may be gatekeepers. Selection criteria based on Table 2. Expected sample size: Up to 24. HDRC research support from CCRs available to help with interviews.
	Data on perspectives and experiences of applicants				

#### 4.4.1 Recruitment and Consent

Recruitment and consenting procedures for interviewing the three main groups of Lancashire resident CHiL applicants in Phase 2c is as follows:

##### *Eligible (Not yet applied)*

Residents who are eligible for CHiL support but who have not applied will be recruited by CHiL and its partner organisations that support CHiL's work. There are several ways this could be done depending on the partner organisation involved and setting. For example, Bambers Building Contractors is an organisation that regularly conducts door-knocking and leafletting sessions to raise awareness of CHiL to try and promote its reach and uptake. A recruitment leaflet (Appendix F) can be provided to Bambers to distribute during its sessions for distribution. Bamber staff can randomly approach participants in these sessions and ask them if they are interested in taking part in the PHIRST study. They will say this will be in the form of a face to face or virtual interview with a member of the research team regarding their awareness, perspectives and experiences of considering a CHiL application. The researcher will reassure individuals that participation in an interview will not affect any CHiL application they are considering. If they agree to participate their contact details will be taken down and passed on to the Embedded Researcher who will check eligibility to participate in the interview – that they have not previously applied to CHiL, but also pass initial CHiL eligibility checks: 1) They live in Lancashire, 2) They own their house, or have their Landlords' permission to do any work, 3) Their household income is less than £31,000 or live in an eligible Post Code area and, 4) Eligible for Home Upgrade Grant Funding (not connected to the main gas grid). If they are eligible, their contact information will be passed onto the HDRC team where they will be contacted by HDRC staff member or HDRC CCR, and arrange an appointment for interview in a format (face to face or virtual), time, and place (if relevant) of their convenience. This method could also be used in static information sessions in community or local authority settings.

##### *Current & previous applicants (successful)*

The Embedded Researcher will also help to recruit applicants who have already submitted an application to interview. These will be randomly selected from the CHiL database after screening for eligibility. They will then be contacted by telephone to see if they are interested to participate in the study. Once interested their contact details will be passed onto HDRC and the rest of the process is same as above.

### *Unsuccessful applicants*

Finally, the Embedded Researcher will also help to recruit applicants who have been unsuccessful in their application. These applicants are usually considered for discretionary funding support. Those who are already successful in obtaining discretionary funding support will be phoned and asked if they would like to take part. Upon agreement their contact details will be passed onto HDRC. The rest of the process is same as above.

Before the interview takes place, information about the study will be provided again, and a consent form will be given to the participant to obtain their consent to take part in the study. If virtual, documents will be mailed to the participant with a stamped return envelope. Participant will be allowed time to consider the information sheet before consenting. The interviewer will emphasise that the participant is free to withdraw participation at any time.

### **4.4.2 Qualitative data Collection**

The potentially predominant rural/seldom heard nature of participants will be addressed by research support from Blackpool HDRC's Community Co-researchers (CCRs). HDRC CCRs consist of young people, aged 16-21 years, and adults all with lived experience of health inequalities. CCRs themselves may also be a valuable source of information themselves and hence will be involved in the co-design of this evaluation where practical and appropriate.

The recruitment leaflet, and topic guide containing interview questions for this set of semi-structured interviews will be co-designed with HDRC CCRs and based on recent literature on this area. The recruitment materials and topic guides will be developed with our project partners. We anticipate the topic guide will explore:

- the facilitators and barriers to applying for and delivering the CHiL
- the experiences and perspectives of CHiL service providers
- perceptions of how the service meets the needs of different types of applicants
- what works well/what could be improved
- comparison to other sources of support
- thoughts on how to improve future service provision

See Appendices E1 (Successful & Unsuccessful Applicants - Renters), E2 (Eligible Applicants - Renters), E3 (Successful & Unsuccessful Applicants - Landlords), E4 (Eligible applicants - Landlords), and E5 (CHiL Working Professional Stakeholders) for indicative topic guides. These will be adapted via a process of co-design with the HDRC CCRs following ethical approval.

#### 4.4.3 Quantitative data collection

The overall aim of quantitative data collection and use in the evaluation is to understand what is the disparity in CHiL (HUG2 & discretionary funding) reach and uptake (RQ4). To understand what the disparity is we first need to understand the reach (RQ1) and uptake (RQ2) of CHiL. Descriptive statistics will be produced to show, among other things, items described in Table 4 below.

Table 4 Data items to be derived from CHiL data useful for evaluation

Item	Description
Number of total eligible residents	Can also obtain from <a href="https://www.nongasmap.org.uk">https://www.nongasmap.org.uk</a>
Number of applicants to CHiL	
Number of applicants referred for HUG2 funding	
Number of applicants rejected by scheme administrator	
Number of applicants referred to discretionary funding	
Number of successful installations	
Number of unsuccessful installations	
Number of applicants successful with discretionary funding support	
Applicant characteristics	<ul style="list-style-type: none"><li>• Postcode</li><li>• Age</li><li>• Income less than £31k</li><li>• Savings less than £16k</li><li>• Benefits</li><li>• Long term health issues</li><li>• With children</li><li>• Single-person household</li><li>• Property type</li><li>• EPC rating</li><li>• Number of bedrooms</li><li>• Year house built</li><li>• Tenure status</li><li>• Conservation area/listed building</li></ul>

#### 4.4.4 Withdrawal

Withdrawal of a participant can occur in any research project and it falls under one of two categories: a) withdrawal by researcher or b) withdrawal at the request of the participant.

##### 4.4.4.1 Withdrawal by researcher

Withdrawal by researcher is performed when it is found that the participant no longer meets the inclusion criteria, or the participant is considered too distressed/at risk of harm to continue (despite them seeming willing to force themselves to do so). Upon deciding to

withdraw the participant, the researcher will consider whether it is necessary or not to inform the participant of this fact. After discussing with the research team, including CCRs where appropriate, the following steps will be taken:

- Write a record of withdrawal and insert it into the research record;
- Write any letters of notification (if relevant);
- Separate the affected data and mark it with a note of withdrawal for easy future identification.

#### *4.4.4.2 Withdrawal at the request of the participant*

Any participant can withdraw from research at any point. The request for withdrawal is valid regardless of how it was performed. No demands must be put on the participant who withdraws. The participant must not be asked to complete any form to withdraw, to contact a higher authority to withdraw, or any similar thing. No justifications can be demanded from a withdrawing participant (eg. no asking for the reason for withdrawal). After receiving a withdrawal request, the researcher will identify what can be destroyed and what needs to be kept. All data/documents/artefacts that can still be identified to the participant should be destroyed. After deciding what must be destroyed and what must be kept, the researcher will document the event in the research record. A record of withdrawal will be created.

#### *4.4.5 Induction of Community Co-Researchers (CCRs)*

CCRs will be inducted into the study via training sessions. CCRs have diverse skills and experiences so group training sessions need to be designed to meet the needs of everyone and be pitched at the right level for all participants. Each CCR would already have undergone training by HDRC in qualitative social research so where there is value in delivering sessions that provide an overview of topics in relation to the PHIRST CHIL evaluation, these may be considered to ensure a common baseline understanding. This induction process will prepare the CCRs for the co-design phase of the evaluation in terms of co-designing topic guides, and giving input into participant recruitment and interviewing process etc.

## **5. Data Analysis**

### **5.1 Quantitative Data Analysis**

The quantitative data will be descriptive in nature and will involve simple quantitative analysis. Descriptive summary statistics will be produced that show:

- Numbers and percentages of eligible, successful and unsuccessful applicants.

If the data is of sufficient size and quality and information governance approvals are in place, then we will explore the possibility of conducting a more detailed statistical analysis of how the likelihood of achieving successful installation with CHiL support varies in terms of applicant characteristics, dwelling and tenure type. This statistical analysis will allow investigation of how key applicant characteristics, dwelling and tenure interact to understand reach, uptake and disparity.

## **5.1 Qualitative Data Analysis**

The focus groups and interviews, with the participants' consent, will be audio recorded, and transcribed verbatim. Analysis will be a combination of inductive and deductive approaches. An inductive thematic analysis will be conducted, informed by Braun and Clarke's (2006) six stage thematic analysis approach. This involves: Step 1: Become familiar with the data, Step 2: Generate initial codes, Step 3: Search for themes, Step 4: Reviewing themes, Step 5: Defining themes, Step 6: Write-up.

Qualitative data analysis will also be done deductively guided by relevant literature including Lang et. al.'s (2021) conceptual model of landlords' energy efficiency retrofitting (See Figure 3 below) as well as the literature review on barriers as described in Brown *et al* (2018). Depending on the nature of themes identified at Step 4 (described above), the deductive analysis may then employ relevant sociological theory-based codes. Recent literature suggests that conceiving of individuals and households as self-seeking rational actors engaging in cost benefit analysis may have limited analytical payoff in helping us to understand why people do or do not apply for energy efficiency grants. For example, literature employing social practice theory (Judson & Maller, 2014; Karvonen, 2013), relational approaches (Owen et al., 2023), and situated approaches (Wilson, Crane, & Chryssochoidis, 2015) have been suggested. Additionally, candidacy theory - the idea that how individuals view their suitability for interventions and services is socially constructed in terms of negotiations between individuals' lived experience, identity, and interactions with institutional actors (Dixon-Woods et al., 2006; Mackenzie, Conway, Hastings, Munro, & O'Donnell, 2012) – can also be employed for analysis in a way that has never been done before in home energy efficiency studies. This process will employ Framework analysis (Ritchie, Lewis, McNaughton Nicholls, & Ormston, 2014). This is a highly structured approach for analysing qualitative data by charting of data into a matrix; a spreadsheet which organizes participants by rows and thematic codes in columns. Codes in this process often closely align with questions asked in the qualitative topic guide used to collect data. In the matrix charting process, participant comments are summarized in spreadsheet cells. By creating a matrix, researchers can easily compare data across cases and within individual

cases, with ease, providing a visually straightforward method to recognize patterns (Rosen et al., 2023).

Figure 3 Conceptual model of landlords' energy efficiency retrofitting

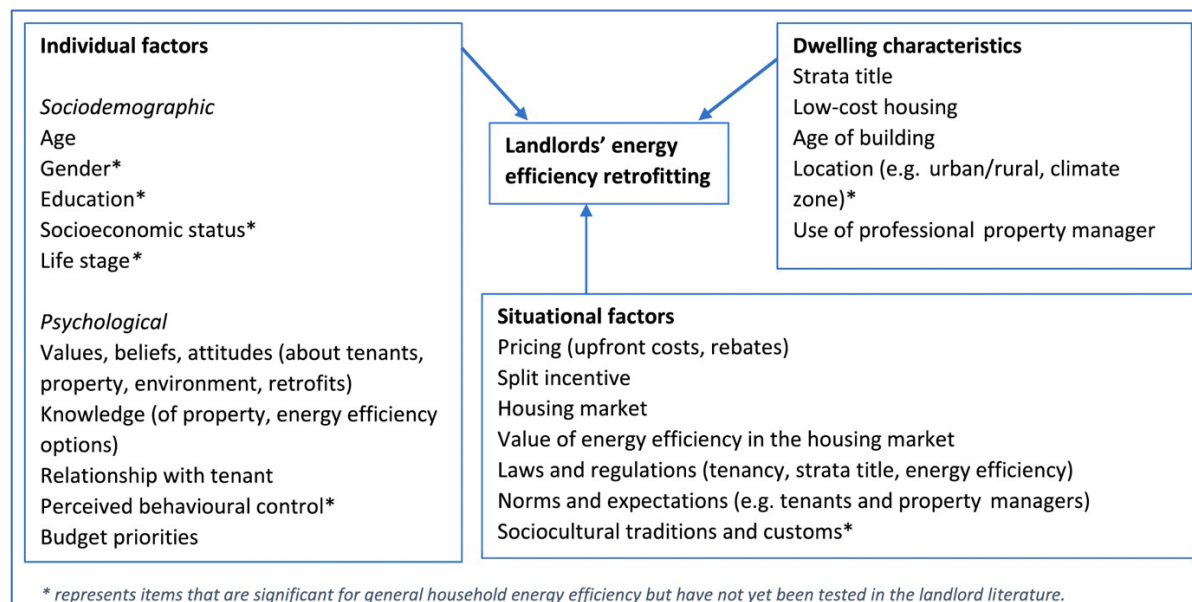


Figure from (Lang et al. 2021)

The research team will read a small selection of transcripts, and meet to review and discuss initial codes, from this we will produce a conceptual coding framework of key themes and sub-themes. The transcripts will be coded using NVivo software. The research team will meet regularly to discuss and amend the coding framework. The data will be explored to look at experiences around delivering and using CHiL, focusing on barriers and facilitators, and to draw out key learnings for service development and improvement.

Data synthesis of both quantitative data from Phase 1 and qualitative data from Phases 2a and 2c will begin in late Spring/early Summer 2024 guided by data integration techniques described in O'Cathain et al. (2010). The analysis process may also involve CCRs and the PHIRST Embedded Researcher as far as possible, where appropriate and practical to do so.

## 6. Research Ethics, Governance and Regulatory Issues

### 6.1 Ethical issues

This study will be conducted in accordance with:

- Good Clinical Practice (GCP) guidelines



- UK Policy Framework for Health and Social Care Research
- Data Protection Act 2018
- General Data Protection Regulation

GCP is an international ethical and scientific quality standard for designing, conducting, recording and reporting studies that involve the participation of human subjects.

Research Ethics Committee Reference: To be provided upon submission of ethics.

## **6.2 Confidentiality, Safeguarding and Data Management**

Ethical approval will be sought from the University of Glasgow, College of Medical, Veterinary & Life Sciences, College Ethics Committee.

The research team will ensure that issues of consent, confidentiality, safeguarding and data management are appropriately addressed across all aspects of the research process including recruitment, data collection, analysis and dissemination.

- Informed consent
  - All participants will be provided with a verbal description of the research, as well as an information sheet detailing the project. All participants will be provided time to read the information sheet and consider participation, as well as time and research contact details to ask any questions they may have about the study/participating.
  - All participants will be required to sign a consent form before participating.
  - All participants will be informed of their rights to withdraw from participation.
- Confidentiality
  - Participants' confidentiality will be maintained throughout the project (with the limits of confidentiality being explained to all participants e.g., the need to break confidentiality if a safeguarding issue arises, the inability to maintain confidentiality due to the nature of focus groups).
  - Participants will be anonymised in all outputs, and any interviews/focus groups participants will not be linked to any direct quotes.
- Safeguarding
  - Due to the nature of the project (exploring perceptions and experiences of CHiL), we do not anticipate any safeguarding issues to arise from discussions.

- Participation will remain confidential, but if there is a suggestion of safeguarding issues (i.e., someone is at harm), confidentiality will be broken, and CHiL and the University of Glasgow safeguarding policies will be adhered to.
- Data protection
  - All data will be securely stored and processed in line with data protection requirements.
  - All project data will be stored on the University of Glasgow secure drive, and only accessible to those within the research team members who require this.
  - Any personal data will be stored in password protected folders in the secure drive (e.g., contact information for arranging interviews, audio recordings, transcripts, CHiL programme data).

## **7. Data Management**

The University of Glasgow will be the data controller for this study.

Qualitative data:

The project will generate qualitative data in the form of interview transcripts. All interviews will be audio recorded only, using an encrypted digital dictaphone. Audio files from interviews will be uploaded to an access-restricted folder on the University of Glasgow server, as soon as is reasonably possible. Once uploaded, they will be deleted from recorders. Transcription of interviews will be undertaken by an approved transcription company. The rest of the project team, including those who may become part of the team in the future, will also have access to the study's data and will be able to comment on data at the analysis stage. Access to data will be restricted to these individuals. To enable anonymity, transcripts will have a unique identifier embedded in the filename.

Quantitative data:

Data from CHiL will be fully anonymised and securely transferred to the research team for analysis. Quantitative data will be collected/transferred using a data sharing agreement between CHiL, Blackpool HDRC and the University of Glasgow to enable the transfer of routine data. All data will be transferred over secure, encrypted connections. Data will be anonymised before being transferred.

All data analysis will take place on password protected computers/laptops of the research team if they are working away from the University. No data will be stored on computers/laptops but accessed via the University secure remote desktop.

Personal information will be collected as part of the qualitative research via consent forms and when arranging the interviews.

- For consent forms: participants' names will be recorded on consent forms. Consent forms will be scanned onto and stored securely in a restricted folder on the University of Glasgow's secure drive. Any paper copies of consent forms will then be destroyed by shredding and confidential waste disposal. Consent forms will be securely stored for 10 years and then deleted.
- When arranging interviews: The names of participants, contact details (if applicable) and times/dates of the data collection sessions will be recorded in a password protected spreadsheet on the University of Glasgow's secure drive. This information will be recorded for organising the data collection. This information will not be used in analysis or dissemination, and will only be used for project management purposes. Participant names and contact information will be deleted as soon as possible from this spreadsheet following participation of each participant.

General project documents will be stored either in the PHIRST CHiL MS Teams cloud drive, and in a secure folder on the University of Glasgow secure Microsoft Sharepoint storage (i.e., OneDrive). Any personal information will be stored in password protected folders/documents on the secure drive. This includes contact information for participants, consent forms, audio recordings and transcripts. Anonymised data will not be destroyed following completion of the study but kept available for future research in ORDA the University of Glasgow's Enlighten Research Data repository.

A full Data Management Plan (DMP) is attached in Appendix G.

### **7.1 Data Monitoring/Quality Assurance**

An interview guide will be used to guide each interview. Field notes of each interview will be kept. Researchers will check any transcriptions for accuracy and to ensure anonymity as far as possible.

### **7.2 Data Storage and Retention**

Please refer to DMP.

## **8. Study Management**

The study is led by the PI and managed via the Study Management Group (SMG). The SMG consists of the PI, Co-Investigators, and the PHIRST CHiL Embedded Researcher. Meetings will be held once every three weeks. The PI reports to the overall PHIRST Fusion Management Group which meets monthly and is accountable to a Study Steering Committee which meets approximately six-monthly.

## **9. Dissemination**

### **9.1 Communication method**

Preliminary findings can be expected by End-December 2024. Based on discussions with CHiL and HDRCA, we will determine what form(s) the output(s) should take. At the very least, a first full draft of a short-report will be circulated in End-January for comments from CHiL and HDRC stakeholders, and submission of full report by End-February 2025.

The key communications channels are:

- Peer-reviewed journal (eg. Energy Research & Social Science)
- Conference
- Written report or equivalent to CHiL
- Participant/CCR feedback report or equivalent

### **9.2 Publication Policy**

All publications and presentations relating to the project will be authorised by the Study Management Group. Criteria for authorship will be based on the CRediT Contributor Roles Taxonomy.

### **9.3 Patient and Public Involvement and Engagement (PPIE) and Knowledge Exchange (KE)**

The PHIRST Fusion team's approach to evaluation is underpinned by active engagement of a range of diverse perspectives across the life cycle of the project. This provides opportunities for co-production and knowledge mobilisation, as informed by the NIHR School for Public Health Research knowledge-sharing principles ([NIHR SPHR Knowledge sharing principles](#)).

To clarify purpose and knowledge-sharing goals (knowledge sharing principle 1) regional stakeholders were given the opportunity to co-design research priorities, questions, and methods through the evaluability assessment workshops. The eventual evaluation design described in this protocol has been developed in close consultation with CHIL and HDRC. Further, their goals for knowledge-sharing will be co-developed with the Knowledge Exchange Broker in a Knowledge Mobilisation and Dissemination (KM&D) plan.

The KM&D plan will identify relevant knowledge users (knowledge sharing principle 2) including those at a regional level, such as decision makers with a role in shaping future services, interest groups, and members of the public, who could be impacted by future services. A stakeholder analysis has begun (Appendix A) which will guide data collection. Ongoing interactions with these knowledge users were maintained throughout the evaluation through the Embedded Researcher and Knowledge Exchange Broker.

The EA approach ensured that the expertise of local knowledge users included from the start (knowledge sharing principle 3) and will be maintained through the Embedded Researcher and regular sense checking.

Expectations will be clarified on an ongoing basis (knowledge sharing principle 4) through Knowledge Exchange Broker attendance at regular Study Management Group meetings (which the Embedded Researcher also attends) and the KM&D plan will be reviewed to allow monitoring, reflection and responsiveness to LA priorities for dissemination outputs and activities (knowledge sharing principle 5).

The team will aim to leave a legacy (knowledge sharing principle 6) with the LAs including through developing the skillsets of the Embedded Researcher, the mindsets with regards to research and evaluation, and the relationships with the PHIRST Fusion team and the HDRC.

## **10. Project Milestones / Timelines**

A project gantt chart is included in Appendix D.

## **11. Project Risk Assessment**

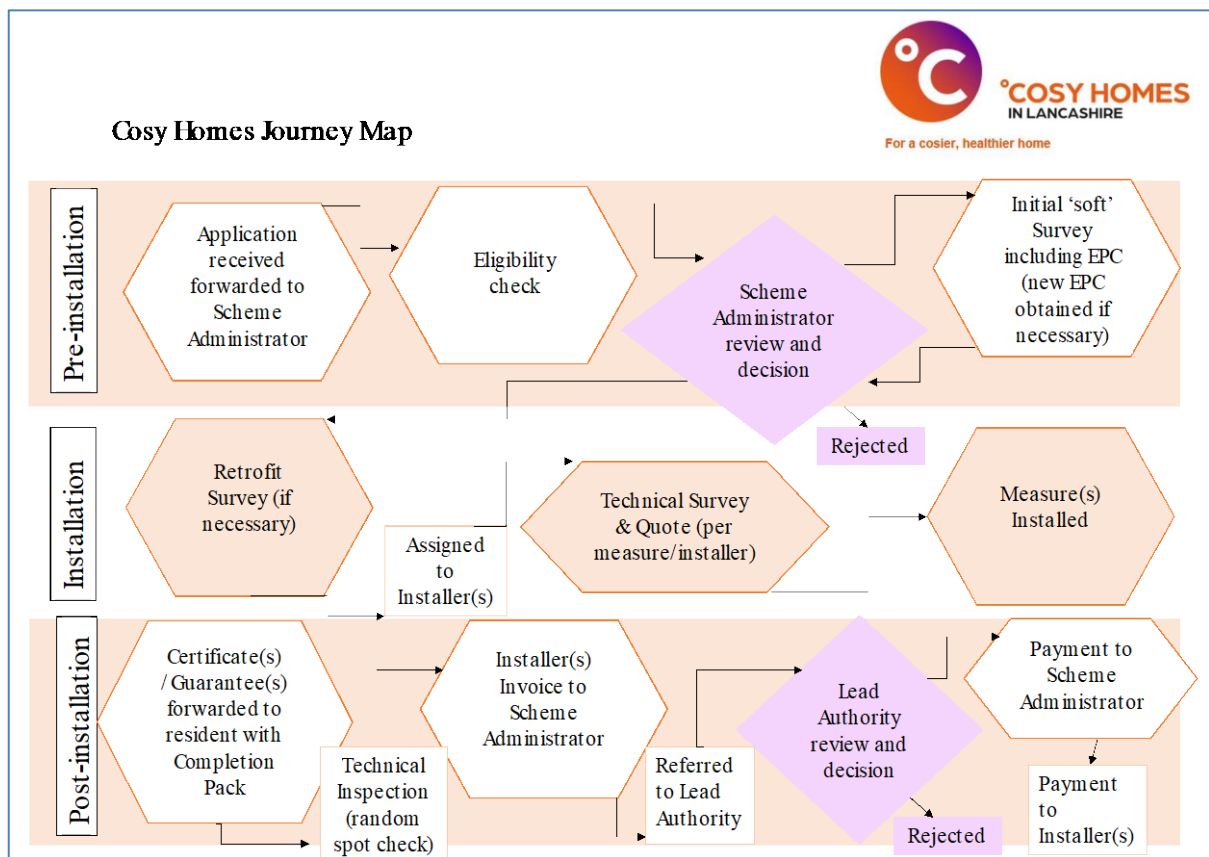
Project Risk Assessment form to be attached upon submission of ethics. The Risk Log will be reviewed and updated at Study Management Group meetings.

## 12. Appendices

### Appendix A Cosy Homes in Lancashire (CHiL) Theory of Change

Inputs	Activities	Outputs	Mechanism	Long-term Outcomes (low-income groups)	Aim
CHiL funding	Warm Homes menu of measures	Number of homes receiving sustainable measures	<p>(HEALTH) Improved thermal comfort and warmer, drier indoor environment; Less development of damp and mould; Improved housekeeping behaviour → reduced amounts of dust and mould; Reduced mess; More effective use of house for leisure and study</p> <p>Less stress related to leakages/damp/mould/allergy burden; Visual amenity benefits; Increased housing satisfaction &amp; pride in house; Improved housekeeping behaviour; Increased emotional security &amp; feeling of being at ease in home; Increased privacy, improved within household relationships &amp; family functioning; Feelings of status &amp; control; Safety &amp; security benefits; Less social isolation (inviting more visitors); Enhanced pride of place</p> <p>(WIDER DETERMINANTS) Reduced energy consumption; More efficient use of energy; Improved EPC ratings</p>	<p><b>Improved physical health</b> (EG: Improved self-rated health; improved cardio-respiratory health; less asthma symptoms; less self-reported wheezing; less days off school &amp; work; less visits to general practitioners; less hospital admissions for respiratory conditions; improved physical functioning; fewer first diagnosis of heart disease or high blood pressure; lower allergy burden)</p> <p><b>Improved respiratory health; Potential long term impact on determinant of health: education &amp; employment outcomes</b></p> <p><b>Improved mental health &amp; well-being</b></p> <p><b>Reduced tenancy turnover</b></p> <p>Reduction in individual and area fuel poverty; Reduced carbon footprint</p>	Improvements in warmth, and energy efficiency impact positively on the health of low-income groups in Lancashire.
<p><b>CHALLENGE:</b> Cold homes and fuel poverty have established associations with poor health, both physical and mental. Respiratory and cardiovascular disease are key causes of excess winter deaths linked with cold properties. Living in cold and damp housing exacerbates a range of mental health stressors, including worry about debt and health.</p> <p><b>ASSUMPTION:</b> Improvements in warmth and energy efficiency impact positively on the health of low-income groups. It is possible that many of those who stand to gain the most health and wellbeing benefit from government sustainable warmth grants are not accessing them in the private rented sector, possibly because the tenant benefits but the landlord pays a contribution.</p> <p><b>CONTEXT:</b> Nationally, only 11% of properties reached by the Energy Company Obligation (ECO) were private rented. Private rented properties only took up 13% of ECO 3 grant measures, against a projected estimate of 34%. An estimated <b>94,842</b> households in Lancashire are affected by fuel poverty. Proportions of households in fuel poverty in all three upper-tier local authorities of Lancashire (Lancashire County Council, Blackburn with Darwen and Blackpool) are high compared with England. Although Lancashire at unitary level has a lower proportion of households in fuel poverty than the North West, when its districts are examined the proportion varies from 15% above the regional value (Pendle) to 27% below (South Ribblesdale). South Ribblesdale: Almost threefold variation between wards with the highest and lowest proportions of fuel poverty, with the ward with the highest level being above the regional average. Blackpool: &gt;80% of private rented tenants receive housing benefit, and privately rented homes have an average energy efficiency rating &gt;40% lower than council homes..</p>					

## Appendix B Cosy Homes in Lancashire (CHiL) Customer Journey Map



## Appendix C Stakeholder Analysis

		Stakeholder	Influence	Interest	Interview
<b>Local</b>					
	<b>LA</b>	CHiL consortium (14) LAs involved in CHiL via home / energy officers	HIGH on practice	HIGH	
		Lancashire Home Energy Officers Group (LHEOG)	HIGH	HIGH	
		Local decision makers (TBC who)	HIGH on decision making	?	
		Elected members	?	Variable – target most interested (see EA workshop notes) and they can cascade	
		EA workshop participants	Variable	HIGH	
	<b>Other</b>	CHiL management agent / contractor	HIGH	LOW / MEDIUM	
		Blackpool HDRC	HIGH (housing top priority)	HIGH	
		3 <sup>rd</sup> sector organisations (would be good to specify)	Variable – target most influential	Variable – target most interested	
		COREN (ARC NWC public engagement group) via Blackpool HDRC	?	MEDIUM	
		Public – including (potential) service users	?	?	
		Local landlords	?	?	
		Local landlord associations	?	?	
		Resident / tenant associations	?	?	
<b>Regional</b>		<b>Stakeholder</b>	<b>Influence</b>	<b>Interest</b>	
		ICB/ICPs			
<b>National</b>					
	<b>Policy</b>	BEIS (Business, energy & Industrial Strategy)			
		Dept for Energy Security + Net Zero			
		Committee on Fuel Poverty			
	<b>Think Tank</b>	Social Market Foundation (research on topic) <a href="https://www.smf.co.uk/publications/lagging-behind/">https://www.smf.co.uk/publications/lagging-behind/</a>	MEDIUM	HIGH	
	<b>Practice</b>	LGA			



		National Residential Landlords Association (NRLA)	Variable?	MEDIUM?	
		Other LAs that have consortia like CHiL			
		Other LAs that do not have consortia like CHiL			
	<b>3<sup>rd</sup> sector</b>	Energy Saving Trust			
		NSPCC – impact on children			
		Age UK – impact on older people			
		Age Concern – impact on older people			
		Charities related to health (esp respiratory)			
	<b>Evaluation</b>	IPSOS (evaluation of green homes grant voucher scheme)			

## Appendix D Gantt Chart

	2024														Jan	Feb
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
Protocol, Data Management Plan & Data Sharing Agreements submission + approval	X															
Ethics submission + approval	X															
Development/refining of data collection tools	X	X														
Phase 1. Quant data retrieval & analysis		X	X	X	X	X	X	X	X	X						
Phase 2a. Qual Key Stakeholder recruitment & interview			X	X	X	X	X									
Phase 2b. CCRs Induction & Co-design		X	X	X												
Phase 2c. Residents recruitment & CCR peer interviews				X	X	X	X	X	X	X						
Phase 2d. Data analysis of quantitative & qualitative data										X	X	X	X			
Draft report														X		
Final report															X	
Dissemination															X	

## Appendix E1-5

Indicative topic guides to be co-designed with HDRC CCRs

Topic guides for Renters

### Appendix E1 Topic Guide for Successful & Unsuccessful Applicants (renters)

Questions	Reasons
<b>1. INTRODUCTION</b>	
<ul style="list-style-type: none"> <li>• Introduction to researcher and HDRC and PHIRST Fusion</li> <li>• Study topic and funder</li> <li>• Explanation of the aims and objectives of the study</li> <li>• Explain confidentiality and anonymity</li> <li>• Explain recording, length (45-90mins) and nature of discussion, outputs, reporting and data storage issues</li> <li>• Remind participant of £30 gift voucher as a thank you for their time and help</li> <li>• Go through consent issues explaining that they may withdraw at any time from interview as a whole, and do not have to answer any questions they would prefer not to; position on disclosure</li> <li>• Check whether they have any questions</li> <li>• Check that they are happy to continue</li> </ul>	
<b>2. BACKGROUND</b>	
<p>Tell me about your home (house)</p> <ul style="list-style-type: none"> <li>• How long have you lived there?</li> <li>• Who else lives there (with you)</li> <li>• What is your dwelling type?</li> <li>• Do you know your home's EPC?</li> <li>• What is it like living in your house? <ul style="list-style-type: none"> <li>○ Are you comfortable living there? (probe gently for whether person feels warm, healthy, well etc)</li> </ul> </li> </ul>	<p>Broad and easy questions; to get the participant talking, find out contextual information about person's current circumstances, and set the scene and prepare for subsequent questions</p>
<b>3. KNOWLEDGE ABOUT CHiL AND OTHER SOURCES OF SUPPORT</b>	
<p>What is CHiL?</p> <ul style="list-style-type: none"> <li>• What do you know about it and how?</li> </ul> <p>Are you aware of any other sources of support for energy efficiency/warm homes?</p>	<p>To understand person's knowledge/awareness about CHiL and/or other sources of support for energy efficiency and warmer homes</p>
<b>4. HOW PERSON SEE THEMSELVES AS LEGITIMATE CANDIDATES FOR CHiL</b>	
<p>Who do you think CHiL was set up to support?</p>	<p>This relates to Identification of candidacy (Candidacy Theory CT) – The process by which individuals come</p>

<ul style="list-style-type: none"> <li>• Do you know anyone who has received CHiL support?</li> <li>• Do you think you are someone who can benefit from CHiL support?</li> <li>• Have you considered/applied/obtained support from anywhere else before?</li> </ul>	to view themselves as legitimate candidates for particular services
<b>5. WHAT PERSON HAVE TO KNOW AND DO TO APPLY TO CHiL</b>	
<p>What do you think you have to do to apply?</p> <ul style="list-style-type: none"> <li>• What have you done? What is your experience?</li> <li>• Have you contacted CHiL? Have you contacted anyone other than CHiL?</li> <li>• Are you familiar with the application <ul style="list-style-type: none"> <li>○ Eligibility</li> <li>○ Process</li> <li>○ Potential outcomes?</li> </ul> </li> <li>• Do you think you have sufficient information? Do you know where to get more information?</li> <li>• What did you find challenging?</li> <li>• What did you find helpful?</li> <li>• What did you find surprising?</li> </ul>	This relates to Navigation of services (CT) – Knowing how to make contact with appropriate services in relation to identified candidacy. This also relates to Permeability of services (CT) – The levels of gate-keeping within a service, the complexity of its referral processes, and the ‘cultural alignment’ of services with the person’s needs and values.
<b>6. WHAT PERSON EXPERIENCE DURING APPLICATION</b>	
<p>What is your experience of making an application?</p> <ul style="list-style-type: none"> <li>• What have you done? What is your experience?</li> <li>• Did you undergo an eligibility check? What was it like?</li> <li>• Did you undergo a ‘soft’ survey? What was it like?</li> <li>• What did you find challenging?</li> <li>• What did you find helpful?</li> <li>• What did you find surprising?</li> <li>• Talk about the CHiL customer journey (use journey map)</li> </ul>	This relates to Appearance at services and asserting candidacy (CT) - The person’s ability to assert their candidacy by presenting at services, articulating their issue and articulating their ‘need’ for support. This also relates to Adjudication by professionals (CT) - Candidacy as expressed by service-users is validated or otherwise by professionals and this influences subsequent offers of services.
<b>7. WHAT PERSON EXPERIENCE AFTER APPLICATION</b>	
What was the outcome of your application?	

<ul style="list-style-type: none"> <li>• IF SUCCESSFUL <ul style="list-style-type: none"> <li>○ Are you satisfied with the outcome?</li> <li>○ What did you find challenging?</li> <li>○ What did you find helpful?</li> <li>○ What did you find surprising?</li> </ul> </li> <li>• IF UNSUCCESSFUL <ul style="list-style-type: none"> <li>○ What happened next?</li> </ul> </li> </ul>	
<b>8. GENERAL REFLECTIONS ABOUT CHiL</b>	
<p>Would you recommend CHiL to someone else?</p> <p>What do you think can be done by CHiL and local authorities so that CHiL can be more helpful for people who need its support?</p> <p>What do you think can be done by the national government?</p>	
<b>9. CONCLUDING</b>	
<ul style="list-style-type: none"> <li>• Thank participant for their time. Reiterate that the interview will remain confidential. Tell them they are welcome to contact members of the study team to ask questions at a later date if they wish.</li> </ul>	

#### Appendix E2 Topic Guide for Eligible Applicants (renters)

Questions	Reasons
<b>1. INTRODUCTION</b>	
<ul style="list-style-type: none"> <li>• Introduction to researcher and HDRC and PHIRST Fusion</li> <li>• Study topic and funder</li> <li>• Explanation of the aims and objectives of the study</li> <li>• Explain confidentiality and anonymity</li> <li>• Explain recording, length (45-90mins) and nature of discussion, outputs, reporting and data storage issues</li> <li>• Remind participant of £30 gift voucher as a thank you for their time and help</li> <li>• Go through consent issues explaining that they may withdraw at any time from interview as a whole, and do not have to answer any questions they would prefer not to; position on disclosure</li> <li>• Check whether they have any questions</li> <li>• Check that they are happy to continue</li> </ul>	
<b>2. BACKGROUND</b>	
<p>Tell me about your home (house)</p> <ul style="list-style-type: none"> <li>• How long have you lived there?</li> <li>• Who else lives there (with you)</li> <li>• What is your dwelling type?</li> </ul>	<p>Broad and easy questions; to get the participant talking, find out contextual information about person's current circumstances, and set the scene and prepare for subsequent questions</p>

<ul style="list-style-type: none"> <li>• Do you know your home's EPC?</li> <li>• What is it like living in your house? <ul style="list-style-type: none"> <li>○ Are you comfortable living there? (probe gently for whether person feels warm, healthy, well etc)</li> </ul> </li> </ul>	
<b>3. KNOWLEDGE ABOUT CHiL AND OTHER SOURCES OF SUPPORT</b>	
<p>What is CHiL?</p> <ul style="list-style-type: none"> <li>• What do you know about it and how?</li> </ul> <p>Are you aware of any other sources of support for energy efficiency/warm homes?</p>	<p>To understand person's knowledge/awareness about CHiL and/or other sources of support for energy efficiency and warmer homes</p>
<b>4. HOW PERSON SEE THEMSELVES AS LEGITIMATE CANDIDATES FOR CHiL</b>	
<p>Who do you think CHiL was set up to support?</p> <ul style="list-style-type: none"> <li>• Do you know anyone who has received CHiL support?</li> <li>• Do you think you are someone who can benefit from CHiL support?</li> <li>• Have you considered/applied/obtained support from anywhere else before?</li> </ul>	<p>This relates to Identification of candidacy (Candidacy Theory CT) – The process by which individuals come to view themselves as legitimate candidates for particular services</p>
<b>5. WHAT PERSON HAVE TO KNOW AND DO TO APPLY TO CHiL</b>	
<p>What do you think you have to do to apply?</p> <ul style="list-style-type: none"> <li>• What have you done? What is your experience?</li> <li>• Have you contacted CHiL? Have you contacted anyone other than CHiL?</li> <li>• Are you familiar with the application <ul style="list-style-type: none"> <li>○ Eligibility</li> <li>○ Process</li> <li>○ Potential outcomes?</li> </ul> </li> <li>• Do you think you have sufficient information? Do you know where to get more information?</li> <li>• What did you find challenging?</li> <li>• What did you find helpful?</li> </ul>	<p>This relates to Navigation of services (CT) – Knowing how to make contact with appropriate services in relation to identified candidacy. This also relates to Permeability of services (CT) – The levels of gate-keeping within a service, the complexity of its referral processes, and the 'cultural alignment' of services with the person's needs and values.</p>

<ul style="list-style-type: none"> <li>What did you find surprising?</li> </ul>	
<b>6. WHAT PERSON EXPERIENCE DURING APPLICATION</b>	
<p>What is your experience of making an application?</p> <ul style="list-style-type: none"> <li>Have you started an application? Why not? Why did you stop? What is your experience?</li> <li>What did you find challenging?</li> <li>What did you find helpful?</li> <li>What did you find surprising?</li> </ul>	<p>This relates to Appearance at services and asserting candidacy (CT) - The person's ability to assert their candidacy by presenting at services, articulating their issue and articulating their 'need' for support. This also relates to Adjudication by professionals (CT) - Candidacy as expressed by service-users is validated or otherwise by professionals and this influences subsequent offers of services.</p>
<b>7. WHAT PERSON EXPERIENCE AFTER APPLICATION</b>	
<p>What was the outcome of your application?</p> <ul style="list-style-type: none"> <li><del>IF SUCCESSFUL</del> <ul style="list-style-type: none"> <li><del>Are you satisfied with the outcome?</del></li> <li><del>What did you find challenging?</del></li> <li><del>What did you find helpful?</del></li> <li><del>What did you find surprising?</del></li> </ul> </li> <li><del>IF UNSUCCESSFUL</del> <ul style="list-style-type: none"> <li><del>What happened next?</del></li> </ul> </li> </ul>	
<b>8. GENERAL REFLECTIONS ABOUT CHiL</b>	
<p>Would you recommend CHiL to someone else?</p> <p>What do you think can be done by CHiL and local authorities so that CHiL can be more helpful for people who need its support?</p> <p>What do you think can be done by the national government?</p>	
<b>9. CONCLUDING</b>	
<ul style="list-style-type: none"> <li>Thank participant for their time. Reiterate that the interview will remain confidential. Tell them they are welcome to contact members of the study team to ask questions at a later date if they wish.</li> </ul>	

Topic guides for Landlords

#### Appendix E3 Topic Guide for Successful & Unsuccessful Applicants (landlords)

Questions	Reasons
<b>1. INTRODUCTION</b>	

<ul style="list-style-type: none"> <li>• Introduction to researcher and HDRC and PHIRST Fusion</li> <li>• Study topic and funder</li> <li>• Explanation of the aims and objectives of the study</li> <li>• Explain confidentiality and anonymity</li> <li>• Explain recording, length (45-90mins) and nature of discussion, outputs, reporting and data storage issues</li> <li>• Remind participant of £30 gift voucher as a thank you for their time and help</li> <li>• Go through consent issues explaining that they may withdraw at any time from interview as a whole, and do not have to answer any questions they would prefer not to; position on disclosure</li> <li>• Check whether they have any questions</li> <li>• Check that they are happy to continue</li> </ul>	
<b>2. BACKGROUND</b>	
<p>Tell me about your Property(s)</p> <ul style="list-style-type: none"> <li>• How long have you been letting it out?</li> <li>• Who lives there now?</li> <li>• What is the dwelling type?</li> <li>• Do you know your property's EPC?</li> <li>• Do you know how your tenants feel living in your property? <ul style="list-style-type: none"> <li>○ Are they comfortable living there?</li> </ul> </li> </ul>	<p>Broad and easy questions; to get the participant talking, find out contextual information about person's current circumstances, and set the scene and prepare for subsequent questions</p>
<b>3. KNOWLEDGE ABOUT CHiL AND OTHER SOURCES OF SUPPORT</b>	
<p>What is CHiL?</p> <ul style="list-style-type: none"> <li>• What do you know about it and how?</li> </ul> <p>Are you aware of any other sources of support for energy efficiency/warm homes?</p>	<p>To understand person's knowledge/awareness about CHiL and/or other sources of support for energy efficiency and warmer homes</p>
<b>4. HOW PERSON SEE THEMSELVES AS LEGITIMATE CANDIDATES FOR CHiL</b>	
<p>Who do you think CHiL was set up to support?</p> <ul style="list-style-type: none"> <li>• Do you know anyone who has received CHiL support?</li> <li>• Do you think you are someone who can benefit from CHiL support?</li> <li>• Have you considered/applied/obtained support from anywhere else before?</li> </ul>	<p>This relates to Identification of candidacy (Candidacy Theory CT) – The process by which individuals come to view themselves as legitimate candidates for particular services</p>



<b>5. WHAT PERSON HAVE TO KNOW AND DO TO APPLY TO CHiL</b>	
<p>What do you think you have to do to apply?</p> <ul style="list-style-type: none"> <li>• What have you done? What is your experience?</li> <li>• Have you contacted CHiL? Have you contacted anyone other than CHiL?</li> <li>• Are you familiar with the application <ul style="list-style-type: none"> <li>○ Eligibility</li> <li>○ Process</li> <li>○ Potential outcomes?</li> </ul> </li> <li>• Do you think you have sufficient information? Do you know where to get more information?</li> <li>• What did you find challenging?</li> <li>• What did you find helpful?</li> <li>• What did you find surprising?</li> <li>• Talk about the CHiL customer journey (use journey map)</li> </ul>	<p>This relates to Navigation of services (CT) – Knowing how to make contact with appropriate services in relation to identified candidacy. This also relates to Permeability of services (CT) – The levels of gate-keeping within a service, the complexity of its referral processes, and the 'cultural alignment' of services with the person's needs and values.</p>
<b>6. WHAT PERSON EXPERIENCE DURING APPLICATION</b>	
<p>What is your experience of making an application?</p> <ul style="list-style-type: none"> <li>• What have you done? What is your experience?</li> <li>• Did you undergo an eligibility check? What was it like?</li> <li>• Did you undergo a 'soft' survey? What was it like?</li> <li>• What did you find challenging?</li> <li>• What did you find helpful?</li> <li>• What did you find surprising?</li> </ul>	<p>This relates to Appearance at services and asserting candidacy (CT) - The person's ability to assert their candidacy by presenting at services, articulating their issue and articulating their 'need' for support. This also relates to Adjudication by professionals (CT) - Candidacy as expressed by service-users is validated or otherwise by professionals and this influences subsequent offers of services.</p>
<b>7. WHAT PERSON EXPERIENCE AFTER APPLICATION</b>	
<p>What was the outcome of your application?</p> <ul style="list-style-type: none"> <li>• IF SUCCESSFUL <ul style="list-style-type: none"> <li>○ Are you satisfied with the outcome?</li> <li>○ What did you find challenging?</li> <li>○ What did you find helpful?</li> <li>○ What did you find surprising?</li> </ul> </li> <li>• IF UNSUCCESSFUL</li> </ul>	

○ What happened next?	
<b>8. GENERAL REFLECTIONS ABOUT CHiL</b>	
<p>Would you recommend CHiL to someone else?</p> <p>What do you think can be done by CHiL and local authorities so that CHiL can be more helpful for people who need its support?</p> <p>What do you think can be done by the national government?</p>	
<b>9. CONCLUDING</b>	
<ul style="list-style-type: none"> <li>• Thank participant for their time. Reiterate that the interview will remain confidential. Tell them they are welcome to contact members of the study team to ask questions at a later date if they wish.</li> </ul>	

#### Appendix E4 Topic Guide for Eligible Applicants (landlords)

Questions	Reasons
<b>1. INTRODUCTION</b>	
<ul style="list-style-type: none"> <li>• Introduction to researcher and HDRC and PHIRST Fusion</li> <li>• Study topic and funder</li> <li>• Explanation of the aims and objectives of the study</li> <li>• Explain confidentiality and anonymity</li> <li>• Explain recording, length (45-90mins) and nature of discussion, outputs, reporting and data storage issues</li> <li>• Remind participant of £30 gift voucher as a thank you for their time and help</li> <li>• Go through consent issues explaining that they may withdraw at any time from interview as a whole, and do not have to answer any questions they would prefer not to; position on disclosure</li> <li>• Check whether they have any questions</li> <li>• Check that they are happy to continue</li> </ul>	
<b>2. BACKGROUND</b>	
<p>Tell me about your Property(s)</p> <ul style="list-style-type: none"> <li>• How long have you been letting it out?</li> <li>• Who lives there now?</li> <li>• What is the dwelling type?</li> <li>• Do you know your property's EPC?</li> <li>• Do you know how your tenants feel living in your property? <ul style="list-style-type: none"> <li>○ Are they comfortable living there?</li> </ul> </li> </ul>	<p>Broad and easy questions; to get the participant talking, find out contextual information about person's current circumstances, and set the scene and prepare for subsequent questions</p>
<b>3. KNOWLEDGE ABOUT CHiL AND OTHER SOURCES OF SUPPORT</b>	

<p>What is CHiL?</p> <ul style="list-style-type: none"> <li>What do you know about it and how?</li> </ul> <p>Are you aware of any other sources of support for energy efficiency/warm homes?</p>	<p>To understand person's knowledge/awareness about CHiL and/or other sources of support for energy efficiency and warmer homes</p>
<b>4. HOW PERSON SEE THEMSELVES AS LEGITIMATE CANDIDATES FOR CHiL</b>	
<p>Who do you think CHiL was set up to support?</p> <ul style="list-style-type: none"> <li>Do you know anyone who has received CHiL support?</li> <li>Do you think you are someone who can benefit from CHiL support?</li> <li>Have you considered/applied/obtained support from anywhere else before?</li> </ul>	<p>This relates to Identification of candidacy (Candidacy Theory CT) – The process by which individuals come to view themselves as legitimate candidates for particular services</p>
<b>5. WHAT PERSON HAVE TO KNOW AND DO TO APPLY TO CHiL</b>	
<p>What do you think you have to do to apply?</p> <ul style="list-style-type: none"> <li>What have you done? What is your experience?</li> <li>Have you contacted CHiL? Have you contacted anyone other than CHiL?</li> <li>Are you familiar with the application <ul style="list-style-type: none"> <li>Eligibility</li> <li>Process</li> <li>Potential outcomes?</li> </ul> </li> <li>Do you think you have sufficient information? Do you know where to get more information?</li> <li>What did you find challenging?</li> <li>What did you find helpful?</li> <li>What did you find surprising?</li> <li>Talk about the CHiL customer journey (use journey map)</li> </ul>	<p>This relates to Navigation of services (CT) – Knowing how to make contact with appropriate services in relation to identified candidacy. This also relates to Permeability of services (CT) – The levels of gate-keeping within a service, the complexity of its referral processes, and the 'cultural alignment' of services with the person's needs and values.</p>
<b>6. WHAT PERSON EXPERIENCE DURING APPLICATION</b>	
<p>What is your experience of making an application?</p> <ul style="list-style-type: none"> <li>Have you started an application? Why not? Why did you stop? What is your experience?</li> </ul>	<p>This relates to Appearance at services and asserting candidacy (CT) - The person's ability to assert their candidacy by presenting at services, articulating their issue and articulating their 'need'</p>

<ul style="list-style-type: none"> <li>• What did you find challenging?</li> <li>• What did you find helpful?</li> <li>• What did you find surprising?</li> </ul>	for support. This also relates to Adjudication by professionals (CT) - Candidacy as expressed by service-users is validated or otherwise by professionals and this influences subsequent offers of services.
<b>7. GENERAL REFLECTIONS ABOUT CHiL</b>	
<p>Would you recommend CHiL to someone else?</p> <p>What do you think can be done by CHiL and local authorities so that CHiL can be more helpful for people who need its support?</p> <p>What do you think can be done by the national government?</p>	
<b>8. CONCLUDING</b>	
<ul style="list-style-type: none"> <li>• Thank participant for their time. Reiterate that the interview will remain confidential. Tell them they are welcome to contact members of the study team to ask questions at a later date if they wish.</li> </ul>	

#### Appendix E5 Topic guides for CHiL Working Professional Stakeholders

Questions	Reasons
<b>1. INTRODUCTION</b>	
<ul style="list-style-type: none"> <li>• Introduction to researcher and HDRC and PHIRST Fusion</li> <li>• Study topic and funder</li> <li>• Explanation of the aims and objectives of the study</li> <li>• Explain confidentiality and anonymity</li> <li>• Explain recording, length (45-90mins) and nature of discussion, outputs, reporting and data storage issues</li> <li>• Go through consent issues explaining that they may withdraw at any time from interview as a whole, and do not have to answer any questions they would prefer not to; position on disclosure</li> <li>• Check whether they have any questions</li> <li>• Check that they are happy to continue</li> </ul>	
<b>2. BACKGROUND</b>	
<p>Tell me about your role in CHiL/organisation</p> <ul style="list-style-type: none"> <li>○</li> </ul>	Broad and easy questions; to get the participant talking, find out contextual information about person's current circumstances, and set the scene and prepare for subsequent questions
<b>3. KNOWLEDGE ABOUT CHiL AND OTHER SOURCES OF SUPPORT</b>	
<p>What is CHiL?</p> <ul style="list-style-type: none"> <li>• What do you know about it and how?</li> </ul>	To understand person's knowledge/awareness about CHiL and/or other sources of support for energy efficiency and warmer homes

Are you aware of any other sources of support for energy efficiency/warm homes?	
<b>4. HOW PROFESSIONALS PERCEIVE LEGITIMATE CANDIDATES FOR CHiL</b>	
<p>Who do you think CHiL was set up to support?</p> <ul style="list-style-type: none"> <li>What is CHiL doing to reach the people it is intended to support? (Reach is defined as the extent to which the target audience come into contact with CHiL, HUG2, and discretionary funding (ie., applications received)</li> <li>Do you know think CHiL is reaching the people it is intended to support? <ul style="list-style-type: none"> <li>Why, why not?</li> </ul> </li> </ul> <p>Do you think there is a disparity in reach of CHiL? Why/Why not?</p>	<p>This relates to Identification of candidacy (Candidacy Theory CT) – The process by which individuals come to view themselves as legitimate candidates for particular services</p>
<b>5. HOW PROFESSIONALS PERCEIVE, EXPERIENCE/ADMINISTER THE APPLICATION PROCESS</b>	
<p>What do you think about the CHiL application process? (Use journey map as prompt)</p> <ul style="list-style-type: none"> <li>What do you find challenging?</li> <li>What do you find helpful?</li> <li>What do you find surprising?</li> </ul> <p>What is CHiL doing to improve uptake from applicants? (Uptake is defined as the extent to which applicants are successful)</p> <ul style="list-style-type: none"> <li>Do you think CHiL uptake is as expected from applicants? <ul style="list-style-type: none"> <li>Why, why not?</li> </ul> </li> </ul> <p>Do you think there is a disparity in uptake of CHiL? Why/Why not?</p>	<p>This relates to Navigation of services (CT) – Knowing how to make contact with appropriate services in relation to identified candidacy. This also relates to Permeability of services (CT) – The levels of gate-keeping within a service, the complexity of its referral processes, and the 'cultural alignment' of services with the person's needs and values.</p>
<b>6. GENERAL REFLECTIONS ABOUT CHiL</b>	
<p>Would you recommend something like CHiL to another LA? Why/Why not?</p> <p>What do you think can be done by CHiL and local authorities so that CHiL can be more helpful for people who need its support?</p> <p>What do you think can be done by the national government?</p>	
<b>7. CONCLUDING</b>	

- Thank participant for their time. Reiterate that the interview will remain confidential. Tell them they are welcome to contact members of the study team to ask questions at a later date if they wish.

## Appendix F Participant Recruitment Poster

Indicative recruitment poster to be co-designed with HDRC CCRs

MRC/CSO Social and Public Health Sciences Unit



Public Health Intervention  
Responsive Studies Teams

Blackpool Council

# Have you thought about upgrading your home's heating, insulation and electricity sources?



**Do you know that you can obtain financial support from your local council to do so?**

We are a team of university researchers working with your local council to understand how more people can be encouraged to apply for support from the council to warm their homes.

Your participation in our research can help us to improve the service for you and your community. We would like to interview you for no longer than 60mins and to compensate you for your time, we will provide a small shopping voucher as a token of our appreciation.

If you're interested in participating and you live in Lancashire and have a household income of less than £31,000, please contact our researcher at [contact name and details]

## Appendix G Data Management Plan

1. Overview	
Project name	PHIRST Fusion Evaluation of Cosy Homes in Lancashire (CHiL)
PI Name	Professor Peter Craig
Project staff	Dr Nai Rui Chng
Funder & award number	National Institute for Health and Care Research (NIHR) [Public Health Research Programme (NIHR131566)]
Project Summary	<p>Cosy Homes in Lancashire (CHiL) is a countywide affordable warmth initiative delivered by all 14 Local Authorities (LAs) in Lancashire. It is funded from national and local sources of funding, and offers a straightforward means of accessing grants to fund new heating measures, insulation and renewable technologies in domestic properties. The PHIRST evaluation of CHiL will cover HUG2, Affordable Warmth, and Winter Warmth funding within CHiL as a focus for gathering information about what helps or hinders uptake. The evaluation will employ a mixed methods approach using quantitative data collected from existing programme monitoring and outcome measures, as well as interviews to collect primary qualitative data to explore reach and uptake, as well as perspectives and experiences of professional stakeholders and households. A key feature of this evaluation is the use of peer researchers (Community Co-Researchers) from Blackpool Health Determinants Research Collaboration (HDRC) in data collection. The findings of the evaluation will help CHiL and Lancashire LAs to better appreciate variation in take-up and disparities, especially among the private rented sector, and to understand barriers and facilitators that could improve reach to this group.</p>

2. Data
What types of data will be collected or created?
<ul style="list-style-type: none"> <li>• Database data containing CHiL applicant details</li> <li>• Database of participant contact information</li> <li>• Audio recordings</li> <li>• Video recordings</li> <li>• Digital transcripts</li> <li>• Signed consent forms</li> </ul>



What formats will you use?
<ul style="list-style-type: none"> <li>• Databased spreadsheet data: .xlsx</li> <li>• Audio recordings (initially .ds2 format when encrypted, .wav format when unencrypted)</li> <li>• Video recordings (MP4 format)</li> <li>• Transcripts (.docx format)</li> <li>• Database of participant contact information: .xlsx</li> <li>• Signed consent forms (paper format and .docx digital format)</li> </ul>
How much data will you collect?
<ul style="list-style-type: none"> <li>• c. 48 interview transcripts (50 MB)</li> <li>• c. 3,000 rows x 20 fields of discrete and continuous data (10 MB)</li> </ul>
3. Documentation
How will the data be documented and described?
<ul style="list-style-type: none"> <li>• Qualitative data will be documented and described using Nvivo 14 in a project file. <ul style="list-style-type: none"> <li>○ Documentation files like the methodology description, project plan, interview guidelines and consent form templates can be imported into the Nvivo 14 project file and stored in a 'documentation' folder in the Memos folder or can be linked from Nvivo 14 externally. Additional documentation about analyses or data manipulations can be created in Nvivo 14 as memos.</li> <li>○ A date and time stamped project event log can record all project events carried out during the Nvivo 14 project cycle, with date stamps and user logs.</li> <li>○ Additional descriptions can be added to all objects created in or imported to the project file, such as the project file itself, data, documents, memos, nodes and classifications.</li> </ul> </li> <li>• Quantitative data documentation will be embedded within data files, such as variable and code descriptions in databases. The data analysis software package used will have facilities for data annotation and description, as variable attributes, data type definitions, table relationships and so on. Structured tabular data should have as documentation (where applicable): <ul style="list-style-type: none"> <li>○ Variable names, labels and descriptions (maximum 80 characters).</li> <li>○ Units of measurement for variables.</li> <li>○ Reference to the question number of a survey or questionnaire.</li> </ul> </li> </ul>
Are there any standards for this in your field of research?
ESRC research data policy (2018) and UK Data Archive

<b>4. Ethics and Intellectual Property</b>
Who owns the data in your project?
CHiL (Quantitative data) and University of Glasgow (Qualitative data)
Detail any ethical, legal or commercial considerations relating to your research data
From our interview recordings and transcripts as well as CHiL service database, we may have potentially identifiable information about interviewees. Data files will contain individual-level data.
How will these concerns be dealt with?
The University of Glasgow's College of Medical, Veterinary & Life Sciences Research Ethics Committee will approve the PHIRST evaluation study. Legal requirements (GDPR) will be adhered to. All qualitative data will be anonymised before it is stored in Nvivo 14. All quantitative data will be anonymised at source (CHiL) before being transferred to the research team in Glasgow.

<b>5. Storage and organisation</b>
How will the data be named, organised and structured?
Data will be organised into folders and files relating to source (ie., CHiL quantitative data and Interview qualitative data). Dates and version numbers will be recorded in file names. File naming conventions will be based on UK Data Service recommended <a href="#">best practice</a> .
How will the data be stored for the duration of the project?
Electronic files will be stored on the University-managed OneDrive for Business located in centrally managed network file servers. We will hold paper documents in a locked cabinet.
How will the data be backed up during the project?
University IT Services performs regular backups of the University's centrally managed network file servers.
Does access to the data need to be controlled for the duration of the project?
All the data we collect could contain personal and confidential information. As such, access to the data will be tightly controlled. Files and folders containing such information will be password-protected and only accessed through an encrypted University-managed laptop. No data will be stored locally in work desktops and laptops.
Who has the right to access the data during the project?
All co-investigators and staff directly involved in the evaluation study will have access to the primary data during the project.

<b>6. Deposit and long-term preservation</b>
Which data should be retained long-term?

Pseudonymised transcripts and databases will be retained long-term.
How long will data be retained for?
The data will be retained for ten years after project completion, in line with the University of Glasgow requirements.
Where will the data be archived at the end of the project?
Data will be archived in University of Glasgow's Enlighten: Research Data repository
What formats will the data be archived in?
<ul style="list-style-type: none"> <li>• textual data: .docx</li> <li>• audio data: .mp3</li> <li>• spreadsheet data: .xlsx</li> </ul>

<b>7. Data sharing</b>
Is any of the data suitable for sharing?
Summaries of anonymised data will be shared.
How will the data be shared?
Data will be shared via access to project drives and folders in University-managed OneDrive for Business.
Who should be able to access and use the shared data?
Project partners of this evaluation study – Blackpool HDRC and CHiL.

<b>8. Implementation</b>
Who is responsible for implementing this plan?
The PI of this study, Professor Peter Craig will be responsible for implementing this plan with close support from myself, Dr Nai Rui Chng.
How will this plan be kept up-to-date?
This DMP will be reviewed at the end of the study (15months) before project documents are archived.
What actions are necessary to implement this plan?
<ul style="list-style-type: none"> <li>• Contact University IT support to ensure adequate storage provision and encryption,</li> <li>• Ensure consent for data archiving and sharing are included in ethics documentation</li> <li>• Contact data repository to ensure compliance with deposit requirements</li> </ul>
What training or further information are needed to implement this plan?
Craig and Chng have already undertaken up to date research data management training organised at the University of Glasgow.

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