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Evaluation of Welsh Housing Quality Standard 2023 and Optimised Retrofit Programme

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Evaluation of Welsh Housing Quality Standard 2023 and Optimised Retrofit Programme

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Glossary

Air source heat pump

A device that takes heat from the outside air and moves it inside a building to provide heating. It works in a similar way to an air conditioner but in reverse. The heat pump has two main parts called heat exchangers: one outside, where a fan pulls in air, and one inside, which either heats the air directly or warms water that is circulated through radiators or underfloor heating. Some air source heat pumps can also cool a building by removing heat from inside and releasing it outside. Others can heat water for domestic use, storing it in a hot water tank.

Benefit Cost Ratio (BCR)

The ratio of the present value of benefits to the present value of costs for a project, programme, or investment. A BCR greater than 1 indicates that the benefits exceed the costs, while a BCR less than 1 suggests the costs outweigh the benefits.

Cost-benefit analysis

A method of comparing the costs of a policy programme with its expected benefits to determine whether it represents a worthwhile investment.

Cavity Wall Insulation (CWI)

An insulation installed within the gap (cavity) between the inner and outer walls of a building.

Deep energy retrofit

A home or building renovation designed to achieve substantial energy savings and reduce emissions, while delivering high energy performance.

Energy Performance Certificate (EPC) assessments

An evaluation that measures how energy-efficient a property is. EPC assessments rate a home on a scale from A (most efficient) to G (least efficient). The assessment also provides recommendations for improving energy performance and reducing carbon emissions.

Environmental Impact Rating (EIR)

A measure of a home's impact on the environment in terms of carbon dioxide (CO2) emissions. The higher the rating, the less impact it has on the environment. This rating is based on the performance of the building and its fixed services (such as heating and lighting).

External Wall Insulation (EWI)

Related to ways to insulate, protect, and decorate the outside of a building. It typically uses materials like expanded polystyrene, mineral wool, polyurethane foam, or phenolic foam as the insulation layer. This layer is then covered with a weatherproof finish, such as cementbased render, mineral or synthetic finishes, brick slips, tiles, or decorative boards. Insulating render can also be used in some locations.

Housing Health and Safety Rating System (HHSRS)

A UK system used to assess potential health and safety risks in residential properties in the UK. It evaluates 29 categories of hazards, each scored based on the likelihood of occurrence and the potential severity of harm. The system is used by local authorities, landlords, and housing professionals to identify risks and take action to improve safety and living conditions in homes.

Internal Wall Insulation (IWI)

A method of insulating a building by adding insulation material to the inside surfaces of walls. This improves energy efficiency by reducing heat loss and maintaining a more stable indoor temperature.

Mutual organisation

A housing association that is owned and controlled by its members, which can include tenants and employees, operating on a co-operative basis.

Mechanical Ventilation with Heat Recovery (MVHR)

A ventilation system that extracts stale air from a building while recovering heat from it and using it to warm incoming fresh air.

Net Present Value (NPV)

The difference between the present value of benefits and the present value of costs of a project, programme, or investment. A positive NPV indicates that the benefits outweigh the costs, while a negative NPV suggests the opposite.

Optimised Retrofit Programme (ORP)

The ORP is a whole-house, evidence-based approach to decarbonising existing social housing in Wales. It enables local authorities and registered social landlords to implement tailored energy-efficiency measures that improve affordable warmth and reduce environmental impact. ORP Phase 3 (2025 to 2026) focuses on identifying the most effective retrofit pathway for each home, supporting the delivery of WHQS 2023 and contributing to long-term net-zero goals. The programme follows a “test and learn” model, driving innovation while considering wider infrastructure needs such as skills, procurement, finance, materials, and economic development across Wales.

PAS 2035 retrofit standards

A British standard for retrofitting and improving the energy efficiency of housing. It sets out a recognised quality framework for design, installation, and evaluation of retrofit projects, aiming to ensure energy savings are delivered, risks like defects or damp are minimised, and residents benefit from improved comfort and reduced fuel costs. Compliance is required for projects funded through schemes such as the Optimised Retrofit Programme, Warm

Home: Social Housing Fund, Energy Company Obligation, or Local Authority Delivery Scheme.

Photovoltaic (PV)

A system that converts sunlight directly into electricity using solar cells. PV systems are commonly installed on rooftops or other structures to generate renewable energy.

Renting Homes (Wales) Act

A law that standardises the rights and responsibilities of landlords and tenants in Wales, creating a single legal framework for all rental agreements.

Social landlords

Organisations that provide housing to people, typically at below-market rents, including local councils and housing associations.

Standard Assessment Procedure (SAP) ratings

The UK government's official system for assessing and comparing the energy performance of residential buildings. SAP ratings are based on factors such as insulation, heating systems, ventilation, and renewable technologies, and are expressed on a scale from 1 (poor) to 100 (excellent). Higher ratings indicate lower running costs and better energy efficiency.

Targeted Energy Pathways (TEPs)

An approach used to plan and prioritise energy efficiency improvements across housing stock. A TEP identifies measures that can lead to the decarbonisation of an individual dwelling, such that it can be heated by a low-carbon heating system at an affordable cost.

Theories of Change (ToCs)A framework used to explain how and why a desired change is expected to happen in a particular context. ToCs map out the sequence of inputs, activities, outputs, and outcomes, identifying the assumptions and conditions needed for success.

TrustMark 2035

A UK Government-endorsed quality assurance framework that ensures work carried out in homes meets recognised standards. Under the PAS 2035 retrofit framework, all energy efficiency and retrofit projects must be delivered by TrustMark-registered businesses. TrustMark registration confirms that installers, designers, and assessors are competent, compliant, and deliver work that protects residents and property.

Whole Stock Assessments (WSA)

A review of a social landlord’s stock condition and energy efficiency data, software, and data analytical skills, with the purpose of gaining and demonstrating a sufficient understanding of their current housing stock.

Welsh Development Quality Requirements 2021 (WDQR 2021)

A Welsh Government that sets out the minimum functional quality standards for new and rehabilitated general needs affordable homes. WDQR 2021 covers energy efficiency and decarbonisation, modern construction methods, space and accessibility requirements, adaptability for changing household needs, technology readiness, and safety and security measures. The standard applies to all publicly-funded affordable housing schemes submitted for technical scrutiny from October 1, 2021.

Welsh Housing Quality Standard (WHQS)

The WHQS is a set of mandatory standards for all social housing in Wales, ensuring homes are in a good state of repair, safe, secure, and energy-efficient, with up-to-date kitchens and bathrooms. The standard was updated in 2023, with a new version, WHQS 2023, introducing higher energy efficiency targets and considerations for biodiversity and water poverty to meet modern needs and support decarbonisation efforts.

Value for Money (VfM) analysis

A method used to assess whether a project, programme, or policy delivers the best possible outcomes for the resources invested. VfM analysis examines the balance between costs, quality, and effectiveness to determine whether the benefits achieved justify the expenditure.

1. Introduction and background

Environmental and housing policies are crucial areas of focus for the Welsh Government. As part of its climate commitment, the Welsh Government has established statutory emissions reduction targets for 2030, 2040, and 2050, and five-yearly Carbon Budgets to achieve a pathway towards net-zero emissions by 2050 (Welsh Government, 2021). While emissions reductions are required across all sectors of the economy, the housing sector has been identified as a priority area for intervention due to its scale and policy leverage. Housing accounts for 27% of national energy consumption, meaning the total energy used for heating, lighting, and appliances (Welsh Government, 2024), and 10% of direct carbon emissions, referring to the CO_2 released from fuels burned in homes (Welsh Government, 2022). These environmental efforts are further supported by the Climate Adaptation Strategy for Wales, which strengthens climate resilience, and by the Well-being of Future Generations Act 2015, which underlines the importance of sustainable development and long-term planning to ensure that present needs are met without compromising the ability of future generations to meet theirs.

In parallel, the Welsh Government recognises the need for more social and affordable homes, as highlighted in the National Development Framework for Wales 2040 (Welsh Government, 2021) and reflected in the Programme for Government commitment to deliver 20,000 new low-carbon social homes for rent (Welsh Government, 2022). Affordable, high-quality housing is seen as essential for creating strong, resilient communities. Efforts are focused on increasing the supply of affordable homes while ensuring they continue to meet evolving population needs, such as an ageing society and changing work and living patterns. The Renting Homes Act 2016 and the Welsh Housing Quality Standard (WHQS) aim to ensure that housing is not only affordable, but also sustainable and energy-efficient, while providing safer, modern homes that improve tenants' quality of life.

Retrofitting existing homes is a priority for improving energy efficiency in Wales, where much of the housing stock is among the oldest in Western Europe (Decarbonisation of Homes in Wales Advisory Group, 2019). Social housing presents an immediate opportunity for retrofit, as greater government control over upgrades allows for the creation of an enabling environment for widespread retrofit across the housing sector, addressing issues such as skills development, procurement, financing models, material selection, and the foundational economy.

The WHQS 2023 and the Optimised Retrofit Programme (ORP) share closely aligned goals, addressing housing and environmental priorities in complementary ways. WHQS 2023 emphasises improving social housing conditions by ensuring homes meet specific standards of safety, comfort, and affordability, while also incorporating measures that benefit the environment, such as energy efficiency ratings and calculation methods. Meanwhile, ORP addresses climate challenges by decarbonising existing homes, improving housing quality, and ultimately supporting Local Authorities and Registered Social landlords in ensuring their housing stock is affordable to heat and has minimal environmental impact (Part 3 of WHQS 2023). Together, these initiatives demonstrate the connection between housing and environmental goals, aiming to achieve both improved living conditions and reduced environmental impact. In the sections that follow, we provide a detailed overview of each initiative before outlining the aims and structure of this report.

1.1 Welsh Housing Quality Standard

The WHQS, first introduced in 2002 as a response to the "Better Homes for People in Wales" strategy (The National Assembly for Wales, 2001), is a policy initiative designed to improve housing quality across Wales by establishing clear standards for social housing. Initially, WHQS sought to ensure that homes were in good repair, safe, secure, well-insulated, and energy efficient. A central focus of the standard is retrofitting existing housing stock to meet contemporary living standards. Additionally, it prioritised upgrading kitchens and bathrooms to enhance tenants' living conditions.

Initially, WHQS aimed for compliance by 2012. Challenges, including housing stock transfers, the need for clearer guidance and enforcement, and changes in governmental oversight, necessitated extensions, first to 2020, and subsequently to 2021 in response to the COVID-19 pandemic (Welsh Government, 2021). Over £2 billion was invested, and WHQS compliance (including acceptable fails) was achieved by March 2022 despite these challenges (Welsh Government, 2022).

Throughout its implementation, WHQS has been shaped by evolving legislation and policy frameworks. For example, the Housing (Wales) Act 2014 established the compliance framework for Registered Social landlords and Local Authorities (hereinafter referred to as 'social landlords'), setting regulatory standards for housing management and delivery. Similarly, the Regulatory Framework for Housing Associations Registered in Wales (Welsh Government, 2017) further outlined governance and service delivery requirements to ensure housing providers meet their obligations while prioritising tenant wellbeing. Further, the

Environment (Wales) Act 2016 requires public bodies to reduce emissions and improve energy efficiency, setting legally binding carbon budgets to support these goals.

Implemented in April 2024, the updated WHQS 2023 introduces several major changes, incorporating learnings from the 2021 summative evaluation (Welsh Government, 2021) of the WHQS (more details about the previous evaluation findings can be found in the next section). The updated Standard focuses on improving home quality while aligning with environmental goals, introducing more specific targets for decarbonisation, energy efficiency, and water efficiency (Welsh Government, 2024). These changes also reflect broader legislative frameworks such as the 7 wellbeing goals outlined in Well-being of Future Generations (Wales) Act 2015 and Wales Net Zero ambitions for achieving net-zero carbon emissions by 2050. More specifically, to meet the updated Standard, homes are now required to satisfy 8 core parts, with compliance assessed through 42 elements (Welsh Government, 2024).

The updated Standard also introduces clearer strategic and reporting requirements for social landlords by mandating Whole Stock Assessments (WSAs) and Targeted Energy Pathways (TEPs). WSAs and TEPs are essential processes that support social landlords and local authorities in meeting sustainability and decarbonisation goals. WSAs are periodic reviews of data quality, housing stock conditions, and energy efficiency, providing social landlords with a foundation to fully understand their stock and better implement required improvements. Based on these assessments, social landlords develop TEPs for each of their properties, outlining specific measures for decarbonisation and low-carbon heating that evolve over time to reflect new data, technologies, and funding opportunities. TEPs must be in place by 2027.

Enhanced reporting mechanisms are required to track progress, particularly in energy efficiency and overall sustainability targets. By March 31st, 2025, social landlords must submit a compliance policy to the Welsh Government to ensure their housing stock meets the updated Standard.

Additionally, the data returns under the updated Standard now require property-level documentation, replacing the previous aggregate-level reporting. This change is intended to give the Welsh Government a clearer picture of compliance across the social housing sector and to support a better understanding of the condition of homes in Wales. Social landlords under the updated Standard are required to provide data in line with a specified data format that allows information to be extracted directly from existing systems. The data return complements the annual compliance policy submission, which provides context around the data submitted. The first data submission requirement is on May 14th, 2026, and is done internally. From 2026 to 2027 onwards, landlords will also be required to have their data externally validated on a regular basis, providing additional assurance and strengthening confidence in reported compliance.

Additionally, landlords must update and revise their business plan to prioritise necessary work, assess investment needs, and incorporate a tenant engagement strategy. Finally, tenant engagement plans should be developed to ensure tenants' perspectives are considered throughout the process.

The WHQS 2023 timeline outlines the following main milestones for social landlords: (i) they need to evaluate housing stock, estimate investment requirements, engage with tenants, and submit a Compliance Policy by March 2025, (ii) they are expected to develop Target Energy Pathways by March 2027, and (iii) confirm full compliance with the Standard by March 2034.

1.2 Optimised Retrofit Programme

The ORP is a £220m initiative introduced by the Welsh Government to support the decarbonisation of social housing in Wales. Launched in 2020 as part of the innovative Housing Programme (Welsh Government, 2020), it stems from the recommendations of the Better Homes, Better Wales, Better World report. The report advocated for a deep energy retrofit of existing homes, particularly within the social housing sector, in order to improve energy efficiency and achieve a minimum Energy Performance Certificate Rating A across housing stock by 2050.

ORP is structured into phases that build on one another, progressively scaling learning and delivery. In the first two years of its implementation (ORP 1, ORP 2.1), the programme focused on developing practical and scalable methods to enhance energy efficiency and reduce carbon emissions, centred around 4 pillars: fabric-first, which focuses on improving insulation to reduce heat loss; technology, through the installation of advanced heating systems and energy monitoring mechanisms; green energy, replacing fossil fuel energy to greener alternatives; and engaging people through promoting sustainable energy practices, upskilling, and job creation in the housing and energy sectors. Over time, the programme was refined, with ORP 2.2 narrowing its technical criteria to retain only the fabric-first approach while broadening its general aims to include underlying factors, such as skills, procurement, and finance. ORP 3.1 further refined the programme, linking it explicitly to the new energy efficiency requirements of WHQS 2023, emphasising workforce and supply chain considerations, and requiring home monitoring.

Funding increased across phases, from approximately £11 million in ORP 1 to around £30 million in Phase 2, and £51 million in Year 1 of Phase 3, which runs from 2022 to 2027 following a recent extension. Over the years, ORP intended to serve as a proof of concept for retrofits, establishing a robust evidence base to support the development of a long-term retrofit strategy, guiding and influencing retrofit efforts across all housing tenures in Wales (Welsh Government, 2025).

A central aim of ORP 3 is to assist social landlords in developing strategies that align with the 'Affordable Warmth and Decarbonisation' aspects of the WHQS 2023. This is primarily achieved through a comprehensive approach to retrofitting, including optimising wall, loft, and floor insulation, upgrading doors and windows, maximising air tightness, ensuring proper ventilation, installing electric heat pump systems, and incorporating renewable technologies, such as solar panels and energy storage batteries.

To claim funding under the ORP, homes must meet detailed monitoring requirements to demonstrate the effectiveness of the upgrades. This requires the installation of Environmental and Energy Monitors (EEM) equipped with integrated sensors. As a minimum, all homes must include primary energy metering for gas and electricity imports and exports, as well as sensors to record internal temperature, relative humidity, and CO2 levels at 15-minute intervals. Furthermore, homes with additional upgrades are subject to additional monitoring requirements (e.g., air tightness tests, heating supply monitoring, and space heat metering). All work must conform to the latest publicly available specification for energy retrofitting in the UK (Publicly Available Specification 2035: 2023). Additionally, data from all retrofitting activities must be stored in the TrustMark Data Warehouse.

The programme aims to extend beyond house renovations and thermal efficiency improvements, by delivering wider benefits for communities and facilitating the wider adoption of retrofitting practices across the housing sector. It seeks to generate socioeconomic impacts by creating employment opportunities, supporting skills development, and contributing to local industry growth. Additionally, it supports the Welsh Government's sustainability goals by championing waste reduction and embedding circular economy principles internally. Lastly, a strong emphasis is placed on sharing significant insights and lessons learned, ensuring transparency and encouraging the widespread adoption of best practice within the housing sector (Welsh Government, 2022).

1.3 Project aims and objectives

Alma Economics was commissioned by the Welsh Government to conduct comprehensive evaluations of the WHQS 2023 and ORP. Both evaluations explored the experiences of social landlords and social housing tenants to understand how the initiatives were implemented and their perceived impacts. In addition, a Value for Money (VfM) analysis was undertaken as part of the ORP evaluation to assess the cost-effectiveness of ORP 3, going beyond perceived impacts to examine measurable outcomes and costs. While the evaluations for the WHQS 2023 and ORP were undertaken separately, where possible, fieldwork was combined to minimise the burden on research participants.

The following sections expand on the specific objectives for each of the evaluations, which were agreed upon at the outset of the project with the Welsh Government and/or further refined during the research process.

1.3.1 Objectives of the WHQS 2023 Evaluation

Objective 1: To understand tenants' experiences of WHQS 2023

This objective included the following research questions:

- awareness
  - what are tenants' baseline and ongoing awareness levels of WHQS 2023?
- inclusion and involvement
  - do tenants feel sufficiently informed before, during, and after works?
  - do they feel listened to throughout the process?
  - do they feel adequately supported in adapting to changes (e.g., new technologies)?
  - do tenants feel meaningfully involved in decisions that affect their homes?
- tenants' experiences of their homes
  - do tenants perceive their homes to meet an appropriate standard?
  - do they believe WHQS 2023 has improved the quality of their homes, and in what ways?
  - which WHQS 2023 criteria do tenants see as most important?
  - to what extent do tenants believe WHQS-related changes are affecting their physical or mental wellbeing?

- contextual factors
    - how do experiences vary across protected characteristics, household types, geographies, or RSLs?
    - which additional contextual factors influence tenants' experiences?

Objective 2: To understand landlords' experiences of meeting WHQS 2023

This objective included the following research questions:

- awareness of the Standard and perceived clarity of guidance
- perceptions of how effectively the transition from the old Standard has been managed
- experiences of implementation, including:
    - which aspects are easier or harder to meet
    - frequency and approach to property surveys
    - practicality and cost of updating tenants on WHQS compliance
- views on component categories, including:
    - interpretation of assessment codes
    - use of "conditional pass" and "temporary fail" criteria
- experiences with WHQS data reporting requirements
- whether landlords have sufficient skills, capacity, and networks to implement the Standard

Objective 3: To conduct an outcome evaluation of WHQS 2023

This objective included the following research questions:

- the extent to which WHQS 2023 is achieving its intended impacts, including improvements in satisfaction and quality of life
- whether impacts can be observed on tenants' behaviours, particularly related to energy and water use
- whether impacts vary across protected characteristics
- the efficacy of works funded through ORP that contribute to WHQS Part 3 ("Affordable to Heat")

Objective 4: To synthesise evidence across WHQS 2023 and ORP

This objective focused on developing an integrated, evidence-based framework to support the evaluation of current and future housing decarbonisation initiatives in Wales.

1.3.2 Objectives of the ORP Evaluation

Objective 1: To undertake a social cost–benefit analysis of ORP

This objective included the following research questions:

- identifying key beneficiaries (tenants, landlords, local authorities, and the Welsh Government)
- measuring and monetising the value of programme outcomes
- identifying and costing all relevant inputs
- comparing costs and benefits using appropriate VfM metrics (BCR, NPV, IRR)
- determining the appropriate analytical scope given available evidence
- sharing findings with the Welsh Government
- ensuring full compliance with HM Treasury's Green Book

Objective 2: To explore whether ORP is meeting its aims as a "test and learn" programme

This objective included the following research questions:

- map ORP data collection processes
- compare and evaluate different retrofit approaches, including suitability for different archetypes and regions
- assess whether ORP has enabled the Welsh Government and social landlords to build practical knowledge, capability, and confidence in retrofitting the Welsh housing stock

Objective 3: To understand tenants' experiences of ORP

This objective included the following research questions:

- awareness
    - what are tenants' baseline and ongoing awareness levels of ORP?
- inclusion and involvement
    - do tenants feel sufficiently informed before, during, and after works?

    - do they feel listened to throughout the process?
    - do they feel adequately supported in adapting to changes (e.g., new technologies)?
    - do tenants feel meaningfully involved in decisions that affect their homes?
- tenants' experiences of their homes
    - do tenants perceive their homes to meet an appropriate standard?
    - do they believe ORP has improved the quality of their homes, and in what ways?
    - to what extent do tenants believe ORP-related changes are affecting their physical or mental wellbeing?
- contextual factors
    - how do experiences vary across protected characteristics, household types, geographies, or RSLs?
    - which additional contextual factors influence tenants' experiences?

Objective 4: To understand landlords' experiences of delivery ORP

This objective included the following research questions:

- awareness of ORP and perceived clarity of guidance for claiming and accessing the fund
- perceptions of whether the support provided to implement ORP requirements was sufficient
- how did landlords survey their properties to ensure eligibility for ORP?
- perceptions of the requirements of ORP (including retrofits and corresponding reporting requirements)
- which aspects of ORP3 were easier to meet, and which were most challenging?
- what is the perceived impact of the retrofits delivered as part of ORP on their housing stock?
- how access to delivery of the ORP varied over time and across different stages of the programme

An additional objective included at the outset of the project was not pursued. This objective aimed to explore the feasibility of expanding retrofit activity beyond the social housing sector to other tenures. Specifically, it sought to consider how retrofit principles might be applied in other contexts, such as the Private Rented Sector, and to assess whether sufficient data existed to support future modelling or evaluation across tenures.

This objective was not pursued further as the research progressed. Meaningfully assessing the transferability of retrofit approaches, delivery models, costs, or outcomes to other tenures would have required additional data collection and analytical work beyond the remit of this evaluation. As such, the focus remained on the core objectives within scope, while recognising the relevance of this wider question for future research.

1.4 Structure of the report

This report contains the following sections:

- Chapter 2 sets out the methodological approach
- Chapter 3 presents the theories of change for WHQS 2023 and ORP developed in the scoping phase
- Chapter 4 outlines the findings from our primary research activities.
    - it draws on perspectives from social landlords and social tenants, engaged through surveys, interviews, and focus groups
    - the information is presented thematically, combining survey results with qualitative findings from interviews and focus groups
    - the analysis begins with WHQS 2023 and then moves on to ORP
    - for WHQS 2023, the findings focus on the transition to the new Standard, progress to date, and experiences of its implementation, including tenants' views on their homes and the desirability and impact of the works
    - for ORP, the findings focus on social landlords' experiences of claiming the fund, delivering the ORP works, and engaging in the test-and-learn approach, as well as the perceived impacts on both landlords and tenants
    - in addition, a cost-benefit analysis is undertaken to assess the value for money of ORP 3
- Chapter 5 summarises the main conclusions emerging from the research, reflecting on progress made and barriers encountered with WHQS as it moves towards the aim of full compliance, as well as the strengths, challenges, and VfM of ORP
    - it concludes with reflections on both programmes together

2. Methodology

2.1 Methodology overview

This chapter outlines the methodology used in the evaluation of the WHQS 2023 and the ORP. The evaluation took a theory-based approach, informed by realist evaluation principles, aiming to understand not only whether WHQS 2023 and ORP were achieving their intended outcomes, but also how and for whom, and under what conditions. Please see 1.3.1 and 1.3.2 for a complete list of the research objectives examined.

The evaluations used a mixed-methods design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the delivery and impact of WHQS 2023 and ORP across all phases of the programme (ORP 1, 2, and 3). In addition, a cost-benefit analysis was undertaken specifically for ORP 3 to determine the VfM of Phase 3 of the programme (2025 to 2026). While the evaluations were carried out separately, where possible, data collection was combined to minimise the burden on stakeholders.

The project began with a scoping phase, involving a desk-based review, data scoping, and scoping interviews, to define the scope of the evaluation, inform fieldwork tools, and develop 2 theories of change (ToCs), one per programme. The main data collection phase involved the design and dissemination of surveys, interviews, and focus groups with social landlords and social housing tenants. This phase also involved the design and delivery of the CBA of ORP 3.

This research provides foundational evidence on the delivery and impact of WHQS 2023 and ORP, which can be used to inform future monitoring and, where appropriate, repeated or built upon in subsequent work.

2.2 Detailed methodology

2.2.1 Scoping phase and ToC development

To clarify the scope and priorities of the research, a desk-based review, data scoping, and scoping interviews were carried out as part of the first phase of the research. The desk-based research involved reviewing government documents, previous evaluations of the WHQS 2023 and ORP, and relevant statistical and data sources to provide an overview of the programmes' objectives, implementation, and impacts. Data scoping focused on identifying and assessing available datasets to determine their relevance, reliability, and limitations for the evaluation. Finally, scoping interviews were conducted in early February

2025 to verify existing information, address knowledge gaps, and gather additional insights. Four interviews were conducted with Welsh Government officials, and one with a representative from a membership body for housing associations.

Through the above activities, the research team developed their understanding of both initiatives' objectives, inputs, requirements, expected outputs, and outcomes. The primary outcome of this phase was the development of two comprehensive ToCs, which map how the WHQS 2023 and ORP are expected to drive change and create long-term impact. A ToC serves as an important tool for both impact and economic evaluations, supporting the identification of important outcomes to be quantified and monetised. It also provides the basis for exploring potential causal links between programme activities and outcomes across multiple dimensions, including carbon reduction, safety and wellbeing, environmental impact, and community engagement.

Initial versions of both ToCs were developed based on insights from the desk-based review, data scoping, and scoping interviews, which were presented to Welsh Government stakeholders in a workshop. Both ToCs were revised in line with the feedback received.

2.2.2 Engagement with social landlords and social housing tenants

Following the scoping phase, fieldwork with social landlords and social housing tenants was carried out through surveys, interviews, and focus groups. This approach was designed to capture both quantitative and qualitative data, allowing for a detailed understanding of views and experiences related to WHQS 2023 and ORP.

Tenant engagement

Recognising that the voice of tenants is central to understanding the real-world impact of housing policies, social housing tenants across Wales were engaged through surveys, interviews, and focus groups. From the scoping phase, the research team had identified that tenants were unlikely to be familiar with WHQS 2023, as well as unaware of whether they had been affected by ORP funding. Because some social tenants lived in homes upgraded through ORP while others lived in homes that had not been upgraded (and were therefore subject to WHQS 2023), neither the research team nor the tenants themselves could determine which programme applied to each household. Social landlords, however, held detailed records of retrofit activity and property status, enabling them to identify eligible tenants. As such, landlords distributed research invitations on behalf of the project team, ensuring that appropriate participants were reached. Engagement for each initiative was then carried out separately.

By engaging with tenants, the aim was to shed light on topics such as their perceptions of their homes, their level of awareness of WHQS 2023 and ORP, and the extent, process, and impact of any works carried out as part of these initiatives. The surveys gathered broad insights from a wide range of tenants, while a section of the ORP survey also collected information to support the VfM analysis of ORP 3. Furthermore, the interviews and focus groups enabled a more in-depth exploration of individual experiences and perspectives.

Two surveys, one for WHQS 2023 and one for ORP, were designed by Alma Economics and disseminated by social landlords. Each survey was designed to take less than 15 minutes to complete and was hosted on Microsoft Forms. Survey responses were accepted between June and October 2025. The WHQS 2023 survey received 1,285 responses, while the ORP survey received 275 responses. An exact response rate could not be determined, as the number of tenants who received an invitation to complete the survey is unknown. A breakdown of the demographic characteristics of survey respondents, including geographic spread, can be found in Annex A.

The interviews and focus groups were semi-structured and conducted remotely, either via Microsoft Teams or by telephone, depending on participant preference. Tenants chose whether to take part in an interview or a focus group, and all participants received a £10 voucher as a thank you for their time. Interest in taking part and preferences for the format of participation were gathered through expression of interest forms distributed by social landlords, which were also linked at the end of the two surveys. No sampling was carried out, and all tenants who expressed interest in participating were invited to do so. Interviews lasted around 30 minutes, while focus groups lasted up to 60 minutes. As with the surveys, each engagement focused on either WHQS 2023 or ORP. Between June and October 2025, 45 tenants participated in interviews or focus groups related to WHQS 2023; only 4 interviews were conducted specifically for ORP.

Tenant engagement limitations

A number of limitations should be acknowledged when interpreting the findings from the tenant surveys. The main challenge in engaging social housing tenants was that the research team did not hold direct contact details and therefore relied on social landlords to distribute the surveys on their behalf. The team undertook a range of activities to maximise participation, including maintaining regular communication with landlords, providing promotional materials, attending Community of Practice events, holding information sessions, and supporting wider promotion through a Welsh Government social media post. However, as the consistency of distribution by social landlords is unknown, and considering that interviews were not secured with 25% of local authorities and 40% of RSLs, as well as the uneven geographical spread of responses (see below), it is likely that overall reach remained limited. In addition to this, for tenants who were reached but chose not to participate, the absence of an incentive for completing the survey (unlike the interview) and having competing personal priorities may also have contributed to lower engagement levels.

In total, the WHQS 2023 survey received 1,285 responses, and the ORP survey received 274 responses. Although these figures provide useful insight, they represent only a very small fraction of the estimated 245,000 social homes in Wales. Additionally, it is not currently possible to determine the total number of tenants who have received retrofit work under the ORP, as a centralised record of all participating homes is not maintained. As such, the findings should be interpreted with caution, as they reflect a limited proportion of the tenant population.

Geographical spread also presents a significant limitation. With 22 local authorities across Wales, the intention was to achieve a reasonably balanced distribution of responses. However, this was not realised in practice. WHQS 2023 survey responses were heavily concentrated in Newport (37%) and Pembrokeshire (19%), with limited representation from many other areas and no responses from tenants in the Isle of Anglesey or Gwynedd. A similar pattern was observed for the ORP survey, where responses were concentrated in Neath Port Talbot (15%), Wrexham (14%), and Merthyr Tydfil (12%).

The demographic profile of respondents also shapes the findings. Both surveys were completed predominantly by female participants (70% WHQS; 72% ORP), with most respondents identifying as white (93% WHQS; 95% ORP). A high proportion of respondents reported a disability (66% WHQS; 67% ORP). Compared to the wider population of social housing tenants in Wales, where 54% are women and 46% are men, 94.8% identify as white, and 34% report a disability, these samples include a higher proportion of female and disabled respondents but a similar proportion of white respondents (Welsh Government, 2023). As the sample is not representative of the social housing tenant population in Wales, the findings from this research may not fully reflect the views and experiences of this population. For a more detailed display of respondent characteristics, please refer to Annex A.

Participation in tenant interviews and focus groups faced similar challenges. Most tenants were recruited through the survey sign-up process, making engagement largely dependent on survey completion. Additional efforts, such as distributing flyers with QR codes to allow tenants to register interest directly, were largely ineffective. Overall, the total number of interviews and focus groups was limited, with very low participation among ORP tenants (4 participants in total) and most WHQS 2023 interviews conducted during the final 2 weeks of fieldwork. It is not possible to provide a demographic profile of interviewees, as no personal information was collected at sign-up to protect participants' privacy.

Social landlord engagement

Social landlords were engaged through a survey and interviews. Unlike tenants, they were familiar with both WHQS 2023 and ORP, therefore engagement was carried out simultaneously where possible to avoid participation fatigue.

Engagement with social landlords aimed to explore their awareness, experiences, and perspectives on WHQS 2023 and ORP. This included their understanding of the requirements, the adequacy of available guidance and support, challenges in meeting standards, approaches to compliance and eligibility assessments, and perceived outcomes, such as progress, practicality, and impact. While the surveys captured broad feedback from a wide range of social landlords, the interviews and focus groups facilitated a more detailed examination of organisational experiences and approaches.

A single survey covering both WHQS 2023 and ORP was developed by the research team and distributed to social landlords by the Welsh Government. The survey was designed to take less than 15 minutes to complete and was hosted on Microsoft Forms. Survey responses were accepted between May and October 2025. A total of 32 responses were received. In some instances, more than a single response was submitted per social landlord as the questions asked were relevant to more than one role within the organisation, given their internal structures. Out of the 45 social landlords in Wales, 27 were contacted successfully, meaning 60% representation was achieved. Responses were received from 8 out of 11 local authorities (73%) and 19 out of 34 (59%) housing associations.[footnote1]

Interviews were semi-structured and conducted remotely via Microsoft Teams. Interest in taking part was gathered through an expression of interest form and from a list of social landlords' contact details supplied by the Welsh Government. Interviews lasted up to 60 minutes and covered either WHQS 2023, ORP, or both. Between May and October 2025, 15 organisations were engaged in total, with 10 discussions held about both programmes, 4 discussions held regarding ORP, and one discussion held regarding WHQS 2023.

Footnotes

[1] Local authorities own roughly 36% of social housing while RSLs own approximately 64%. The size of their housing stock varies greatly as local authority stock size ranges from 3,350 and 14,340 homes and RSL stock size ranges from 50 to 13,000 homes.

Analysis

Descriptive statistics were carried out on the quantitative information gathered through the 3 surveys. All insights from interviews and focus groups were analysed using thematic analysis, which involved identifying main themes within and across the information collated. Both qualitative and quantitative analyses addressed similar topics, such as awareness of the updated Standard, experiences with recent retrofits prompted by the Standard or ORP for tenants, and landlords' experiences transitioning to and meeting the new Standard. The report presents tenants' and landlords' findings thematically and side by side to provide a more complete understanding of the evidence.

To convey how common particular views were among interviewed social landlords, an indicative scale based on proportions is used. This approach was chosen to highlight general patterns without implying statistical precision, which would be misleading given the small sample size following qualitative engagement, the non-random nature of participation, and the fact that non-response cannot reliably be interpreted as disagreement or agreement. In qualitative research, silence may occur for many reasons: participants might feel the question is not relevant to them, they may be uncertain about their answer, or they might simply choose not to contribute at that moment.

This method is only suitable for the landlord group because participants were broadly asked the same or a similar set of questions, making comparisons across the interviews more feasible. Social tenant engagement, however, followed a branched structure: different groups of tenants were asked different questions depending on whether their retrofits were completed, planned, or not taking place. We also collected insights through focus groups, where the level and type of participation varied widely between individuals. Because of these differences, it is difficult to replicate this approach for social tenants' engagement.

The following scale applies to social landlord qualitative engagement:

Scale	Proportion
Individual cases	One individual
A few	≥30% of social landlords providing feedback on that particular topic
Some	31-40% of social landlords providing feedback on that particular topic

Many	41-50% of social landlords providing feedback on that particular topic
The majority	51-69% of social landlords providing feedback on that particular topic
The vast majority	70%+ of social landlords providing feedback on that particular topic
All	100% of social landlords providing feedback on that particular topic

2.2.3 VfM analysis of ORP 3

A Social CBA was conducted to assess the VfM of the ORP 3, following HM Treasury's Green Book (2022) guidance. A social CBA is a structured method used to compare the full range of social, economic, and environmental costs and benefits of an intervention in monetary terms. In this evaluation, the CBA is used as one of the analytical tools to assess the programme's overall impact and to quantify its net social value. VfM, the overarching focus of the analysis, considers whether the programme generates sufficient social benefits relative to its costs and whether resources have been used effectively. The CBA therefore provides key quantitative evidence that feeds into the wider VfM assessment, but VfM also draws on broader qualitative findings and contextual analysis beyond the monetised results.

The current analysis monetised the main socioeconomic costs and benefits arising from the programme, comparing them against counterfactual 'business-as-usual' scenarios in which the programme did not take place. Further details on the analytical assumptions, baseline construction, and parameter values for each benefit stream are provided in Annex B.

Scope and packages analysed

The original intention was to conduct the CBA both at the overall programme level (comparing the total costs and benefits of ORP 3) and at the individual retrofit package level. ORP 3 included the following retrofit package types:

- Package 1: monitoring only ('Low-hanging fruit' measures) – monitoring, light bulbs, loft insulation, heating controls
- Package 2: PV and battery only – PV, battery, PV and battery

- Package 3: heating systems change only – focus on changing or upgrading electrical heating systems without fabric measures: heat pump, hybrid heat pump, high heat retention storage heater, infrared panels
- Package 4: fabric only – focus on improving the building envelope through insulation and related works: External Wall Insulation (EWI), Cavity Wall Insulation (CWI), Internal Wall Insulation (IWI), new roof, loft insulation
- Package 5: complex multiple set of measures – combined package of both fabric and systems retrofit: EWI, CWI, IWI, loft insulation, floor insulation, ventilation improvements, new windows and doors, Mechanical Ventilation with Heat Recovery (MVHR), PV, battery
- Package 6: complex multiple set of measures & electrification of heat – deep retrofit combining full fabric and systems upgrades with low-carbon heating: EWI, CWI, IWI, loft insulation, floor insulation, ventilation improvements, new windows and doors, MVHR, PV, battery, electrification of heat through heat pump, infrared heating, high heat retention storage heaters

Due to data availability, the CBA focused on 2 packages:

- Package 2: PV and battery systems
- Package 4: fabric-first measures
- combined Packages 2 and 4

A user-friendly, Excel-based CBA framework was developed to accompany this analysis and will be shared with the Welsh Government. The tool enables main parameters (e.g., costs, monitoring data, or survey results) to be updated as new evidence becomes available, supporting future CBAs of individual retrofit packages and, ultimately, a full programme-level appraisal.

Timeframe and discounting

Following standard practice, the costs and benefits of the programme were analysed over a 30-year period, starting in 2022 to 2023 (Year 1 of ORP 3) and ending in 2051 to 2052 (Year 30). This timeframe aligns with typical CBA standards for long-term infrastructure and policy evaluations, ensuring that both short-term and long-term impacts are captured (HM Treasury's Green Book, 2022).

Future costs and benefits are expressed in real terms, meaning inflation has been removed so that values are comparable over time. Future costs and benefits in 2022 to 2023 real terms were discounted to determine their present value, accounting for the time VfM (i.e., the preference for receiving benefits now rather than in the future). A social discount rate of 3.5% was applied, as outlined in the HM Treasury's Green Book (2022). A social discount rate reflects the principle that people generally prefer to receive benefits sooner rather than later, and that future costs and benefits are valued slightly less than those occurring today. Discounting, therefore, enables all future impacts to be expressed in today's terms, allowing a fair and consistent comparison of costs and benefits over time.

The model aggregated discounted costs and benefits to calculate:

- Net Present Value (NPV): the difference between the present value of benefits and the present value of costs
- Benefit Cost Ratio (BCR): the ratio of the present value of benefits to the present value of costs

Counterfactual scenarios

An important feature of the CBA methodology is that costs and benefits should be compared to a counterfactual or "business-as-usual" scenario – the situation where the intervention does not occur, i.e., the ORP 3 is not implemented. This is a critical assumption in any CBA because no one can observe alternative realities; the counterfactual represents our best estimate of what would have happened in the absence of the programme. The choice of counterfactual can therefore have a substantial effect on the results.

Two counterfactual scenarios were defined:

1. static counterfactual
    - no intervention - this conservative baseline assumes the retrofit measures delivered under ORP 3 would not otherwise occur
    - under this scenario, current housing conditions are assumed to remain unchanged, with no associated improvements in health, wellbeing, or environmental outcomes
2. delayed rollout scenario
    - gradual policy-driven retrofit - this counterfactual assumes that retrofit improvements similar to ORP 3 would eventually be implemented, but at a slower and more staggered pace due to current policy frameworks, no dedicated funding (as under ORP 3), and market dynamics

- retrofit activity is assumed to commence in Year 3, progressing at 5% of ORP 3's total retrofit volume per year, with completion by Year 23
- under this assumption, both costs and benefits accrue gradually over time
- discounting reduces the present value of delayed benefits, particularly for early energy and health gains

Costs

The cost component of the CBA included the capital and installation costs associated with the retrofit measures, based on data provided by the Welsh Government. The Welsh Government supplied all available cost information for Packages 2 and 4. However, cost data was only available for a small subset of retrofitted houses. To estimate total Package costs, an average cost per property was calculated for each package and applied to the total number of homes treated. This introduces an assumption that may not fully capture local variation in costs, including differences related to property types or area characteristics.

In line with standard CBA practice, costs were allocated according to the year in which they were incurred, reflecting the timing of activity across ORP 3.1 (2022 to 2023), ORP 3.2 (2023 to 2024), and ORP 3.3 (2024 to 2025).

Benefits

The CBA captures the main socioeconomic benefits arising from ORP 3, including household energy savings, carbon emission reductions, improved health and wellbeing, and reduced healthcare costs. These benefits were modelled using a combination of monitoring data, survey evidence, and published literature, with all estimates benchmarked against counterfactual "no intervention" and "delayed rollout" scenarios.

Energy savings

Retrofit measures under ORP 3 lead to energy savings because households use fewer energy resources after the works. This reduction in energy use is the core source of social welfare gain.

These savings are measured as follows. Due to the retrofits, there are reductions in household energy use, and these reductions translate into lower energy bills, which increase disposable income for tenants and contribute to improved comfort and overall welfare. At the same time, energy providers do experience reduced revenues. It is true that each £1 of household energy savings corresponds to £1 of lost revenue for energy companies. However, while the £1 saving to households is a clear welfare gain, only the portion of the companies' £1 loss that corresponds to profits represents a welfare loss. The remainder reflects reduced use of resources and does not constitute a loss of social welfare. To ensure that net welfare effects are captured correctly, the analysis deducts the lost profits and any relevant production taxes associated with reduced energy sales, as these are transfer payments between firms and government, and when sales fail, the government loses this revenue.

Energy savings were estimated using data provided by xRI, which analysed post-retrofit monitoring data from ORP 3 properties. This monitoring data was collected through in-home sensors installed as part of the programme. The resulting estimates provided average annual energy savings per home for each retrofit package, which formed the basis of the monetised energy benefit calculations in the CBA.

To determine the welfare-relevant share of bill savings, we drew on the Input–Output Supply and Use Tables. For the electricity sector, producer surplus (gross operating surplus plus net production taxes) accounts for 19% of total output. For the gas sector, the equivalent figure is 12%. Taking an average across both fuels provides a reasonable estimate that 15% of each £1 of reduced household energy bills corresponds to lost producer surplus. This 15% is deducted from gross bill savings to reflect the welfare loss to producers. The remaining 85% represents genuine net social welfare, capturing the value of reduced resource use due to lower energy demand. This treatment is fully consistent with HM Treasury Green Book guidance on identifying real economic impacts rather than transfers.

The analysis also reflects how these benefits evolve over time. Some technologies – such as PVs and batteries (Package 2) experience gradual efficiency losses as they age. To capture this, a modest performance degradation rate was applied, based on published evidence and technical input from the Welsh Government. This assumes that energy savings are the highest immediately after installation and decline slowly each year, consistent with observed system performance over time. In contrast, fabric-first improvements, such as external wall insulation (Package 4), are expected to maintain their effectiveness for much longer, as they become part of the building's structure and are not subject to the same mechanical wear or degradation. Accordingly, no performance depreciation was applied to these measures in the central case.

Carbon emission reductions

Reduced energy use leads directly to lower greenhouse gas emissions. These avoided emissions were estimated using xRI data on reductions in CO_2. The resulting carbon savings were valued using the Department for Energy Savings and Net Zero (2024) central carbon price schedule, which assigns a monetary value to each tonne of carbon avoided.

Assumptions on the persistence of these benefits mirrored those applied for energy savings: gradual degradation for technology-based measures and stable performance for fabric-first retrofits. This ensures a consistent and realistic representation of long-term environmental impacts.

Health improvements

Improved housing conditions can lead to better physical health by reducing exposure to cold and damp. Data from the ORP 3 tenant survey provided the basis for estimating health gains.

Survey respondents were asked to identify the retrofit measures they knew had been installed in their homes. Using this information and predefined filtering rules, respondents were classified into the relevant retrofit packages. Of the 274 tenants who completed the survey, 32.5% (N=89) were classified as receiving Package 2 measures and 7.3% (N=20) as receiving Package 4 measures. A total of 126 respondents did not answer the retrofit awareness questions and were therefore excluded from package-specific health analysis.

Respondents also reported their physical health before and after the retrofit using a 5-point self-rated scale. For Package 2, 86 respondents provided both pre- and post-retrofit health ratings: 9 reported an improvement, 71 reported no change, and 6 reported a deterioration. Among those reporting an improvement, the average change was an increase of 1 point on the 5-point scale. Among those reporting a deterioration, the average decline was 0.5 points (Note: Although individual respondents could not report fractional changes, this reflects an average across multiple individuals). Overall, the magnitude of reported improvement exceeded that of deterioration.

For Package 4, 19 respondents provided pre- and post-ratings: 4 reported improvement, 15 reported no change, and none reported deterioration.

For respondents who provided both pre- and post-retrofit health scores, these self-rated changes were mapped to EQ-5D utility values – a standard health economics measure of quality of life. Details of the mapping method are provided in Annex B. Average pre- and post-retrofit utility values were then estimated, and the difference between them was used to calculate Quality-Adjusted Life Years (QALYs); further detail is provided in Annex B.

A key limitation relates to the number of survey responses per package. For Package 4, with 19 responses, the sample size is below what is typically considered sufficient for statistical robustness (rule of thumb: N=30). As a result, observed differences between pre- and post-retrofit health outcomes may not be statistically significant. However, these estimates represent the best available evidence on health impacts for ORP 3 households.

Another limitation relates to the representativeness of the survey sample. While responses were received across a range of areas, the characteristics of respondents (including age, income, and household composition) may not fully reflect all ORP 3 households. This is particularly relevant for health outcomes, where underlying health status can vary considerably.

Weighting the survey data by rural/urban location was considered. However, weighting by rural/urban split alone would only correct for geography and would not improve representativeness for other unobserved factors (e.g., socioeconomic status, severity of need, or dwelling characteristics). Moreover, in the absence of strong evidence that retrofit impacts differ systematically between rural and urban settings – which is not indicated by the available evidence – applying such weighting could add complexity without materially improving accuracy.

Available evidence instead suggests a high degree of consistency in baseline social housing conditions across Wales. The WHQS sets mandatory quality requirements for all social housing in Wales, requiring landlords to maintain homes ‘in good condition’ regardless of location, thereby promoting consistency in baseline housing conditions across urban and rural areas (Welsh Government, 2019). In addition, official dwelling stock statistics show that social rented housing is present across all local authority areas and that social housing stock has increased broadly across Wales in recent years, with no evidence of systematic rural–urban divergence in tenure distribution or stock composition (Welsh Government, 2025).

Occupancy assumptions

Estimating total health benefits requires an assumption about the number of individuals living in each retrofitted home. As no household-level occupancy data were available within the ORP 3 datasets, 2021 Census data was used to derive an average occupancy rate for social rented housing in Wales (2.20 persons per home). This introduces uncertainty: actual household sizes for ORP 3 recipients may differ from the national social rental average. However, in the absence of property-level occupancy data, this assumption provides a reasonable and evidence-based approximation.

Monetising health impacts

Health improvements were expressed as Quality-Adjusted Life Years (QALYs), combining changes in health quality and duration. Each additional QALY was monetised at £70,000 (2020 to 2021 prices), consistent with HM Treasury's Green Book (2022) guidance. Health effects were assumed to persist for 5 years in the base case, with alternative durations (10 and 20 years) tested through sensitivity analysis.

Healthcare cost savings

In addition to improving individual wellbeing, better home conditions can reduce the burden on the healthcare system. Warmer and drier homes lower the prevalence of respiratory and cardiovascular conditions associated with cold and damp environments. The analysis applied evidence from the joint report The Full Cost of Poor Housing in Wales (Nicol et al. (2019) on the NHS treatment costs of housing-related hazards to estimate the potential healthcare savings generated by ORP 3.

The scale of these savings was derived from the observed reduction in reported dampness and improved thermal comfort from tenant surveys, restricted to respondents who were classified as having received Packages 2 or 4 measures, respectively. These observed changes were applied to the relevant NHS unit costs to estimate potential healthcare savings attributable to ORP 3. These annual savings were then aggregated and discounted to present value, aligning with the time horizon used for QALY-based benefits.

Wellbeing impacts

Retrofit interventions can also improve tenants' subjective wellbeing, through increased comfort, reduced stress, and enhanced energy security. Wellbeing impacts were assessed using data from the ORP 3 tenant survey, which included the Office for National Statistics (ONS-4) wellbeing questions on life satisfaction, happiness, sense of worth, and anxiety (ONS, 2025). Analysis was restricted to respondents who were classified as having received Packages 2 or 4 retrofit measures, respectively.

Changes in average wellbeing scores were expressed as Wellbeing-Adjusted Life Years (WELLBYs), following HM Treasury's supplementary Green Book guidance on wellbeing valuation. WELLBYs quantify improvements in life satisfaction on a consistent 0–10 scale and can be monetised using standard conversion rates.

To avoid double-counting with health-related QALY effects, WELLBY-based valuations were presented as a sensitivity case, illustrating the wider social value of ORP 3 beyond health and environmental outcomes.

Wider qualitative benefits

A number of additional benefits, while not monetised, were identified through stakeholder interviews and secondary evidence. These include improved tenant-landlord relationships, enhanced tenant engagement in energy management, local employment and skills development opportunities, and distributional impacts supporting low-income households. Although these effects fall outside the quantified CBA, they provide important qualitative evidence of the broader social and economic value created by ORP 3.

Sensitivity analysis

To test the robustness of the CBA results, a series of sensitivity analyses was undertaken to explore how variations in main assumptions affect the findings. These tests are intended to show how sensitive the results are to uncertainty in the evidence base and to help readers understand which assumptions matter most for VfM conclusions.

Robustness tests included variations in the assumed duration of health impacts, comparing the 5-year base case with extended 10-year and 20-year time horizons. Testing longer durations illustrates how results change depending on how long health improvements are assumed to persist. If benefits last significantly longer than the conservative base case, the health-related value increases accordingly; if they fade sooner, the overall benefit is reduced. This helps to contextualise uncertainty around the longevity of health effects associated with housing improvements.

A further set of tests examined the way health improvements were converted into QALYs. In the core analysis, the EQ-5D-5L method was used, as it aligns closely with the 5-point health scale used in the ORP 3 tenant survey. For sensitivity testing, these self-reported health outcomes were also converted using the EQ-5D-3L method. This approach places households into broader 3-level health categories, resulting in more conservative (i.e., lower) estimated QALY gains. Including this comparison allows non-experts to see how different ways of translating survey health scores into QALY values can influence results, while still showing that the programme offers VfM under both approaches.

Separately, we tested the inclusion of WELLBYs alongside QALYs. WELLBYs convert changes in subjective wellbeing (measured from the ONS-4 questions) into a common unit and a monetary value; because wellbeing overlaps with physical health, WELLBYs were not included in the core CBA, but were added in sensitivity analysis to illustrate the wider social value beyond health alone. Including WELLBYs demonstrates how capturing a broader definition of wellbeing could increase the estimated social value of the programme. This provides readers with a sense of the additional benefits that may not be fully reflected in health metrics alone.

Finally, results were compared under both counterfactuals – the static “no intervention” scenario and the delayed rollout scenario, in which retrofit activity progresses more gradually over a 20-year period. This comparison shows how assumptions about what would have happened without ORP 3 affect the results: the static counterfactual attributes all observed benefits to the programme, while the delayed rollout counterfactual assumes similar improvements occur later and more slowly. Testing both scenarios helps demonstrate that the programme delivers positive VfM even when assuming a more conservative and policy-driven baseline.

3. Theories of Change

3.1 About the Theory of Change framework

A ToC framework demonstrates how a policy, intervention, or programme leads to change. It outlines how invested resources (inputs) and activities result in immediate products (outputs), which in turn are able to achieve policy objectives (outcomes and impacts). In this analysis, both ToCs demonstrate how the goals of each initiative can be achieved and how change can be created. These ToC frameworks are central to the evaluation methodology, providing the programme theories that underpin this theory-based evaluation, informed by realist evaluation principles. Besides serving as an important tool for the WHQS 2023 and ORP impacts, they also serve as a valuable resource for social landlords, guiding them to achieve the goal of meeting each programme's requirements.

3.2 The Welsh Housing Quality Standard 2023 ToC

3.2.1 Inputs, activities, & outputs

In the WHQS 2023 ToC, the **input** represents the framework of the Standard. From this framework, a series of **activities** must be undertaken by social landlords in a specific chronological order to ensure compliance with the Standard.

Requirements until March 31st, 2025:

By this date, social landlords must:

- conduct WSAs to determine the current stage of the housing stock and areas that need improvement
- develop a compliance policy and submit it to the Welsh Government – the policy must then be reviewed annually
- revise their business plan to align with the new Standard, while assessing their investment needs
- include a tenant engagement plan

Requirements until May 16th, 2025:

By this date, social landlords must:

- provide the first annual statistical return to demonstrate the progress made in meeting the Standard

Requirements until March 31st, 2027:

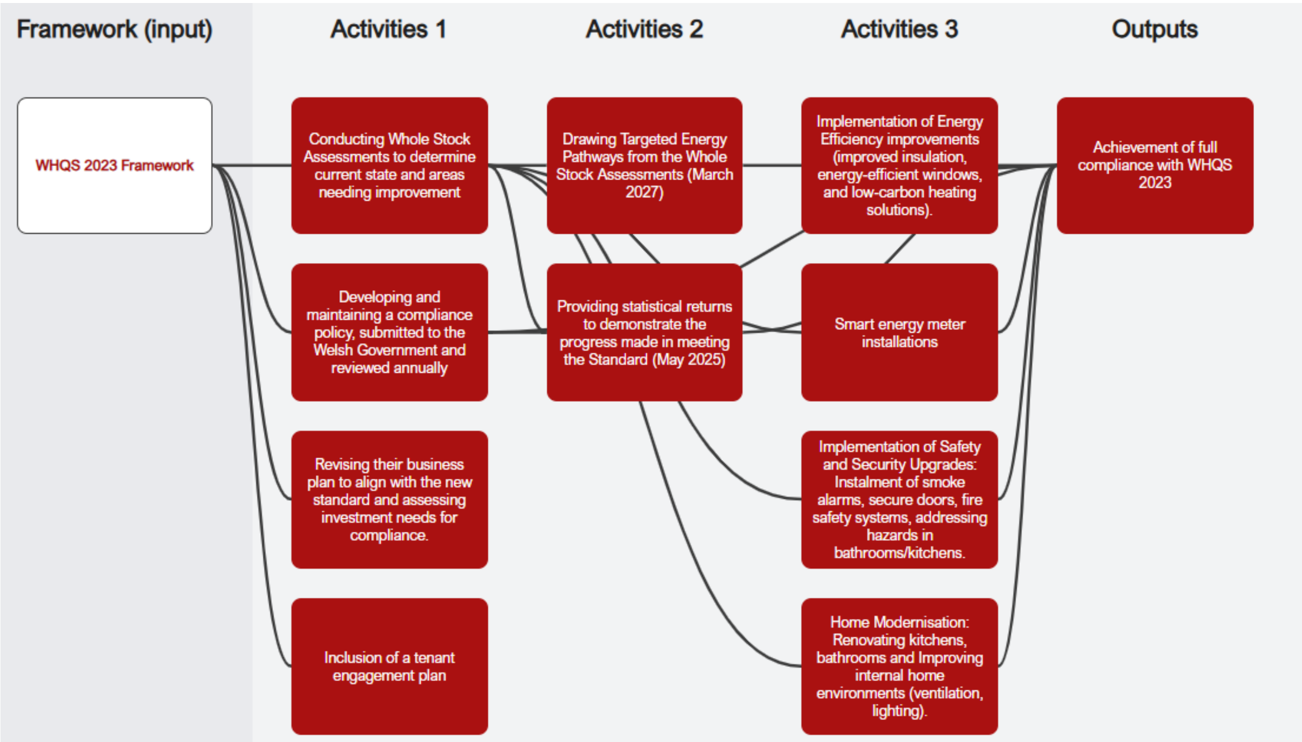
By this date, social landlords must:

- draw TEPs for each property within their housing stock, to demonstrate how they will meet the energy efficiency requirements

Following WSAs and TEPs, social landlords shall proceed with implementing the necessary works to meet the Standard, which includes (i) energy efficiency improvements, (ii) smart energy meter installations, (iii) safety and security upgrades, (iv) modernisation of internal and external spaces and improvement of internal home environments.

The **output** is the full achievement of compliance with WHQS 2023, ensuring that all required housing improvements are completed, energy efficiency standards are met, and living conditions are enhanced across the social housing stock.

Figure 1: WHQS 2023 ToC: Inputs, Activities, and Outputs



Description of Figure 1: Figure showing the Theory of Change for the WHQS 2023 framework. The diagram illustrates the relationship between inputs, activities, and outputs. It begins with inputs, such as conducting WSAs, drawing TEPs, and implementing energy efficiency improvements. These feed into the framework's activities, leading to the main output — achievement of full compliance with WHQS 2023.

3.2.2 Outcomes

The intermediate outcomes of full compliance with WHQS 2023 across all social housing stock were categorised thematically based on the locus of the anticipated benefits:

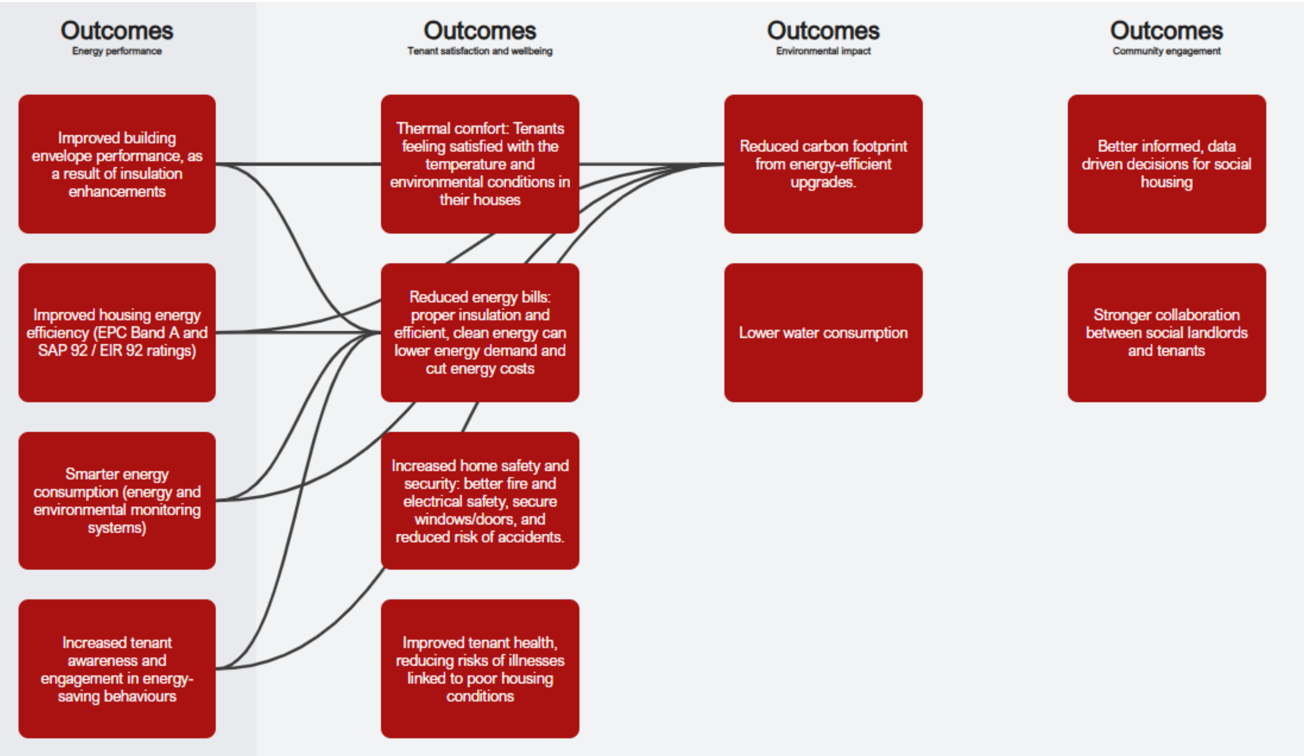
Energy performance outcomes: Improved building envelope performance, as a result of insulation enhancements; Improved housing energy efficiency (EPC Band A and SAP 92 / EIR 92 ratings); Smarter energy consumption, including energy and environmental monitoring systems; Increased tenant awareness and engagement in energy-saving behaviours.

Tenant satisfaction and wellbeing outcomes: Increased home safety and security: better fire and electrical safety, secure windows/doors, and reduced risk of accidents; Thermal comfort: Tenants feeling satisfied with the temperature and environmental conditions in their houses; Reduced Energy Bills: Proper insulation and efficient, clean energy can lower energy demand and cut energy costs; Improved tenant health, reducing risks of illnesses linked to poor housing conditions.

Minimal environmental impact outcomes: Lower water consumption; Reduced carbon footprint from energy-efficient upgrades.

Community engagement outcomes: Stronger collaboration between social landlords and tenants; Better-informed, data-driven decisions for social housing.

Figure 2: WHQS 2023 ToC: Outcomes



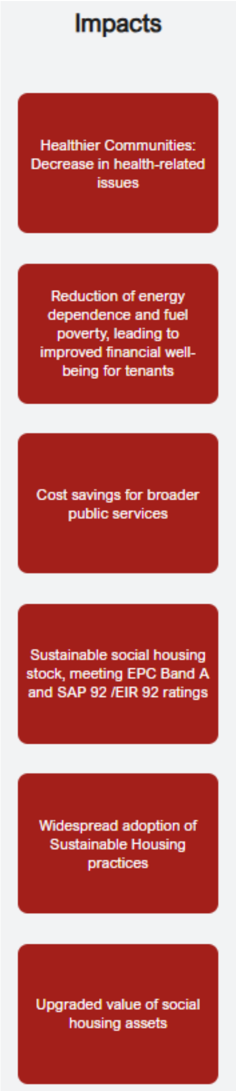
Description of Figure 2: Figure showing the outcomes of the Theory of Change for the WHQS 2023 framework. The diagram presents 4 categories of outcomes: energy performance, tenant satisfaction and wellbeing, environmental impact, and community engagement.

3.2.3 Impacts

Benefits from the aforementioned outcomes on their side lead to long-term impacts, supporting the WHQS 2023 vision: Social Housing in Wales meeting the highest standards of safety, comfort, and energy efficiency, while having minimal environmental impact.

Impacts: Sustainable social housing stock, meeting EPC Band A and SAP 92 /EIR 92 ratings; Reduction of energy dependence and fuel poverty, leading to improved financial well-being for tenants; Healthier Communities: Decrease in health-related issues; Upgraded value of social housing assets; Cost savings for broader public services; Widespread adoption of Sustainable Housing practices.

Figure 3: WHQS 2023 ToC: Impacts



Description of Figure 3: Figure showing the impacts of the ToC for the WHQS 2023 framework. The diagram highlights the broader, long-term impacts resulting from implementation, including healthier communities, reduced energy dependence and fuel poverty, and cost savings for wider public services. It shows how these impacts build on the earlier outcomes, forming the final stage in the framework’s ToC.

3.3 The Optimised Retrofit Programme ToC

3.3.1 Inputs, activities, & outputs

In the ORP ToC, the **input** refers to the funding available for social landlords to improve energy efficiency in homes. To successfully claim the ORP funding, social landlords must comply with a set of requirements. Once funding is secured, they must then carry out specific improvement works within their properties to fulfil these commitments. These required actions constitute the **activities**.

More specifically:

Activities for Receiving ORP 3:

To receive the ORP 3 fund, social landlords must:

- complete an application form, including the work details and the cost breakdown
- agree to ORP 3 retrofit and monitoring requirements
- agree to ORP 3 reporting duties

Activities after receiving ORP 3:

After receiving the ORP 3 fund, social landlords must:

- implement the housing energy efficiency improvements
- install environmental and energy monitoring sensors
- install Intelligent Energy Systems (not mandatory)

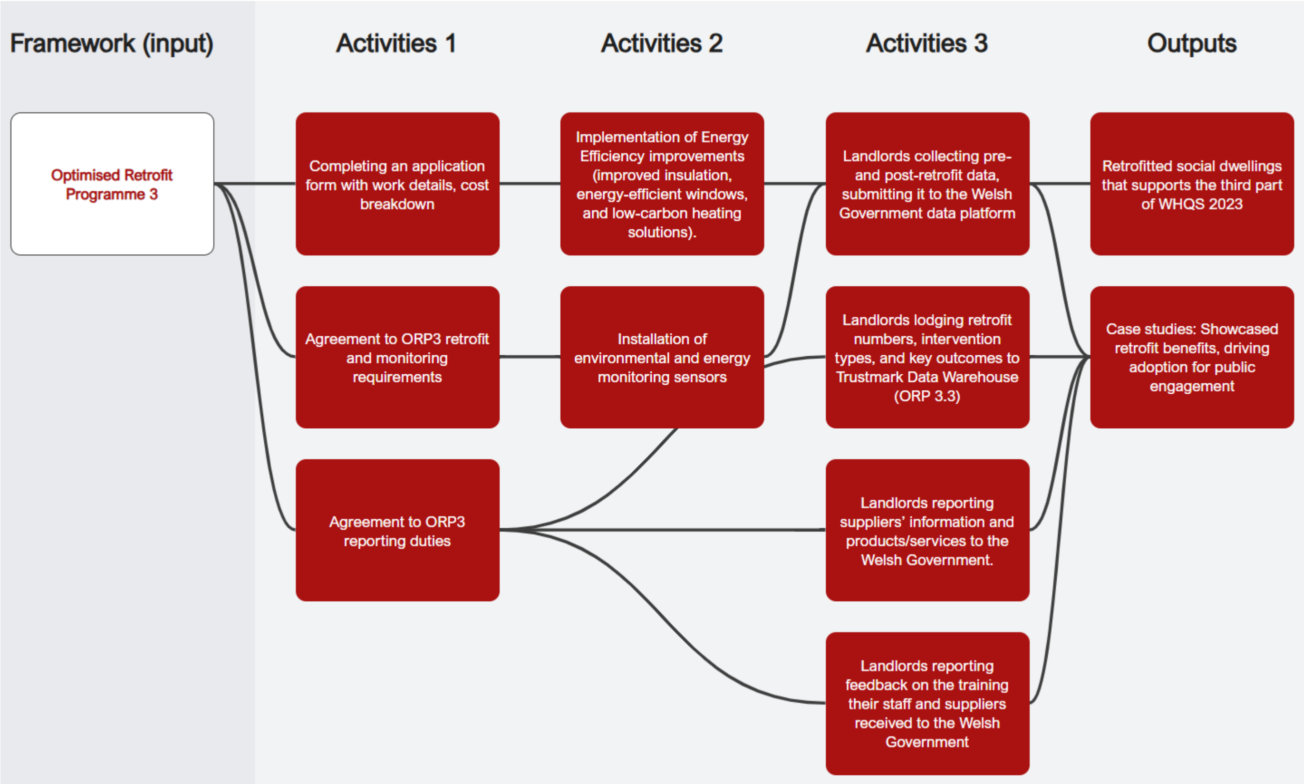
Activities for programme completion:

To complete the ORP 3 works successfully, social landlords must:

- lodge retrofit numbers, intervention types, and main outcomes to the Trustmark Data Warehouse (since ORP 3.3)
- submit pre- and post-retrofit data to the Welsh Government platform
- report their suppliers' information to the Welsh Government
- report feedback on training their staff and suppliers

The **outputs** of completing ORP 3 works successfully are twofold: retrofitted social dwellings that support Part 3 of WHQS 2023, and case studies that showcase the benefits of retrofitting, helping drive adoption and public engagement.

Figure 4: ORP ToC: Inputs, Activities, and Outputs



Description of Figure 4: Figure showing the ToC for the ORP. The diagram illustrates the flow from inputs through activities to outputs. Inputs include completing application forms, installing environmental and energy monitoring sensors, and implementing energy-efficiency improvements. These actions lead to outputs such as retrofitted social dwellings and the showcasing of retrofit benefits to drive wider public engagement and uptake.

3.3.2 Outcomes

The intermediate outcomes of full ORP 3 in all social dwellings were categorised thematically based on the wider areas in which improvements or advantages were anticipated.

Energy performance outcomes: Improved building envelope performance, as a result of insulation enhancements; Improved housing energy efficiency (EPC Band A and SAP 92 / EIR 92 ratings); Smarter energy consumption, including energy and environmental monitoring systems; Improved indoor environmental quality: Improved humidity, moisture levels, allergen control; Increased tenant awareness and engagement in energy-saving behaviours.

Tenant satisfaction and wellbeing outcomes: Thermal comfort: Tenants feeling satisfied with the temperature and environmental conditions in their houses; Reduced Energy Bills:

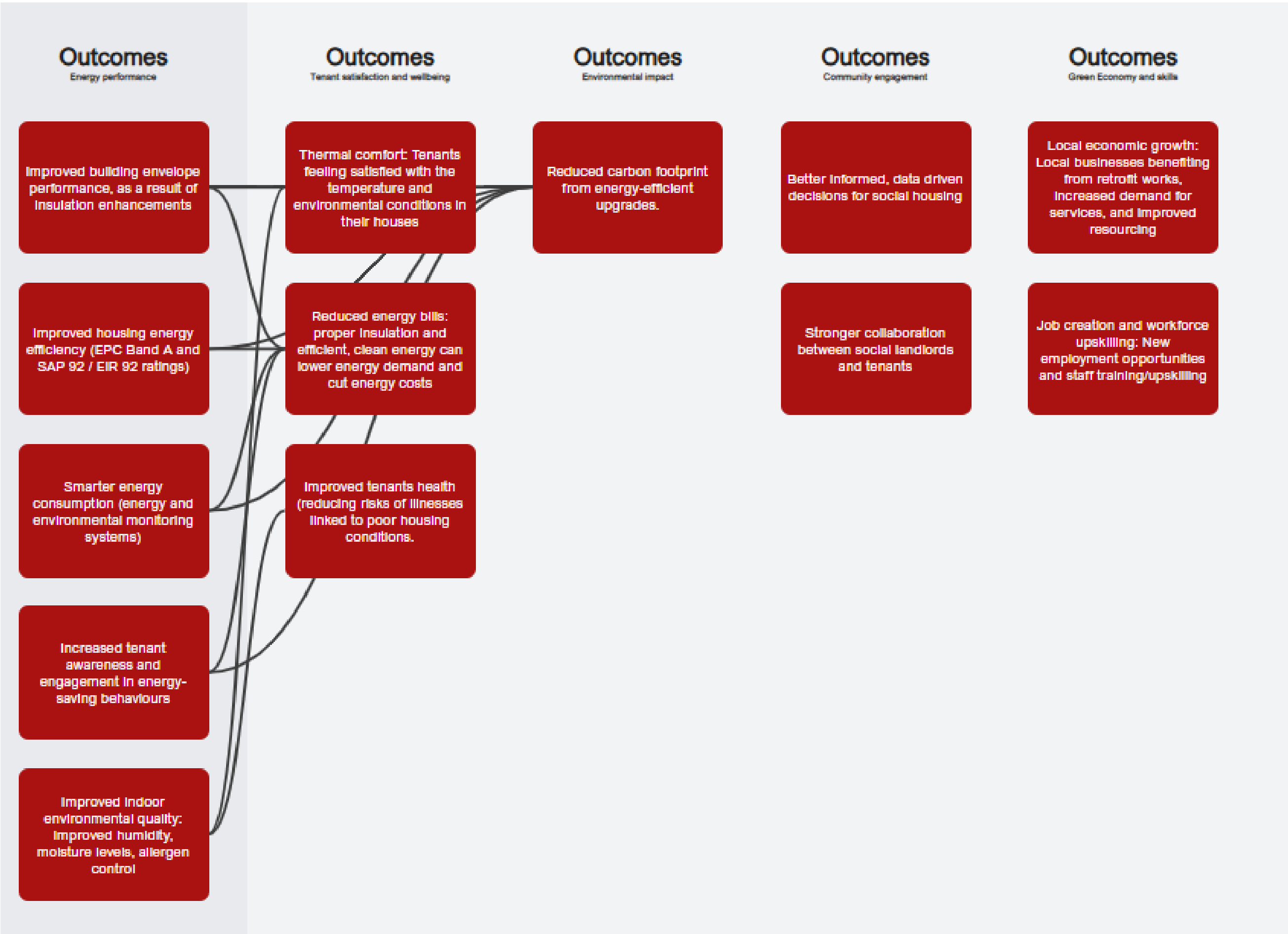
Proper insulation and efficient, clean energy can lower energy demand and cut energy costs; Improved tenant health, reducing risks of illnesses linked to poor housing conditions.

Minimal environmental impact outcomes: Reduced carbon footprint from energy-efficient upgrades.

Community engagement outcomes: Stronger collaboration between social landlords and tenants; Better-informed, data-driven decisions for social housing.

Green economy and skills outcomes: Local economic growth: Local businesses benefiting from retrofit works, increased demand for services, and improved resourcing; Job creation and workforce upskilling: New employment opportunities and staff training/upskilling.

Figure 5: ORP ToC: Outcomes



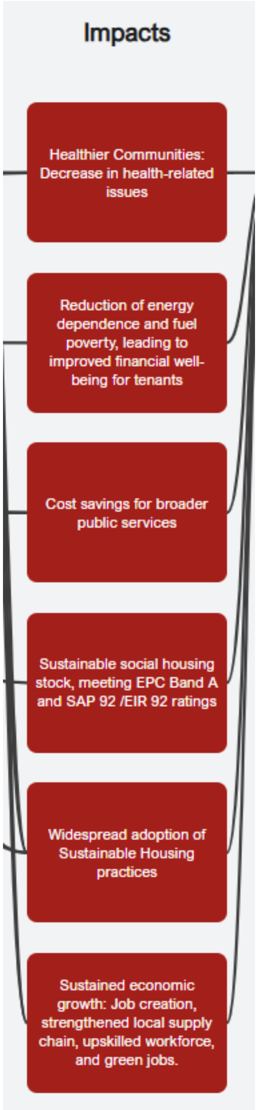
Description of Figure 5: Figure showing the outcomes of the ToC for the ORP. The diagram groups outcomes into 5 categories: energy performance, tenant satisfaction and wellbeing, environmental impact, community engagement, and green economy and skills. Each category represents the key areas of improvement expected from the programme's activities and outputs, with visual links indicating how these outcomes collectively contribute to the programme's overall objectives.

3.3.3 Impacts

Benefits from the aforementioned outcomes on their side lead to the long-term impacts, supporting the ORP vision: Delivering energy-efficient, low-carbon homes through innovative retrofitting, while supporting a sustainable future for communities.

Impacts: Sustainable social housing stock, meeting EPC Band A and SAP 92 / EIR 92 ratings; Reduction of energy dependence and fuel poverty, leading to improved financial wellbeing for tenants; Healthier Communities: Decrease in health-related issues; Sustained economic growth: Job creation, strengthened local supply chain, upskilled workforce, and green jobs; Cost savings for broader public services; Widespread adoption of Sustainable Housing practices.

Figure 6: ORP ToC: Impacts



Description of Figure 6: Figure showing the impacts of the ToC for the ORP. The diagram illustrates the wider, long-term impacts arising from programme implementation, including healthier communities, reduced energy dependence, and cost savings for broader public services. It shows how these impacts stem from earlier outcomes in the framework, representing the final stage of the ORP's ToC.

4. Findings

4.1 WHQS 2023

Social landlords reflected on their understanding of the WHQS 2023 and the capacity within their organisations to implement it. They discussed the challenges faced, their early experiences with the transition, initial assessments of their stock, the development of compliance policies, and plans for implementation, as well as their experiences engaging with tenants.

Tenants discussed their awareness of WHQS 2023 and their perspectives on the quality of their homes. They also reflected on the changes already made and those planned for their properties under WHQS 2023. Tenants who were unaware of future plans discussed instead how they would desire to improve the quality of their homes.

4.1.1 Awareness and understanding among social landlords

Relevant WHQS 2023 objectives:
Objective 2: To understand landlords' experiences of meeting WHQS 2023

Relevant RQs: RQ1 – Awareness of the Standard and clarity of guidance; RQ3 – Experiences of implementation, including which aspects are easier or harder to meet; RQ4 – Views on component categories and interpretation of requirements; RQ5 – Experiences with WHQS data-reporting requirements; RQ6 – Whether landlords have sufficient skills, capacity, and networks to implement the Standard.

Detailed summary of findings:

- **High levels of awareness and understanding:** All social landlord respondents reported being at least moderately familiar with WHQS 2023, with the majority of them describing their understanding as comprehensive (RQ1).
- **Understanding strengthened through early engagement:** Early involvement in developing the Standard and continued dialogue with the Welsh Government supported clarity and shared interpretation of requirements (RQ1).
- **Early identification of implementation challenges:** Meeting Part 3 of the updated Standard was consistently identified as the most challenging element, particularly for older, gas-heated stock, directly addressing (RQ3).

Understanding the Standard's requirements

When social landlords were asked about their levels of understanding of WHQS 2023 in the survey, all respondents reported either being very familiar (28 out of 32, representing 88%) with the Standard or moderately familiar (12%). None of the respondents stated that they were unfamiliar with WHQS 2023 or chose not to answer the question. Furthermore, between 84% and 100% stated being very informed or somewhat informed about each of the specific requirements.

The high levels of awareness of the new Standard were also reflected in our interview findings, with all social landlords reporting having a good understanding of the WHQS 2023. When asked how comprehensive their understanding of the new Standard is, the vast majority of social landlords described it as very comprehensive, particularly those directly responsible for complying with the updated Standard's requirements. For the vast majority, early involvement in developing the Standard was beneficial, helping to clarify its requirements and encourage a shared understanding of its purpose. In addition, some social landlords noted that continued communication with the Welsh Government supported their ongoing understanding and implementation of the Standard.

> "We have spent quite a lot of time going through every element of WHQS, and we've also been back and forth with Welsh Government to just confirm that what we believe is the interpretation of WHQS is right. We've done an awful lot of work in the last six months on WHQS." (Landlord)

Some social landlords interviewed also noted that the expertise and understanding of the Standard was mainly concentrated among members of the teams responsible for implementation, although the rest of the teams within the organisation generally had a good grasp of the requirements at different levels. The requirements themselves were described as well-laid out yet challenging, but appropriately so, given their ambitions.

> "I think our understanding of the Standard is pretty comprehensive. It's been somewhat flexible, as we were told at the beginning, but our overall understanding is good […] While there are some areas of the business it doesn't cover as much, within our central team and the wider organisation, there's a pretty good spread of knowledge across different levels." (Landlord)

Use of external support

Many social landlords interviewed sought external support, specifically for the development of target energy pathways, since they did not have the in-house skills or systems needed.

Support from the Welsh Government was accessed through working groups and one-to-one sessions, which were described as particularly useful for understanding data-collection requirements. One landlord mentioned that Welsh Government staff went through the Standard with them and were keen to bring organisations together to discuss the pros and cons.

External support was procured specifically to develop TEPs, complementing the whole-stock assessments, which were already underway. Some social landlords acknowledged that their organisations often lacked the in-house skills required to complete the TEPs; thus, external contractors were employed in order to carry out EPC assessments to ensure data was up to date. Some social landlords also employed specialist firms to develop target energy pathways, which helped map out how properties could improve their energy efficiency over time. This external support was needed because social landlords lacked the in-house skills or IT systems to carry out such assessments and analyses.

> "Regarding the Whole Stock conditions and the Targeted Energy Pathways, we bring the required data in-house from various contractors who handle EPC work for us. Although we have trained some of our staff to perform EPCs, we have found it quicker, more efficient, and more cost-effective to outsource this type of work." (Landlord)

Challenges identified at the outset

Whilst the vast majority of social landlords reported a thorough understanding of the Standard, some landlords interviewed described that they had identified challenges with practical implementation from the outset. These challenges were noted specifically for the works required to meet Part 3 (discussed more thoroughly in the following section) of the updated Standard, which was thought to be the main update from the old one and posed challenges dependent on their stock characteristics.

> "Energy targets are always going to be challenging, but we fully understand why. I don't think this reflects a particular weakness on our part, especially given how the Welsh Government has laid out the requirements. The challenges are largely related to implementation, particularly for a significant percentage of stock that is old and gas heated. I would say the requirements are well-defined and demanding, but I believe they were always intended to be challenging." (Landlord)

Some social landlords interviewed also felt that certain aspects of the Standard required further interpretation and practical clarification, as they were deemed not operationally feasible or potentially burdensome during implementation. One example discussed was external storage requirements for cycles and equipment. Many interwar properties built on steep hillsides or cut into hillsides had very limited garden space, leaving little or no opportunity to provide required storage without significant construction work. Another area of ambiguity concerned the updated approach for collecting and reporting data to the Welsh Government, which has shifted to the property level. Some landlords interviewed did not find this immediately clear and needed additional guidance to understand it.

A few social landlords also raised further challenges with the initial interpretation of the Standard, including the installation of fire alarms in communal areas, which was deemed impractical, and the introduction of the biodiversity component, which sometimes involved the reintroduction of gardens that had been previously removed.

4.1.2 Transition of social landlords to the new Standard

Relevant WHQS 2023 objectives:

Objective 2: To understand landlords’ experiences of meeting WHQS 2023

Relevant RQs: RQ1 – Awareness of the Standard and perceived clarity of guidance; **RQ2** – Perceptions of how effectively the transition from the old Standard has been managed; **RQ5** – Experiences with WHQS data-reporting requirements; **RQ6** – Whether landlords have sufficient skills, capacity, and networks to implement the Standard.

Landlords found the transition to WHQS 2023 challenging. Evidence from interviews suggests this was primarily due to the updated requirements themselves, rather than how the transition was managed. The majority of social landlords interviewed described the transition process as smooth and well-supported, underpinned by early consultation, clear timelines, and sustained engagement from the Welsh Government. However, they noted limited incorporation of feedback by the Welsh Government, especially regarding the energy efficiency requirements. Landlords surveyed reported that Welsh Government guidance and sessions helped them understand and implement WHQS 2023. Interviews suggested that landlords experienced some variation in interpreting and applying the new Standard, with occasional challenges in aligning it with other requirements.

Detailed summary of findings:

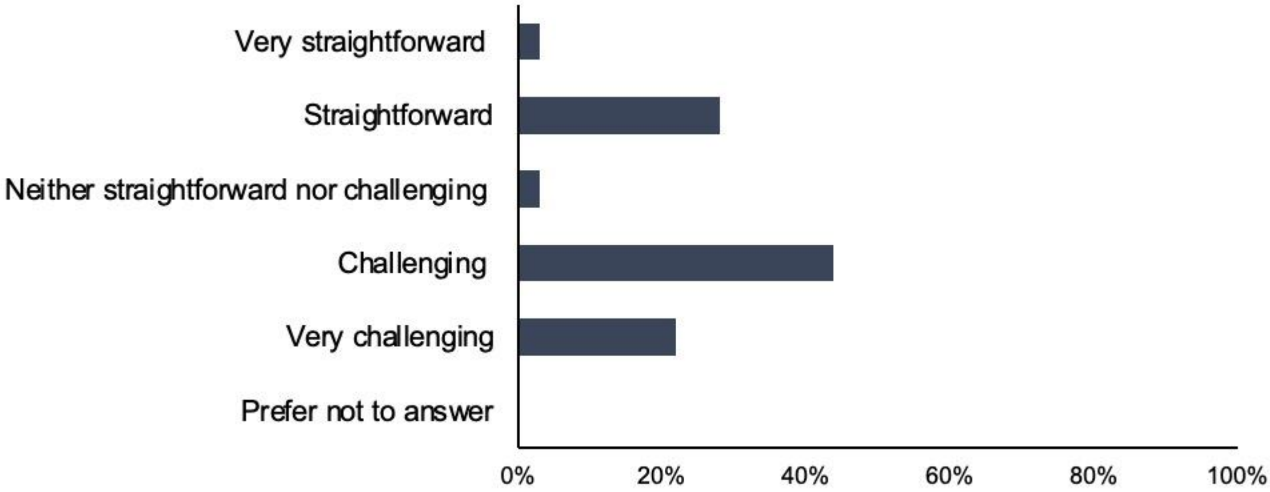
- **Challenging transition period:**
  Survey findings show that two-thirds of landlords found the transition challenging or

very challenging. Interviews clarified that these challenges related primarily to the content, pace, and ambition of the new Standard, rather than challenges in transition management (RQ2).

- **Generally well-managed transition period:**
  Interviews highlight that early consultation, clear guidance, and enough lead time before October 2023 helped them prepare and plan their organisations (RQ1, RQ2).
- **Valued engagement and support from the Welsh Government:**
  Ongoing engagement with Welsh Government teams, workshops, and one-to-one support was widely viewed as helpful in clarifying changes, expectations, and operational differences between Standards, as reflected in interviews (RQ1, RQ2).
- **Mixed experiences of consultation and limited influence on outcomes:**
  While some landlords found consultation meaningful, others felt constrained by time, complexity, and limited opportunities to fully understand implications. Some landlords interviewed reported that their feedback had little impact on final Standard requirements (RQ2).
- **Early implementation pressures and feasibility concerns:**
  Part 3 energy efficiency and decarbonisation targets were consistently identified as the most challenging, compounded by tight timelines, budget constraints, and the social landlords' current stock condition, both in the survey and the interviews (RQ6).
- **Ongoing support with emerging gaps:**
  Post-publication guidance and regular engagement were generally welcomed, but the updated formal requirements and accelerated expectations for TEPs introduced uncertainty and additional workload (RQ5).
- **Inconsistent interpretation and clarity of requirements:**
  Despite survey findings indicating reasonable clarity, interviews revealed varied interpretations of requirements, highlighting the risk of inconsistent compliance approaches (RQ1).

In the survey, social landlords were asked about their experience with the transition to the WHQS 2023 from previous iterations of the Standard. Almost half of the respondents (14 out of 32, representing 44%) described the transition as challenging, while a further 22% found it very challenging. As shown in Figure 7, 28% reported that the transition had been straightforward, and smaller proportions found it either very straightforward (3%) or neither straightforward nor challenging (3%). None of the respondents selected prefer not to answer.

Figure 7: Perceptions of the transition to WHQS 2023 among social landlords (n=32)



Description of Figure 7: Bar chart showing responses from the landlord survey (n=32) regarding experiences with the transition to the WHQS 2023 from earlier versions of the Standard. Response options ranged from 'very straightforward' to 'very challenging.' The chart indicates that a greater proportion of respondents found the transition challenging rather than straightforward.

Although the majority of social landlords in the survey described the transition to the new Standard as challenging, social landlords interviewed explained that this was mainly due to the new Standard's content being difficult to implement and too ambitious in terms of goals and timelines, rather than the transition process itself. In fact, when asked how the transition period between the two Standards was handled, the majority of interviewees found it smooth and well-managed. The new Standard was acknowledged as having been published for consultation well ahead of the October 2023 go-live period, and being highly prescriptive about expectations, providing organisations with guidance and enough time to prepare.

Engagement with the Welsh Government was an important source of support during the transition period. Welsh Government officials, including those in the Optimised Retrofit Team and the Housing Standards Team, were regarded as attentive and responsive, making genuine efforts to understand their situations and concerns. Workshops and information sessions were particularly useful for clarifying differences between the two

Standards and additional operational requirements, such as data collection. While officials did not always have immediate answers, their responsiveness and support were valued for helping manage the transition.

While the goals of the updated Standard were broadly supported by the majority of social landlords interviewed, its perceived ambitiousness led to early frustrations. The vast majority identified early challenges in meeting the decarbonisation and energy efficiency targets (Part 3). The budget requirements and tight timelines (discussed in more detail in the following sections) were seen as placing significant strain on organisations from the outset. Additionally, one landlord described the new flooring requirement as “very demanding,” adding extra costs and occasional delays when coordinated with redecoration work. Another landlord felt that Wales is trying to stay ahead of the rest of the UK, setting ambitious targets that, while welcomed, are sometimes unrealistic, especially given the current condition of the social housing stock in Wales and the limited time available.

Consultation period

Social landlords were divided in their views on how the consultation period was managed. Many felt that the Welsh Government handled it well, while many others did not find the consultation useful. Those who found it helpful highlighted that communication was clear and timely, that events and workshops were organised across Wales, that the Welsh Government made a visible effort to engage with the sector, and that sufficient time was provided for consultation. By contrast, those who found it unhelpful cited the short timeframe, the large number of attendants present in the workshops and events, and the complexity of understanding the full implications, which made it difficult to provide meaningful feedback.

> “In fairness to the Welsh Government, they did what they could. They held several workshops to help us understand the changes between the old and new Standards. […] I think a systemic approach was employed by the Welsh Government as part of redesigning the Standard.” (Landlord)

> “At the time, yes, we were consulted, and that seemed reasonable. My hesitation is that perhaps we didn’t fully understand the potential consequences of some clauses as they later transpired. For example, with the targeted energy pathway, every home has to meet a C75 standard by 2030, and the planning requirements come in by 2027” (Landlord)

While some social landlords noted that their views were considered to a point, the majority felt that the sector's feedback was not fully reflected in the final publication of the Standard. It was reported that the primary focus of the discussion was the energy efficiency and decarbonisation requirements of Part 3. These social landlords highlighted concerns about the feasibility of the targets, the pace of implementation, and the availability of skills and funding needed to meet the new requirements. Some of them had advocated for less ambitious targets or revised timelines, but their input often had minimal impact on the outcome. A landlord also noted technical inconsistencies and a broader conflict within current assessment methods, in which measures that improve SAP scores can sometimes worsen Environmental Impact Ratings (EIR), leaving organisations uncertain about how to prioritise investment until new methodologies, such as the Home Energy Model, are introduced. Another landlord stressed the fact that the targets were the same across organisations, without considering the total number of their housing stock.

> "The new Standard was always going to be moving towards decarbonisation. I think we all appreciated that. That was where the country was heading. […] We gave feedback on that, and I do believe that our views were taken on board." (Landlord)

> "Delivering and resourcing to meet the Standard across [several thousand] properties is significantly harder. So, in terms of the time frame, it wasn't really proportional." (Landlord)

The majority of social landlords interviewed felt that, despite the sector's capacity constraints and infrastructure challenges, the Welsh Government made only minor adjustments to the updated Standard's requirements. For example, one landlord noted that while the extension of mid-term requirements from 2029 to 2030 was welcomed, it was accompanied by the introduction of more demanding requirements, such as the SAP 75 target, which reduced the benefit of it, while another landlord discussed that the immediate publication of the new Standard following the consultation reinforced the perception that sector feedback had minimal effects.

> "The targets they've set without funding are unrealistic, and even with funding, they still don't seem achievable because the infrastructure in Wales isn't in place. It's not just about the money, but also the timescales. Combined, these factors make the targets unrealistic […] It's fine to be ambitious, but targets should also be achievable. […] I don't think the sector's input has been fully considered in setting realistic aspirations." (Landlord)

Support after the Standard was published

When social landlords were asked, “How adequate has the support provided by the Welsh Government been in helping you meet WHQS 2023?” in the survey, nearly half (15 out of 32, representing 47%) considered the support to be very adequate. A further 34% described it as somewhat adequate. Smaller proportions viewed the support less positively, with 12% rating it somewhat inadequate or very inadequate. The remainder felt the support was neither adequate nor inadequate, or preferred not to answer the question. None of the participants indicated that they were unaware of the support available.

Similar insights emerged from our interviews with social landlords, who noted that, when WHQS 2023 was published, the Welsh Government provided helpful guidance on the new Standard. Sessions with government representatives and consultants explained the changes and their intended direction, so there were no major surprises on release. Regular catch-up sessions and accessible communication further supported organisations in understanding the new requirements.

Despite the generally helpful approach, some social landlords also noted gaps in the guidance provided. They mentioned that some reporting requests from the Welsh Government created uncertainty. These requests involved revisions to data submission requirements, with new fields introduced that were not anticipated to be a formal requirement. For example, one landlord noted that verifying whether properties had smart gas and electricity meters was not expected, despite being included in the published Standard, and this required some previously completed work to be revisited. Another landlord mentioned that the request to complete TEPs for a significant portion of their housing stock by 2026 had not been communicated in advance and was perceived as creating additional pressure beyond the original WHQS 2023 timeline, which requires all TEPs to be completed by 31st March, 2027.

Clarity of the new requirements

Regarding the clarity of the new requirements of WHQS, over half of the social landlords surveyed (19 out of 32, representing 59%) said they found the requirements very or mostly clear. A further 22% described them as somewhat clear, while 13% found them somewhat unclear and 6% very unclear. None of the respondents preferred not to answer the question.

Contrary to the positive picture from the survey, the interviews revealed that social landlords interpreted the new Standard in different ways, which sometimes created confusion. Some social landlords in interviews reported that differing interpretations of requirements, such as those for outdoor spaces, led to inconsistencies, especially in new housing developments. A few noted that their requests for a standardised compliance policy framework received no formal response, leading to varied approaches to submitting their compliance policies (discussed further in the next section). One landlord also highlighted gaps in certain requirements, such as damp and mould, which were not fully captured in the initial drafting of WHQS 2023. Additionally, another landlord pointed out that the WHQS does not align with the Welsh Development Quality Requirements 2021 (Welsh Government, 2021), making it difficult to ensure that newly built homes comply with both standards without requiring costly modifications after construction.

> "There were a lot of sessions following the implementation of the new Standard. For example, with policy guidance: Whenever this topic came up, many social landlords and organisations asked if there was a template or headline guidance. The response we usually got was that each organisation is different, so policies need to be appropriate and fit for each organisation. What we've discovered in the last few weeks is that they're now considering doing away with the policy requirement. The reason is that the return documents varied widely in quality and substance. If they provided a template, everybody could populate it consistently." (Landlord)

4.1.3 Social landlords' experience with the updated reporting requirements

Relevant WHQS 2023 objectives:
Objective 2: To understand landlords' experiences of meeting WHQS 2023

Relevant RQs: RQ1 – Perceived clarity of guidance (limited to compliance policy expectations); **RQ4** – Views on component categories, including interpretation of assessment codes; **RQ5** – Experiences with WHQS data reporting requirements;

RQ6 – Whether landlords have sufficient skills, capacity, and networks to implement the Standard.

Evidence shows that while social landlords engaged actively with the WHQS 2023 compliance policy and, in some cases, found it valuable for clarifying priorities and organisational constraints, the process was widely experienced as burdensome, mainly related to the data return requirements. In practice, many landlords conflated the strategic compliance policy with the data returns in the interviews, partly because both were developed in parallel and discussed together, and partly because interviewees were not always the individuals responsible for submitting the data.

A lack of standardised templates and evolving guidance regarding the compliance policy led to confusion, varied interpretations, and significant resource demands.

Some landlords also reported practical challenges with the returns and described the process as time-consuming, overly detailed, and of limited value in improving tenants' quality of life.

Detailed summary of findings:

- **Blurring of compliance policy and data reporting requirements:** The vast majority of landlords in the interviews conflated the strategic compliance policy with expanded statistical returns, largely because the two were explored concurrently during interviews, as well as due to their interdependent nature and the scale of change associated with both. This created confusion about purpose and scope, increasing administrative burden (RQ5).
- **Active engagement with compliance policy development:** All interviewed landlords were directly involved in completing the compliance policy. A few social landlords viewed it as a constructive exercise that improved understanding of WHQS 2023 and supported more realistic planning aligned with organisational priorities (RQ1).
- **Absence of guidance and inconsistent expectations around compliance policy submissions:** The lack of early guidance or templates resulted in wide variation in compliance policy submissions, with landlords interpreting requirements differently and producing outputs of varying length, focus, and complexity (RQ1, RQ6).
- **Concerns about proportionality and VfM:** Many landlords questioned whether the effort required to produce statistical returns in such detail delivered commensurate benefits, particularly in relation to tenants' quality of life (RQ6).

The evaluation team acknowledges that the compliance policy and statistical data returns reporting requirements were sometimes confused in practice, as the majority of social landlords appeared to conflate them in our interview discussions. This was largely because both topics were discussed simultaneously during the interviews and because we may not have spoken with the individuals directly involved in preparing and submitting the data returns. Consequently, the distinction between the compliance policy, as a contextual, strategic document, and the statistical returns, which are purely factual and intended to demonstrate progress, was sometimes blurred in our discussions. For this reason, we present the compliance policy and the statistical returns within the same section (with separate subsections), while noting that, in practice, the lines between them were occasionally unclear in interview discussions.

Experiences with compliance policy submission

All social landlords interviewed reported being directly involved in completing the compliance policy for WHQS 2023. For a few social landlords, the compliance policy offered an opportunity to review legislative requirements alongside their organisational priorities. It helped them identify main priorities and recognise organisational limitations, supporting more realistic planning. They acknowledged the need for tailored approaches rather than a one-size-fits-all solution. One landlord described the compliance statement as a formal declaration of how they intend to deliver WHQS requirements, providing structure to their planning and decision-making.

> "The new compliance policy […] ended up taking me several weeks to complete. It required a lot of research, but that wasn't a bad thing; it really made me read and understand the Standard. You can't comment on something unless you fully understand it. You can't write a policy for something you don't understand. In many respects, it was a good process, but at the time, it felt quite painful, to be honest."
> (Landlord)

The vast majority of social landlords interviewed reported confusion about what was expected in the submitted policies, noting that the Welsh Government did not provide a template to guide the submission process. Although the compliance policy was a requirement from the previous standard, the new Standard introduced additional information that needed to be included. As a result, each organisation interpreted the requirements differently, leading to submissions that varied in length, focus, and structure. For example, one social landlord expressed a variation in approach, noting that their policy was deliberately brief and focused on the crucial elements, whereas other organisations had invested considerable time and resources to produce full-scale compliance booklets. Another landlord suggested that these issues may have contributed to the Welsh Government's later decision to amend the requirement for compliance policy submissions, likely in response to the wide variation in approaches across the sector.

"The compliance policy was a lot of work. It was outsourced, and honestly, I'm not sure what value it added. It mostly just tells tenants, and the Welsh Government, what we're going to do anyway." (Landlord)

Experiences with data return requirements

Regarding the statistical return requirements, some social landlords found the Welsh Government's guidance on updated requirements on the level and type of evidence to support an assessment of compliance with individual elements of the Standard unclear. In some cases, they discussed that the Welsh Government's later reviews differed from their initial advice. For example, a landlord noted that even Welsh Government officials initially seemed uncertain about the expected level of detail or type of data to support adherence to WHQS elements.

Welsh Government officials informed us that the shift from aggregate reporting to property-level data highlighted that, under previous arrangements, assessments were sometimes not underpinned by recorded evidence, with compliance often assumed in the absence of information to the contrary. The updated Standard and its associated data collection requirements make explicit that absence.

"Eventually, the Welsh Government did provide a template, but for months, every event regarding the compliance policy[footnote2] had landlords asking: how should we present it? CSV, separate tabs, etc. The consistent answer was, 'Just send us what you've got; we'll sort it.' This caused practical issues. By early 2025, we had already commissioned [number] surveys, but the final data requirement spreadsheet included fields we'd never seen before. So, we had survey data that didn't fully meet the required specification." (Landlord)

Beyond the uncertainty, some social landlords reported that submitting the reporting requirements for meeting the Standard included overly detailed and time-consuming tasks and was far more complex than the previous Standard's requirements. As such, they questioned the value of such detailed reporting. Another landlord also felt that the effort required did little to improve tenants' quality of life compared with more tangible improvements, making the process seem inefficient and not good value for money.

Footnotes

[2] This matter relates to the data return rather than the compliance policy; the landlord referred to the compliance policy in error.

4.1.4 Landlord perspectives on tenant engagement

Relevant WHQS 2023 objectives:
Objective 2 – To understand landlords' experiences of meeting WHQS 2023
Objective 1 (indirectly) – To understand tenants' awareness, inclusion, and involvement in WHQS 2023 (as reported by landlords)

Relevant RQs: Objective 2: RQ3 – Experiences of implementation, including which aspects are easier or harder to meet; **RQ6** – Whether landlords have sufficient skills, capacity, and networks to implement the Standard. Objective 1: **RQ1** – Tenants' awareness of WHQS 2023 (proxy evidence); **RQ2** – Whether tenants feel informed and engaged (proxy evidence)

Evidence indicates that social landlords recognise tenant engagement as an essential but challenging aspect of delivering WHQS 2023. While the vast majority of landlords employ structured engagement strategies, many report difficulties in sustaining broad and representative tenant involvement. From landlords' perspectives, tenants' awareness of WHQS 2023 is generally limited, with engagement often driven by immediate, tangible impacts rather than the wider objectives of the Standard. Concerns about disruption, affordability, and unfamiliar technologies further shape their stance.

Detailed summary of findings:

- **Perceived low tenant awareness of WHQS 2023:**
  From social landlords' perspectives, tenants generally show limited awareness or understanding of WHQS 2023 as a policy framework, especially its technical elements related to energy efficiency and decarbonisation. Concepts such as net zero and carbon reduction were described as abstract and difficult for tenants to relate to unless linked to practical benefits (Objective 1).
- **Use of structured, multi-channel engagement approaches:**
  The vast majority of social landlords reported adopting multi-channel engagement strategies, including tenant satisfaction surveys, tenant groups, public events, newsletters, websites, and social media. Interviews highlighted examples of staged engagement approaches, with communication before works to explain the purpose and priorities, followed by post-completion feedback to capture tenant views (RQ6).
- **Limits to reach and representativeness of engagement:**
  A few landlords reported that tenant engagement is often dominated by a small group

of highly engaged residents who may not reflect the wider tenant population. Engaging beyond this group was widely described as difficult, with some landlords reporting that tenants show limited interest in WHQS beyond the direct impacts on their own homes (RQ6).

- **Tenant engagement is viewed as an area where there is room for improvement:** Survey findings show that half of social landlords felt neutral about their ability to engage tenants effectively, while around one-third said they found tenant engagement somewhat or very difficult. Interviewees showcase variation in confidence and effectiveness across organisations, along with many social landlords recognising that more could be done to that end (RQ3).
- **Resistance to energy efficiency measures, particularly air source heat pumps:** A few landlords highlighted tenant resistance to air source heat pumps, driven by concerns about operating costs, slower heating response, noise, and unfamiliarity. Negative word of mouth and poor publicity from early installations were also reported to influence tenant attitudes. Landlords noted that framing changes in terms of comfort and potential bill savings helped improve engagement (Objective 1 – Inclusion and involvement).

In the survey, social landlords were asked how difficult they found meeting the different requirements for WHQS 2023, and half of the respondents stated that they were 'neutral' when it comes to engaging tenants effectively. A further 34% (11 out of 32) reported that they would find it very difficult (16%) or somewhat difficult (19%) to effectively engage tenants. However, when asked how they intend to engage tenants about changes made to their homes, tenant satisfaction surveys (23%), tenant groups (20%), and social media (15%) were the most frequently selected options. Insights from interviews with social landlords provide a deeper understanding of the challenges of engaging tenants as part of the new Standard.

Engaging and communicating with tenants

When social landlords were asked how they plan to engage tenants for WHQS 2023 in interviews, the vast majority reported that they organise tenant engagement around structured, multi-channel approaches to involve residents throughout the process. Tenant engagement strategies generally involve providing information and opportunities for feedback, ensuring tenants are aware of planned works and understand their purpose. Examples shared by social landlords included dedicated tenant panels and participation teams, public events, newsletters, and the inclusion of WHQS-related information on their websites, as well as social media posts. One landlord also described a 2-stage approach, with pre-project briefings to inform tenants about planned works, WHQS compliance requirements, and priorities, and post-completion feedback to capture residents' views on outcomes and processes. Another landlord from a mutual organisation explained that tenant involvement also extends to decisions on budgets and business plans, influencing which projects are delivered and supporting buy-in for initiatives, such as affordable warmth retrofits.

> "We've got quite an active tenant participation group, and they were fully consulted and kept informed throughout the process. Over the summer, we held seven or eight events out in the community. Housing officers and maintenance staff attended, and tenants could come and talk to us about any comments or concerns regarding WHQS." (Landlord)

However, many social landlords also reported that tenant engagement in WHQS 2023 is not as efficient as they would like and is required, recognising room for improvement. A few noted that while some tenants are engaged, overall participation is limited and often driven by a small group of committed tenants who do not represent the wider tenant base. Engaging beyond that cycle was reported to be difficult, as most tenants were largely indifferent to wider discussions or initiatives, focusing only on the upgrades that directly affect their own homes.

> "We have an active tenants' group, but it's very small and, in my opinion, doesn't represent all tenants across the borough. We have shared the Standards with them, but I'm not sure they've had much input into them. While we do try to promote it, mainly through social media, and we've started breaking the Standard down into sections, there is room for improvement." (Landlord)

Tenants' response to the WHQS 2023

When social landlords were asked in interviews about tenants' awareness of WHQS 2023 and how it affects their daily lives, some noted a general indifference among tenants. Some landlords observed that most tenants have a limited understanding of the more technical aspects of the Standard and show little interest in wider environmental considerations or longer-term sustainability issues. Complaints and reluctance are common during improvement works, often due to noise, disruption, or inconvenient timing. One landlord reported that while some frustration is unavoidable, proactive communication can help reduce it. Informing tenants in advance, keeping communication open during the works, and providing clear ways to raise concerns were seen as effective strategies to maximise engagement.

A few social landlords also reported that some tenants are reluctant, or even opposed, to energy efficiency upgrades in their homes. They explained that tenants often find it difficult to relate to the decarbonisation goals of WHQS 2023, as terms like “net-zero” and “carbon reduction” can feel distant or abstract. These ideas tend to attract little interest unless they are linked to clear, practical benefits such as lower energy bills or improved comfort. When communication focuses on these outcomes, social landlords find that tenants are more open and willing to engage.

Financial concerns were also a major factor in tenant reluctance. Tenants are perceived to worry about higher running costs, especially when new systems depend more on electricity. This concern is worsened by uncertainty about how affordable it will be to operate new technologies and by a general preference for familiar, reliable systems. A few social landlords highlighted the installation of air source heat pumps (ASHPs) as a particular point of resistance. Tenants accustomed to traditional gas boilers often see heat pumps as less convenient due to slower heating, higher electricity costs, and potential noise issues. Negative word of mouth from early ASHP installations and poor publicity were also reported to have shaped tenant attitudes and increased dissatisfaction.

> “One of the barriers we’ll face is around the affordable warmth elements, particularly when it comes to air source heat pumps, mainly due to the costs associated with running air source heat pumps, especially for tenants who currently heat their homes with gas. Switching to an air source system means relying on electricity, and with energy prices high and potentially rising, that’s a real concern.” (Landlord)

4.1.5 Tenant perspectives on their role in the updated Standard

Relevant WHQS 2023 objectives:
Objective 1: To understand tenants’ experiences of WHQS 2023

Relevant RQs: RQ1 – Awareness: What are tenants’ baseline and ongoing awareness levels of WHQS 2023? **RQ2** – Inclusion and involvement: Do tenants feel sufficiently informed before, during, and after works? Do they feel listened to throughout the process? Do they feel adequately supported in adapting to changes (e.g., new technologies)? Do they feel meaningfully involved in decisions that affect their homes?

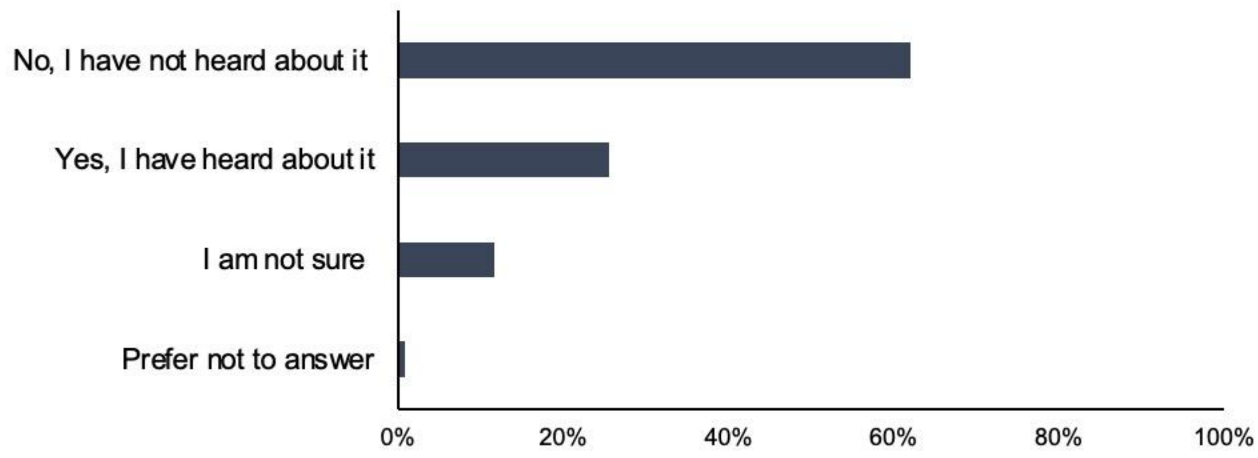
Evidence indicates that the majority of tenants have limited awareness of WHQS 2023 and experience low levels of proactive communication and involvement in relation to the updated Standard. While some tenants reported positive engagement practices, these experiences were not widespread. Many tenants described feeling uninformed about planned works, excluded from decision-making processes, and insufficiently supported to adapt to changes in their homes.

Detailed summary of findings:

- **Low baseline awareness of WHQS 2023:**
  Survey findings reflect that around two-thirds of tenants had not heard of WHQS 2023 prior to participating in the survey, with a further proportion unsure. Interview findings reinforced this, with most tenants unfamiliar with the term or unclear about what the Standard entails (RQ1).
- **Awareness is largely driven by landlord communication or specific roles:**
  Among tenants who were aware of WHQS 2023, most tenants surveyed reported having learned about it through their landlord or housing provider. Higher awareness was typically associated with tenants involved in representative roles, consultations, or professional work in the housing sector, rather than systematic communication to all tenants (RQ1).
- **Limited understanding even among aware tenants:**
  Even where tenants interviewed had heard of WHQS 2023, understanding was often limited. They generally knew it related to minimum standards or home improvements, but lacked knowledge of the specific requirements or how the Standard might affect their own homes (RQ1).
- **Inconsistent and often reactive communication from landlords:**
  Many tenants in our interviews reported minimal or ineffective communication, with repairs and improvements largely occurring only after issues were raised by tenants themselves. Several expressed frustration at the lack of advance notice about planned works, expected timelines, or potential disruption. Others also reported insufficient follow-up support after retrofitting works had been completed (RQ2).
- **Feelings of exclusion and undervaluation:**
  Several tenants interviewed described landlord–tenant interactions as impersonal, with limited notice of visits and assumptions about availability. This contributed to feelings of being overlooked or treated as “second-class citizens” (RQ2).

- **Examples of more positive engagement practice:**
  A minority of tenants interviewed reported positive experiences, including proactive communication via social media, emails and letters, door-to-door engagement by housing officers, and opportunities to observe retrofit works in other properties. These approaches were seen as reassuring and helpful in building understanding and trust (RQ2).

Figure 8: Awareness of WHQS 2023 among social housing tenants before survey participation (n=1285)



Description of Figure 8: Bar chart showing responses from the WHQS social housing tenant survey (n=1,285) on whether participants were aware of the WHQS 2023 before taking part in the survey. The chart shows that the most common response was ‘no,’ followed by ‘yes,’ and then ‘I don’t know.’

Tenants were asked whether they had heard about the WHQS 2023 in the survey and awareness was relatively low, with 62% of tenants (797 out of 1,285) saying they had not heard of it (see Figure 8). A further 12% were unsure, while just over a quarter (26%) said they had heard of WHQS 2023. A small number of respondents preferred not to answer the question.

Of those who had heard about the WHQS 2023, most said they first learned about it through their landlord or housing provider, which was mentioned by 136 out of 398 respondents (34%). Around a sixth heard about it online (17%), and a similar proportion through social media (15%). Smaller numbers became aware via official documents or sources such as

Welsh Government or local authority materials (13%), while fewer heard through friends or neighbours (7%), community events (3%), or other channels (5%).

Similar levels of awareness were identified in the interviews with tenants, where the majority were unfamiliar with the term or the specific requirements it sets out for their homes. Even among those with some awareness, understanding was often limited. One tenant noted they were aware of the Standards but had not read them in detail, understanding only that they related to ensuring homes meet specific requirements.

A few of the tenants had prior knowledge of WHQS 2023, typically due to specific circumstances. Some learned about the Standards through their involvement in tenant representation or housing committees, and through participating in consultations. Others gained awareness through their professional work in social housing, though this did not necessarily mean their own landlord had communicated with them about it. Additionally, a few tenants had sought out information independently on the Welsh Government website.

Communication practices between tenants and social landlords

Tenants described varied experiences with landlord communication, with some reporting minimal or ineffective contact. Some tenants said they had no regular communication from their landlord. Communication methods also posed challenges for some tenants, as meetings held during working hours made attendance difficult. One tenant explained:

> "They don't make allowances for the people who work. So, I can't help them make changes because I work. So how can you honestly get an honest overview and help from your tenants if you exclude everybody that works?" (Tenant)

The majority of tenants stated that all upgrades or repairs were reactive, carried out only after they personally raised an issue. They also noted that they would value a more proactive approach from their landlords regarding retrofits and communication about them. Some tenants expressed frustration that they had never been informed about upcoming renovations, for example, when kitchens, bathrooms, or external works might be due, or about the potential disruption such works might cause. Instead, they felt responsible for chasing updates and submitting repair requests, often facing long waiting times before action was taken. Even after improvements had been installed, tenants reported being left with instruction manuals for new systems, such as boilers, without any practical guidance on how to use them. One tenant noted they did not understand how their thermostat worked until a family member explained it. A few tenants also described the process as impersonal and demoralising, noting that social landlords did not notify them before visits and seemed to assume tenants were always available during working hours. This lack of proactive engagement contributed to a sense of being overlooked or undervalued within the housing management process.

> “I contact the local authority to arrange repairs as often as I can […] The thing is, they don't notify you when they're calling out. They think everybody in social housing doesn't work […] it's very demoralising to think that, you're treated as a second-class citizen because you live in social housing.” (Tenant)

This lack of communication meant that the majority of tenants were not informed about the upcoming works required under WHQS 2023. In cases where tenants were informed about planned changes, this awareness often stemmed from specific circumstances. For instance, some tenants who served as representatives received information about upcoming work. However, they still remained uncertain about when these changes would be implemented in their own properties. In some situations, social landlords sent surveyors to evaluate the properties, which served as the first indication to tenants that changes might be on the horizon. On the other hand, a few tenants reported receiving memos, letters, and, sometimes, calls informing them of upcoming changes to their properties.

Some tenants reported more positive communication experiences with their landlords. One housing association was described as maintaining good contact through social media, emails and letters, with housing officers also knocking on doors to ensure tenants were aware of planned changes. A few other tenants described positive interactions, such as being asked for their opinions and being invited to observe improvements in other properties to understand the changes.

> "They do a lot of advertising on Facebook. They do emails, they'll even send letters out. So, people know that if they're in that sort of band, it's coming [the improvements]. There's also talk for people in the future who haven't had a retrofit done but would benefit from it, going to see what a retrofit looks like. So as they can see, it's nothing to worry about." (Tenant)

4.1.6 Social landlords’ perspectives on their housing stock condition

Relevant WHQS 2023 objectives:
Objective 2: To understand landlords’ experiences of meeting WHQS 2023

Relevant RQs: Objective 2: RQ3 – Experiences of implementation; RQ6 – Whether landlords have sufficient skills, capacity, and networks to implement the Standard.

Evidence indicates that while the vast majority of social landlords report high levels of compliance with many WHQS 2023 criteria across their housing stock, significant challenges remain in relation to meeting Part 3 requirements of the updated Standard. Differences in stock age, design, and location make compliance difficult. These challenges reflect a combination of structural factors within the housing stock and wider operational, financial, and policy pressures.

Detailed summary of findings:

- **High reported compliance with core housing quality criteria:**
  Survey findings indicate that the vast majority of social landlords reported that at least 70% of their stock meets most of the WHQS 2023 criteria. Although, a slightly smaller proportion of landlords reported that at least 70% of their stock meet the criteria related to being affordable to heat and environmentally friendly (RQ3).
- **Significant variation in stock characteristics, location, and building type:**
  Landlords reported significant differences in the age, design, condition, location, and type of their housing stock, which shaped their ability to meet emerging requirements. Older or inherited stock, homes in exposed or challenging environments, and multi-unit buildings such as flats, where resident agreement and building layout complicate retrofits, were associated with greater maintenance demands and higher delivery costs, contributing to uneven completion within their housing stock (RQ3).
- **Financial, workforce, and strategic challenges:**
  Financial constraints were consistently identified as a major barrier, with some landlords facing ongoing debt from meeting the previous WHQS Standard and others reporting limited capital budgets and access to resources. Skilled labour shortages, particularly for specialist retrofit works under WHQS 2023 and the ORP, further hindered progress, with hurdles especially pronounced in rural areas. Operational pressures are compounded by competing strategic priorities, including compliance with new housing legislation, improving tenant engagement, upgrading asset management systems, and balancing investment in existing stock with the development of new homes (RQ6).

In the survey, social landlords were asked about the proportion of their housing stock that met each of the WHQS 2023 criteria (the response options included vast majority = >90%, many = 70%-90%, some = 50%-69%, few = 20%-39%, and very few = <20%). 97% of social landlords (30 out of 32) said either the vast majority or many properties are in a good state of repair. 88% of landlords stated either that the vast majority or many properties are safe and secure, have modern bathrooms, and have modern kitchens and utility areas. A slightly smaller percentage of landlords reported that the vast majority or many of their properties are comfortable to live in (84%), promote tenant wellbeing (78%), and have sufficient outdoor space (72%). Finally, 63% reported that the vast majority or many of their properties have well-maintained gardens and are affordable to heat, while 44% stated that they were environmentally friendly.

The interviews gave social landlords an opportunity to describe and expand on their housing stock and the extent to which they meet WHQS 2023 criteria. Across those interviewed, the reported age and condition of their housing stock varied widely, reflecting differences in region, development patterns, landlord type, and organisational size. Some social landlords interviewed described managing ageing stock with ongoing structural challenges, including outdated roofing materials and the need for continual maintenance to meet current requirements. For instance, some stock transfer organisations still manage properties with original corrugated iron roofs or early concrete systems that now require remediation. In contrast, housing associations that have always developed their own properties, rather than inheriting former local authority stock, tend to hold younger portfolios, often built in the 1980s or later. This more modern housing stock offers advantages in terms of energy efficiency and in meeting emerging climate and retrofit targets more effectively.

Many social landlords identified a range of operational challenges linked to maintaining, upgrading, and expanding their housing stock. Skilled labour shortages were frequently cited as a major constraint, particularly for specialist retrofit works and compliance with the new Standard, as well as in the delivery of the ORP. While this was more pronounced in rural areas, a few respondents noted that, across Wales as a whole, attracting skilled labour can be challenging due to competition from other parts of the UK.

Retrofit delivery presents specific difficulties, especially for social landlords with large numbers of flats and complex multi-unit buildings. External wall insulation programmes, for example, require engagement with all residents within a block, and resistance from even a few tenants was reported to delay entire schemes. The physical characteristics of high-rise and low-rise flats are also factors that can complicate interventions, such as installing solar panels, increasing scaffolding costs, and raising questions about how energy savings are distributed between communal and individual uses. Geographical and environmental conditions can further complicate matters. A landlord shared with us that in some areas, topography and weather patterns create different maintenance challenges for similar property types, with homes in upland valleys often requiring more frequent and costly upkeep than those in lowland regions.

Some social landlords acknowledged that they are also balancing multiple competing priorities, including compliance with new legislation such as the [Renting Homes (Wales) Act](), improving tenant engagement, and integrating new asset management software systems. Finally, a few social landlords reported a growing pressure to expand housing supply in response to the national housing crisis. This creates a strategic tension between investing in retrofitting existing stock and allocating resources to developing new homes.

Financial pressures were also identified as a significant limiting factor across both local authorities and housing associations. One organisation reported carrying substantial housing-related debt, primarily arising from earlier borrowing to meet the requirements of the previous WHQS Standard. Similar concerns were raised by a few other social landlords, who described the need to balance routine maintenance and long-term decarbonisation objectives against constrained capital budgets. A smaller organisation with geographically dispersed stock reported particular difficulties, citing limited access to financial and staffing resources that restrict their ability to meet new requirements and deliver retrofit programmes effectively. Across the sector, there was broad recognition that sustained investment and flexible funding mechanisms will be essential to maintaining progress toward WHQS 2023 and achieving national decarbonisation goals, especially given the absence of dedicated funding beyond the ORP.

4.1.7 Tenant experiences of their homes

Relevant WHQS 2023 objectives:
Objective 1: To understand tenants' experiences of WHQS 2023

Relevant RQs: RQ3 – Tenants' experiences of their homes: Do tenants perceive their homes to meet an appropriate standard? Do tenants believe WHQS 2023 has improved the quality of their homes, and in what ways? Which WHQS 2023 criteria do tenants see as most important? To what extent do tenants believe WHQS-related changes are affecting their physical or mental wellbeing?

Evidence from the tenant survey and interviews highlights a range of experiences with housing quality. While many tenants reported feeling safe and secure in their homes and expressed satisfaction with key features such as bathrooms, kitchens, and overall comfort, only a few felt their homes were affordable to heat or free from issues such as damp and poor ventilation. Experiences varied widely depending on property age, design, and recent investment, with some tenants expressing strong satisfaction and gratitude, while others described persistent problems that negatively affected comfort, health, and wellbeing. These findings directly address Objective 1 by capturing tenants' perceptions of housing quality and the lived impacts of housing conditions.

Detailed summary of findings:

- **Moderate overall satisfaction with key housing features:**
  Survey results show the highest levels of agreement for safety and security, followed by bathrooms, overall comfort, and kitchens. The majority of tenants expressed agreement that their home was in good condition, indicating generally positive but not universal satisfaction with core housing quality criteria. Interview evidence highlighted substantial variation in tenant experiences. Tenants in newer or recently refurbished properties were more likely to report comfort and satisfaction, while others described homes that met only basic needs or required tenants to manage maintenance issues themselves.

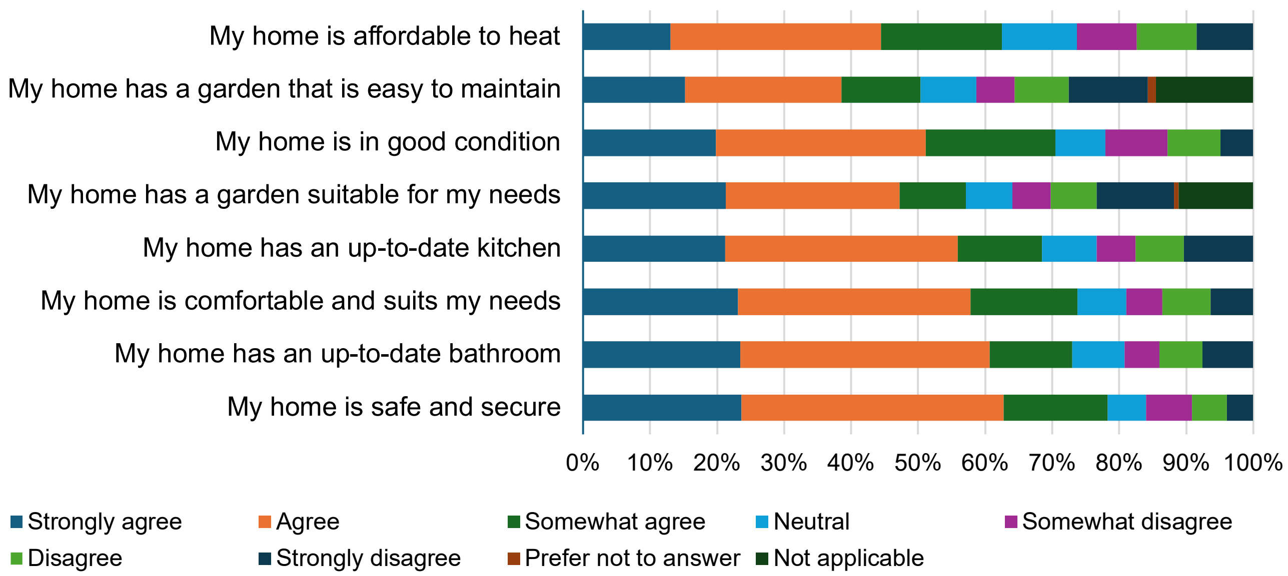
- **Generally positive perceptions of safety and security, with some exceptions:**
  The majority of tenants reported feeling safe and secure, citing features such as locks, intercoms, and regular inspections. A small number described safety concerns linked to neighbourhood disturbances, insecure doors or windows, and experiences of burglary, indicating areas where further improvements could enhance perceived security.

- **Heating affordability remains a key concern**:
  Heating affordability emerged as the weakest-performing WHQS-related outcome in the survey. While some tenants in the interviews reported that their house is affordable to heat, others described cold, draughty homes, limited heating use due to cost, and the need to undertake minor insulation measures themselves. Concerns were also raised about the cost and practicality of newer heating technologies, including heat pumps.

- **Problems associated with poor ventilation, damp, and mould:**
  Poor ventilation was frequently cited as a source of damp and mould, even in well-insulated properties. Many tenants described ongoing condensation problems, particularly in bathrooms without windows or adequate ventilation, raising concerns about both physical and mental health impacts and long-term property condition.

Tenants were asked how much they agreed with a series of statements in the survey about the condition and quality of their homes, which mapped onto the WHQS 2023 requirements (see Figure 9). The highest levels of agreement were for safety and security, with 63% agreeing or strongly agreeing that their homes are safe, which was followed by satisfaction with bathrooms (61%), overall comfort (58%), kitchens (56%), and stating that their home is in good condition (51%). Perceptions were lowest for heating affordability, which 44% of respondents reported that they agreed or agreed strongly that their home was affordable to heat. Of those who had a garden, 47% stated it was suitable for their needs, and 39% said it was easy to maintain.

Figure 9: Social housing tenants' agreement with statements on their homes meeting WHQS 2023 criteria (n=1,285)



Description of Figure 9: Stacked bar chart showing responses from the WHQS social housing tenant survey (n=1,285) regarding the extent to which participants agreed that their homes meet the WHQS 2023 criteria. Response options ranged from 'strongly agree' to 'strongly disagree.' Across all statements, the largest proportions of responses were in the 'strongly agree' and 'somewhat agree' categories.

While the survey findings provide a broad picture of tenants' satisfaction with different aspects of their homes, the interviews offered deeper insights into these experiences. Tenants described in more detail their views on kitchens and bathrooms, heating affordability, ventilation, outside spaces, and safety.

Overall satisfaction and comfort

Tenant satisfaction varied considerably across properties. Some tenants expressed strong contentment with their homes, describing them as comfortable and well-maintained. One tenant who had recently experienced homelessness said they felt grateful to have a safe place.

> "I feel very fortunate to have this home because my husband and I were made homeless last year. And this has been an absolute blessing for us to have a safe place." (Tenant)

Similarly, some tenants, especially those in newer properties or recently refurbished homes, reported positive experiences.

However, other tenants reported more mixed feelings. Some described their homes as meeting basic needs despite ongoing issues. Many tenants felt their properties were not in good condition, with one describing persistent problems throughout their home and another characterising their housing as "punishment housing for poor life choices" due to layout and privacy concerns. A couple of tenants mentioned the need to handle maintenance themselves.

> "My house condition is good, and that's not thanks to the local authority." (Tenant)

Another tenant with specific medical needs explained that their home was not suitable at all, explaining that, despite medical documentation, their requirements had not been adequately addressed.

Kitchens and bathrooms

Tenants shared varied experiences regarding the condition and functionality of kitchens and bathrooms. Many reported that these spaces were up-to-date and in good condition, particularly in newer builds or properties that had undergone recent refurbishment. However, several tenants raised concerns about impractical layouts and poor design.

Several tenants also described outdated facilities that required updating. One tenant mentioned their landlord appeared aware of this need. Another reported that while their kitchen was functional, it had not been updated for around 20 years. Some tenants expressed frustration with renovations carried out under previous programmes, stating that the work was rushed due to government pressure, worsening the situation for tenants.

Insulation and heating affordability

Many tenants reported that their homes were affordable to heat, particularly those in well-insulated properties or newer builds. However, heating affordability remained a concern for others. Some tenants described homes that were cold and damp during winter, requiring significantly higher heating costs to maintain comfortable temperatures. One tenant explained they could only afford to heat their home for a few hours each day during winter. Several tenants highlighted issues with draughty windows and doors, with one noting they had to purchase sealant themselves to keep heat in. Several tenants raised concerns about newer heating technologies, stating they did not want modern heat pumps, due to space and electricity costs.

Ventilation and damp

Poor ventilation emerged as a significant concern affecting comfort and health. Several tenants reported problems with dampness and mould, even in well-insulated properties. One tenant explained that despite strong insulation, their flat lacked adequate ventilation, leaving no way for heat and moisture to escape. They expressed concern that this could lead to future damp problems, noting a downstairs neighbour had already required antifungal treatment for mould. Multiple tenants described ongoing battles with damp and mould. Poor bathroom ventilation was frequently mentioned, with tenants noting that bathrooms without windows or proper ventilation led to condensation and damp. One tenant explained that while heating upgrades had helped somewhat, bathroom mould persisted due to ventilation issues rather than heating problems.

Outside spaces

Access to and quality of outdoor spaces varied significantly. Some tenants were satisfied with their gardens, describing them as easy to maintain or well-kept by housing associations. However, a few others reported challenges with outdoor areas. These tenants described communal gardens that were impractical to use due to accessibility issues. Garden maintenance was also a recurring concern. One tenant noted their communal garden was only maintained 4 times a year despite paying a service charge, which they felt was inadequate. Another explained that their garden was full of weeds when they moved in, so they had to pay for grass cutting themselves.

Safety and security

The majority of tenants felt their homes were safe and secure, mentioning functioning locks, intercom systems, and regular safety inspections. One tenant described comprehensive security measures, including new locks and an on-site caretaker. However, a few other tenants expressed safety concerns. One mentioned feeling somewhat insecure due to disturbances from neighbours and incidents of garden trespassing. Another reported a burglary that occurred while they were in the property, stating the doors and windows were not secure. One tenant noted that while they generally felt safe, the installation of window locks would make the home feel more secure.

4.1.8 Changes desired by tenants

Relevant WHQS 2023 objectives:
Objective 1: To understand tenants' experiences of WHQS 2023

Relevant RQs: RQ3 – Tenants' experiences of their homes: Do tenants perceive their homes to meet an appropriate standard? Do tenants believe WHQS 2023 has improved the quality of their homes, and in what ways? Which WHQS 2023 criteria do tenants see as most important? To what extent do tenants believe WHQS-related changes are affecting their physical or mental wellbeing?; RQ 2 - Inclusion and involvement: Do tenants feel sufficiently informed before, during, and after works? Do they feel listened to throughout the process? Do they feel adequately supported in adapting to changes (e.g., new technologies)? Do tenants feel meaningfully involved in decisions that affect their homes?

Interviews show that tenants' desired changes focus mainly on improving the overall condition, security, and heating affordability of their homes, prioritising basic repairs over complex upgrades. Some showed interest in renewable technologies like solar panels, while others raised concerns about ventilation, dampness, or noise. Tenants consistently stressed the importance of being consulted in advance and recognition that their homes are lived-in spaces, not just housing assets.

Detailed summary of findings:

- **Demand for basic repairs and heating performance:**
  Many tenants interviewed highlighted a strong demand for basic repairs, such as improved doors and windows. Heating performance and affordability were also frequently raised as key priorities. These issues were seen as essential to comfort and security and prioritised over complex upgrades (RQ3).
- **Mixed views on renewable and low-carbon technologies:**

In our interviews, some tenants were enthusiastic about renewables like solar panels for lower bills and sustainability, while a few others were concerned about heat pumps due to noise, space, or impacts on wellbeing (RQ3).

- **Concerns about unintended consequences:**
  Some tenants interviewed were concerned that external insulation or other energy efficiency measures could worsen damp and mould without proper ventilation, reflecting a preference for holistic upgrades that balance health, comfort, and energy performance (RQ3).
- **Importance of consultation and respect for tenants' homes:**
  Tenants consistently emphasised the importance of being consulted before improvements and having opportunities to provide feedback (RQ2).

Preferences for improvements

Many tenants highlighted a range of desired improvements to their homes, including basic repair needs, particularly around doors, windows, and insulation. They reported that existing doors and windows were poorly fitted, allowing drafts, damp, or even pests to enter, and making it difficult to retain heat in the home. Common requests included new or better-sealed doors to improve thermal efficiency and household security, window replacements, improved insulation, and roof repairs to prevent heat loss. A small number also mentioned interest in additional features, such as better drainage and storage solutions.

Some tenants expressed strong interest in renewable energy technologies, particularly solar panels, as a way to reduce energy costs and improve sustainability. They mentioned that neighbouring social homes had already received solar panels, leading to frustration or confusion about why their properties had not been included. Other tenants highlighted a desire for upgrades to their heating systems, noting that existing radiators and gas heating systems were functional but inefficient, slow to heat, or costly to run. Improving heating performance and affordability was seen as a main priority, particularly for those living in older or less well-insulated homes.

Bathroom renovations were generally well-received, with tenants appreciating functional, modern bathrooms that replaced older facilities prone to leaks and breakdowns.

Concerns about improvements

Some tenants raised concerns about ventilation and dampness. One tenant was concerned that external insulation might increase problems with mould and condensation rather than solving them, particularly if properties became too airtight without proper ventilation. A few tenants expressed reluctance about heat pumps, citing worries about noise, which would impact their mental health. Related improvements, such as replacing old electric showers with more efficient mains-fed systems when boilers were upgraded, were identified as missed opportunities.

Many tenants emphasised the importance of being consulted in advance and having the opportunity to provide feedback, particularly when improvements might have unintended consequences. Some felt that improvements should primarily benefit tenants rather than being driven by government targets, and that workers carrying out jobs should maintain good standards. They highlighted that whilst properties might belong to councils or housing associations, they were tenants' homes, and this distinction mattered in how improvements were planned and delivered.

> "Sometimes they need to treat Council houses as a home, not as just a house. It might be the Council's property, but it's our home."

4.1.9 Social landlords assessing the extent of changes and compliance

Relevant WHQS 2023 objectives:
Objective 1: To understand tenants' experiences of WHQS 2023

Relevant RQs: RQ4 – Views on component categories, including interpretation of assessment codes**; RQ5** – Experiences with WHQS data reporting requirements;
RQ6 – Whether landlords have sufficient skills, capacity, and networks to implement the Standard.

Findings from the fieldwork shows that social landlords have made uneven progress toward WHQS 2023 compliance. According to their own assessment, progress was primarily reported in implementing safety and security measures, while more variable progress was reported in implementing energy-related requirements, data-driven planning, and smart technologies. WSAs are widely viewed as a necessary and largely successful foundation for compliance, while TEPs are perceived as more complex, resource-intensive, and constrained by skills shortages and evolving guidance. Landlords also face significant challenges in workforce capacity, supply chains, data completeness, and the interpretation of assessment categories. These issues have affected confidence in compliance reporting and created implementation pressures.

Detailed summary of findings:

- **Progress on WSAs and TEPs is uneven:**
  The majority of social landlords interviewed have completed or are nearing completion of WSAs, providing a detailed baseline for planning and investment. In contrast, TEPs were widely described as challenging due to reliance on external expertise, internal skills shortages, and incomplete guidance from the Welsh Government, limiting progress beyond initial stages (RQ5, RQ6).
- **Financial and workforce implications of compliance:**
  Landlords consistently identified energy efficiency and decarbonisation works as the most costly and complex elements of WHQS 2023. These measures require specialist skills, new technologies, and long-term planning, placing substantial financial pressure on organisations. Limited availability of skilled contractors and surveyors, combined with sector-wide competition, further increases costs, creates bottlenecks, and strains capacity, particularly for large portfolios and in rural or remote areas (RQ6).
- **Use of rolling assessment cycles to manage compliance:**
  The vast majority of landlords reported using 5-year rolling stock condition surveys, often assessing around 20% of properties annually. This approach was viewed as more manageable and better integrated into routine operations than infrequent large-scale surveys, with specialist checks continuing alongside these programmes (RQ5).
- **General confidence in WHQS principles:**
  The majority of landlords expressed confidence in the overarching principles of WHQS 2023 (RQ4).
- **Uncertainty in application:**
  Some landlords reported difficulties interpreting and applying specific assessment categories, particularly “pass,” “conditional pass,” “temporary fail,” and “assumed fail,” especially across diverse property types. Inconsistent or evolving guidance further contributed **to uncertainty and challenges with internal reporting (RQ4).**
- **Impact of assumed fails and missing data:**
  Landlords reported sharp drops in apparent compliance rates due to data gaps rather than physical deficiencies, creating frustration and highlighting the importance of robust data systems and clear guidance (RQ4, RQ5).

When asked, “For what proportion of your housing stock have the following steps been undertaken to support compliance with the WHQS 2023?”, the highest reported progress among landlords surveyed was in safety and security measures, with 25 out of 32 social landlords (78%) stating that improvements such as alarms and fire safety systems had been implemented in at least 70% of their properties.

The survey of social landlords showed that progress varied across different types of WHQS 2023 compliance measures. Around half of social landlords reported similar levels of progress in developing TEPs (50%) and conducting whole stock property assessments (47%) for at least 70% of their stock. 34% of social landlords reported having completed renovations of internal spaces and improvements to outdoor areas. Smart meter installation showed the lowest progress, with only 13% indicating coverage across most of their stock. Varied levels of progress and focus on different elements were further explained during the interviews.

Progress on WSA and TEPs

The majority of social landlords interviewed reported that work on WSAs and TEPs is currently underway, though progress varied widely. In general, they noted that they have concluded WSAs across the housing stock, while carrying out TEPs is still underway.

The WSA completion process was well-received, with many social landlords viewing it as an essential first step toward preparing for WHQS 2023 and moving toward more evidence-based planning. Conducting assessments across all properties provided a detailed baseline for planning and investment decisions. This data-driven approach allowed organisations to gauge the scale of work required and set more realistic expectations for achieving compliance, particularly for the mid- and final-stage environmental targets.

In contrast, some social landlords found developing TEPs to be a demanding requirement. This was largely due to relying on external support, as internal teams face challenges attracting and retaining staff with the necessary skills at current salary levels to carry out these tasks internally. Additionally, one landlord regarded the guidance on TEP requirements as limited, noting the absence of detailed instructions on how these plans should be structured or developed, which they felt constrained progress beyond the initial stages.

The vast majority of social landlords also reported that, while the exact total depends on inflation and market conditions, they have provided a preliminary estimate of the cost to meet WHQS 2023. These social landlords identified energy efficiency and decarbonisation elements as the most substantial cost elements of meeting WHQS 2023. They informed that adhering to environmental and energy efficiency standards requires a combination of measures and work on their end, including insulation practices, installing new thermal systems, such as air source heat pumps, and green energy retrofits like solar photovoltaics (PVs) and batteries. Most of these works were reported to be technically complex and resource-intensive. The majority of social landlords generally believed that these works add a significant financial burden on top of routine maintenance, partly because they require specialist skills, new technologies, and long-term planning to integrate with existing stock. A few large social landlords also added that the scale of intervention needed across a large housing portfolio makes delivery challenging, both in terms of funding and logistics.

Many social landlords also reported several non-financial challenges that could affect the implementation of WHQS 2023. Workforce and supply chain limitations were highlighted as the most significant barriers. Only a limited number of providers can deliver the specialist services needed for energy efficiency and decarbonisation work, and they charge high fees, prompting some organisations to develop skills in-house. These social landlords anticipated that competition among housing organisations for a limited number of skilled contractors, surveyors, and technical officers would strain their resources, create bottlenecks, and potentially raise contract costs. This concern arises particularly as all providers aim to achieve similar targets and deadlines.

Internal staffing capacity was noted as a further constraint by a landlord, expressing that their organisation struggles to attract qualified personnel, and often must choose between raising salaries or training less-experienced staff. Geographical and logistical challenges in more remote areas of Wales were also mentioned, as fewer contractors operate there, making scheduling more difficult and competition stiffer. Lastly, additional pressures were said to arise from external factors, such as competing infrastructure projects, which could divert labour and technical expertise away from the housing sector.

> “Even looking ahead to 2050, we’d effectively need to double our investment in maintenance just to meet these requirements. And that’s purely the project cost, not including the staffing required to deliver it.” (Landlord)

Assessment frequency

When asked how often they plan on conducting stock condition surveys to ensure compliance with WHQS 2023, the most common response in the survey was every 4 to 5 years, selected by 44% of social landlords (14 out of 32). A further 28% planned to assess annually, 9% intended to do so every 2–3 years, while 13% had not yet decided. The remainder of respondents stated that they would do so at the change of occupancy or preferred not to answer the question.

These findings were echoed in the interviews, where social landlords also provided further detail on their process for assessing their stock. The vast majority of social landlords interviewed reported a consistent approach to maintaining a 5-year assessment cycle for monitoring property condition and WHQS compliance. They have either recently completed a full stock condition survey or are implementing rolling programmes to continuously capture data.

A common practice is to survey approximately 20% of the housing stock each year, allowing a full reassessment of all properties within a 5-year period. This approach is chosen as beneficial because it integrates regular inspections into day-to-day operations rather than relying solely on large-scale, infrequent reviews. Surveyors assess properties against WHQS standards, identifying elements such as kitchens, bathrooms, or roofs for inclusion in major works programmes. Depending on the condition and the tenant's preference, works are either prioritised or scheduled for later years.

A few social landlords have set specific targets within this framework. For example, one social landlord organisation aims to achieve full coverage of its housing stock by March 2027, though maintaining that level of continuous assessment is still being reviewed for long-term feasibility. Alongside these condition surveys, some social landlords continue to undertake specialist checks at different intervals, such as annual gas safety inspections, annual electrical testing, and communal area inspections.

> “We aim to complete stock condition surveys on a five-year rolling cycle. In addition, we assess our compliance with the Standard annually […] We collaborate with another department to cleanse the data and carry out a desktop assessment to determine where we stand against the Standard each year for the submission. That’s essentially how we manage it. We’ve also worked closely with the surveyors conducting the stock condition surveys to ensure they’re properly trained, and they’ve received [Housing Health and Safety Rating System] HHSRS training.” (Landlord)

Understanding of the WHQS 2023 adherence principles

Overall, many social landlords in our discussions agreed that the general principles of WHQS 2023 are clear and well-understood. They expressed a reasonable level of confidence in applying the overarching framework, with one reporting an 85% success rate in assessing their stock condition and another noting that their submitted data closely aligned with government assessments. While some ambiguity and difficulty were reported in interpreting specific requirements, participants described this as part of an ongoing learning process that will improve as software tools are further developed, users become more familiar with them, and the initial rounds of property assessments are completed. This uncertainty was most apparent when interpreting hierarchy assessment marks like “Pass,” “Conditional Pass,” and “Temporary Fail,” and when these marks were applied across varied property types.

Some social landlords elaborated on challenges associated with the conditional pass category. One assumed that their organisation would likely face a challenge when applying conditional passes to investment-related items, as the current rules allow a conditional pass for only 5 years, whereas their investment programme operates on a 9-year cycle. Consequently, approximately half of their properties cannot be recorded as Conditional Passes. To enable accurate monitoring and scheduling of upgrades, they may temporarily record these properties as Fails, even where long-term improvement plans are in place. In practice, this appears to reflect a misinterpretation: the 5-year limitation relates to Temporary Fail – Programmed works, whereas Conditional Pass is reserved for specific constraints (e.g., physical constraints, heritage/conservation restrictions, or cost-prohibitive elements). Nonetheless, the comment illustrates the wider uncertainty among landlords regarding the appropriate categorisation of items.

Another landlord reported difficulties following the Welsh Government’s reclassification of some of their properties from “Pass” or “Not applicable – No new tenant” to “Conditional Pass” without prior notice. This change has initially created internal confusion. Properties with no new tenancies were marked as Conditional Passes because certain elements of the Standard only apply when a new tenancy occurs. As a result, concerns were raised by landlords that these properties could remain in the Conditional Pass category indefinitely, as some tenancies can last for decades. The Welsh Government has since reverted these properties to Passes. Social landlords were unclear whether a Conditional Pass is effectively equivalent to a Pass and how long a tenancy could remain classified in that category.

A further social landlord observed that WHQS 2023 has broadened the assessment framework compared to the previous Standard, introducing Conditional Passes in place of the former “Acceptable Fail” metric. Using the SAP 75 target as an example, their organisation had assigned itself a Conditional Pass until 2030, in recognition that the metric will not formally apply until that date. However, they noted receiving conflicting guidance from Welsh Government representatives: one advised that the metric was not yet applicable, while another suggested it should already be recorded[footnote3].

In addition to uncertainty around Conditional Passes, a few social landlords highlighted issues with how the “Fail” status is applied. One landlord explained that under the new Standard, a single Fail in any part of the Standard now results in an overall Fail, whereas under the previous Standard, as long as a property passed all primary elements and a majority of secondary elements, it could achieve an overall pass even if some secondary elements failed. This change required internal adjustments to their organisation’s WHQS certification processes, as it led to a noticeable drop in compliance rates from the old to the new framework.

Another landlord reported that the “Assumed Fail” mark can be triggered by missing data[footnote4]. For instance, the absence of a single data point, such as information about drying facilities, can automatically trigger an “assumed fail,” even if all other fields are complete. This was described as frustrating, particularly due to certain elements. For example, drying facilities, previously considered secondary, are now treated as primary, and many organisations are still in the process of collecting these data across their housing stock.

> “At the moment, the assessment criteria feel quite raw. In time, we’ll probably come to accept it a bit more, but right now we’re struggling with it internally. We had around 50% of our properties showing as assumed fails due to missing data. When we looked into it, most of the missing data related to just one of the core elements. The frustration for us is that out of the 37 or 38 core elements we need to collect for an assessment, if we were missing data for one element, it resulted in a fail for that property.” (Landlord)

4.1.10 Social landlords on the feasibility of the updated Standard

Relevant WHQS 2023 objectives:

Objective 2: To understand landlords’ experiences of meeting WHQS 2023

Objective 3 (contextual): To conduct an outcome evaluation of WHQS 2023 (feasibility

Footnotes

[3] Welsh Government guidance specified that elements 3b – “In the interim, all homes must meet a minimum standard of SAP 75 – EPC C” - would not be included in the compliance assessment until 31 March 2030.
[4] Missing data in supporting or stockographic variables does not trigger an assumed fail; only missing elements variables, which are required for assessing compliance, will trigger an assumed fail.

of achieving intended impacts)

Relevant RQs: Objective 2: RQ3 – Experiences of implementation, including which aspects are easier or harder to meet; **RQ6** – Whether landlords have sufficient skills, capacity, and networks to implement the Standard.

Evidence indicates that the majority of social landlords view WHQS 2023 as containing a mix of straightforward and highly challenging elements. Core housing quality improvements (safety and general repairs, kitchen and bathroom upgrades) are widely seen as implementable and aligned with existing maintenance practices. In contrast, Part 3 of the Standard, particularly the long-term energy efficiency target of SAP 92/EPC A, is regarded as the most challenging and, for many organisations, unachievable across their entire housing stock under current financial, technical, and workforce constraints. Concerns about funding, skills shortages, supply chain capacity, and administrative burdens further undermine confidence in delivering.

Detailed summary of findings:

- **Many WHQS elements are viewed as straightforward and aligned with existing practice:**
  Social landlords reported that many aspects of WHQS 2023 build on long-established maintenance and improvement activities. Kitchens, bathrooms, safety and security measures, flooring, and general repairs were consistently cited as technically straightforward and closely aligned with tenants' priorities, making them relatively easy to deliver within existing systems (RQ3).
- **Some new requirements are technically simple but low priority:**
  Minor infrastructure additions, such as water butts and bike sheds, were described as technically easy to implement but lower priority due to their limited perceived impact on tenants' day-to-day experience (RQ3).
- **Mid-term energy targets considered achievable by some landlords:**
  A small number of landlords reported confidence in achieving the SAP 75 target through a "business-as-usual" fabric-first approach, building on existing programmes of external wall insulation, window replacements, and roof upgrades. However, progress was expected to be gradual and uneven across housing portfolios (RQ3).
- **Low confidence in meeting long-term energy efficiency targets:**
  Survey and interview evidence show low confidence in achieving SAP 75 by 2030 and particularly SAP 92/EPC A by 2040. Most landlords anticipated that only a

minority of their stock would reach the highest energy efficiency standards, reflecting technical, physical, and stock-related constraints (RQ3; Objective 3 context).

- **Financial, workforce, and resource challenges limit feasibility:**
  Most landlords described meeting WHQS 2023 as financially challenging, with high capital costs for decarbonisation, energy-efficiency upgrades, and rent caps limiting revenue, often leaving borrowing as the only option. These financial pressures are compounded by shortages of skilled contractors, retrofit assessors, and technical specialists, where competition from other decarbonisation programmes further strains capacity, raises costs, and delays delivery (RQ6).
- **Administrative and compliance burdens add further pressure:**
  Beyond operational challenges, additional regulatory requirements, such as TrustMark accreditation, PAS compliance, and data registration, were described as time-consuming, costly, and administratively demanding. Limited numbers of accredited contractors and frequent changes to standards were reported to create bottlenecks, duplication, and inefficiencies (RQ6).

Straightforward elements

The majority of social landlords emphasised that WHQS 2023, as a continuation of a social housing standard whose many elements are already met, has many straightforward-to-implement elements. These elements are believed to be well-aligned with existing maintenance routines and to directly address tenants’ immediate priorities. The most frequently cited examples were kitchens and bathrooms, along with general property repairs, which are technically straightforward to implement. Routine upgrades, such as installing carpets, flooring, safety and security measures, and additional smoke detectors, were also highlighted by a few social landlords as manageable interventions, as organisations already have experience, processes, and teams in place to manage day-to-day property standards.

Regarding new WHQS elements that are straightforward to implement, one landlord mentioned that water butts and bike sheds are technically straightforward, as minor infrastructure additions. Nevertheless, these are not prioritised, as they have limited direct impact on tenants’ daily experience.

> “The easier elements are the ones tenants actually want, things like safety, security, and being in a comfortable environment. They really appreciate new kitchens and bathrooms, and those parts of the Standard are quite straightforward to deliver.

> Some aspects, like dealing with void properties and carpeting, also fit well within what tenants value, while being a little more demanding." (Landlord)

> "There are certain elements that, personally, I don't see as particularly difficult, even though there was sector-wide criticism of some aspects, like the requirement to supply carpets and floor coverings throughout. The challenge there isn't technical; it's mainly financial." (Landlord)

Additionally, one landlord mentioned that their organisation's mid-term energy efficiency target of SAP 75, while requiring some work on their side, would be straightforward to meet. External wall insulation, window replacements, and roof upgrades that were already implemented brought many properties close to the SAP 75 target, requiring only supplementary measures, such as solar PV installations funded through ORP, to further improve ratings toward SAP 78–80.

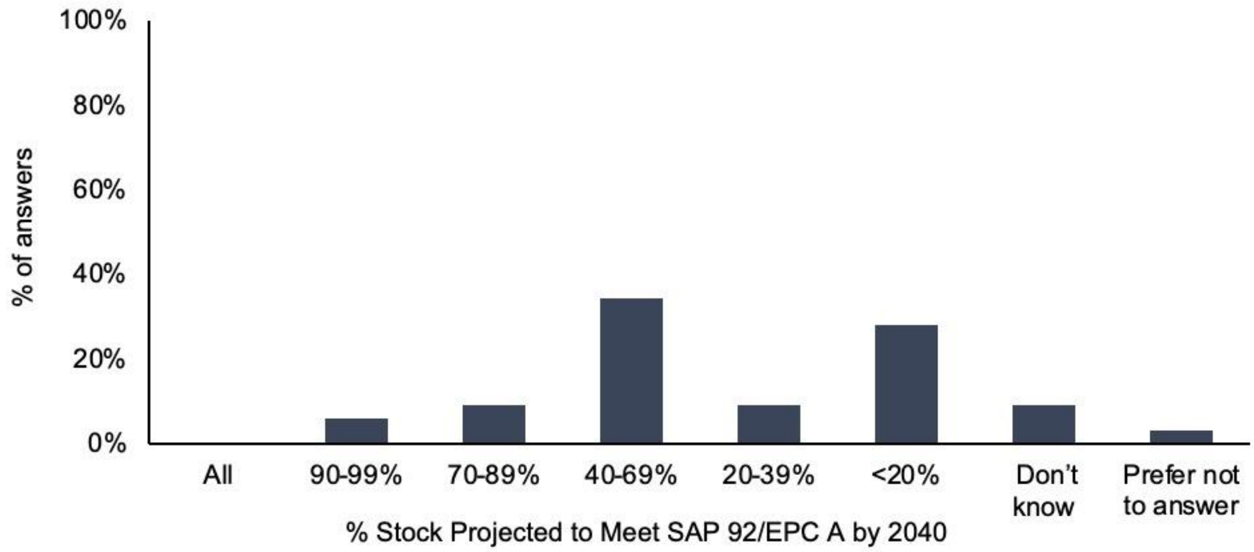
> "For reaching SAP 75, we follow a 'business as usual' approach using a *'fabric-first'* method, installing external wall insulation, replacing windows, replacing roofs, and so on. Through that approach, we generally reach around SAP 70 to 72. So we're getting close as part of normal operations. It'll take time to work through the entire housing stock, but we've been following this approach for years and have a 30-year business plan to continue. Over time, and organically, the vast majority of our properties will reach EPC C, but not necessarily SAP 75." (Landlord)

Challenging parts

In the survey, social landlords were asked how confident they were that they would achieve the delivery of homes with a minimum SAP 75 rating by 2030, and responses were mixed but leaned toward lower levels of confidence. 34% cent reported that they were very or somewhat confident, while a higher proportion, 41%, reported being not very or not at all confident. Roughly another fifth (22%) were neither confident nor not confident, while the remainder chose not to answer the question.

Furthermore, looking ahead to 2040, social landlords expressed limited confidence that their housing stock will achieve a minimum SAP 92/EPC A rating (see Figure 10). Only 5 respondents (16%) anticipated that at least 70% of their homes would meet this standard, while a further 34% expected this to apply to between 40% and 69% of their stock. 38% reported that only a few (between 20% and 39%) or very few (less than 20%) of their properties would reach SAP 92/EPC A, and 9% were not sure. The remainder chose not to answer the question.

Figure 10: Anticipated proportion of social landlords' housing stock projected to achieve minimum SAP 92/EPC A rating by 2040 (n=32)



Description of Figure 10: Column chart showing responses from the social landlord survey (n=32) on the anticipated proportion of their housing stock projected to achieve a minimum SAP 92/EPC A rating by 2040. Response options were given in percentage estimate categories, ranging from 'all' to 'less than 20%'. The most common responses were in the '40–69%' range, followed by 'less than 20%'.

Parallel to the survey findings, meeting Part 3 of WHQS 2023 was identified in interviews as the single most challenging aspect of the Standard to deliver within current financial and operational resources for the vast majority of social landlords. The main reason is the final SAP target of 92. While the mid-term target of 75 is considered achievable for some social landlords, SAP 92 is regarded as very ambitious and very hard to achieve for existing homes. For example, a social landlord interviewed reported that it is even challenging for new builds that meet the previous Standard, as they usually score only in the high 80s. Properties heated by Liquid Petroleum Gas also face a significant challenge, as they cannot reach SAP 92 without switching to another energy source.

Consequently, many social landlords interviewed view Part 3 as nearly impossible to achieve without major support. They expect that delivery will often rely on exemptions or "reason codes" for homes where upgrades are not viable. Even though some homes can be upgraded more easily, achieving full compliance across an entire housing portfolio is seen to be extremely challenging, even for the most confident organisations.

> “Reaching the ultimate aim of ‘A-rated’ properties from an energy perspective will be extremely difficult without a fundamental change of fuel source. For example, we have some properties using bulk LPG, which will never meet an A rating without a fundamental change in fuel. Some parts of the stock will be more straightforward, but achieving 100% compliance with the energy requirements will be very difficult. I’d say with confidence that even aiming for 90%, and even with the interim targets of 75% by 2030—even though there is some flexibility now—that’s where our main challenges will lie.” (Landlord)

> “Renewable energy, like solar, is part of the approach, but it’s still proving extremely difficult to reach the high SAP levels required. That’s not to say every property will get to that point. I’m confident we could get perhaps 50% of our housing stock to that level, but there will be significant challenges in getting all properties there. In some cases, it may not be entirely practical, though not impossible.” (Landlord)

These practical and technical challenges are reflected in social landlords’ broader concerns about meeting the highest energy efficiency targets. In survey responses, many indicated that achieving the highest energy efficiency targets, such as SAP 92 or EPC A, is not feasible across their entire housing stock. Technical and physical constraints, including limited roof space for solar panels, insufficient headroom for floor insulation, and restricted space for heat pumps, prevent many properties from reaching these standards. The age and construction materials of a large proportion of the stock further limit the potential for deep energy improvements.

Financial implications

When considering the financial impact of meeting WHQS 2023, the majority of social landlords surveyed anticipated significant challenges. Only 16% of respondents (5 out of 32) felt the impact would be manageable or very manageable, while nearly three-quarters (72%) described it as somewhat or very unmanageable. The remainder were neutral or preferred not to answer the question.

The interviews allowed for a deeper understanding of the financial implications, especially for meeting the decarbonisation and energy efficiency targets, in which financial constraints were raised as the main barriers. Many organisations have set long-term targets, some extending to 2050, highlighting the large gap between what is currently possible and what regulations require. Budget constraints slow their progress, while the high costs of renewable energy installations and energy efficiency upgrades cannot be covered by rental income because government rent caps prevent raising rents. Since organisations cannot redirect rental revenue, borrowing is the only option, which in turn conflicts with the need to fund new housing and other competing priorities.

Additionally, the majority of social landlords interviewed noted that workforce capacity presents another layer of challenge on top of funding limits. Even when funding is available, there are not enough skilled contractors, retrofit assessors, and technical specialists, especially in North and West Wales. Additionally, one landlord explained that competition from other decarbonisation projects across England and Wales reduces the local workforce, and current training programmes have not fully closed the skills gap. The same landlord reported that organisations are competing for a small pool of skilled workers, which can strain resources, cause delays, and increase contract costs, making it harder to complete projects on time and on budget. Internal Housing Association and Local Authority teams also face capacity issues. Pre-project planning and administration can extend timelines, while compliance with procurement rules, keeping work local, and the technical complexity of retrofit projects contribute to further delays.

A few social landlords also said that data reporting and registration requirements add another challenge linked to Part 3 of WHQS. Collecting and reporting environmental information, such as carbon monoxide alarms, adds complexity because contractors were not prepared for it. Installing smart meters and implementing digital inclusion measures also depend on tenants' willingness, limiting what organisations can control. TrustMark accreditation and following PAS retrofit standards were described as time-consuming, expensive, and administratively demanding. Switching between requirements mid-contract requires major adjustments to ensure work is properly recorded, and the limited number of accredited contractors and retrofit coordinators causes further delays. Only a small fraction of contractors is TrustMark accredited, creating bottlenecks in both quality and capacity. One landlord said this can create a local monopoly, driving up costs and causing inconsistent outcomes. Another landlord noted that data registration and quality assurance processes lead to duplication and high administrative costs, with some design work consuming funds that could otherwise be used for actual retrofits.

> "The biggest issue is obviously tied to Part 3 - the decarbonisation side of things - particularly regarding the resources required to complete the work. Budgetary constraints, which we've already mentioned, and the technical skills available locally

to deliver these schemes are a challenge. Additionally, the extra work now required to deliver the decarbonisation schemes, such as TrustMark registration, is significant and impacts both resource and time budgets…. We've used compliant contractors and retrofit coordinators, but the pool is small… There are limited contractors and retrofit assessors available. I'm sure this will grow over time, but we're also competing with neighbouring authorities who use the same delivery mechanisms." (Landlord)

4.1.11 Changes implemented to meet the new Standard

Relevant WHQS 2023 objectives:
Objective 2: To understand landlords' experiences of meeting WHQS 2023
Objective 1: To understand tenants' experiences of WHQS 2023

Relevant RQs: Objective 2: RQ3 – Experiences of implementation, including which aspects are easier or harder to meet; **RQ6** – Whether landlords have sufficient skills, capacity, and networks to implement the Standard. Objective 1: **RQ2** – Inclusion and involvement: Do tenants feel sufficiently informed before, during, and after works? Do tenants perceive their homes to meet an appropriate standard? **RQ3** – Tenants' experiences of their homes: To what extent do tenants believe WHQS-related changes are affecting their wellbeing?

Evidence shows that social landlords have begun implementing a range of changes to meet WHQS 2023, with progress varying significantly across organisations. Many landlords have integrated WHQS requirements into existing maintenance and upgrade programmes, while others have piloted new approaches to test sequencing and feasibility for meeting Part 3. For a few landlords, the updated Standard has directly driven new types of work and organisational roles, while others reported little change to planned activity to date. From the tenant perspective, experiences of home improvements were mixed: while some tenants reported positive, well-managed improvement works, others experienced disruption, poor workmanship, or limited communication.

Detailed summary of findings:

- **Early progress through adaptation of existing programmes:**
  Many landlords reported that they had already begun work aligned with WHQS 2023, often by adapting planned business-as-usual activities. Kitchen and bathroom upgrades, window replacements, and damp remediation were commonly cited, with

additional WHQS elements, such as improved ventilation, smoke detectors, and energy efficiency measures, incorporated into routine works (Objective 2: RQ3).

- **Piloting and testing new approaches to delivery:**
Some landlords reported piloting deep retrofit and sequencing approaches to better understand how multiple interventions could be delivered efficiently. Examples included small-scale deep retrofit pilots using modelling and partnerships with academic institutions, and pilots testing the optimal order of insulation, window, and door upgrades (Objective 2: RQ3, RQ6).
- **WHQS 2023 as a driver of new activity:**
Some landlords stated that certain energy efficiency interventions would not have been undertaken without the updated Standard. In some cases, WHQS 2023 prompted the creation of new organisational roles focused on decarbonisation. Conversely, a few landlords indicated that little additional work had yet taken place beyond business-as-usual activities (RQ3).
- **Tensions with existing property management priorities:**
A few landlords reported misalignment between the long-term WHQS 2023 requirements and existing asset management strategies, budgets, and operational priorities. These tensions were exacerbated where compliance requirements conflicted with urgent housing needs, for example, delays to reletting due to smart meter installation. There were also concerns that homes that are complex or costly to upgrade may be disposed of, potentially transferring them into the private rented sector, where there may be fewer incentives or resources to improve standards (RQ3, RQ6).
- **Mixed tenant experiences of home improvements and their delivery:**
Tenant feedback indicated varied experiences of home improvements, with just over one-third reporting no recent works or communication about future improvements, while around two-fifths reported that improvements had been completed or were underway. Common works included kitchens, bathrooms, windows, and doors, and heating systems, while energy efficiency measures and external improvements were less frequently reported. Interviews highlighted significant variation in the quality and disruption of works, ranging from well-managed projects with clear communication to experiences of poor workmanship, delays, unfinished jobs, and resultant issues, such as damp or mould (Objective 1: RQ2, RQ3).

Progress made to date by social landlords

Many social landlords reported that their organisations had already started work to meet the updated Standard. Examples included their already planned activities, such as addressing damp and moisture throughout their housing stock. Some social landlords reported that they have tailored their already planned work to incorporate some additional WHQS requirements concurrently. A landlord cited kitchen and bathroom upgrades as routine works that are now designed to incorporate WHQS requirements, including safety measures, such as smoke detectors, energy improvements, and enhanced ventilation. Window upgrades were also highlighted by another landlord, with double-glazing replaced by triple-glazing, combined with external wall insulation, to meet energy efficiency targets.

Some social landlords interviewed reported that their organisations have piloted approaches to test the sequencing and combination of their future interventions. One landlord described a deep retrofit pilot on 39 homes, conducted in partnership with a university, that used modelling to apply fabric-first measures, particularly in solid stone buildings that require tailored retrofit approaches and significant investment. Another landlord mentioned a small-scale pilot that helped determine the optimal sequence for combining external wall insulation, window and door replacements, and other upgrades efficiently. On a larger scale, apart from ORP-related works, only one example of a large-scale energy efficiency work plan was given, with one landlord reporting installing solar PV and storage batteries across several hundred homes.

Some social landlords reported that these works would not have taken place if the Standard had not been updated. For example, one landlord stated that they would not have implemented External Wall Insulation (EWI) without the updated requirements of WHQS Part 3, while another suggested that neither their organisation nor the wider social housing sector would have pursued such ambitious energy performance targets if they were not imposed. Additionally, one landlord noted that the new requirements led to the creation of a decarbonisation officer role in their organisation. By contrast, a few social landlords indicated that the work would have proceeded regardless, either because it had been planned prior to the Standard's update or because it fell within their routine business-as-usual maintenance. Additionally, a few other social landlords reported that no significant works had been carried out to date. While this was not explored in detail, they explained that they had been focusing on their business-as-usual operations in the meantime.

Social landlords' alignment with existing property management practices

Landlords interviewed were mixed on whether the updated WHQS aligned with their existing property management practices. As mentioned in the section above, aspects of the Standard that align with their existing practices were welcomed and perceived to genuinely benefit tenants, such as routine maintenance and planned upgrades that incorporate energy efficiency or safety improvements. However, the final environmental and decarbonisation goals, particularly the SAP/EIR targets, were mostly seen as ambitious and, in some cases, challenging to implement within current budgets, especially in older housing stock. Many believed that while energy efficiency improvements under the updated Standard genuinely benefit tenants, they could be impractical or even unachievable for older buildings. A landlord suggested that decarbonisation goals would be more effective if directed toward new builds rather than retrofitting properties with physical or design limitations.

Some social landlords identified tensions between meeting the Standard and addressing immediate tenant needs. Operational challenges were highlighted where energy-efficiency and decarbonisation requirements conflicted with urgent housing demand. The requirement for smart meters to be installed in properties before letting was noted as taking several weeks to arrange, creating practical difficulties when properties were otherwise ready for occupation. Given the urgent demand for housing and the number of homeless families waiting for accommodation, keeping properties empty solely to meet this requirement did not make sense to them. Operational decisions needed to prioritise letting properties quickly rather than delaying for smart meter installation:

> "It makes no sense from a housing needs point of view when you've got X number of homeless families to keep that property empty until a smart meter is installed." (Landlord)

Another landlord gave the example of bath replacements introduced to meet water efficiency targets, which sometimes result in replacing fully functional fixtures without a clear tenant benefit. They also raised concerns about older properties with structural limits that make full compliance impossible. If these homes are deemed non-compliant, social landlords may feel pressure to sell them. Once in the private market, however, such properties are unlikely to see significant upgrades, as private owners often lack the resources, incentives, and general duty to implement them. This could, they warned, entrench poor housing conditions rather than resolve them.

> "One concern we raised with Welsh Government early on is that if we're not careful, landlords might dispose of the more difficult stock. That would put these properties

onto the open market, where they're unlikely to be improved. Private owners don't have the same level of investment or incentives. A poorly performing property now could remain poorly performing because occupants struggle with mortgage and living costs. By keeping it in social landlord stock, with a commitment to improve it, the property could reach its best possible condition. That's far preferable to simply releasing it because it's difficult to upgrade." (Landlord)

Tenant experiences with home improvements

When asked whether any work had been done to fix or update their home in the last 12 months, just over a third of respondents (490 out of 1285) reported that no fixes or updates had been carried out, and they had not heard anything about any such improvement. In contrast, 39% of tenants indicated that improvements had either been completed or were underway: 27% confirmed that improvements had been finished, while a further 12% reported that improvements were still in progress at the time of the survey. Additionally, 166 respondents (13%) stated that while no work had yet been done, they had been told their home would be improved or updated in the future. A small proportion of tenants (11%) either did not know whether improvements had taken place or preferred not to answer the question.

Among those who reported that improvements had been completed or were in progress, tenants were asked to specify the type of work undertaken. The most frequently reported improvements include improvements in bathrooms (16%; 129 out of 832), kitchens (15%), and installation of new windows or doors (14%). Energy-efficiency work also featured prominently, with 10% reporting improvements to heating systems, such as heat pumps or new boilers. Less than 10% reported each of the following improvements: solutions to damp problems, insulation measures, security improvements, including fire safety alarms, solar panels, improvements to outdoor spaces, staircases, and added storage spaces.

Similarly, the tenants interviewed who reported having improvements implemented in their homes over the past 12 months referred to a wide variety of improvements. The most common changes included heating system upgrades, such as new boilers, radiators, and combination boilers. Many tenants interviewed also discussed having received new double-glazed windows and door replacements. Bathroom renovations and repairs were frequently mentioned, along with fire safety improvements, such as sprinkler systems, fire alarms, and smoke detectors. Some tenants had solar panels installed, while others received security upgrades, including cameras and smart locks. Additional improvements included extractor fans, insulation work, cladding, roofing repairs, and kitchen updates.

The experience of having improvements implemented varied widely. Some tenants described smooth, professional processes where installers arrived on time, completed work efficiently, protected furniture, and cleaned up afterwards. Communication was clear, with advance notice and follow-up checks to ensure everything was working correctly. However, other tenants reported more challenging experiences. Some described the work as disruptive. Some tenants mentioned that staff conducting the work were skilled and polite, while others described poor workmanship, including problems with door locks, incorrectly sized doorframes, uncleaned carpets, unpainted surfaces, and improper sealing that led to water damage and mould. Some tenants noted that repairs were incomplete or that promised follow-up work never happened.

4.1.12 Impact of WHQS for tenants

Relevant WHQS 2023 objectives:
Objective 3: To conduct an outcome evaluation of WHQS 2023
Objective 1: To understand tenants' experiences of WHQS 2023

Relevant RQs: Objective 3: To what extent is WHQS 2023 achieving its intended impacts, including improvements in satisfaction and quality of life? Whether impacts can be observed on tenants' behaviours, particularly related to energy use. Objective 1: To what extent do tenants believe WHQS-related changes are affecting their physical or mental wellbeing? Do tenants perceive WHQS 2023 to have improved the quality of their homes, and in what ways?

Evidence indicates that WHQS 2023 has delivered largely positive impacts for tenants who have experienced home improvements, particularly in relation to housing quality, comfort, safety, and overall satisfaction. Improvements were also associated with enhanced wellbeing and peace of mind, though impacts on energy efficiency and financial outcomes were more mixed, reflecting wider increases in energy prices. While many tenants reported tangible benefits from heating, insulation, and security upgrades, others continued to experience challenges related to uneven heating, damp, and rising energy costs. These findings suggest that WHQS 2023 is contributing to improved tenant outcomes, but that impacts vary depending on the type, quality, and sequencing of works, as well as broader economic conditions.

Detailed summary of findings:

- **High satisfaction with improvements to housing quality:**
  Survey results show that tenants who had experienced improvements reported the

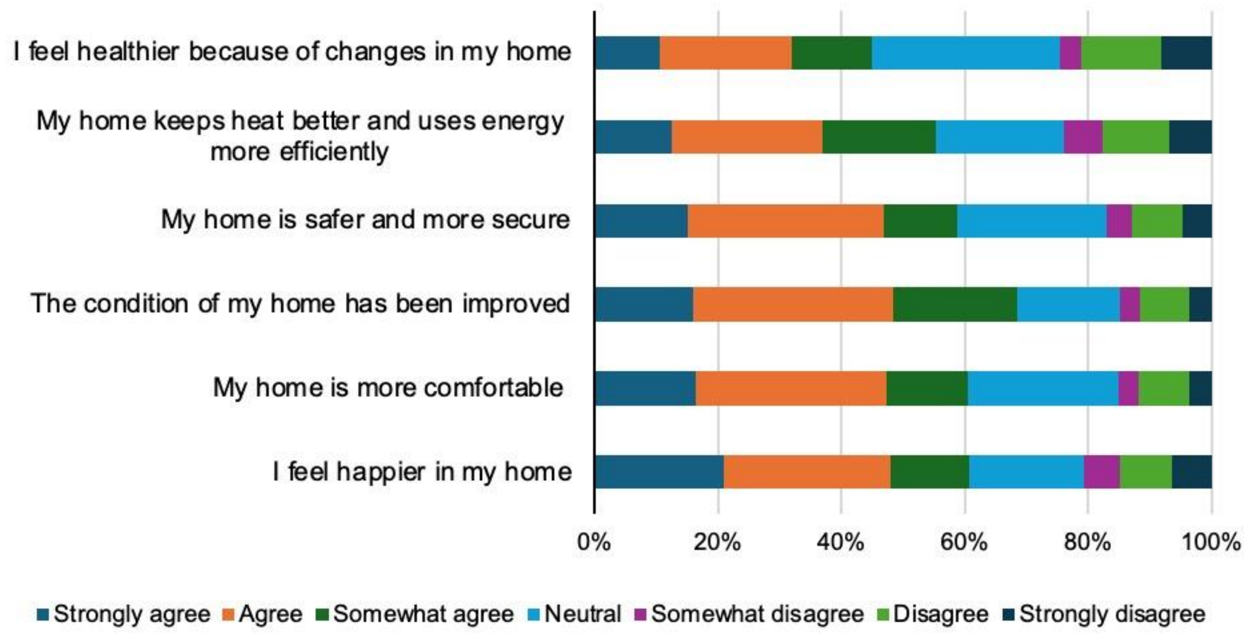
greatest positive impact on overall home condition, safety and security, comfort, and general happiness at home. Interview evidence reinforced these findings, with tenants describing warmer, quieter, and more pleasant living environments following upgrades (Objective 3).

- **Positive impacts on comfort, warmth, and energy performance:**
Heating upgrades, improved insulation, and double-glazed windows were widely appreciated, with tenants reporting better heat retention, reduced draughts, and improved acoustic comfort. Some tenants also reported lower energy consumption and greater ease in keeping their homes warm (Objective 3).
- **Mixed experiences of energy affordability:**
Despite reported efficiency gains, survey findings indicate that over half of tenants experienced increases in energy bills compared with the previous winter, likely reflecting broader market conditions. Interviews suggest that while improvements helped mitigate costs for some tenants, these benefits were not always sufficient to offset rising energy prices (Objective 3).
- **Improvements in physical health outcomes for some tenants:**
Interview evidence suggested that housing improvements delivered physical health benefits for some tenants, particularly through warmer, drier homes that reduced respiratory problems, improved sleep, and limited exposure to damp and mould. However, survey findings indicated more mixed experiences overall, with a notable minority reporting no change in health. Improvements were more consistently associated with positive mental health and wellbeing outcomes, including reduced stress and anxiety linked to lower heating costs, increased comfort, and improved home security, as well as enhanced feelings of pride, dignity, and belonging (Objective 3).
- **Anticipated benefits among tenants awaiting improvements:**
Tenants who had not yet experienced improvements anticipated positive impacts on comfort, health, security, and affordability. Many expected improvements to reduce illness, lower stress, and enhance quality of life, underscoring the importance of timely delivery and clear communication (Objective 1, Objective 3).

Satisfaction with improved quality

Tenants who had experienced home improvements were asked to assess their impact across 6 dimensions of home quality and wellbeing (n=482). The improvements were viewed most positively in terms of overall home condition, with 68% expressing agreement that their dwelling had been improved. Similar majorities reported improvements to safety and security (59%), comfort levels (61%), and their general happiness at home (61%). However, perceptions of impact were more mixed for energy efficiency, with just over half of respondents (55%) agreeing their home now retained heat better and used energy more efficiently.

Figure 11: Social housing tenants' agreement with statements about the impact home improvements have made in the past 12 months (n=482)



Description of Figure 11: Stacked bar chart showing responses from the WHQS social housing tenant survey (n=482), asked only of respondents who had received home improvements in the past 12 months. The question explored the extent of agreement with statements about the impacts of these improvements, with response options ranging from 'strongly agree' to 'strongly disagree.' For each impact, a slight majority of respondents selected 'strongly agree,' 'agree,' or 'somewhat agree.'

This broadly positive view was echoed more emphatically in the tenant interviews, which revealed great satisfaction with the impact of home improvements. Changes to the home quality had a substantial effect on tenant satisfaction, with many reporting both positive improvements and some ongoing challenges.

Heating and comfort improvements were widely appreciated. Upgraded heating systems, new boilers, and radiators made homes warmer and more comfortable. Improved insulation and double-glazed windows helped properties retain heat better, reducing the need to run heating constantly. Some tenants noted reduced energy bills, with solar panels also helping some lower their electricity costs. Homes felt warmer, quieter, and free from drafts, making daily life more pleasant. Double-glazed windows reduced outside noise, helping families concentrate, work from home, and sleep better.

However, not all experiences were positive. One tenant reported that heating remained unreliable, with rooms heating unevenly and some staying cold, requiring extra blankets and portable heaters. Another mentioned having electric radiators that were too expensive to run, which led them to avoid using heating altogether.

Security and safety improvements increased satisfaction. New doors, security cameras, and smart locks made tenants feel more secure. Fire alarms and smoke detectors enhanced safety, particularly for those who had previously experienced incidents. Another tenant felt grateful to have a home that was safe, secure, and fully met their needs after experiencing housing instability.

> "The place feels more secure. Those little updates really improve the overall atmosphere and make the home feel more pleasant to live in."

Functionality and cleanliness also contributed to satisfaction. Bathroom renovations made previously unusable facilities functional again, positively affecting daily comfort. Minor fixes made daily tasks easier and reduced frustration. New extractor fans in kitchens and bathrooms reduced condensation, making homes feel cleaner and calmer. However, ongoing challenges remained for some. Despite improvements, one tenant noted that major problems with damp, mould, and unreliable heating meant their home still did not feel fully warm, healthy, or comfortable, particularly affecting their child.

Tenants who had not yet had improvements anticipated various enhancements to their satisfaction. Security, comfort, and improved home appearance were the main expected outcomes. New doors and windows were expected to improve security and general satisfaction. Functionality improvements were also anticipated, with changes to doors, kitchens, and bathrooms expected to make living easier. Garden improvements were expected to make outdoor spaces more pleasant and usable. Energy efficiency measures, such as heat pumps and solar panels, were expected to provide a sense of contributing to sustainability, reflecting personal and professional values.

Impact on finances

Tenants who had experienced home improvements were asked about changes in their energy bills, comparing the most recent winter (2024 to 2025) to the previous winter (2023 to 2024) (n=499). Over half of respondents (262 out of 499) reported that their bills had increased, with 28% noting substantial increases and 25% reporting slight increases. Nearly 1 in 5 tenants observed no change in their energy costs. In contrast, only 15% of respondents experienced reductions in their bills. This, however, might be a result of broader increases in energy costs across the UK, rather than the effectiveness of the home improvements themselves.

Despite the broader trend of rising energy bills, interviews with tenants highlighted how particular improvements had helped reduce consumption and manage costs more effectively. Upgraded heating systems, new boilers, double-glazed windows, and improved insulation helped homes retain heat better, reducing the need to run heating constantly and, in turn, reducing bills. Some tenants noticed their homes stayed warm more easily. Solar panels helped one household significantly reduce its electricity costs. More efficient boilers improved financial management and provided peace of mind about ongoing costs. One tenant noted that even minor improvements to heating systems and windows had a modest but positive financial impact. However, one tenant found it difficult to determine whether savings were due to the heating system itself or recent energy price changes, though overall the system performed well.

Beyond energy savings, some tenants anticipated reduced maintenance and replacement costs. Higher-quality doors were expected to last longer and cost less to maintain over time. One tenant expected that resolving damp issues would eliminate ongoing expenses for decorations and repairs caused by poor maintenance, which they currently had to bear themselves. Another mentioned that garden improvements would save money previously spent on hiring maintenance help. One tenant anticipated financial benefits from installing water butts to reduce water bills, while a few mentioned that these improvements would also provide a sense of contributing to broader sustainability goals.

Impact on physical and mental health

Views were divided regarding health benefits, where only 43% (out of 466 survey respondents) felt healthier as a result of the changes, and nearly 3 in 10 tenants taking the survey held neutral opinions on this dimension.

During the interviews, health impacts were discussed in terms of both physical and mental wellbeing. Tenants reported feeling healthier, cleaner, and calmer following improvements. For physical health, tenants noted that warmer, drier homes reduced illness. Homes stayed warm and dry, addressing previous issues where draughts and cold spots caused aches or made tenants feel run down. One tenant reported that before improvements, cold and damp made it harder to sleep properly and caused morning congestion. Another tenant noted that their daughter no longer woke up feeling cold in the mornings. After repairs, the air felt fresher, and the living environment was much better for their wellbeing. Another tenant reported that damp prevention and ventilation upgrades made their home healthier and easier to heat for their family. Fewer mould-related allergies were experienced following improvements.

> "I really do think the improvements have had a positive impact on my health. You know, since the repairs were done […] the house feels warmer, drier, and more comfortable. So before that, the cold and damp sometimes made it harder to sleep properly. And I used to feel congested in the mornings. So now the air feels pure, and the overall living environment is much better for my well-being." (Tenant)

Improvements in mental health and wellbeing were also reported. Tenants described feeling less stressed and anxious, particularly about energy bills and home comfort. Feeling comfortable at home helped improve mood and reduce stress. One tenant experienced improved sleep quality due to feeling more secure. Peace of mind came from having warm, safe, and efficient homes, making life feel more stable and relaxed. Some tenants also reported no longer worrying about their children catching colds or feeling cold. However, one tenant noted that maintaining new features, such as extractor fans and damp monitoring, created a minor ongoing responsibility.

Tenants who had no WHQS-related work in their homes at the point of being interviewed also anticipated both physical and mental health benefits from planned or desired improvements. For physical health, the most common expectation was that warmer homes would reduce illness. Tenants thought that better insulation and heating would prevent colds and conditions such as pneumonia, which had affected neighbours in cold properties. One tenant noted that improved heating in the kitchen would enhance comfort and health for all household members, particularly during winter, by allowing consistent temperatures throughout the house. Resolving damp issues was expected to significantly improve physical health. One tenant currently managing ongoing damp problems expected that improvements would create a healthier living environment. Living with damp had negatively affected their physical health, and they anticipated considerable relief once the issues were addressed.

Addressing issues such as damp, faulty doors, or limited access to outdoor spaces was seen as reducing ongoing stress and worry, particularly around affordability and maintenance, allowing them to relax and maintain a better work–life balance. New doors and windows were highlighted as enhancing security, comfort, and overall satisfaction with the home. Improved garden access and outdoor spaces were described as supporting safety, encouraging outdoor activities, and fostering a sense of belonging and pride in both the home and the neighbourhood. Energy efficiency measures, such as better insulation or solar panels, and practical installations like water butts, were perceived as reducing household bills, providing financial relief, and contributing to overall wellbeing. Upgrades to kitchens, bathrooms, and heating systems were noted as making daily living easier and more comfortable. A few tenants also noted that living in an environmentally friendly home also boosts their morale and reinforces the sense that they are contributing to a greater cause.

> "You know, to have a home that's warm, safe and secure, that's all I ask for. And it makes you feel good. It makes you feel part of society, part of something. You have pride in where you live and pride for everything else around you [...] it's a basic human need to have a shelter." (Tenant)

> "It obviously has an impact on your physical and your mental well-being to know that you're doing your bit for the environment as well as feeling safe and things being more affordable." (Tenant)

4.2 Optimised Retrofit Programme

4.2.1 Social landlords' experience in claiming and accessing ORP funding

Relevant WHQS 2023 objectives:
Objective 4: To understand landlords' experiences of delivering ORP
Objective 2: To explore whether ORP is meeting its aims as a "test and learn" programme

Relevant RQs: Objective 4: RQ1 – Awareness of ORP and perceived clarity of guidance for claiming and accessing the fund; **RQ2** – Perceptions of whether the support provided to implement ORP requirements was sufficient**; RQ7** – How access to delivery of ORP varied over time and across different stages of the programme; **Objective 2: RQ3** – Assess whether ORP has enabled Welsh Government and social landlords to build practical knowledge, capability, and confidence in retrofitting the Welsh housing stock.

Evidence from both the survey and interviews indicates that the vast majority of social landlords found the ORP funding process relatively straightforward and the guidance generally clear, with strong and responsive support from Welsh Government officials. However, varying interpretations of the official guidance, evolving expectations, and tight funding timelines created practical challenges for the vast majority. Over time, some social landlords stated that both they and the Welsh Government refined delivery processes, improving clarity, communication, and confidence in managing the programme.

Detailed summary of findings:

- **Ease of access to funding:**
  The vast majority of social landlords (73%) found accessing ORP funding easy, with around one-third describing it as very easy and 40% as somewhat easy. The majority of social landlords interviewed described the process as straightforward, particularly for those experienced with similar funding schemes (Objective 1 – RQ1).
- **Mixed views on clarity of formal guidance:**
  Despite clear written materials, some landlords reported that official documentation did not always capture the full extent of evolving expectations. Guidance was occasionally adapted through informal dialogue with the Welsh Government, leading to differing interpretations across organisations. Landlords appreciated the flexibility of these discussions but expressed concern that updates were not consistently reflected in written guidance, causing uncertainty about issues such as eligibility and acceptable levels of contribution (Objective 1 – RQ1, RQ7).
- **High value placed on relationship-based support:**
  Direct engagement with Welsh Government officials through workshops, forums, and one-to-one discussions was consistently cited as a major strength, enabling clarification of eligibility and adaptation of proposals (Objective 1 – RQ2).
- **Challenges related to funding timelines:**
  The majority of landlords identified short application windows and late funding notifications as the most significant practical obstacles. Compressed timelines limited

opportunities for internal approval, competitive tendering, and cost accuracy, often necessitating reliance on estimates or extensions to existing contracts. Annual financial cycles created peaks and gaps in contractor activity, hampering continuity and efficiency. Many landlords advocated for longer, multi-year funding cycles or earlier notification to enhance planning, cost control, and skills retention (Objective 1 – RQ7).

- **Administrative and data-reporting challenges:**
  Some landlords experienced difficulties with complex spreadsheets, financial reporting, and post-completion data returns, particularly where required data had not been collected during delivery (Objective 1 – RQ4, RQ7).
- **Evidence of learning and programme refinement:**
  Some landlords reported that ORP delivery and guidance have improved over time, alongside growing internal capability, consistent with ORP's "test and learn" design (Objective 2 – RQ3).

Clarity and communication of funding guidance

Regarding how easy it was to access ORP funding, most social landlords found the process straightforward. Around three-quarters (73%) described it as either very easy (33%) or somewhat easy (40%), while a smaller proportion (20%) reported that it was neither easy nor difficult. Only a few found the process more challenging.

The clarity of guidance and processes for claiming the fund has varied among social landlords interviewed. The majority of social landlords interviewed found the guidance clear, straightforward, and comfortable to follow, with well-prepared documents that were not particularly difficult to understand. One landlord described the fund's mechanics as very clear and said the fund was managed in-house, without the need for external management consultants for claims. Another one described the application process as reasonably straightforward for those familiar with such requirements.

However, some social landlords highlighted areas where clarity could be improved. Some suggested that whilst extensive documentation existed, verbal communication and discussion forums were particularly valuable for conveying information. Monitoring requirements were found to be unclear and difficult to interpret, particularly regarding how results were to be collected and reported.

One landlord noted that the official guidance was not always reflecting the full picture, as subsequent discussions with the Welsh Government sometimes led to adaptations that were not later incorporated into the formal documentation. As a result, advice and steers could vary depending on the organisation. Social landlords gradually developed a widening understanding of what was or was not acceptable, such as levels of contribution or the kinds of work that could be introduced. In one case, a landlord reported that their organisation was reluctant to request additional funding because it was unclear whether it would be approved or what the specific requirements were. Another landlord suggested it would be helpful if the Welsh Government drew up, reviewed, and updated the guidance in line with these updates to make it nice and clear for everybody.

> "It does feel like the guidance is often shaped by negotiation with Welsh Government. Welsh Government officials are generally approachable and helpful, not overly bureaucratic. So you can discuss issues with them and reach an accommodation or understanding. The challenge is that these discussions don't get reflected in the official guidance. Over time, this means that your understanding may differ slightly from the documented guidance. […] In other words, although the official guidance isn't the whole picture, a lot of custom and practice has developed differently among different landlords." (Landlord)

Support and guidance provided by the Welsh Government

Almost all (94%; 30 out of 32) of the social landlords surveyed reported being in receipt of ORP funding. When asked about whether the guidance and support for claiming the fund was adequate, 90% (27 out of 32) reported that it was very adequate (43%) or somewhat adequate (47%). The remainder of the responses were split between finding the support neither adequate nor inadequate, and choosing not to answer the question. No social landlords reported that the guidance was inadequate.

Similarly, when asked whether they found Welsh Government ORP officials supportive during the delivery of ORP schemes, most social landlords surveyed responded positively. The vast majority (90%) described officials as fully supportive (60%) or somewhat (30%) supportive. A small number reported being neutral or unaware of the support available, while none indicated that officials were unsupportive.

The general acknowledgement of the Welsh Government's guidance and support in claiming ORP funding is also reflected in interview findings. When social landlords were asked about their experiences with claiming and accessing ORP funding, including the adequacy of guidance, external support needs, and whether support varied across different phases, the vast majority reported positive experiences. They described Welsh Government support teams as helpful, responsive, and collaborative. The ability to engage with real people rather than automated systems during the bidding process was seen as a crucial strength of the process as a whole. Social landlords valued being able to have open discussions with Welsh Government officials rather than navigating an impersonal process, which allowed them to test ideas, check whether proposals aligned with the criteria, and adapt accordingly.

Many social landlords also noted that Welsh Government teams were always available when needed, with some having named contacts they could approach directly if they needed guidance. Support typically came in the form of clarifications, particularly around the eligibility of works or components in funding submissions. Support was provided throughout the application and submission process, though some social landlords remained confused about aspects such as invoicing and timelines.

> "The positive for me is that we've got a good working relationship with the team at Welsh Government […] You can always talk to them, you can have conversations. It's not a computer answering you or handling your bids. It's a humane approach." (Landlord)

Challenges with funding timelines

Despite acknowledging the Welsh Government's supportive role in securing ORP funding, the majority of social landlords interviewed reflected on challenges with the funding's timescale and lifecycle.

The most common concern was the short window for completing applications. These landlords reported that they typically had only a few weeks to put bids together. For larger organisations, this timeframe posed particular challenges in strategising how to allocate funding effectively. The short response timeframe also left limited time for internal approvals and reviews before submission to the Welsh Government.

The majority of social landlords interviewed raised concerns regarding the challenges imposed by the annual financial cycle. They explained that, especially for the first phases, funding notifications often arrived late in the financial year, with strict spending deadlines by the end of March. This timeline left insufficient time for organisations to conduct competitive tendering and prepare accurate cost estimates. As a result, they were forced to rely on estimates or extend existing contracts instead of pursuing a competitive bidding process.

Some organisations managed to secure contract facilities that allowed extensions, whereas others delayed tendering and faced challenges as a result.

Due to the urgent timelines for spending the awarded funding, a few social landlords mentioned that they could begin engaging with tenants and planning for improvements before receiving the results. However, this approach posed a risk of disappointing tenants if the project could not be resourced and delivered.

As a result of these challenges, the majority of social landlords shared that longer funding cycles would be preferable for them. A 2 or 3-year programme with time to review was proposed as much more manageable than annual cycles. One landlord proposed an alternative model allowing 4 weeks in October to put applications together, notification in January or February about funding approval, and then a full year from April to spend the money. Longer-term grants were argued to provide better value, as contractors would be more likely to offer competitive rates for sustained projects, whereas year-by-year arrangements could lead to higher costs.

> "From my understanding, based on people with more experience than me, it's typical Welsh Government administration. The process itself is fine, and the paperwork is generally manageable. All of these challenges are really in the context of time. In the last couple of iterations of ORP, for example, we get the nod to submit a bid, but it has to be in within five or six weeks. As a larger organisation, we have a bigger budget than others, but that makes it challenging to determine where we want to go, what we want to do, and then complete the paperwork within the timeframe." (Landlord)

> "The issues are more timeline associated. For instance, delays in confirming grant amount means that we do not have that continuity of work therefore contractors gear down and then need to gear back up again which means there is a period of very low or no activity. If the funding award or programme was submitted in Q3 of the prevailing year, we could then continue with contractors with little to no downtime. This would help reduce issues around availability and skills shortage as we have that continuation of work which is what is required." (Landlord)

Challenging administrative elements

Data-related challenges were also noted by some social landlords in the interviews. The main difficulty for them lies in the reliance on data that organisations did not always hold, even with efforts to improve data quality. Uncertainty around data access was also highlighted, with information collected fed directly to the Welsh Government rather than automatically returned to councils, making it challenging to evaluate the impact of the works fully. A few social landlords also found the required spreadsheets very difficult to complete. One of them reported how some administrative elements, such as the paperwork and accounting, could pose a challenge for other organisations.

> “I think some colleagues in other organisations who don't have accountants assisting have found the administrative elements and the financial elements quite challenging.” (Landlord)

Another landlord also raised that post-work data return requirements were particularly complex. They referred to being asked for data that was not collected in time, and therefore, had to go back to contractors for information, which proved difficult after the contracts had concluded.

Improvements in the delivery and support of ORP through the years

A few social landlords interviewed reported that the structure and delivery of ORP have evolved significantly over time. They have reported that the Welsh Government has effectively adapted the programme and introduced clearer frameworks. They also noted that support became more targeted, particularly in areas like training and finance. Over time, both the organisations involved and the Welsh Government became more aligned in their efforts. Each phase added complexity in some ways but also led to refinement.

> “The timings have improved, and we mentioned before, the guidance has also improved as the programme has progressed. Welsh Government probably recognised there’s room for improvement and they’ve tweaked it as they’ve gone along the journey.” (Landlord)

Additionally, some social landlords observed that their experience and capabilities with the ORP have improved considerably over time, as they have developed the necessary skills and understanding.

4.2.2 Social landlords’ degree of innovation

Relevant WHQS 2023 objectives:

Objective 2:

To explore whether ORP is meeting its aims as a “test and learn” programme

Objective 4:

To understand landlords’ experiences of delivering ORP

Relevant RQs: Objective 2: RQ3 – Assess whether ORP has enabled Welsh Government and social landlords to build practical knowledge, capability, and confidence in retrofitting the Welsh housing stock. **Objective 4: RQ5** – Which aspects of ORP3 were easier to meet and which were most challenging? Objective 4: **RQ6** – What is the perceived impact of the retrofits delivered as part of ORP on their housing stock?

Evidence indicates that ORP played a major role in strengthening landlords' organisational capacity and technical capability in retrofit delivery. The majority of social landlords found the programme helpful in supporting learning and skill development, describing a clear progression from basic retrofit works to more complex, integrated installations over time. ORP also supported internal capacity building through new roles, training, and systems, improving coordination between technical teams and tenant engagement staff. However, some social landlords reported evolving priorities between innovation and compliance, with recent phases focusing more heavily on achieving WHQS 2023 targets than on trialling new technologies or models.

Detailed summary of findings:

- **ORP is widely viewed as supporting learning and capability development:** Survey evidence shows that nearly three-quarters of social landlords found ORP helpful or very helpful in supporting learning about retrofit practices. Interview findings reinforced this, with many landlords describing ORP as instrumental in developing technical understanding, delivery confidence, and organisational capability (Objective 2 – RQ3).
- **Progressive growth in technical and organisational sophistication:** Across successive ORP phases, landlords reported moving from complementing existing maintenance programmes toward more complex retrofit delivery. Early approaches often focused on fabric-first measures, while later phases integrated multiple interventions, such as combining insulation with solar PV, hybrid heat pumps, and battery storage, increasing project scale and coordination requirements (Objective 2 – RQ4, RQ6).
- **Creation of new roles, systems, and processes:** ORP funding supported the establishment of dedicated roles, including Energy Efficiency Officers and Decarbonisation Engagement Officers, as well as investment in asset management systems, IT platforms, and PAS 2035-compliant processes. These changes improved internal coordination, tenant engagement, and oversight of

retrofit delivery (Objective 2 – RQ3).

- **Strategic focus on immediate SAP gains:**
  Some landlords adopted a "low-hanging fruit" approach to maximise SAP improvements efficiently, particularly where prior fabric upgrades had already been completed. This emphasised solar PV installations for quick SAP gains but reduced experimentation with less conventional or higher-cost measures (Objective 4 – RQ5, RQ6).
- **Tension between innovation and compliance:**
  Some landlords expressed concern that later ORP phases became increasingly target-driven, prioritising SAP scores and WHQS compliance over broader tenant benefits or long-term innovation. While this approach effectively improved housing performance metrics, it limited opportunities to explore technologies that might better address tenant comfort or energy use (Objective 4 – RQ6; Objective 2 – RQ3).

Internal capacity growth through ORP

When social landlords were asked how helpful the ORP had been in supporting them to learn about retrofit practices, 73% (22 out of 30) described it as very helpful (13%) or helpful (60%). Almost a quarter (23%) felt it was neither helpful nor unhelpful, while a small number reported finding it unhelpful (3%) or very unhelpful (3%).

Across successive phases of the ORP, the majority of social landlords interviewed also reported significant growth in both organisational capacity and technical expertise. Initially, ORP funding was utilised to complement the organisations' existing planned maintenance. Over time, however, it became a driver of internal learning. Some social landlords noted a clear technical and organisational learning curve. For example, one landlord explained that their approach initially focused on a "fabric-first" strategy, prioritising improving the building's structure and insulation to reduce energy loss. Over time, organisations integrated multiple retrofit measures, such as adding solar panels when scaffolding was already in place. Another described how early work focused on smaller upgrades, such as triple-glazed windows. Later phases involved full retrofits with greater technical complexity, including hybrid heat pumps, solar PVs, and battery installations. In general, these landlords agreed that ORP's multi-phase nature increased project scale and coordination requirements.

For some social landlords, ORP funding directly supported the creation of new roles and systems within the organisation. Dedicated positions, such as Energy Efficiency Officers and Decarbonisation Engagement Officers, were introduced to manage technical delivery and tenant engagement. In a few organisations, funding was also used to develop asset management systems, IT platforms, and processes needed for PAS 2035 compliance. This helped improve internal coordination and project oversight.

> "In terms of ORP, we also used it to fund a part-time decarbonisation engagement officer. [PERSON] is now in his second year working with us, and we find this role crucial for delivering works with tenants. With [PERSON] handling resident engagement and answering queries, the project surveyors can focus on delivering the work and managing contractors. [PERSON] also gathers intelligence from residents to help ensure projects are completed successfully." (Landlord)

Low-hanging fruit strategy: Maximising immediate SAP benefits

On the other hand, some social landlords reported a different trajectory for ORP-funded retrofit activities. In these cases, the focus shifted toward interventions that deliver the most immediate SAP score improvements, often at the expense of more innovative measures. This happened because fabric upgrades, such as external or internal wall insulation and window or door replacements, had already been implemented. Despite this, many properties still fell short of the SAP 75 target under WHQS 2023. To bridge this gap, they prioritised funding for solar PV installations, which could add 10 to 12 SAP points per home at relatively low cost. In some of these cases, this approach influenced decisions not to install battery storage alongside PVs, given the high cost and minimal additional impact on SAP scores. Beyond efficiency in improving SAP, a few social landlords noted the direct tenant benefits of these works, including daytime access to free electricity and the potential to export surplus energy to the grid.

However, a few social landlords following this trajectory noted potential limitations of this strategy. One landlord observed that installing solar PV without storage provides less direct benefit to residents. Energy generated during the day could go unused, especially for tenants who are away during working hours. The same landlord suggested that an emphasis on SAP points can sometimes prioritise compliance metrics over outcomes that are most meaningful to tenants. Another landlord reflected on innovation within ORP, noting that earlier phases allowed for experimentation with a wider range of retrofit technologies. In contrast, current funding was said to be more focused on achieving the mid-term WHQS 2023 environmental targets, which has somewhat reduced opportunities for experimentation and the potential for broader long-term benefits.

> "We're not installing batteries at the moment due to fire safety regulations—you can't put them in properties without extensive facilities to house them safely outside. That

becomes very expensive, with safety tanks and all the necessary protections. There are also practical issues: some organisations have experienced theft of batteries, as they're quite valuable. Previously, even before the SAP changes, we didn't receive any SAP points for installing a battery. So there's little incentive to spend significant amounts of money when it doesn't contribute to meeting the targets. Installing solar panels without a battery also has limited benefit for tenants—if they're out during the day at work, they won't really use the energy generated. In the end, it feels like we're chasing points to meet targets rather than doing what's genuinely best for tenants." (Landlord)

4.2.3 Factors affecting ORP implementation

Relevant WHQS 2023 objectives:
Objective 4: To understand landlords' experiences of delivering ORP
Objective 2: To explore whether ORP is meeting its aims as a "test and learn" programme

Relevant RQs: Objective 4: RQ4 – Perceptions of the requirements of ORP (including retrofits and corresponding reporting requirements); **RQ5** – Which aspects of ORP3 were easier to meet and which were most challenging?; **RQ6** – What is the perceived impact of the retrofits delivered as part of ORP on their housing stock?; **RQ7** – How access to delivery of ORP varied over time and across different stages of the programme.
Objective 2: RQ2 – Compare and evaluate different retrofit approaches, including suitability for different archetypes and regions.

Summary:
Evidence from the interviews shows that while ORP funding expanded landlords' retrofit activity, delivery was often constrained by technical, organisational, and regulatory limitations. Social landlords highlighted challenges linked to fire safety regulations, heritage property restrictions, procurement processes, tenant acceptance, and compliance requirements. These factors increased costs, reduced flexibility, and sometimes hindered large-scale or innovative delivery. Nonetheless, landlords continued to adapt through experience and learning across programme phases, which aligns with ORP's "test and learn" philosophy.

Detailed summary of findings:

- **Technical and regulatory barriers:**
  Some social landlords reported difficulties installing battery storage alongside solar

PV due to fire safety restrictions, structural limitations, and theft risks. Technical failures in early installations also slowed progress. Other practical constraints, such as heritage building restrictions and limited internal space in older housing stock, restricted insulation options and led many to rely on solar PV as the most feasible energy efficiency measure (Objective 4 – RQ4, RQ5).

- **Workforce and procurement capacity constraints:**
  A few social landlords cited a shortage of qualified installers, especially in rural areas, alongside internal governance and procurement rules that restricted flexibility. These procedural requirements occasionally delayed delivery **and complicated efforts to scale retrofit works (Objective 4 – RQ5, RQ7).**
- **Tenant engagement challenges:**
  Landlords described mixed tenant responses to new technologies. While measures like insulation and solar PV were generally welcomed, low take-up of air source heat pumps reflected concerns over higher running costs, noise, and unfamiliarity. A few social landlords combined measures, e.g., installing heat pumps alongside solar PV, to maintain cost neutrality for **tenants and secure participation (Objective 4 – RQ6; Objective 2 – RQ2).**
- **Administrative and compliance burdens:**
  Compliance with TrustMark accreditation and PAS 2035 standards added significant administrative and financial pressure. Some social landlords reported that accreditation costs, reliance on external consultants, and complex data lodging requirements diverted resources from delivery. These regulations also prolonged project timelines through multiple site visits and tenant interactions, occasionally causing disengagement and completion delays (Objective 4 – RQ4, RQ5).
- **Impact on delivery efficiency and learning:**
  Despite these challenges, landlords acknowledged that regulatory and operational constraints generated valuable learning in process management, coordination, and communication. Many social landlords interviewed reported that they refined internal systems and built awareness of the practical limits of retrofitting diverse housing types, contributing to the wider knowledge base central to ORP's "test and learn" approach (Objective 2 – RQ2, RQ3).

Organisational and practical limitations

Beyond the focus on improving SAP scores, some social landlords interviewed reported that technical, regulatory, and organisational constraints also shaped their retrofit work under ORP funding. A common technical issue was the installation of battery systems alongside solar PV. In several cases, planned battery installations were cancelled due to fire safety regulations, the need for external tanking systems, and theft risks. One landlord also reported technical failures with batteries, partly resulting from the temporary use of industrial-grade units instead of domestic models during supply shortages.

> “With PV and battery systems, we’ve considered whether batteries should be sited internally or externally to address potential fire risks and points of ignition. We’ve also looked at structural issues; what happens if a battery catches fire or falls, for example. We’ve experimented with external siting options, protective covers, and whether to place the controls inside or outside. For flat blocks, we’ve explored ways to share power between residents via a solar-share scheme, we were the first in Wales to do this and have now completed a couple of projects.” (Landlord)

Some social landlords also highlighted additional technical constraints. One explained that insulation works were often restricted by site-specific and heritage factors, such as properties built directly onto highways, listed buildings, stone façades, and limited internal space in small Victorian homes. These conditions make fabric-first measures difficult to implement at scale, leading many organisations to rely more heavily on solar PV installations as a practical and less disruptive way to improve overall energy performance.

A few social landlords have also mentioned the lack of qualified personnel to undertake these works on a large scale, especially in rural areas, while a few mentioned procurement rules as another obstacle. One local authority landlord reported that they must follow internal governance procedures, which slows delivery and limits flexibility in sourcing materials or contractors.

Tenant engagement and acceptance

Tenant acceptance of new technologies was also identified by some social landlords as a challenge that affected ORP delivery. One landlord described a pilot project testing infrared wallpaper, which revealed both practical and behavioural issues, as residents were unsure how to use the system and questioned its effectiveness. With limited long-term evidence, social landlords found it difficult to build tenant confidence or justify further installations. This reflected a broader challenge of adopting unfamiliar technologies, as social landlords noted the challenge of balancing innovation with limited tenant trust, which can hinder large-scale adoption. Tenants were also reported to be resistant to air source heat pumps due to slower heating, higher electricity costs, and potential noise.

> "I've struggled to gain access to homes, forcing us to prioritise properties where entry is easier. Residents were more accommodating last year, but now they're more hesitant. They usually accept fabric measures, like insulation, because they see the cost savings, and solar panels are accepted for the same reason. Air-source heat pumps are different. They increase costs, so permission is rarely granted if installed alone. Our approach is to install fabric measures first, then add heat pumps with solar panels. That way, it's at least cost-neutral for the resident: the solar panels help offset the running costs of the heat pump, making it more acceptable." (Landlord)

Administrative and compliance requirements

Compliance with ORP accreditation and data lodging requirements, which ensure contractors meet industry standards and that retrofit data is properly recorded, was also identified as an additional operational constraint in the delivery of ORP-funded works by some social landlords. These requirements imposed significant financial and administrative burdens. Some organisations reported that compliance costs were often met from their own budgets, reducing funds available for actual retrofit work. One social landlord noted that the regulatory framework required a significant amount of resources for consultancy and compliance, which sometimes limited the focus on physical improvements. They felt the process could be more streamlined and better aligned with existing practices to maximise value.

TrustMark accreditation posed particular challenges for staffing and delivery for some social landlords, with the scarcity of accredited installers constraining project capacity, even when funding was available. A landlord reported that, in one case, a trusted contractor declined to pursue accreditation, citing its cost and administrative burden, further constraining supply chains. Another landlord also expressed scepticism about the added value of certain roles, such as retrofit assessors, when experienced in-house surveyors were already employed.

PAS 2035 procedures were also noted as negatively affecting ORP delivery efficiency for a few social landlords. For example, one landlord questioned the proportionality of the data lodging requirements, noting that monitoring installed systems relies on tenants' Wi-Fi connections, and outages or changes in providers can disrupt sensor data, requiring staff to intervene manually. Another landlord added that, beyond the extra administrative workload, the compliance framework drastically increases the number of tenant interactions, from a few visits under standard installations to around 20, leading to tenant disengagement and delays in completing retrofits.

> “So, in order to qualify for grants in recent years, we now have to lodge the properties with TrustMark. That’s fine, and that’s what we do. However, it is expensive. We have to commission a third party to carry out the work, and this has occasionally caused delays. They sometimes make unusual requests, asking us to change something we wouldn’t normally have done. While we comply, these requirements come with time pressures and additional costs.” (Landlord)

4.2.4 Funding, planning, and delivery considerations

Relevant ORP Evaluation Objectives:
Objective 4: To understand landlords’ experiences of delivering ORP
Objective 2: To explore whether ORP is meeting its aims as a “test and learn” programme

Relevant RQs: Objective 4: RQ4 – Perceptions of the requirements of ORP (including retrofits and corresponding reporting requirements); **RQ5** – Which aspects of ORP3 were easier to meet and which were most challenging?; RQ6 – What is the perceived impact of the retrofits delivered as part of ORP on their housing stock?; **RQ7** – How access to delivery of ORP varied over time and across different stages of the programme.
Objective 2: RQ3 – Assess whether ORP has enabled Welsh Government and social landlords to build practical knowledge, capability, and confidence in retrofitting the Welsh housing stock.

Evidence indicates that ORP has been broadly well-aligned with social landlords’ existing retrofit and property management strategies. In most cases, it was used to complement planned maintenance and investment programmes, supporting the delivery of whole-house improvements and accelerating progress toward WHQS and decarbonisation targets. While landlords valued the flexibility and learning that ORP funding provided for testing new retrofit solutions, they also reported that the scale, cost structure, and annual funding cycle limited its effectiveness for large-scale or sustained delivery.

Detailed summary of findings:

- **Strong alignment with internal property and retrofit strategies:**
  Around three-quarters (74%) of surveyed social landlords reported that their ORP schemes fit well or very well with existing property management strategies. Evidence

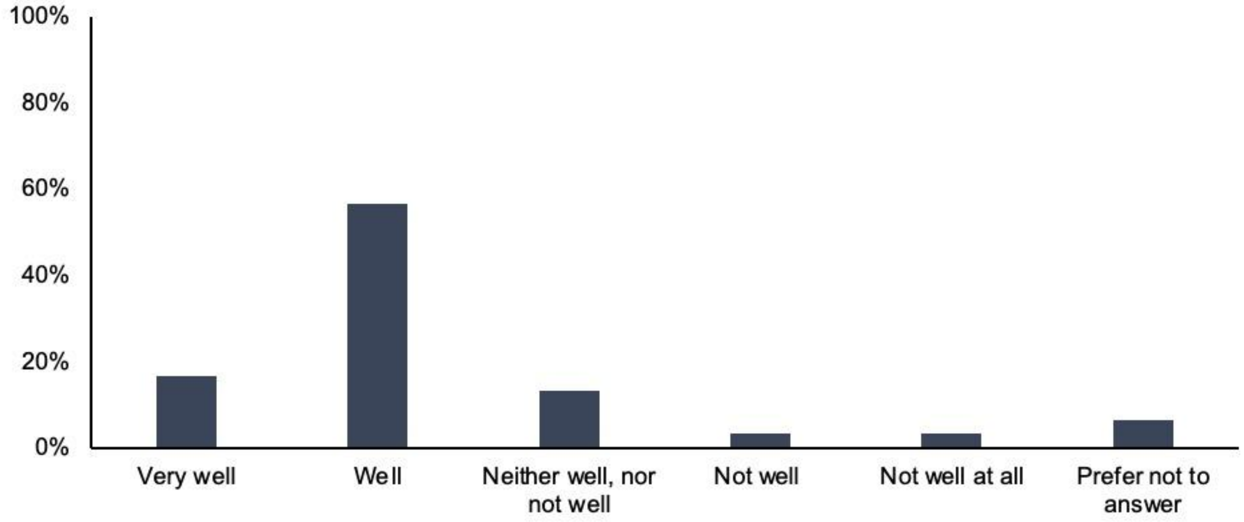
from interviews confirmed that ORP funding was often integrated with planned capital works, enabling coordinated delivery of energy efficiency improvements alongside routine maintenance. This alignment supported wider organisational goals around long-term sustainability and housing quality (Objective 4 – RQ6, RQ7).

- **Funding enables testing and innovation at a limited scale:**
  While half of the surveyed landlords found scheme costs broadly as expected, the majority of landlords interviewed described ORP funding as sufficient to enable small-scale pilots or the testing of new technologies that would have been unviable without grant support. Some social landlords interviewed highlighted examples, such as hybrid heat pumps and early solar PV and battery trials (Objective 2 – RQ3; Objective 4 – RQ4).
- **Insufficient resources for full-scale retrofitting:**
  The majority of social landlords interviewed reported that ORP funding levels were inadequate for comprehensive retrofit across entire housing portfolios, particularly under WHQS 2023 requirements. Match-funding conditions and increasing compliance costs (e.g., TrustMark and PAS 2035) were seen as major barriers to scaling delivery. Rising material and labour costs further constrained capacity, creating a tension between trialling innovative solutions and delivering at scale (Objective 4 – RQ5, RQ6).
- **Funding structure limits long-term planning:**
  Landlords frequently noted that ORP's annual funding cycles restricted their ability to plan, procure, and deliver efficiently. Yearly budget uncertainty and short spending windows placed pressure on procurement and implementation schedules, sometimes compromising quality or innovation. Many social landlords advocated for longer, multi-year funding cycles to allow smoother delivery and greater strategic continuity (Objective 4 – RQ7).
- **Balancing ambition, funding, and feasibility:**
  Despite financial and practical constraints, landlords emphasised that ORP had supported substantial progression toward decarbonisation and built confidence in retrofit delivery. However, they also stressed the importance of revisiting funding mechanisms and timelines to ensure that future phases can sustain both the quality and quantity of works needed to meet national housing and climate goals (Objective 2 – RQ3; Objective 4 – RQ6).

Alignment with internal property strategies

As shown in Figure 12, when social landlords were asked how well their ORP schemes fit with their existing retrofitting and property management strategies, nearly three-quarters (74%; 22 out of 30) reported that the schemes fit very well (17%) or well (57%). 13% felt that the schemes fit neither well nor not well, while a small minority indicated that the schemes did not fit well (3%) or not well at all (3%).

Figure 12: How well did your ORP schemes fit with your existing retrofitting and property management strategies? (n=30)



Description of Figure 12: Column chart showing responses from the social landlord survey (n=30), asked only of respondents who reported receiving ORP funding. The question explored how the ORP schemes fit within their existing retrofitting and property management strategies. Response options ranged from 'very well' to 'not well at all.' The most common responses were 'well,' followed by 'very well,' and then 'neither well nor not well.'

The vast majority of social landlords in our survey reported that the ORP has aligned closely with their existing asset management, property maintenance, and investment strategies. Interview findings shed more light on this, with many social landlords interviewed reporting cases, ORP funding was used to supplement planned maintenance programmes and capital works, particularly those following a fabric-first approach. This integration enabled social landlords to deliver whole-house improvements. They reported combining energy efficiency upgrades, such as solar PV and battery storage installations, with other scheduled works, such as roof replacements or external fabric repairs.

"We were able to utilise ORP funding to supplement existing planned maintenance work that focuses on a whole house approach to deliver external improvements. ORP has also been utilised to supplement capital expenditure on our 5-year Solar PV and Battery Storage Scheme." (Landlord)

Some social landlords interviewed noted that ORP funding allowed them to accelerate or expand pre-planned projects, supporting their long-term sustainability and decarbonisation goals. For some social landlords, ORP was explicitly designed to fit within existing component replacement cycles and strategic objectives, helping to meet WHQS and EPC targets while improving the overall condition and affordability of their housing stock.

"At [Organisation], our approach to property management and retrofitting has always been guided by a long-term vision of sustainability, tenant wellbeing, and asset resilience. The Optimised Retrofit Programme ORP has proven to be a strong fit with this strategy, reinforcing and accelerating our goals in several areas." (Landlord)

Adequate funding for testing approaches

When social landlords were asked whether their ORP schemes had been more or less expensive than estimated in the initial scheme details and costings submitted to the Welsh Government, half (50%; 15 out of 30) reported that the costs were around the same as anticipated. 43% indicated that their schemes had been somewhat more expensive (30%) or much more expensive (13%) than expected. The remainder of respondents found their scheme to be somewhat less expensive or chose not to answer the question.

Even though half of the respondents from the survey stated that the costs were as anticipated, the majority of social landlords interviewed deemed ORP funding sufficient, mainly to enable retrofits to be tested, particularly for organisations with limited borrowing capacity. Some social landlords noted that the grant covered a significant portion of project costs, supplemented by internal match funding. This support was critical for undertaking measures that would otherwise be financially unviable and for experimenting with trial technologies and new approaches. Apart from the actual work, flexible accounting for associated costs, such as health and safety compliance, and internal project management, was considered useful in managing complex retrofit programmes.

"The ORP expenditure has complemented our annual planned maintenance programme quite effectively. On occasion, it has also allowed us to trial products that we hadn't yet rolled out across the existing housing stock. on the very first round of ORP, we installed around 25 hybrid SAP heat pumps, where the existing gas boiler

> was retained but supplemented by the heat pump. I can safely say that, without ORP, it's very unlikely we would have trialled that installation. In the following years, ORP allowed us to include leaseholder properties on estates undergoing what I would call traditional planned maintenance. For us, that involves a fabric-first, whole-house approach, including external areas, and incorporates measures such as solar PV." (Landlord)

Insufficiency to support a full-scale retrofit programme

While ORP funding was deemed sufficient for trial projects or small-scale experimentation, the majority of social landlords interviewed reported that it is inadequate for full-scale retrofits across large housing portfolios, particularly given the financial implications of meeting WHQS 2023 energy efficiency and decarbonisation requirements. While expressing their gratitude for any available funding, some social landlords stated that they estimate the cost of the recommended works far exceeds both available ORP funding and their own budget allocations. The scale of this shortfall, combined with required match-funding contributions, imposes a significant financial burden on organisations. For example, one landlord estimated that a full retrofit would cost from £25,000 to £30,000 per home across 13,000 properties, requiring an additional £15 million per year on top of existing capital and maintenance budgets. Since rental income does not increase from retrofits, conventional loan mechanisms proposed by the Welsh Government do not provide a viable return on investment.

> "Quite frankly, the funding we've received is a drop in the ocean. They've asked us to match fund it, but we don't have the resources while also managing large maintenance programmes, ongoing fire safety works, and other essential obligations. Costs have risen due to higher material prices, a shortage of contractors in North Wales, and premium charges for external wall insulation. Trustmark registration requirements have added significant costs. While I understand the Welsh Government's aim to ensure quality, it introduces a lot of extra work and expenses." (Landlord)

Some social landlords also noted that the structure and conditions of ORP funding can distort delivery priorities. They observed that, without the administrative requirements of TrustMark and PAS 2035, they could deliver more retrofits at the same overall cost.

> "Funding is never really enough. It's generous, don't get me wrong. I don't think we could have done the works we did without it. But, there are also challenges. If the Welsh Government continues this model, they may need to review it as costs rise.

Organisations are facing higher costs due to global factors, accreditation requirements, labour, and other pressures. The 60% match funding requirement is significant when you consider these increasing costs. There may need to be a slightly different metric to determine funding, recognising that Welsh Government has ambitious objectives and relies on us to achieve them. If they want these objectives met, some middle ground may be needed in terms of funding. For example, we'd like to trial different heating systems—like infrared or other innovative solutions, but that comes with additional costs for learning, capacity, and resourcing. Meeting the 60% match funding requirement for the next year will be a real challenge for us." (Landlord)

ORP lifecycles limit the quantity and quality of delivered work

Beyond the total funding level, the majority of social landlords noted that the ORP's annual cycle, defined by yearly responsibilities, funding limits, and deadlines, constrains their ability to plan and deliver retrofits effectively. The year-to-year nature of the fund is believed to create uncertainty in decision-making and workforce mobilisation, particularly for measures with long lead-in times. Preparing and submitting proposals to access the funding also consumes substantial time and organisational resources. They expressed a preference for multi-year funding guarantees, which would enable more coordinated planning, smoother procurement processes, and more consistent resource allocation.

"Delivering the works for ORP have been pretty straightforward, however year to year funding provides issues such as the timescales for accessing and spending funds often do not align with the planning and delivery phases of retrofit projects. This has led to pressure to accelerate procurement and implementation, which can compromise quality or limit innovation. We would welcome 3 year ORP cycles to allow more collaborative planning." (Landlord)

4.2.5 Social landlords' test and learn

Relevant ORP Evaluation Objectives:

Objective 2: To explore whether ORP is meeting its aims as a "test-and-learn" programme
Objective 4: To understand landlords' experiences of delivering ORP

Relevant RQs: Objective 2: RQ1 – Map ORP data collection processes; **RQ3** – Assess whether ORP has enabled Welsh Government and social landlords to build practical knowledge, capability, and confidence in retrofitting the Welsh housing stock. **Objective**

4: RQ7 – How access to delivery of ORP varied over time and across different stages of the programme.

Summary:
Evidence shows that social landlords are actively engaged with various learning and communication channels established under the “test-and-learn” framework of ORP. Welsh Government’s Communities of Practice sessions, Carbon Hub events, and sector forums facilitated valuable knowledge exchange, allowing organisations to share insights and shape future retrofit strategies. However, landlords also emphasised the need for stronger structures to capture and disseminate learning more consistently across the sector.

Detailed summary of findings:

- **Active use of learning networks:**
  Many social landlords valued the Welsh Government’s Communities of Practice and other sector networks, such as Community Housing Cymru events, for sharing experiences and hearing from peers and guest experts. Informal channels and personal contacts also played a key role in day-to-day knowledge exchange (Objective 2 – RQ3).
- **Gaps in data visibility and long-term learning:**
  Some landlords faced barriers to accessing and using monitoring data, with information often managed by third-party intermediaries. Short funding cycles also limited the ability to evaluate technologies over full seasonal cycles, constraining more robust learning (Objective 2 – RQ1, RQ3).
- **Opportunities to enhance structured sharing:**
  Participants suggested more systematic centralisation of case studies and lessons learned to improve cross-sector visibility. They noted that data privacy and ad hoc reporting sometimes restricted openness, and that more formalised feedback mechanisms could better support ORP’s test-and-learn objectives (Objective 2 – RQ3).

Communication channels to learn from ORP innovations

Social landlords interviewed were asked about their experiences with the test-and-learn component of the ORP. Many of them reported that they attended and appreciated the Communities of Practice sessions organised by the Welsh Government. They raised that the guest speakers and case study presentations during these events were particularly useful to inform their own plans. Other formal channels, such as the Carbon Hub, were also referred to as useful by some organisations to facilitate the exchange of insights. Some social landlords also referred to events organised by trade bodies, such as Community Housing Cymru, and regional networks. A couple of social landlords discussed that learning mostly happened through personal contacts and sector conversations.

Areas for improvement

However, some social landlords identified areas where the test-and-learn element could be strengthened. They noted that whilst ORP offered learning opportunities, the short-term nature of funding cycles made long-term planning and comprehensive evaluation challenging. Access to monitoring data presented difficulties for some organisations. Systems were installed, but organisations sometimes had limited visibility of useful data, with information occasionally routed through intermediaries, such as universities, without clear feedback mechanisms, as discussed by one landlord. Another landlord noted that timing constraints for completing installations limited the time available to gather meaningful data across different seasons, particularly for evaluating technologies such as solar PV systems. Some social landlords highlighted that whilst case studies were produced as grant requirements, there was scope for more systematic centralisation and the sharing of learnings across the sector, especially given concerns about data privacy on public platforms, which sometimes limit information sharing between organisations. Overall, social landlords indicated that more structured approaches to collecting, analysing, and disseminating learning outcomes could enhance the programme's test-and-learn objectives.

4.2.6 Tenant experiences with retrofit works

Relevant ORP Evaluation Objectives:
Objective 3: To understand tenants’ experiences of ORP
Objective 2: To explore whether ORP is meeting its aims as a “test-and-learn” programme

Relevant RQs: Objective 3: RQ1 – What are tenants’ baseline and ongoing awareness levels of ORP?; **RQ2** – Do tenants feel sufficiently informed before, during, and after works, and do they feel listened to throughout the process?; **RQ3** – Do tenants believe ORP has improved the quality of their homes, and in what ways?; **RQ4** – How do experiences vary across household types, geographies, and RSLs? **Objective 2: RQ3** – Assess whether ORP has enabled learning across delivery partners to improve retrofit implementation and tenant engagement.

Evidence suggests that while tenants generally viewed ORP-related improvements positively, awareness of the programme itself was low. Half of the surveyed tenants were unaware of ORP, and many were uncertain whether their home improvements were part of it. Most retrofits involved solar panels, new windows or doors, and insulation upgrades, which were valued but often accompanied by inconsistent communication and limited guidance on using new technologies.

Detailed summary of findings:

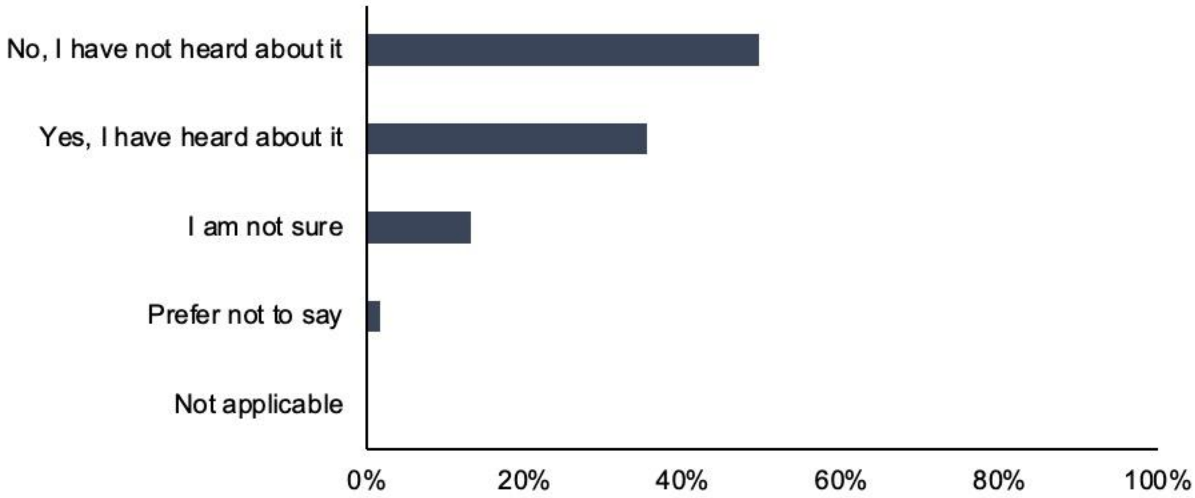
- **Low awareness of ORP among tenants:**
  Only 35% of surveyed tenants had heard of the programme, and just over half were aware that home improvements had taken place within the past 3 years. This indicates a communication gap between programme branding and tenants' lived experiences (Objective 3 – RQ1).
- **Common types of improvements:**
  Among tenants who reported recent works, solar PV installation was by far the most frequent measure (72%), followed by new doors, windows, and insulation upgrades. A smaller number received smart systems, batteries, or heat pumps. Most tenants said the improvements fitted well with their homes (Objective 3 – RQ3).
- **Mixed satisfaction with communication and engagement:**
  While 72% of tenants were broadly satisfied with communication from landlords, fewer felt well-informed about the works process. Only 47% reported receiving clear information on what would happen and who was responsible. Qualitative findings showed inconsistent communication across landlords, with some tenants receiving timely updates and others experiencing unexpected visits or confusion about schedules (Objective 3 – RQ2, RQ4).
- **Installation experiences and disruptions:**
  Around two-thirds of tenants encountered challenges during installations, most commonly disruptions to daily routines, delays, or loss of privacy. Experiences ranged from well-coordinated, efficient installations to significant inconvenience caused by prolonged scaffolding or property damage (Objective 3 – RQ3).
- **Insufficient information on new technologies:**
  Many tenants reported limited understanding of how to use new systems such as solar panels, smart meters, and heat pumps. Only around one-third felt adequately

prepared, with some stating they had to seek information independently. This limited post-installation engagement undermined some of the intended benefits and suggests a need for more consistent tenant education and follow-up support (Objective 3 – RQ2; Objective 2 – RQ3).

Awareness

When tenants were asked whether they had heard about the ORP, half (50%; 136 out of 274) said they had not (see Figure 13). Just over a third (35%) reported that they had heard of the programme, while 13% said they were not sure, and the remainder preferred not to answer the question.

Figure 13: Awareness of the ORP among social housing tenants prior to survey participation (n=274)



Description of Figure 13: Bar chart showing responses from the ORP tenant survey (n=274) regarding whether participants were aware of the ORP before taking part in the survey. Around half of the respondents reported they were not aware of the programme, while the remainder were primarily split between ‘yes’ and ‘not sure.’

Two-thirds of tenants (180 out of 274) confirmed that improvements had been carried out in the past 3 years, while just over a quarter (26%) reported no improvements had taken place. From the 180 tenants who confirmed the improvements, 170 were living in the property when the improvements took place.

Among those who confirmed improvements had been carried out in the past 3 years (n=180), 170 specified the type of work undertaken. The findings reveal a strong emphasis on energy efficiency measures: nearly three-quarters of tenants (122 out of 170) reported that solar panels had been installed, making this by far the most common improvement. Other frequently cited improvements included new windows and doors (34%), upgraded loft covering (27%), and improved wall covering [footnote5] (25%). Energy storage batteries were installed in 15% of cases, while 20 received smart home devices, such as smart thermostats, and 15 had heat pump systems installed. Additionally, 62% of tenants reported having technologies that help track how well such improvements are working, such as smart meters or energy monitors.

Similarly, only a small number of these tenants who had experienced ORP-funded retrofits in the past 3 years were interviewed. These tenants shared their experiences of the improvements, revealing several themes about how the retrofit process was managed and its perceived impact on their homes and lives. Among those retrofits implemented, solar panels were the most common improvement, with some installations including battery systems. One tenant had loft insulation installed twice to address recurring mould issues. Triple-glazing windows were fitted in one property, and smart meters were installed in another. One tenant's home had been renovated before they moved in, which was described as common practice for their landlord.

Information about installation

Among the 180 surveyed tenants who had experienced improvements in the past 3 years, 170 provided their views on the engagement with the social landlords throughout the process. The majority expressed satisfaction with landlord communication, with 72% (122 out of 170) reporting some level of satisfaction, and only 19% were dissatisfied. However, experiences with information provision were more mixed: while 47% felt they had been given clear information about the works process, 32% indicated some aspects were unclear, and 19% felt poorly informed. The most commonly provided information related to timing, with 73% informed about when work would begin, followed by what the work would involve (58%), and who would be responsible (56%). Consultation before and during works was limited: 71 tenants were not asked for their opinion before works commenced, though 73 reported being consulted. During the works process, nearly half of the respondents were not asked about their views, while a third indicated they had been consulted.

Footnotes

[5] To capture accurate information from tenants, the language was simplified. In particular, the term “wall covering” was used to refer to all types of wall insulation practices.

During the interviews, the few tenants interviewed discussed their experiences regarding communication with their social landlords. One tenant received information via letter without further communication before the smart meter installation. Another was given a date for solar panel installation, but then nothing happened, and nobody came; installers showed up a month later without further contact in between. This tenant did not know the work was happening until they saw materials in the property. The landlord would call over the phone but never follow up, and people would arrive for appointments that were never scheduled.

Another tenant received little notice before solar panel installation. However, the contractor visited the property first to conduct a survey and provided an estimated timeline for the work. The team was also flexible, checking whether the installation schedule suited the household. For loft insulation work, one tenant was not told in advance. Workers came for mould treatment and said they would also carry out loft insulation whilst there.

Installation process

Just under one-third (54 out of 170) reported no challenges during the works, while the majority encountered some difficulties. The most common challenge was interruptions to daily routine (41%), followed by the process feeling invasive due to loss of privacy and frequent disruptions (28%) and delays or unexpected schedule changes (26%). Nearly 1 in 5 tenants experienced less available space due to storage limitations or bulky equipment. Despite these challenges, most tenants were satisfied with how well the new changes fit their home: 118 out of 170 felt the installations fit well to some extent, including 38% who indicated they fit very well. However, 13% felt neutral about the fit, and 13% felt the changes fit poorly to some degree.

Similarly, interviewed tenants described variations in the quality of installations and diverse challenges. Smart meter installation was described by one tenant as smooth and quick, taking only one day. Similarly, the solar panel installation at one property was completed quickly and professionally, with minimal disruption. The tenant was satisfied with the installation quality, noting there were no issues afterwards and no need for follow-up visits or corrections.

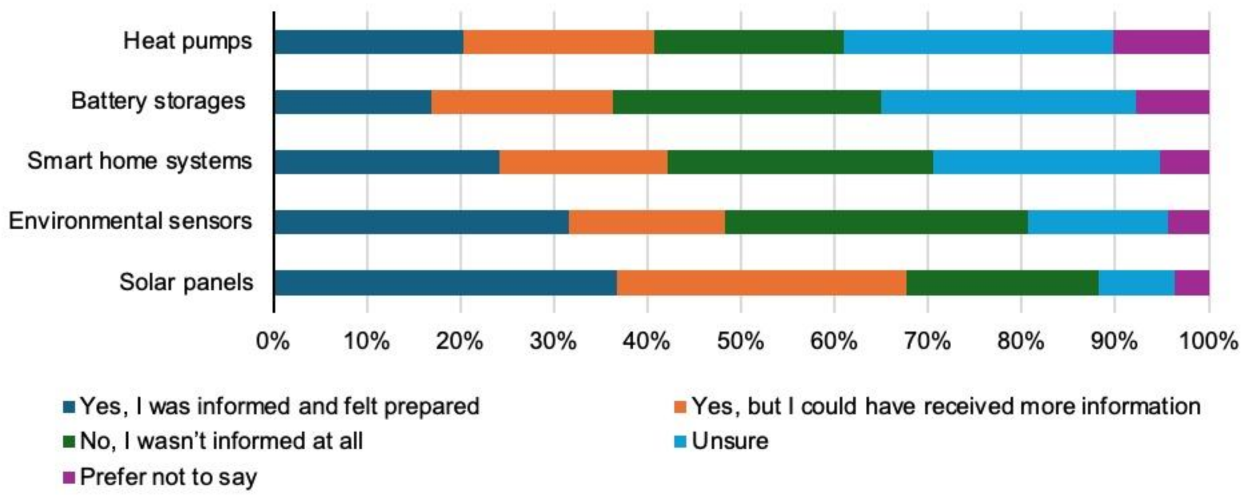
> “The guy came round to do a survey, gave us a rough ETA of when and how long it would take. They also asked if we needed to move along the schedule. And they came and they done it and it was fast installation. Very efficient and no need for any callbacks”. (Tenant)

However, another tenant described their experience as troublesome. There was significant disruption caused by scaffolding and solar panels, with the car park used to store materials, blocking access to properties mostly used by people with disabilities. This situation was sustained for 2.5 months. Triple-glazing windows were fitted on a very cold winter day and took an entire day to complete. The retrofits caused damage to the property that was not repaired, and workers left a mess and litter from the solar panels, including leftover materials, such as screws, on the pavement.

Information about new technology and how to use it

Among tenants who experienced home improvements in the past 3 years, those for whom the new technologies were relevant reported varying levels of information and preparedness (see Figure 14). Solar panels had the highest levels of awareness, with 37% feeling informed and prepared, and 31% saying they could have received more information. For environmental sensors, 32% felt prepared, but an equal proportion (32%) said they were not informed. Preparedness was lower for smart home systems (24%), battery storage (17%), and heat pumps (20%), with many tenants unsure about how to use these systems. These figures include only respondents for whom each technology was applicable. The proportion of “not applicable” responses ranged between 20% and 65%, depending on the technology.

Figure 14: ORP tenants’ reported preparedness and information received about adapting to new home technologies after improvements



Description of Figure 14: Stacked bar chart showing ORP tenants’ responses about how informed and prepared they felt to adapt to new home technologies after recent home improvements. The question was asked only of those for whom each technology was relevant, with response options ranging from “informed and prepared” to “not informed at all.”

These survey findings were strongly echoed in the qualitative data, where information gaps emerged as a consistent theme. A couple of tenants received no instructions on how to use solar panels effectively, and one had to look online to learn that it was best to use electricity in the evening, when the battery had charged during the day. Another received only a brief 2-minute session on how to use solar panels and had monitors installed that they did not know how to use.

For smart meters, the tenants did not receive explanations on how to use them. This lack of information led to confusion and misinformation amongst neighbours, with one tenant explaining that they only found out the solar panel equipment had an alarm after it was triggered.

4.2.7 Impact of ORP for social landlords

Relevant ORP Evaluation Objectives:
Objective 4: To understand landlords’ experiences of delivering ORP
Objective 2: To explore whether ORP is meeting its aims as a “test-and-learn” programme

Relevant RQs: Objective 4: RQ5 – Which aspects of ORP3 were easier to meet and which were most challenging?; **RQ6** – What is the perceived impact of the retrofits delivered as part of ORP on their housing stock?; **RQ7** – How access to delivery of ORP varied over time and across different stages of the programme. **Objective 2: RQ3** – Assess whether ORP has enabled the Welsh Government and social landlords to build practical knowledge, capability, and confidence in retrofitting the Welsh housing stock.

Evidence indicates that ORP funding has delivered noticeable benefits for both tenants and social landlords. Landlords most frequently cited reductions in tenants’ energy costs, improved comfort, and strengthened internal expertise in retrofit delivery. The programme’s iterative design also facilitated organisational learning and informed future planning. However, landlords acknowledged that funding limitations, sequencing challenges, and the modest scale of activity tempered broader sectoral impacts.

Detailed summary of findings:

- **Perceived tenant benefits:**
  Landlords reported that ORP-funded works led to lower energy bills, better thermal

comfort, and enhanced living conditions for tenants. Positive feedback helped build tenant confidence in retrofit measures and encouraged wider acceptance of future decarbonisation projects (Objective 4 – RQ6).

- **Organisational learning and capacity building:**
  Some social landlords interviewed described ORP as instrumental in developing technical knowledge, internal project management capability, and understanding of deep retrofit costs. The programme helped clarify the processes and resources required for effective large-scale delivery, strengthening the business case for decarbonisation (Objective 2 – RQ3).
- **Catalyst role of ORP funding:**
  Survey findings showed that over half (53%) of landlords would not have undertaken retrofits without ORP funding, highlighting its enabling role in accelerating activity and expanding the number of properties improved (Objective 4 – RQ7).
- **Mixed impacts on the supply chain:**
  Some landlords reported economic benefits through local contractor engagement, while others noted procurement limitations and short funding cycles that restricted lasting effects on skills and capacity. Overall, supply chain impacts were modest but directionally positive (Objective 4 – RQ5, RQ7).

Perceived impact for tenants

Among social landlords interviewed, the most frequently cited impact of ORP-funded works was the reduction in tenants’ energy bills. Some reported receiving feedback that measures such as wall insulation, solar PV, and battery installations had lowered heating costs, improving affordability for social housing tenants. These interventions provided tangible benefits, particularly for those with limited financial means, delivering modest but meaningful savings alongside increased comfort. Beyond financial savings, social landlords expressed expectations that the retrofits would improve tenants’ wellbeing and living conditions by enhancing thermal comfort, ventilation, and overall habitability, thereby contributing to a higher quality of life.

A landlord also highlighted an educational aspect of ORP projects. Testing new technologies not only allowed their organisation to gather insights on which works to prioritise and how best to implement them at scale, but, more importantly, positive tenant experiences with early retrofits were seen as supporting wider adoption, helping to build trust and acceptance for future initiatives. This iterative approach is expected to enable a gradual, practical rollout of energy efficiency measures across their housing stock.

However, a few social landlords also reported that some retrofit measures, while having environmental benefits, can have unintended negative impacts for tenants. They stressed the importance of making improvements in a logical, sequential form. For example, the replacement of gas boilers with air source heat pumps should be done only after the homes are adequately insulated to avoid higher energy bills. Another landlord also noted that the delivery process of retrofits can become disruptive, adding to resident dissatisfaction.

Housing sector impacts

When asked about the impact of their work on their organisation and the housing sector as a whole, some social landlords shared that their experience with the ORP enhanced their knowledge and understanding of delivering retrofit projects. They learned about the technical requirements involved, how to test various solutions, the preferences of tenants, their tolerance for disruptions, as well as the financial, planning, and logistical aspects necessary for successfully implementing these projects. A few also reported that ORP contributed to building in-house experience and confidence in installing deep retrofit and renewable technologies.

For some social landlords, the ORP funding provided organisations with access to resources that would not otherwise have been available, enabling investment in both physical retrofit works and the development of specialist internal teams. These teams manage project delivery, funding applications, monitoring, and financial claims, generating additional internal work while supporting organisational capability.

Lastly, a landlord noted that the programme has helped clarify the true costs of deep retrofit measures, informing both internal planning and sector-wide understanding. While the direct operational impact is modest, ORP has contributed to longer-term strategic goals, supporting evidence-based decision-making for climate action and establishing a clearer business case for further investment in decarbonisation initiatives.

When social landlords were surveyed regarding whether they would have carried out any retrofits without ORP funding but with the WHQS 2023 requirements still in place, 40% (12 out of 30) said they would have, while 53% said they would not, and 7% chose not to answer. Out of the social landlords that said that they would have, when asked whether they would have undertaken any retrofits if neither the ORP nor WHQS 2023 had been in place, only 6% (1 out of 18) said yes, with the majority (78%; 14 out of 18) indicating they would not, and 17% (3 out of 18) preferring not to answer.

Additionally, a few social landlords in the survey expressed the view that, without ORP support, many of these retrofits would still have been implemented, but across fewer properties or over a longer timeframe. The funding allowed them to extend improvements to a larger portion of their stock, ensuring that more tenants benefited sooner from enhanced energy efficiency, lower energy costs, and improved comfort.

Supply chain impacts

The impact of ORP on the supply chain was not widely discussed in interviews, as most social landlords focused on tenant or organisational outcomes. Among the few social landlords who addressed this topic, views were mixed. Some reported that contracts for solar PV and battery storage attracted multiple bids from local, regional, and national firms, with awards often going to local Welsh companies. This supported the local economy by generating work for contractors, retrofit assessors, and external wall insulation specialists.

Other social landlords, however, noted that procurement constraints and the programme's short-term, limited scale prevented many local contractors from participating, limiting its effect on addressing skill shortages or building long-term capacity. Some benefits to the local supply chain may also be indirect, as sector growth would likely have occurred independently of ORP funding.

4.2.8 Impact of ORP for social tenants

Relevant ORP Evaluation Objectives:
Objective 3: To understand tenants' experiences of ORP
Objective 2: To explore whether ORP is meeting its aims as a "test-and-learn" programme

Relevant RQs: Objective 3: RQ3 – Do tenants believe ORP has improved the quality of their homes, and in what ways?; **RQ4** – How do experiences vary across protected characteristics, household types, geographies, or RSLs? **Objective 2: RQ3** – Assess whether ORP has enabled practical learning and confidence in delivering retrofits tailored to tenant needs.

Evidence from a small number of tenant interviews indicates that the impact of ORP-funded retrofits on social tenants has been mixed and highly dependent on the type of measure installed and household circumstances. While some tenants experienced modest financial benefits and valued the principle of renewable energy investment, others reported limited or uncertain impacts, unintended negative consequences, and unmet needs linked to system design and consultation. These findings highlight both the potential benefits of ORP-funded interventions and the importance of tailoring measures to tenant usage patterns and housing characteristics.

Detailed summary of findings:

- **Mixed perceptions of financial benefit:**
  Tenants generally recognised some reduction in electricity costs after solar panel installation, although savings were modest—often around £5 to £10 per month. Rising energy prices and lower winter generation limited perceived gains, making savings harder to notice (Objective 3 – RQ3).
- **Limited perceived changes in comfort or wellbeing:**
  Some tenants reported no major changes in comfort, warmth, or wellbeing after works. Positive effects such as improved insulation and daylight energy were acknowledged, but often described as minor in daily experience (Objective 3 – RQ3, RQ4).
- **Quality and maintenance issues:**
  Isolated instances of damp following loft insulation and incomplete assessment of new windows indicated variability in retrofit quality and follow-up procedures (Objective 3 – RQ4).
- **Unmet needs and limited customisation:**
  A few tenants raised concerns about retrofit design choices—especially the absence of battery storage alongside solar PV. They felt that not tailoring installations to modern household needs, such as electric vehicle ownership, reduced both the functionality and cost-effectiveness of investments. These accounts suggest opportunities for stronger tenant consultation and design alignment (Objective 2 – RQ3; Objective 3 – RQ4).

The small number of tenants interviewed about their ORP-funded retrofits shared their views on the impact these improvements had on their homes and lives, revealing themes about both the benefits experienced and needs that remained unmet. The perceived impact of improvements varied amongst tenants. Solar panels reduced electricity bills for some, though not always as much as expected. One tenant was expecting a reduction of around

£10 but only achieved approximately £5, representing a 20-25% reduction. Another found it difficult to assess any savings because electricity prices had risen over the past year, meaning even if panels were generating free electricity, the financial benefit was not clearly visible in bills. This tenant also noted that household electricity use was much higher in autumn, winter, and spring when solar generation was weakest, whilst in summer, when panels were most productive, they used relatively little electricity.

One tenant reported no noticeable difference in their home or overall wellbeing from solar panel installation. Apart from the occasional benefit of free electricity during daylight hours, their daily lives and sense of comfort remained unchanged. They described themselves as generally content, but the retrofit had not improved their mental or physical health or significantly affected how they felt about their home.

Loft insulation caused damp problems for one tenant, with mould returning after the work, necessitating the insulation to be redone. Triple-glazing windows had not yet been tested through winter by the time of the interview, so the full impact remained to be seen. One tenant identified solar panels as the most impactful adjustment so far, though this could change once they experience winter with new windows.

Unmet needs

One tenant expressed frustration with unmet needs in the design of the solar panel system. As an electric vehicle owner, they were disappointed that no battery system was included with their panels and frustrated that they were not consulted about how the system could have been designed to better meet their needs. Without a battery, solar panels generated electricity only during daylight hours, when most residents were not at home to use it. This made the installation inefficient, as excess power was neither stored for later use nor fed back into the grid.

This tenant also questioned the programme's effectiveness in reducing heating costs, noting that most homes in the area use gas-powered central heating. Since panels produced electricity rather than heat, they felt the installation did little to reduce actual energy bills. They appreciated the idea of renewable energy but felt the implementation did not match their household's needs or usage patterns: “They should not have been installed without the battery. I think that was a catastrophic error. What's the point in generating free electricity if you can’t make use of it?”

4.2.9 Cost-benefit analysis of ORP 3

The analysis compares the estimated costs and benefits of Package 2 (PV and battery systems), Package 4 (fabric-first measures), and the combined portfolio of both packages under 2 counterfactual scenarios. We also include results from the sensitivity tests undertaken to assess the robustness of the findings.

ORP Objective 1: To undertake a social CBA of ORP (contextual evidence on administrative burden, delivery efficiency, and VfM)

Summary of findings

The CBA of ORP 3 shows that the programme consistently delivers good VfM across all retrofit options. Both packages assessed – Package 2 (PV and battery systems) and Package 4 (fabric-first measures) – generate benefits that substantially exceed their costs under every scenario tested. The results demonstrate that early, well-coordinated retrofit interventions not only accelerate decarbonisation but also produce wide-ranging social and health benefits for residents. Across all scenarios tested – covering both counterfactuals and all sensitivity tests – the BCR remains at or above 1.9, meaning that for every £1 spent, at least £1.90 in benefits is generated.

Under the static counterfactual, the combined delivery of Packages 2 and 4 – covering 1,459 properties – produces discounted benefits of £54.8 million against discounted costs of £19.7 million, resulting in a BCR of 2.8 and an NPV of £35.1 million. Package 2, delivered across 488 properties, achieves a BCR of 2.7 and an NPV of £8.3 million, while Package 4, covering 971 properties, delivers a BCR of 2.8 and an NPV of £26.9 million. For Package 2, benefits are more evenly split between health improvements and energy savings. For Package 4, the findings show that the largest share of benefits arises from improved physical health. Since the packages cover different numbers of properties, the absolute costs and benefits (and NPVs) should not be compared directly. The BCRs, which represent the ratio of benefits to costs, are the most meaningful metric for comparing the efficiency of investment across packages.

Because health outcomes play a significant role in the total benefits, it is important to note that these estimates are based on the paired pre- and post-retrofit survey responses available for each package (86 paired observations for Package 2 and 19 for Package 4). Within those samples, 9 out of 86 Package 2 respondents and 4 out of 19 Package 4 respondents reported improvements in physical health. In both cases, the majority reported no change. The QALY estimates reflect the average mapped utility change across all paired respondents – not only those reporting improvements. These modest net average changes were then applied to all properties receiving each package (488 for Package 2 and 971 for Package 4), including those without paired survey data. As a result, health improvements reported by a relatively small number of respondents materially influence the total monetised benefits, NPVs and BCRs. There is a reasonable likelihood that the paired samples (particularly the 19 observations for Package 4) are not fully representative of all households receiving works. If the true average health effects across the wider populations are smaller, the estimated health benefits – and therefore the NPVs and BCRs – would be lower. This sampling limitation therefore represents a key source of uncertainty in the overall value-for-money assessment.

These results are directly linked to the QALY-based valuation approach, which relies on the ORP 3 resident survey. As set out in the methodology and Annex B, self-reported changes in health and home conditions were mapped onto recognised EQ-5D-5L health dimensions to generate utility scores. Because this process converts qualitative changes in physical health into quantified QALY values, even modest shifts in reported health status can lead to noticeable differences in the calculated benefits; conservative assumptions were therefore applied throughout.

When the alternative EQ-5D-3L health utility definition is applied, estimated QALY gains are lower for Package 2, while Package 4 results remain unchanged. Under this conservative specification, BCRs remain at or above 1.9 across all retrofit options, confirming that ORP 3 continues to represent VfM even under reduced health valuation assumptions.

The timing of delivery also has a major influence on overall value. Under the delayed rollout counterfactual – where similar measures are assumed to occur gradually over 20 years rather than over 3 years through ORP 3 – the present value of benefits is lower because the impacts occur later in time, meaning they are worth less today once discounting is applied. In simple terms, a benefit delivered immediately is worth more than the same benefit delivered many years later, because people could have used or reinvested that benefit sooner. For energy savings and carbon reductions, which do not have a fixed impact duration, the delayed counterfactual misses the first 2 years of potential benefits entirely, as implementation under that scenario only begins in Year 3. It is therefore important to note that energy and carbon savings are always higher under ORP 3 than under the delayed scenario. By contrast, the total health (QALY) and NHS benefits are the same in absolute terms across both scenarios, because these impacts last for a fixed period. The only difference is timing: in the delayed scenario, health gains occur later and therefore have a lower present value once discounting is applied.

Despite this, the BCRs under the delayed rollout counterfactual remain strong (3.1 for Package 2, 2.9 for Package 4, and 3.0 for the combined portfolio), illustrating that bringing forward retrofit investment yields greater social and economic returns. Earlier delivery allows residents to experience health improvements, energy savings, and reduced NHS costs sooner, demonstrating that timely intervention significantly enhances the overall value of investment.

In addition to the quantified benefits, ORP 3 delivers a range of qualitative impacts that strengthen the overall case for investment. Tenants report substantial improvements in comfort, safety, and mental wellbeing, describing homes as warmer, drier, quieter, and more secure. These qualitative gains are likely to translate into better quality of life, reduced stress, and stronger community pride. Social landlords also highlight reduced maintenance costs, higher tenant satisfaction, and extended asset life, supporting the long-term sustainability of the housing stock. Moreover, the programme is expected to have created employment and skills development opportunities within the local supply chain, contributing to a stronger, greener economy.

Taken together, the evidence shows that ORP 3 generates significant and enduring social value, even under cautious assumptions. Health improvements are the largest single source of benefit, complemented by energy savings, carbon reductions, and NHS savings. The findings confirm that early retrofit programmes can deliver measurable economic returns while also improving wellbeing and strengthening residents' sense of comfort and community.

Static counterfactual: No intervention

Under the static counterfactual, it is assumed that the retrofit measures delivered through ORP 3 would not have taken place. Households therefore continue to experience existing levels of energy consumption, carbon emissions, and any existing issues with damp and thermal comfort, with no resulting health or wellbeing improvements. This scenario provides a conservative baseline against which the full impact of ORP 3 can be assessed.

In the core case, the benefits considered include:

- energy savings
- carbon emission reductions

- physical health improvements, expressed in QALYs
- healthcare cost savings resulting from fewer cold- and damp-related conditions

Health benefits were derived from EQ-5D-5L utilities and are assumed to persist for 5 years post-retrofit.

Table 1 summarises the costs, benefits, NPV, and BCR of Package 2, Package 4, and the combined scenario under the static counterfactual.

Note: Because the packages cover different numbers of properties, the absolute costs and benefits (and NPVs) should not be compared directly. The BCRs, which represent the ratio of the present value of benefits to the present value of costs, are the most meaningful metric for comparing the efficiency of investment across packages.

Table 1: Summary of findings – Static counterfactual

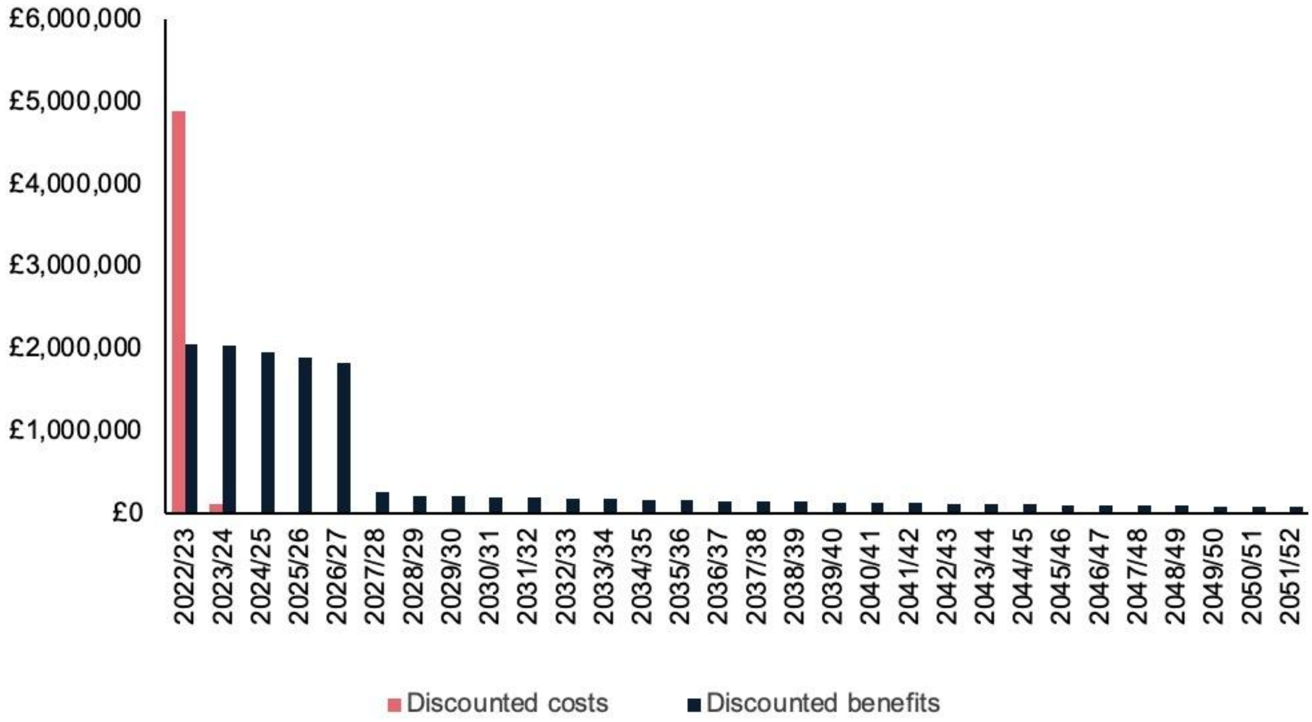
Costs	Package 2	Package 4	Packages 2 and 4
Total costs	£5.0 million	£14.9 million	£20.0 million
Present value of total costs	£5.0 million	£14.7 million	£19.7 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Energy savings	£6.3 million	£1.8 million	£8.1 million
Reduced carbon emissions	£1 million	£1.8 million	£2.8 million
Health impact (QALYs)	£8.1 million	£40 million	£48.1 million
NHS savings from reduced hazards	£1.1 million	£2.7 million	£3.8 million
Total benefits	£16.4 million	£46.3 million	£62.7 million
Present value of total benefits	£13.3 million	£41.6 million	£54.8 million
Net Present Value (NPV)	£8.3 million	£26.9 million	£35.1 million
Benefit Cost Ratio (BCR)	2.7	2.8	2.8
Number of properties	488	971	1,459

The findings indicate that all retrofit options deliver good VfM, with BCRs well above 2.0, meaning benefits substantially exceed costs.

- Package 2 (PV and battery systems) achieves a BCR of 2.7, implying that for every £1 spent, approximately £2.70 in benefits are generated. Its NPV of £8.3 million reflects clear net gains, primarily from household energy savings and associated health improvements due to warmer homes.
- Package 4 (fabric-first measures) delivers the highest absolute benefits, primarily driven by health improvements, with the health component being the dominant source of value in this package. With a BCR of 2.8 and an NPV of £26.9 million, Package 4 represents a positive return on investment, supported by the long-lasting nature of fabric improvements.
- When both packages are combined, total discounted benefits reach £54.8 million against costs of £19.7 million, producing a BCR of 2.8 and an NPV of £35.1 million. This confirms that fabric improvements alongside renewable energy systems maximise both energy and health outcomes, providing a balanced and cost-effective approach to decarbonising social housing.

Figure 15 shows the timing and scale of discounted costs and benefits associated with Package 2 under the static counterfactual. Package costs are incurred in the early years of delivery (2022 to 2023 and 2023 to 2024). By contrast, benefits accrue over a longer period, with higher benefits in the initial post-installation years driven by health benefits and reduced NHS costs during the first 5 years. Thereafter, annual benefits decline as health and NHS impacts are no longer assumed to persist, energy system performance gradually degrades, and discounting reduces the present value of future impacts. Despite this decline, cumulative discounted benefits exceed discounted costs over the appraisal period, underpinning the positive NPV of Package 2.

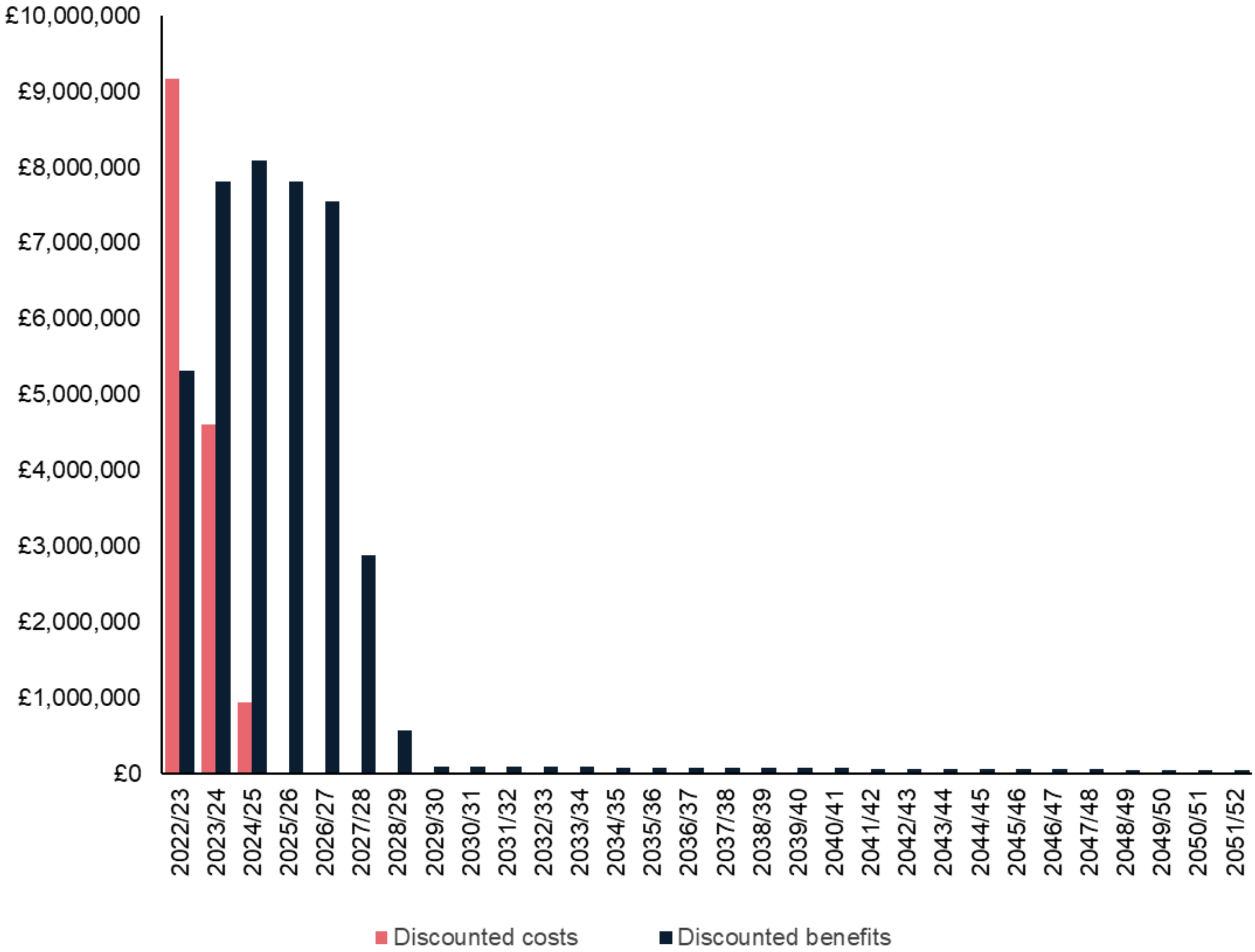
Figure 15: Package 2 – Discounted costs and benefits over a 30-year period



Description of Figure 15: Column chart showing discounted costs and discounted benefits for Package 2 (PV and battery systems) from 2022 to 2023, to 2051 to 2052 under the static counterfactual. Costs are concentrated in the early years of delivery, while benefits are higher in the initial post-installation years and decline over time. Overall, discounted benefits exceed discounted costs across the appraisal period.

Figure 16 shows the timing and scale of discounted costs and benefits associated with Package 4 under the static counterfactual. Package costs are incurred primarily in the early years of delivery (2022 to 2023, and 2024 to 2025). Benefits accrue over a longer period, with particularly high benefits in the initial post-installation years driven by physical benefits and associated reductions in NHS costs during the first 5 years. Unlike Package 2, no performance degradation is assumed for fabric-first measures; however, annual benefits decline gradually thereafter as health and NHS impacts are no longer assumed to persist, and discounting reduces the present value of future impacts. Despite this decline, cumulative discounted benefits substantially exceed discounted costs over the appraisal period, resulting in a strong positive NPV for Package 4.

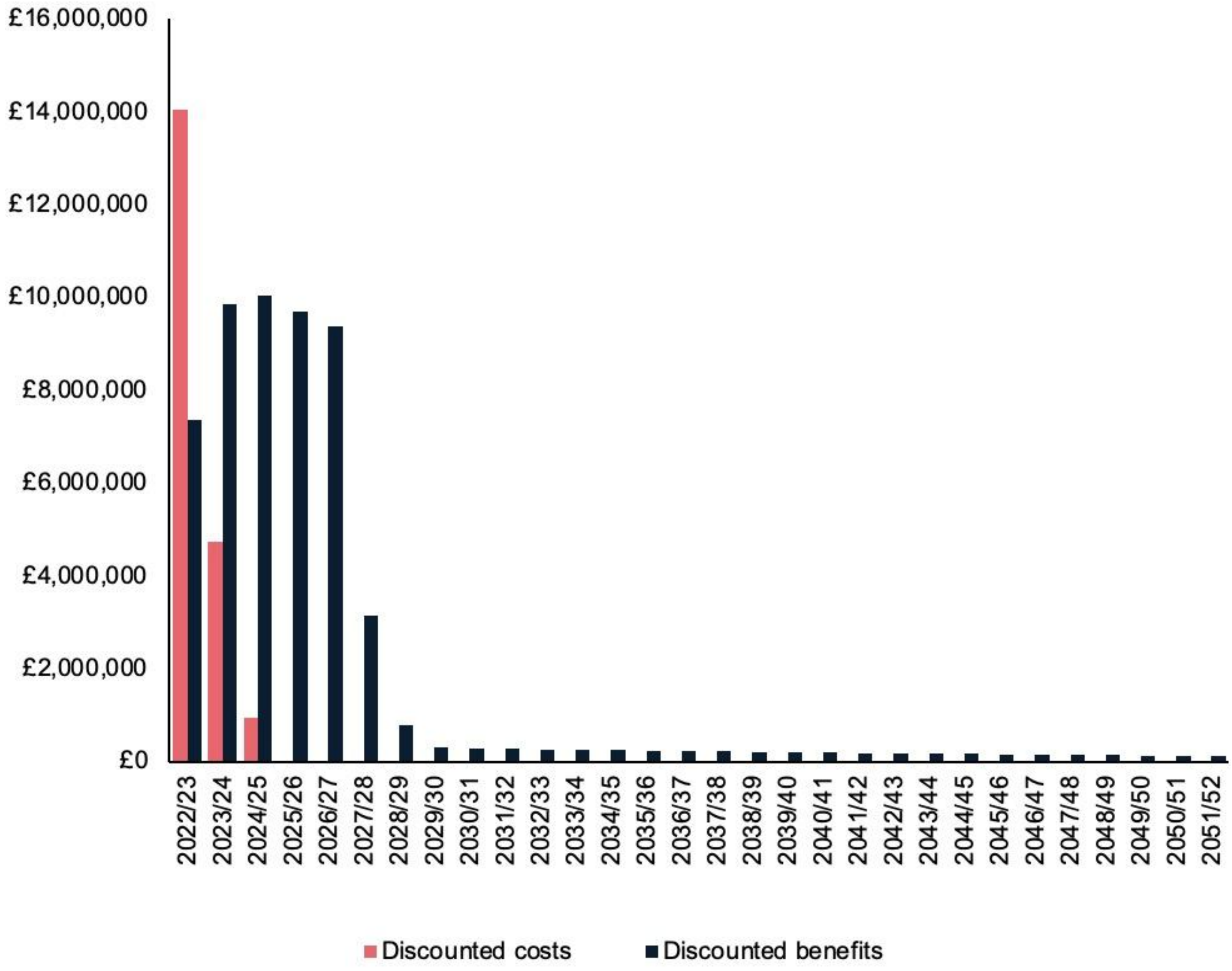
Figure 16: Package 4 – Discounted costs and benefits over a 30-year period



Description of Figure 16: Column chart showing discounted costs and discounted benefits for Package 4 (fabric-first measures) from 2022 to 2023, to 2051 to 2052 under the static counterfactual. Most costs occur in the early years, while benefits are high in the years immediately following installation and decline gradually over time. Discounted benefits substantially exceed discounted costs over the appraisal period.

Figure 17 shows the timing and scale of discounted costs and benefits associated with the combined delivery of Packages 2 and 4 under the static counterfactual. As with the individual packages, costs are concentrated in the early years of programme delivery (2022 to 2023, and 2024 to 2025). Benefits accrue over a longer period and are highest in the initial post-installation years, reflecting the combined effects of energy savings, carbon reductions, and health benefits alongside reduced NHS costs during the first 5 years. After this period, annual benefits decline as health and NHS impacts are no longer assumed to persist, some technology-related benefits gradually degrade, and discounting reduces the present value of future impacts. Overall, cumulative discounted benefits remain well above discounted costs across the appraisal period, confirming that the combined retrofit approach delivers a positive NPV.

Figure 17: Both packages – Discounted costs and benefits over a 30-year period



Description of Figure 17: Column chart showing discounted costs and discounted benefits for the combined delivery of Packages 2 and 4 from 2022 to 2023, to 2051 to 2052 under the static counterfactual. Costs are front-loaded in the early years, while benefits accrue over a longer period and remain higher than costs throughout the appraisal horizon.

Delayed rollout scenario: Gradual policy-driven retrofit

Under the delayed rollout counterfactual, it is assumed that similar retrofit improvements would eventually occur but more gradually, driven by broader policy initiatives or natural stock replacement cycles rather than immediate delivery through ORP 3. In this scenario, retrofit activity begins in Year 3, progressing at 5% of the ORP 3 retrofit rate per year, with completion achieved after 20 years.

This counterfactual provides a realistic conservative view of what might have happened in the absence of ORP 3, where retrofit activity begins later, and benefits are realised more gradually. Because these benefits occur further in the future, their present value is lower due to the effects of discounting.

In this case, the same benefit categories are considered as in the static counterfactual:

- energy savings
- carbon emission reductions
- physical health improvements, expressed in QALYs
- healthcare cost savings associated with fewer cold- and damp-related conditions

Health benefits are based on EQ-5D-5L utilities and are assumed to persist for 5 years post-retrofit.

Note: Because the packages cover different numbers of properties, the absolute costs and benefits (and NPVs) should not be compared directly. The BCRs, which represent the ratio of the present value of benefits to the present value of costs, are the most meaningful metric for comparing the efficiency of investment across packages.

Table 2: Summary of findings - Delayed rollout scenario

Package Number	**Package 2**	**Package 4**	**Packages 2 and 4**
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**
Total costs	£5.0 million	£14.9 million	£20.0 million
Total costs – Counterfactual	£5.0 million	£14.9 million	£20.0 million
Present value of net costs	£1.6 million	£4.4 million	£6.0 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**

Energy savings	£6.3 million	£1.8 million	£8.1 million
Reduced carbon emissions	£1.0 million	£1.8 million	£2.8 million
Health impact (QALYs)	£8.1 million	£40.0 million	£48.1 million
NHS savings from reduced hazards	£1.1 million	£2.7 million	£3.8 million
Total benefits	£16.4 million	£46.3 million	£62.7 million
Energy savings	£4.0 million	£1.1 million	£5.2 million
Reduced carbon emissions – Counterfactual	£0.6 million	£1.1 million	£1.7 million
Health impact (QALYs) – Counterfactual	£8.1 million	£40.0 million	£48.1 million
NHS savings from reduced hazards – Counterfactual	£1.1 million	£2.7 million	£3.8 million
Total benefits – Counterfactual	£13.8 million	£45.0 million	£58.8 million
Present value of net benefits	£4.9 million	£12.9 million	£17.9 million
Net Present Value (NPV)	£3.3 million	£8.5 million	£11.9 million
Benefit Cost Ratio (BCR)	3.1	2.9	3.0

Although the total costs remain the same under the ORP 3 scenario and the counterfactual, discounting and the timing of benefits drive differences in present values:

- because retrofit delivery is delayed, energy savings and carbon benefits are realised later, reducing their present value and, in total, remaining smaller than under the ORP 3 implementation scenario, as the first 2 years of potential savings are missed entirely
- health and NHS savings are assumed to last for 5 years per household, meaning that all households still experience their full health benefit period within the 30-year appraisal horizon
    - as a result, their total (non-discounted) benefits remain the same as under ORP 3, although their present value is slightly lower due to discounting
- overall, this results in lower net present benefits compared to the ORP 3 scenario, though the findings remain highly positive across all retrofit options

Despite this delay, all retrofit options continue to demonstrate strong VfM, with BCRs close to 3.0. This means that, even when the same measures are assumed to be delivered later without ORP 3, the benefits of bringing investment forward through the programme clearly outweigh the costs:

- Package 2 (PV and battery systems) achieves the highest BCR (3.1), indicating that for every £1 spent through ORP 3, more than £3 of benefits are generated compared with a scenario where installation is delayed
    - the high ratio reflects the advantage of earlier delivery, as immediate access to energy savings and carbon reductions provides greater discounted value over the appraisal period
- Package 4 (fabric-first measures) remains the dominant contributor to total benefits, particularly through improvements in health, which form the largest share of total value, with a BCR of 2.9 and an NPV of £8.5 million.
- combined delivery of Packages 2 and 4 yields a BCR of 3.0 and an NPV of £11.9 million, confirming that combined, early retrofit programmes like ORP 3 outperform a delayed, policy-driven approach

- the results illustrate that the timing of retrofit delivery significantly influences VfM - accelerating investment not only brings forward energy and carbon savings but also enables earlier health improvements and avoided NHS costs, producing higher overall returns.

Sensitivity analysis

To test the robustness of the CBA results, several sensitivity tests were carried out. These explored how outcomes change under alternative assumptions, including the addition of wellbeing impacts, the use of different health valuation measures, and variations in the assumed duration of health effects.

Note: Because the packages cover different numbers of properties, the absolute costs and benefits (and NPVs) should not be compared directly. The BCRs, which represent the ratio of the present value of benefits to the present value of costs, are the most meaningful metric for comparing the efficiency of investment across packages.

Wellbeing

In the core CBA, health-related benefits were monetised through QALYs derived from self-reported health improvements. To capture broader wellbeing effects, an additional test was undertaken using WELLBYs, based on changes in ONS-4 wellbeing scores, derived from the ORP 3 tenant survey. There is some overlap between physical health and mental wellbeing, which is why WELLBYs were not included in the core CBA to avoid potential double-counting.

In this sensitivity test, WELLBYs are added on top of the QALY-based health benefits and all other monetised benefits (NHS savings, energy savings, and carbon reductions). This provides an illustration of the broader social value generated by ORP 3, including improvements in life satisfaction and mental wellbeing that are not fully captured in the core CBA. In practice, some wellbeing effects will also be present within the central estimates, but they are likely conservative.

The average ONS-4 wellbeing score increased by 1.26 points among Package 4 respondents, compared with 0.52 for Package 2. Assuming these effects persist for 5 years after retrofit, the resulting WELLBY values are substantial and lead to a marked increase in total benefits across all retrofit options.

Under the static counterfactual, adding WELLBYs significantly increased the estimated benefits. For Package 2, total wellbeing benefits amounted to £40.5 million, raising total discounted benefits to around £51.1 million. This resulted in a BCR of 10.2 and an NPV of

£46.1 million, compared with £8.3 million in the core case – showing that wellbeing effects are a major driver of social value if included.

For Package 4, wellbeing impacts were even larger, reflecting the stronger improvements in self-reported wellbeing among participants. The total discounted benefits reached £222.4 million, producing a BCR of 15.1 and an NPV of £207.7 million. When both packages were combined, total discounted benefits were approximately £273.5 million, with an NPV of £253.7 million and a BCR of 13.9.

Table 3: Summary of findings - Static counterfactual - Adding WELLBYs

	Package 2	**Package 4**	**Packages 2 and 4**
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**
Present value of total costs	£5.0 million	£14.7 million	£19.7 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Wellbeing (WELLBYs)	£40.5 million	£196.4 million	£236.9 million
Present value of total benefits	£51.1 million	£222.4 million	£273.5 million
Net Present Value (NPV)	£46.1 million	£207.7 million	£253.7 million
Benefit Cost Ratio (BCR)	10.2	15.1	13.9

Under the delayed rollout counterfactual, the total wellbeing benefits are assumed to be the same in magnitude as under ORP 3 but realised later in time. As a result, their present value is smaller due to discounting. While NPVs are therefore lower than in the static case, BCRs remain slightly higher because total discounted net costs are also smaller under the delayed scenario.

Table 4: Summary of findings – Delayed rollout counterfactual – Adding WELLBYs

Costs & benefits	Package 2	Package 4	Packages 2 and 4
Number of properties	488	971	1,459
Present value of net costs	£1.6 million	£4.4 million	£6.0 million
Present value of net benefits	£16.6 million	£72.6 million	£89.2 million
Net Present Value (NPV)	£15.0 million	£68.2 million	£83.2 million
Benefit Cost Ratio (BCR)	10.5	16.4	14.8

Health impact

In the core CBA, health benefits and associated NHS savings were assumed to last for 5 years following retrofit. However, there is limited evidence in the literature on how long retrofit-related health gains persist, particularly for chronic conditions or mental health improvements linked to warmer, drier homes. To test the robustness of this assumption, the duration of health impacts was extended to 10 years and 20 years in sensitivity testing.

Under the static counterfactual, extending the health benefit duration from 5 to 10 years substantially increases both QALY-related benefits and NHS savings across both retrofit packages. As shown in Table 5, the present value of total benefits rises to £20.5 million for Package 2, £74.7 million for Package 4, and £95.1 million for the combined case, with corresponding NPVs of £15.5 million, £60.0 million, and £75.4 million, and BCRs exceeding 4.0 across all retrofit options.

Table 5: Summary of findings – Static counterfactual – 10 years of health impact

Costs	Package 2	Package 4	Packages 2 and 4
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**

Present value of total costs	£5.0 million	£14.7 million	£19.7 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Health impact (QALYs)	£16.1 million	£80.1 million	£96.2 million
NHS savings from reduced hazards	£2.2 million	£5.3 million	£7.6 million
Present value of total benefits	£20.5 million	£74.7 million	£95.1 million
Net Present Value (NPV)	£15.5 million	£60.0 million	£75.4 million
Benefit Cost Ratio (BCR)	4.1	5.1	4.8

When the duration is further extended to 20 years, total (non-discounted) health and NHS benefits roughly double, as expected. However, because benefits realised further into the future are discounted more heavily, the present values do not double, though they still rise significantly. The resulting BCRs climb to between 6.3 and 8.6, with NPVs of £26.6 million for Package 2, £111.3 million for Package 4, and £137.9 million for the combined case, reaffirming the strong long-term value of health improvements generated by ORP 3.

Table 6: Summary of findings – Static counterfactual – 20 years of health impact

	Package 2	Package 4	Packages 2 and 4
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**
Present value of total costs	£5.0 million	£14.7 million	£19.7 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Health impact (QALYs)	£32.2 million	£160.1 million	£192.4 million
NHS savings from reduced hazards	£4.4 million	£10.7 million	£15.1 million
Present value of total benefits	£31.6 million	£126.0 million	£157.7 million

Net Present Value (NPV)	£26.6 million	£111.3 million	£137.9 million
Benefit Cost Ratio (BCR)	6.3	8.6	8.0

Under the delayed rollout counterfactual, some households receive retrofit improvements later in the programme period. As a result, their health benefits are realised later, and not all are fully captured within the 30-year appraisal window. The discounted "lost benefits" under the delayed counterfactual amount to approximately £33,000 for Package 2, £151,000 for Package 4, and £184,000 for the combined case when assuming a 10-year health duration. When the assumed health duration extends to 20 years, the discounted "losses" increase to around £2.0 million, £8.9 million, and £10.9 million, respectively. If the evaluation period were extended beyond 30 years, the total benefits under both the ORP 3 and delayed scenarios would eventually converge, but the discounted values would remain lower in the delayed case due to the time lag in realising impacts.

As shown in Table 7, under the 10-year duration, the delayed rollout scenario still produces strong VfM, with BCRs between 4.6 and 5.2 and NPVs of £5.6 million for Package 2, £18.7 million for Package 4, and £24.3 million for the combined delivery.

Table 7: Summary of findings – Delayed rollout counterfactual – 10 years of health impact

	Package 2	**Package 4**	**Packages 2 and 4**
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**
Present value of net costs	£1.6 million	£4.4 million	£6.0 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Health impact (QALYs) – ORP 3	£16.1 million	£80.1 million	£96.2 million
NHS savings from reduced hazards – ORP 3	£2.2 million	£5.3 million	£7.6 million

Health impact (QALYs) – Counterfactual	£16.0 million	£79.7 million	£95.7 million
NHS savings from reduced hazards – Counterfactual	£2.2 million	£5.3 million	£7.5 million
Present value of net benefits	£7.2 million	£23.1 million	£30.3 million
Net Present Value (NPV)	£5.6 million	£18.7 million	£24.3 million
Benefit Cost Ratio (BCR)	4.6	5.2	5.0

When the duration of health impacts is extended to 20 years, both total and discounted benefits increase substantially. As Table 8 shows, the BCRs rise to between 8.0 and 10.7, and the NPVs reach approximately £11.1 million for Package 2, £43.0 million for Package 4, and £54.0 million for the combined Packages.

Table 8: Summary of findings – Delayed rollout counterfactual – 20 years of health impact

	Package 2	Package 4	Packages 2 and 4
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**
Present value of net costs	£1.6 million	£4.4 million	£6.0 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Health impact (QALYs) – ORP 3	£32.2 million	£160.2 million	£192.4 million
NHS savings from reduced hazards – ORP 3	£4.4 million	£10.7 million	£15.1 million
Health impact (QALYs) – Counterfactual	£26.8 million	£133.9 million	£160.7 million

NHS savings from reduced hazards – Counterfactual	£3.7 million	£9.0 million	£12.6 million
Present value of net benefits	£12.6 million	£47.4 million	£60.1 million
Net Present Value (NPV)	£11.1 million	£43.0 million	£54.0 million
Benefit Cost Ratio (BCR)	8.0	10.7	10.0

Health measure

When using the EQ-5D-3L health utility definition instead of the EQ-5D-5L, the estimated annual health gains per person are slightly lower. Specifically, the mean annual QALY gain per person decreases from 0.02 to 0.01 for Package 2, while remaining at 0.05 for Package 4.

The EQ-5D-5L definition was preferred for the core CBA, as it aligns more closely with the ORP 3 tenant survey design. Respondents were asked to rate their physical health on a 5-point scale ("very poor" to "very good"), which more naturally corresponds to the 5-level EQ-5D measure.

Under the static counterfactual, applying the EQ-5D-3L definition reduces the overall health-related benefits relative to the EQ-5D-5L case for Package 2, as expected. Health benefits for Package 4 remain unchanged, while those for the combined case are slightly lower. Even so, the results remain strongly positive, with BCRs at or above 1.9 across all retrofit options.

Table 9: Summary of findings – Static counterfactual – EQ-5D-3L

	Package 2	Package 4	Packages 2 and 4
Number of properties	488	971	1,459
Present value of total costs	£5.0 million	£14.7 million	£19.7 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Health impact (QALYs)	£4.0 million	£40.0 million	£44.1 million
Present value of total benefits	£9.5 million	£41.6 million	£51.1 million

Net Present Value (NPV)	£4.5 million	£26.9 million	£31.4 million
Benefit Cost Ratio (BCR)	1.9	2.8	2.6

Under the delayed rollout counterfactual, using the EQ-5D-3L definition again yields lower estimated benefits for Package 2, while benefits for Package 4 remain unchanged. Nevertheless, all retrofit packages continue to deliver positive NPVs and BCRs comfortably above 2, confirming that the investment remains VfM even under a more conservative health valuation.

Table 10: Summary of findings – Delayed rollout counterfactual – EQ-5D-3L

	Package 2	**Package 4**	**Packages 2 and 4**
Number of properties	488	971	1,459
Costs	**Package 2**	**Package 4**	**Packages 2 and 4**
Present value of net costs	£1.6 million	£4.4 million	£6.0 million
Benefits	**Package 2**	**Package 4**	**Packages 2 and 4**
Health impact (QALYs) – ORP 3	£4.0 million	£40.0 million	£44.1 million
Health impact (QALYs) – Counterfactual	£4.0 million	£40.0 million	£44.1 million
Present value of net benefits	£3.7 million	£12.9 million	£16.7 million
Net Present Value (NPV)	£2.2 million	£8.5 million	£10.7 million
Benefit Cost Ratio (BCR)	2.4	2.9	2.8

Qualitative benefits

Not all benefits generated by retrofit programmes can be easily monetised or captured within a traditional cost-benefit analysis. While the core CBA focuses on quantifiable effects – such as energy savings, carbon reduction, and health impacts – many additional benefits fall outside this scope. These non-monetised impacts nonetheless provide important evidence of programme value, particularly in relation to social welfare and wider economic outcomes. If it were possible to monetise these non-financial impacts robustly, the BCRs for the ORP 3 packages would likely be higher.

Employment and skills development

ORP 3 is expected to generate a number of full-time equivalent (FTE) jobs, both directly and indirectly. Employment has been created in construction, project management, installation, and technical services, as well as within the supply chain. These employment effects are not included in the core CBA. While the programme may create jobs, the HM Treasury's Green Book (2022) guidance notes that such employment can displace activity elsewhere in the economy, meaning it does not necessarily increase overall social welfare. For this reason, net employment effects are not typically counted in economic appraisal.

However, they are likely to deliver positive multiplier effects for the local economy. Workers employed through the programme contribute to local demand for goods and services, supporting wider economic activity and community regeneration. Moreover, the programme was expected to provide skills development and upskilling opportunities, helping to build a more experienced workforce in low-carbon technologies and retrofit delivery. This human capital investment could enhance future employability and support the transition to a skilled green economy.

Social and distributional impacts

The programme is also expected to generate important distributional benefits for lower-income households. Although the HM Treasury's Green Book (2022) provides methods for monetising distributional effects, doing so requires detailed data on income levels and household characteristics that were not available for this analysis. As such, these benefits are described qualitatively rather than incorporated into the central CBA.

Retrofit improvements primarily benefit lower-income households, for whom reductions in energy bills and improved living conditions represent substantial welfare gains. According to HM Treasury's Green Book (2022) principles, transfers to lower-income households have a higher marginal utility of income, meaning the same financial benefit provides greater overall wellbeing. As such, even modest reductions in heating costs can deliver disproportionately large welfare improvements for social housing tenants, alleviating financial stress, improving mental wellbeing, and strengthening resilience to energy price fluctuations.

Warm, adequately heated homes also reduce absences from school and work, which can increase social productivity – impacts not captured in the central results.

Tenant wellbeing and quality of life

Some of wellbeing and quality of life improvements are captured in the quantitative analysis through QALY and WELLBY estimates, but not all aspects of tenant experience can be monetised. The qualitative findings, therefore, provide important context and help illustrate the full range of benefits residents experience.

Qualitative evidence, primarily from WHQS tenant interviews, reinforces these findings, highlighting tangible improvements in comfort, safety, and mental wellbeing following retrofit works. Tenants described homes as warmer, drier, quieter, and more secure – improvements that significantly enhanced day-to-day satisfaction and quality of life.
Main themes include:

- Financial relief: Reduced heating costs and energy bills contributed to improved financial management and peace of mind, particularly important for households on lower incomes
- Thermal comfort and physical health: Warmer, well-insulated homes reduced damp, mould, and associated respiratory problems
    - tenants reported fewer colds and illnesses, better sleep quality, and fresher air
- Mental wellbeing: Feeling safe, secure, and financially stable reduced anxiety and stress
    - one tenant noted, “To have a home that's warm, safe and secure … it makes you feel good. It makes you feel part of society.”
- Sense of belonging and pride: Improved home environments and gardens fostered community pride and connection, reinforcing wellbeing and social cohesion.

Qualitative evidence draws primarily on WHQS tenant interviews because only a small number of ORP tenants were available to participate. While this is a limitation, the experiences reported are expected to be broadly representative of tenants receiving similar types of retrofit measures.

Landlord and system-level benefits

Interviews with landlords, primarily those involved in ORP 3, highlighted additional non-monetised benefits. Many reported increased tenant satisfaction, improved property conditions, and enhanced long-term asset value. Retrofit works were also seen as a learning opportunity, helping them understand effective sequencing of measures, build tenant trust, and develop internal capacity for large-scale decarbonisation.

At the same time, some community landlords highlighted potential challenges – such as temporary disruption during installation or, in some cases, the risk of higher bills if measures like heat pumps are implemented without adequate insulation. These insights underscore the importance of whole-house, fabric-first approaches and effective tenant engagement to ensure sustained benefits.

Property value and asset improvements

Although not directly reflected in the CBA, retrofit investments improve the quality, durability, and long-term value of the housing stock. In the private sector, such improvements are often reflected in higher property values or rental income, as better energy performance and housing quality are capitalised into market prices. These increases represent real economic gains for private owners.

In contrast, social housing operates on a non-market basis, meaning any uplift in asset value does not translate into higher rents or direct financial benefit for tenants. Instead, the social value of these improvements is realised through enhanced living standards, lower energy costs, and reduced maintenance requirements for social landlords.

5. Conclusions and recommendations

5.1.1 Conclusions for WHQS 2023

Tenant experience and outcomes

Tenant awareness of WHQS 2023 remains low. Most tenants interviewed, and 62% of tenants surveyed, were unaware of the Standard itself. However, tenants expressed clear interest in improvements to their homes, particularly for works related to tangible benefits, such as improved warmth, reduced damp, and lower energy costs. Often, these improvements were implemented or announced without explicitly linking them to WHQS. This suggests that, although awareness is limited, there is potential to increase tenant engagement and interest in the WHQS 2023 through better communication and structuring of works, and more clearly connecting planned works to the WHQS 2023.

While awareness of WHQS as a policy framework was limited, a few tenants' lived experiences indicate that the updated Standard is contributing to improved housing quality and wellbeing, especially through energy and safety-related works. This included increased comfort, reduced stress, improved physical health, and greater satisfaction with their homes. Energy-efficiency improvements were particularly valued where they contributed to warmer and more affordable homes to heat. These experiences demonstrate progress toward the intended outcomes of WHQS 2023, even where formal tenant understanding of the Standard remains limited.

Landlords' experience of implementation

WHQS 2023 places substantial demands on social landlords, particularly in relation to energy and decarbonisation requirements. Long-term targets, such as achieving SAP 92/EPC A across the housing stock, were widely regarded as highly ambitious. While landlords broadly support the rationale for high standards, many perceived that expectations were set centrally with limited scope for co-design, creating a sense that ambition currently outpaces delivery capacity.

Key constraints include financial pressures, limited certainty over long-term funding, shortages of trained and accredited personnel, and increasing administrative requirements related to data reporting. Uncertainty about the evidence required, along with variation in how landlords interpret requirements and use the available guidance, can increase workload and reduce the consistency and quality of the data submitted.

Welsh Government support has been welcomed by landlords, with early engagement, guidance sessions, and ongoing dialogue providing valuable assistance in navigating the transition between Standards, despite the challenges.

Regarding implementing the updated standard, there was a variety in implementation levels. Progress is most evident in areas aligned with existing business-as-usual activities, such as safety, kitchens and bathrooms, flooring, and planned maintenance. Landlords are taking their initial steps toward meeting the energy efficiency and decarbonisation requirements, although significant progress towards meeting the final SAP 92 targets has yet to be achieved.

5.1.2 Conclusions for ORP

Tenant experience

Awareness of the ORP programme was limited, with the majority of tenants reporting that the programme was unknown to them in social terms, despite their home having undergone a retrofit as part of the scheme.

Tenant views on the works themselves were mixed. Communication with landlords was generally viewed positively, with the vast majority of tenants surveyed expressing satisfaction. However, the delivery of retrofit works was often disruptive. Most tenants surveyed reported challenges during the installation process, particularly interruptions to daily routines and unexpected delays or schedule changes. Even so, overall satisfaction with the ORP-funded retrofit works remained high.

A consistent issue identified across tenant interviews was reports of insufficient information about how to make the best use of these technologies, particularly solar PV, batteries, and heating systems. The few tenants interviewed felt unprepared to use installed systems effectively, relying on informal sources such as neighbours or online searches. This limited the potential benefits of retrofits and, in some cases, contributed to frustration.

Landlord experience and delivery

ORP was widely regarded as accessible and well-supported by Welsh Government officials. Social landlords valued the ability to speak directly with programme staff, receive timely guidance, and resolve issues collaboratively. ORP aligned well with existing asset management strategies and often complemented planned maintenance programmes.

However, implementation challenges remain. The annual funding cycle creates pressure through short bidding windows and end-of-year spend deadlines, leading to compressed planning, stop-start delivery, and procurement inefficiencies. Administrative and accreditation requirements under PAS 2035 and TrustMark were often seen by social landlords as resource-intensive, with some questioning their proportionality. At the same time, Welsh Government officials explained that accreditation requirements are intended to uphold rigorous standards so that retrofit installations are safe, dependable, and effectively delivered.

Delivery is further constrained by workforce shortages, supply chain limitations (particularly in rural areas), heritage and site constraints, and tenant hesitancy toward certain technologies such as heat pumps. There was also a growing focus on maximising SAP targets within tight timelines and with the least expenditure, which in some cases has limited innovation and reduced emphasis on tenant-centred outcomes.

Test-and-learn and sector capability

ORP has played an important role as a test-and-learn programme. Across successive phases, landlords reported growth in organisational capacity, technical expertise, and confidence in delivering retrofit works. ORP supported experimentation with different technologies, sequencing approaches, and archetypes, contributing to sector-wide learning.

Overall, ORP has been effective in building internal capacity and technical expertise among many social landlords, supporting organisational learning and the development of new roles, systems, and more integrated retrofit approaches over successive programme phases. However, delivery has increasingly been shaped by regulatory, technical, and organisational constraints. Communities of Practice and case studies were valued, though landlords felt learning could be strengthened more through better access to monitoring data, seasonal evaluation, and more systematic sharing of insights across the sector. Monitoring requirements were indirectly recognised as valuable, although they could be burdensome when managed internally.

While ORP is not sufficient on its own to deliver whole stock decarbonisation at the scale required by WHQS 2023, it has laid important foundations for future delivery.

Value for Money

The CBA findings demonstrate that ORP 3 delivers VfM across all retrofit options and scenarios. Notably, this holds true even under conservative assumptions applied throughout the analysis. PV and battery systems (Package 2), fabric-first measures (Package 4), and their combined delivery consistently achieve BCRs at or above 1.9 – meaning that for every

£1 spent, at least £1.90 in benefits is generated. This confirms that the energy, health, and environmental gains delivered through ORP 3 substantially exceed programme costs.

The largest share of benefits arises from improved physical health outcomes. These effects translate into measurable gains in QALYs and lower NHS costs. Because health outcomes make a substantial contribution to the overall monetised benefits, it is important to interpret these results in light of the underlying evidence. These estimates are based on paired pre- and post-retrofit survey responses (86 for solar PV and battery systems, Package 2, and 19 for fabric-first measures, Package 4). For Package 2, 9 of 86 respondents reported improved health and 6 reported deterioration. For Package 4, 4 of 19 respondents reported improved health and none reported deterioration; in both packages, the majority reported no change.

Within these samples, only a minority of respondents reported improved health; however, QALY values reflect the average change in mapped health utility across all paired respondents, not only those reporting improvements. The modest net average change observed in the 86 Package 2 responses was applied to all 488 properties receiving Package 2, and the modest net average change observed in the 19 Package 4 responses was applied to all 971 properties receiving Package 4, including households without paired survey data. As a result, health changes reported by a relatively small number of respondents in each package exert a material influence on the total monetised benefits, NPVs and headline BCRs.

As self-reported health changes were converted into EQ-5D-5L utility scores and applied across households and over time, even modest average shifts can generate substantial monetised benefits. There is a reasonable likelihood that the 86 paired properties for Package 2 and the 19 paired properties for Package 4 are not fully representative of all households receiving those measures. If the true average health effects across the wider populations are smaller than those observed in these paired samples, the estimated QALY gains – and therefore the NPVs and BCRs – would be lower. This sampling limitation represents a key source of uncertainty in the overall value-for-money assessment. Conservative assumptions were applied throughout.

Energy savings and carbon reductions provide additional, complementary benefits that strengthen the overall economic case. Even under conservative assumptions – such as applying alternative health utility measures – the ORP 3 packages continue to deliver positive net value. This demonstrates the robustness of the results and the resilience to uncertainty of the value-for-money case, in key parameters.

Timing is also a critical factor. Earlier delivery through ORP 3 achieves substantially higher present-value benefits than a delayed 20-year rollout, as impacts are realised sooner and subject to less discounting. In the delayed 20-year rollout, the first 2 years of potential energy and carbon savings are missed entirely, reducing total benefits. While the absolute scale of health and NHS effects remains the same across scenarios, their present value is lower when delivered later. Accelerating retrofit investment therefore maximises economic efficiency and brings forward quantifiable health, carbon, and energy benefits.

The evaluation shows that both lower-cost solar PV and battery measures and more capital-intensive fabric-first interventions deliver good VfM, but it does not provide a definitive basis for prioritising deep retrofit over cheaper baskets of measures. Fabric-first approaches generate larger absolute benefits, particularly in relation to health, but involve higher upfront costs. Lower-cost measures also deliver strong BCRs and offer greater potential for rapid scale-up. The results, therefore, point to a strategic trade-off between depth of intervention and breadth of coverage, rather than a single optimal approach based on VfM evidence alone. Further research should be undertaken when data becomes available for all ORP 3 packages to assess whether future retrofit strategies should prioritise deep retrofit or focus on lower-cost packages of measures.

Beyond the quantified benefits, ORP 3 delivers important qualitative impacts. Tenants report greater comfort, security, and satisfaction, and landlords note reduced maintenance needs and enhanced asset longevity. These qualitative gains reinforce the quantified evidence, showing that ORP 3 not only represents VfM but also contributes to healthier, more resilient communities.

Unmet objectives

The objectives to map data collection processes (Objective 3) and to scope the feasibility of rolling out retrofit more widely (Objective 4) were not fully met within this evaluation due to the evolving aims and priorities of the research and the information available at the time. As these objectives were deprioritised, they should be answered and revisited in future research.

5.1.3 Cross-programme synthesis

Taken together, WHQS 2023 and ORP are mutually reinforcing. WHQS provides a long-term regulatory framework, while ORP acts as a delivery and learning mechanism that accelerates progress toward energy and decarbonisation goals. The evaluation highlights the importance of aligning standards, funding mechanisms, delivery capacity, and tenant engagement to maximise impact.

5.1.4 Recommendations

Recommendations for WHQS

1st recommendation: Introducing a Standardised Compliance Policy template.

Basis for recommendation: Evidence highlights that landlords faced challenges in submitting Compliance Policies for the updated Standard. The way landlords interpret guidance can increase workload and affect the quality of submitted data.

Source of evidence: Social landlord interviews

Social landlords reported uncertainty about the required scope and level of detail for compliance policies. The lack of a Compliance Policy standardised template has sometimes increased workload and led to inconsistencies in the structure, content, and depth of policies across organisations.

To address this, it is recommended that the Welsh Government provides a structured template for the compliance policy that clearly sets out required sections, and minimum expectations.

This recommendation relates to the WHQS ToC Outcome of “Better informed, data-driven decisions for social housing” on compliance policies, annual reporting, and monitoring, supporting consistent progress toward full compliance and downstream tenant outcomes.

2nd recommendation: Enhancing Guidance for Data Returns

Basis for recommendation: Evidence highlights that landlords experienced challenges in interpreting the updated reporting requirements. The way landlords interpret guidance can increase workload and affect the quality of submitted data.

Source of evidence: Social landlord interviews

Landlords reported uncertainty about what constitutes an adequate level of data for statistical returns, while also noting that this requirement often placed a considerable administrative burden on them. While the Welsh Government recommended drawing statistical returns directly from housing management systems, some landlords instead completed returns manually, increasing workload and risk of inconsistencies.

To address this, it is recommended that the Welsh Government provides additional guidance for statistical returns, clarifying what is required, the level of detail expected, and the format for submissions. This would help landlords avoid redoing work, reduce misinterpretation of requirements, and ensure consistency.

This recommendation relates to the WHQS ToC Outcome of “Better informed, data-driven decisions for social housing” on compliance policies, annual reporting, and monitoring, supporting consistent progress toward full compliance and downstream tenant outcomes.

3rd recommendation: Securing funding for energy efficiency retrofits

Basis of the recommendation: Long-term targets for energy efficiency and decarbonisation (achieving SAP 92/EPC A) across the housing stock were widely regarded as highly ambitious. As a result, there was some uncertainty about whether the final SAP 92 targets would ultimately be met, with ongoing financial pressures cited as a major constraint.

Source of evidence: Social landlord interviews; ORP 3 CBA

Most social landlords highlighted the limited availability of funding beyond ORP. Given the demonstrated VfM of ORP, it is recommended that additional funding streams be made available to support energy-efficient retrofit works.

Expanding funding would enable landlords to scale up retrofit activity, accelerate progress toward decarbonisation targets, and maximise tenant benefits in terms of comfort, health, and energy efficiency. Alongside the provision of additional funding, social landlords need to strengthen their capacity to proactively identify, secure, and fully utilise the range of funding streams already available to them.

This recommendation supports all WHQS “energy performance” and “environmental impact” outcomes, having an indirect impact on “tenant satisfaction and wellbeing” as well.

4th recommendation: Targeted funding for upskilling the workforce

Basis of the recommendation: Beyond financial constraints, landlords also identified shortages of trained and accredited personnel as an additional challenge to delivering the retrofits required to meet decarbonisation goals.

Source of evidence: Social landlord interviews

To support the delivery of energy-efficiency and decarbonisation targets, it is recommended that more funding be allocated by the Welsh Government for upskilling and workforce development. In this context, the Welsh Government is funding Personal Learning Accounts, an upskilling programme with a particular focus on green skills, as well as the Flexible Skills Programme, which covers up to 50% of accredited training costs for businesses, capped at £50,000. Targeted investment in training and upskilling within the construction and green sectors will help address shortages of accredited staff and enhance technical capacity across social landlords.

This recommendation supports all WHQS “energy performance” and “environmental impact” outcomes.

5th recommendation: Enhancing WHQS awareness among tenants

Basis of the recommendation: Tenant awareness of WHQS 2023 is reported to be low. Most tenants interviewed were unaware of the Standard, and social landlords noted a degree of tenant indifference.

Source of evidence: Tenant surveys and interviews; landlord interviews

Given the low levels of tenant awareness regarding WHQS 2023, it is recommended that the Welsh Government advise social landlords to implement targeted communication and engagement strategies. In cases where awareness remains low, it may be important for social landlords to explore the underlying reasons and identify ways to improve effectiveness.

Improving tenants’ understanding of the Standard, its benefits, and planned works might encourage greater involvement and foster tenant buy-in for retrofit activities. It is particularly important to provide clear communication and support before, during, and after works, especially when new low-carbon technologies are installed, as some tenants reported issues with how landlords managed the process and the information they received.

This recommendation aligns with the WHQS ToC “community engagement” and “tenant satisfaction and wellbeing” outcomes.

6th recommendation: Strategic resourcing and accessibility

Basis of the recommendation: Many tenants reported minimal engagement from the landlord’s side, a reactive approach towards repairs, and impersonal interactions, with limited notice of visits and assumptions about availability.

Source of evidence: Tenant interviews; Social landlord interviews

Many tenants interviewed reported minimal or ineffective communication, with repairs and improvements being reactive, and insufficient follow-up support after retrofitting works had been completed. Some also reported landlord–tenant interactions as impersonal, with limited notice of visits and assumptions about availability. The Welsh Government should encourage social landlords to review and adapt staff availability to better align with tenant needs. Offering retrofits to take place beyond standard working hours or providing alternative access options will help ensure that tenants who are employed or have other commitments can engage fully with housing services and retrofit programmes.

This recommendation supports the WHQS ToC "community engagement" outcomes by enabling meaningful tenant involvement.

Recommendations for ORP

1st recommendation: Implement a multi-year funding cycle

Basis of the recommendation: The annual funding cycle of ORP creates pressure through short bidding windows and end-of-year spend deadlines, leading to compressed planning, stop-start delivery, and procurement inefficiencies.

Source of evidence: Social landlord interviews; Social landlord survey

The primary structural challenge reported by social landlords with ORP relates to its annual funding cycle and the associated management requirements, although recognising the support already provided by the ORP team through deadline extensions, one-to-one assistance, in-year bid flexibility, and the availability of surplus funding. The evaluation team acknowledges that the stock-based model approach also gives landlords a level of assurance around long-term funding and planning compared to a competitive bidding system, helping them to plan strategically and manage resources despite the constraints of an annual cycle.

It is recommended to the Welsh Government that ORP (or future similar funds) adopt a multi-year funding cycle or other means of assurance on funding for RSLs. This would reduce the pressures created by short bidding windows and end-of-year spend deadlines, allow for more effective planning and procurement, and enable delivery teams to achieve a higher and more consistent volume of retrofit and decarbonisation works.

This recommendation strengthens the ORP ToC inputs and activities, indirectly supporting all subsequent outcomes.

2nd recommendation: Incentivising TrustMark accreditation for contractors

Basis of the recommendation: Administrative and accreditation requirements under PAS 2035 and TrustMark were often seen by social landlords as resource-intensive, with some questioning their proportionality.

Source of evidence: Social landlord interviews

It is recommended that incentives be offered by the Welsh Government to encourage contractors to obtain and maintain TrustMark accreditation. Supporting contractors in achieving accreditation, through financial or procedural incentives, will help expand the pool of qualified providers, facilitate compliance with standards such as PAS 2035, and ensure the timely and effective delivery of retrofit and decarbonisation works.

To that end, Welsh Government officials have informed us about a paper drafted in 2025 that outlines how the Welsh Government could fund 50% of the first-year TrustMark audit cost for companies headquartered in Wales. The paper is under consideration for potential implementation in 2026 to 2027.

This recommendation supports all ORP "Green economy and skills" outcomes.

3rd recommendation: Measure outcomes, not just SAP points

Basis of the recommendation: At the latest phases of ORP, there was a growing focus on maximising SAP targets within tight timelines and with the least expenditure, which in some cases has limited innovation and reduced emphasis on tenant-centred outcomes.

Source of evidence: Social landlord interviews

Some landlords reported adopting a "low-hanging fruit" retrofitting strategy, such as mass installation of solar panels, sometimes without accompanying battery storage, to meet mid-term WHQS standards. These measures are believed to provide limited benefit to tenants.

It is recommended that social landlords expand and enhance evaluation approaches that prioritise long-term performance and tenant outcomes (such as satisfaction/wellbeing KPIs), as already indicated in the ORP fund claiming process, rather than focusing solely on SAP score improvements.

Please note that this recommendation reflects the research team's conclusions, based on social landlord interviews, which indicated that some ORP works were carried out primarily to meet mid-term environmental WHQS targets. Welsh Government officials noted that, through the grant bidding process, social landlords are encouraged to consider both long-term strategies and tenant wellbeing. Landlords are also encouraged to install sensors in homes to monitor performance across multiple indicators, including energy efficiency and issues such as damp and mould.

This recommendation aligns with the ORP "energy performance," "environmental impact," and "tenant satisfaction and wellbeing" outcomes.

4th recommendation: Enhance visibility of test-and-learn outcomes

Basis of the recommendation: Landlords felt learning could be strengthened more through better access to monitoring data, seasonal evaluation, and more systematic sharing of insights across the sector. Monitoring requirements were indirectly recognised as valuable, although they could be burdensome when managed internally.

Source of evidence: Social landlord interviews

It is recommended that ORP and social landlords focus on embedding the proven technologies and intervention approaches proven by ORP, but also ensure that the outcomes, case studies, and main learning points are widely visible and easily accessible, for instance, sharing knowledge through Community of Practice events and promoting the ORP page of case studies.

Welsh Government officials informed us that significant gaps remain in supplier and skills data, as well as case studies, many of which are still outstanding. In the final year of the current ORP programme, the ORP team will focus on collecting and distributing all relevant outputs and findings to partners.

This recommendation supports ORP “community engagement” outcomes.

Annex A: Profile of survey respondents

This annex provides a descriptive overview of the demographic characteristics of respondents for the 2 surveys disseminated to social housing tenants as part of this research. Findings for the ORP and WHQS 2023 surveys are described separately.

ORP tenant survey

The demographic and background information of the survey respondents for the ORP tenant survey are presented below. The survey received a total of 274 responses.

- **Gender**: 72% of respondents were female compared to 27% that were male
- **Age**: The vast majority of the respondents (81%) were aged between 35 and 74 years old, with approximately one-fifth of each belonging to the below age groups (17% between 35 and 44, 20% between 45 and 54, 22% between 55 and 64, and 22% between 65 and 74) - participants aged 75-84 comprised 9% of the sample, while those aged 25-34 comprised 7%
- **Local authority**: Out of the 22 local authorities examined, the majority of the respondents (15%) were located in Neath Port Talbot, followed by Wrexham (14%), Merthyr Tydfil (12%), Bridgend (8%), Rhondda Cynon Taf (8%), Cardiff (7%), and Carmarthenshire (6%)
- **Ethnicity**: The overwhelming majority of participants were White (95%), while the rest were split, being of Black, Mixed, or other ethnic groups, or choosing not to answer the question
- **Type of property**: The largest proportion (42%) of participants reported that they are living in semi-detached houses. Smaller proportions recorded living in terraced houses (19%), flats (17%), and bungalows (16%)
- **Number of people living in the household**: Over one-third of the respondents (36%) live alone, while 28% live in 2-person households. Fewer people live in households of 3 (15%) or 4 people (13%), while only 7% of the respondents live in households of 5+ people
- **Disability**: 67% of the respondents recorded that they have physical or mental health conditions or illnesses lasting or expected to last 12 months or more, while 27% reported that they did not

- **Care needs**: Almost half of the participants (45%) reported there is no one in the household requiring care or regular support, while the other 44% reported that at least one household member does - 11% of the participants decided not to answer the question
- **Experience receiving care**: Just over half of the respondents (52%) reported that nobody in their household had experience receiving care. Around one quarter (27%) indicated that they themselves had experience, while 8% reported that another person in the household had - only 4% of participants recorded that both they and another household member had care experience, while 10% decided not to answer the question
- **Social landlord**: The majority of the respondents (61%) reported living in housing association accommodation, while 36% reported living in a home provided by the council
- **Number of years living in the property**: Over one quarter of the respondents (27%) have lived in their current property for more than 20 years - around 1 in 6 (16%) have lived there between 10 and 15 years, and 15% between 7 and 10 years - fewer participants reported living in their properties for 3-5 years (12%), 5-7 years (8%), 1-3 years (8%), 15-20 years (8%), and 4% have lived there for less than one year

WHQS 2023 tenant survey

The demographic and background information of the survey respondents for the WHQS 2023 tenant survey are presented below. The survey received a total of 1,285 responses.

- **Gender**: 70% of respondents were female compared to 27% who were male
- **Age**: The majority of respondents (81%) were aged between 35 and 74 years old, with 26% aged 55-64, 20% aged 45-54, 18% aged 65-74, and 17% aged 35-44. Fewer participants were aged 25-34 (8%) and 75-84 (7%)
- **Local authority**: The majority of the respondents (37%) were based in Newport, while nearly one-fifth were in Pembrokeshire (19%); other respondents are based in Rhondda Cynon Taf (9%), Monmouthshire (7%), Torfaen (7%), and Vale of Glamorgan (6%).
    - other areas reported lower percentages, namely Wrexham (4%), Blaenau Gwent (2%), Neath Port Talbot (2%), and Powys (2%), with the remaining areas recording between 1% or less of respondents

- **Ethnicity**: The overwhelming majority of participants identified as White (93%), while the remaining 7% of the participants were split between being of Asian, Black, Mixed ethnicity or choosing not to answer the question
- **Property type**: The largest proportion of participants, 37%, live in flats, followed by those living in semi-detached houses (26%) and terraced houses (23%). Only 9% of participants reported living in bungalows.
- **Number of people in the household**: Just over one-third of the participants (38%) live alone, while just over one-quarter (28%) live with one other person; households of 3 people make up 17% of respondents, those with 4 represent 9% of the sample, and 5 or more represent 6%.
- **Disability**: Most of the respondents (66%) recorded that they have physical or mental health conditions or illnesses lasting or expected to last 12 months or more, while only 26% reported that they did not; 8% chose not to answer the question.
- **Care needs**: Almost half of the participants (48%) reported that there is no one in the household requiring care or regular support, while slightly fewer (41%) reported that at least one household member does; 11% of the participants decided not to answer the question.
- **Experience receiving care**: Over half (56%) of participants stated that nobody in their household had experience receiving care, 24% of the respondents identified themselves as being care experienced, 6% said another household member was, and 3% said both they and another household member were care experienced - approximately 1 in 9 participants chose not to answer this question.
- **Social landlord**: The majority of the respondents (72%) reported living in housing association accommodation, while 26% reported living in a home provided by the council
- **Length of time living in the property**: Almost one fifth of respondents (20%) have lived in their current property for 20 years or more, followed by just under one fifth (17%) who have lived there between 10-15 years; 12% of respondents have resided in their property from 7 to less than 10 years, 11% from 3 to less than 5 years, and another 11% from 1 to less than 3 years; a similar proportion of 10% reported living in the property between 5 and 7 years

Annex B: Technical Annex for CBA

A Social Cost Benefit Analysis (CBA) was carried out to assess the economic value of the Packages under review, as recommended in HM Treasury's Green Book (2022). CBAs are a common approach used to estimate the VfM of an intervention by quantifying and monetising the socioeconomic costs and benefits.

A CBA framework was developed to measure the costs of ORP 3, as well as the socioeconomic benefits that can flow from this intervention. Costs and benefits were identified and compared to a counterfactual (business-as-usual) scenario, where the intervention does not take place. The CBA captured the costs of the intervention, as well as tangible and intangible benefits flowing from ORP 3 Packages.

Tangible benefits – energy savings, reduced carbon emissions, and healthcare cost savings from tenants' improved health outcomes – and intangible benefits (improved tenant health outcomes and wellbeing), were quantified and monetised using (i) literature evidence, (ii) survey results, and (iii) publicly or non-publicly available data. Qualitative evidence was also summarised to capture effects that could not be quantified. These qualitative effects were considered as part of the VfM assessment but were not captured in the NPV, that is, the difference between the present value of benefits and the present value of costs, or in the BCR, which measures the ratio of the present value of benefits to the present value of costs.

Following standard practice, the costs and benefits of the programme were analysed over a 30-year period, starting in 2022 to 2023 (Year 1 of ORP 3) and ending in 2051 to 2052 (Year 30). This timeframe aligned with typical CBA standards for long-term infrastructure and policy evaluations, ensuring that both short- and long-term impacts are captured (HM Treasury's Green Book, 2022).

Future costs and benefits are expressed in real terms, meaning inflation has been removed so that values are comparable over time. According to HM Treasury's Green Book (2022), GDP deflators at market prices (September 2025) were used to convert all values to 2022 to 2023 real terms.

Future costs and benefits in 2022 to 2023 real terms were discounted to determine their present value, accounting for the time VfM (i.e., the preference for receiving benefits now rather than in the future). A social discount rate of 3.5% was applied, as outlined in the HM Treasury's Green Book (2022).

Counterfactual ('business-as-usual') scenario

An important feature of the CBA methodology is that costs and benefits should be compared to a counterfactual or "business-as-usual" scenario – the situation where the intervention does not occur, i.e., the OPR 3 is not implemented. As alternative realities cannot be observed, the counterfactual represents the best estimate of what would have happened in the absence of the programme. The choice of counterfactual can therefore have a substantial effect on the results.

Two main counterfactual scenarios were defined:

Static counterfactual: No intervention

This scenario assumed that the retrofit measures delivered under ORP 3 would not have taken place. Under this situation:

- current levels of dampness and poor thermal comfort persist
- there would be no resulting improvements in physical health, wellbeing, or environmental outcomes
- national net zero commitments would remain in place, but retrofitting activity would be deferred, potentially requiring more costly future interventions

This "do-nothing" scenario served as a conservative baseline against which to assess the full benefits of ORP 3.

Delayed rollout scenario: Gradual policy-driven retrofit

This counterfactual assumed that retrofit improvements similar to ORP 3 would eventually be implemented, but at a slower and more staggered pace due to current policy frameworks, the absence of dedicated funding (as under ORP 3), and market dynamics. This scenario assumed:

- retrofit activity would begin in Year 3
- progression would be limited to 5% of the ORP 3 retrofitted houses per year (completed by Year 23)
- costs and benefits would occur more gradually over time, meaning the effects are spread across a longer period rather than occurring upfront
- overall net benefits would be reduced due to discounting – the process of adjusting future costs and benefits to reflect their lower value compared to those realised sooner

- early benefits – such as energy savings – would be delayed, resulting in a lower overall impact

This delayed implementation pathway reflected the pace at which current policy commitments might realistically be delivered without the targeted investment from ORP 3.

ORP 3 costs

The Welsh Government provided ORP 3 costs for a subset of Packages 2 and 4. Simple averages of costs per property per landlord were calculated, yielding an estimated average cost per property (2022 to 2023 values) of £10,300 for Package 2 and £15,400 for Package 4.

Welsh Government data indicated that 488 ORP 3 properties (completed and ongoing) fell under Package 2 and 971 under Package 4.

The timing of costs is important in CBAs. Costs for both packages were allocated across years according to the retrofit round in which activities took place: ORP 3.1 in 2022 to 2023, ORP 3.2 in 2023 to 2024, and ORP 3.3 in 2024 to 2025.

For Package 2, the cost was £4.9 million in 2022 to 2023 and £0.1 million in 2023 to 2024 (2022 to 2023 real terms). For Package 4, costs were £9.2 million in 2022 to 2023, £4.8 million in 2023 to 2024, and £1 million in 2024 to 2025 (2022 to 2023 real terms).

Benefits

The following benefits were included in the core CBA: savings to households from reduced energy consumption, reduced carbon emissions, improved physical health measured through QALYs, and healthcare cost savings associated with reductions in dampness and improved thermal comfort.

Energy savings

Energy savings generated by ORP 3 arise because retrofit measures reduce the amount of electricity and gas required to heat and operate a home. Reduced energy consumption is a direct reduction in the use of energy-sector resources, and this is the source of the welfare gain. In practice, households experience this benefit through lower energy bills.

However, a reduction in household bills does not map one-for-one to an increase in net social welfare. This is because a £1 reduction in a household’s bill is also £1 less revenue for energy suppliers. From a welfare-economics perspective, only the portion of that lost revenue that represents producer surplus (i.e. profits and net production taxes) should be treated as a welfare loss. The remainder reflects avoided intermediate inputs – fuel, generation, transmission, and distribution costs – which are resources saved, not a reduction in welfare.

To apply the correct welfare adjustment, we used the Input–Output Supply and Use Tables to identify the share of energy-sector output that represents producer surplus. For "Electric power generation, transmission, and distribution," gross operating surplus and mixed income represent 16% of total output, while net production taxes account for a further 3%. This means that each £1 of electricity bill savings corresponds to £0.19 in reduced profits and net taxes. For "Manufacture of gas; distribution of gaseous fuels through mains; steam and aircon supply," the equivalent figure is 12% (£0.11 in profits and £0.01 in net taxes per £1 of gas savings). Taking the average across both sectors gives an estimated 15% share of bill savings that should be deducted to reflect lost profits and net taxes. Accordingly, 85% of the gross bill savings represent increased net social welfare.

For both packages, xRI provided information on the energy savings per home per year, based on analysis of ORP 3 monitoring data of energy usage in participating homes.

For Package 2, xRI estimated that properties with PV-only installations offset approximately £430 per year per home (2024 to 2025 values), while properties with PV and battery systems offset £650 per year per home (2024 to 2025 values) (xRI, 2025). According to Welsh Government data, 45 properties received PV-only installations, and 443 received PV and battery systems.

For Package 4, xRI estimated that properties offset £81 per year per home (2024 to 2025 values) [footnote6]. Please note that there was a caveat: the energy savings were calculated by comparing Package 4 properties (with EWI) to other ORP 3 non-EWI properties (with minor retrofits). Ideally, pre- and post-retrofit energy data for all Package 4 properties would have been required to obtain a more accurate estimate. In addition, the use of average (mean) values rather than medians may have introduced potential bias if outliers existed in either the Package 4 or baseline datasets. While this consideration applied to all packages, it may have been particularly relevant where the distribution of energy savings was skewed.

The information on annual energy savings per home, together with the assumption that 85% of gross bill savings represent net social welfare, was used to estimate the total yearly welfare-adjusted energy savings accrued by retrofitted properties.

Footnotes

[6] Performance Evaluation of Retrofit Measures Delivered under ORP Short Paper: Heat demand benchmarking methodology and 2024 baseline energy carbon and cost data (xRI, 2026).

An assumption about how benefits evolve over time was also required. Different assumptions were applied for the 2 packages, reflecting the nature of the measures installed. For Package 2, which includes PV panels and batteries, a depreciation factor was applied to account for the gradual decline in technology performance. Based on Eleftheriadis, G., & Hamdy, M. (2018), single-family buildings may experience performance degradation of 0.9% to 2.4% per year. The lower bound of this range (0.9%) was adopted as a reasonable assumption for PV installations following discussions with Welsh Government representatives. Under this assumption, homes experience full savings immediately after retrofit completion, followed by a gradual reduction in energy savings each year.

For Package 4, which primarily consists of fabric-first (EWI) interventions, no depreciation in performance was assumed. This is consistent with feedback from Welsh Government representatives that correctly installed fabric improvements are integral to the building and should maintain performance over time with no meaningful degradation. These differentiated assumptions are intended to reflect realistic technology lifespans while remaining cautious and evidence-based.

Reduced carbon emissions

For both packages, xRI provided information on carbon reductions per home per year. For Package 2, xRI estimated that properties with PV-only installations reduce approximately 190 kg CO_2 per home per year, while properties with PV and battery systems reduce around 293 kg CO_2 per home per year (xRI, 2025). For Package 4, xRI estimated that properties reduce 234 kg CO_2 per home per year [footnote7] . This was calculated using a baseline scenario comparing Package 4 (EWI) properties with ORP 3 non-EWI properties (with minor retrofits).

The information on emissions reductions per home per year was used to estimate the total annual carbon savings produced by the retrofits.

Assumptions on the durability of these benefits mirror those applied for energy savings. For Package 2, a 0.9% annual performance degradation is applied to reflect the expected decline in PV system output. For Package 4, no degradation is assumed, as fabric improvements are integrated into the building structure. This approach ensures that carbon

Footnotes

[7] Performance Evaluation of Retrofit Measures Delivered under ORP Short Paper: Heat demand benchmarking methodology and 2024 baseline energy carbon and cost data (xRI, 2026).

savings align with expected intervention lifespans and remains evidence-based yet conservative.

Carbon emissions reductions (in kg CO_2) were monetised using the latest carbon valuation schedule (Department for Energy Security and Net Zero 2024), which provides central, low, and high estimates of the social cost of carbon. In accordance with HM Treasury's Green Book (2022) guidance and its supplementary guidance on greenhouse gas valuation, the central scenario for carbon values was applied and adjusted by appraisal year. For context, a reduction of 1 tonne of CO_2 in 2022 (in 2020 values) was valued at £248 (Department for Energy Security and Net Zero, 2021), with this value increasing in future years to reflect rising climate damage costs.

Health impact (QALYs)

To estimate quality-adjusted life year (QALY) gains arising from ORP 3 retrofits, self-reported physical health data collected from tenants responding to the ORP 3 survey was used. Respondents were asked "How would you describe your overall physical health before the works in your home? / Using the same scale, how physically healthy are you after the works in your home have been completed?" with response options on a 5-point ordinal scale: Very poor; poor; fair; good; very good; I don't know; Prefer not to say.

A question asking tenants which retrofits they were aware of was also included, allowing health impacts to be estimated for Package 2, Package 4, and overall.

In total, 274 tenants completed the survey. Using the retrofit awareness question, respondents were then grouped into packages. For Package 2, 89 people were classified as living in homes that had received these measures; 86 of these provided both pre- and post-retrofit health responses.

An "improvement" in physical health was defined as a positive change of at least one category on the 5-point self-rated health scale between the pre- and post-retrofit responses (e.g., from "fair" to "good"). "No change" refers to identical pre- and post-retrofit responses, while a "deterioration" reflects a decline of one or more categories. This approach captures directional change in perceived physical health while avoiding assumptions about the magnitude of change between categories.

Among the 86 Package 2 respondents, 9 reported an improvement in physical health, 71 reported no change, and 6 reported a deterioration. For Package 4, 20 respondents were classified to this group, and 19 provided completed pre- and post-retrofit responses; 4 reported an improvement, 15 no change, and none reported deterioration. The average improvement reported by those whose health improved was larger than the average deterioration among those reporting a decline, although the sample sizes – particularly for Package 4 – are small and must be interpreted cautiously.

To enable quantitative analysis of changes in health status, responses were first coded on a numeric scale from 1 (Very poor) to 5 (Very good). This allowed for a simple assessment of directional change (i.e., improvement or deterioration) at an individual level. The survey responses represent an ordinal scale – meaning that while the categories have a clear order (e.g., “good” is better than “fair”), the size of the difference between categories is not known. Ordinal scales cannot be used directly in economic valuation. However, to estimate QALYs, which require health-related quality of life scores on a cardinal 0-1 scale, these ordinal scores were translated into utility values. A cardinal scale provides meaningful numerical differences between values – for example, a move from 0.6 to 0.7 represents a precise increase in health-related quality of life. QALYs rely on such cardinal “utility values,” which capture how good or bad a health state is relative to perfect health (1) and death (0). Translating ordinal survey responses into cardinal utility values, therefore, allows health changes to be expressed in QALY terms, making them suitable for economic appraisal.

EQ-5D-5L-based mapping approach

To ground estimates in published health economics literature, an EQ-5D-5L-based mapping approach was used. EQ-5D is a standardised instrument developed by the EuroQol Group to measure health-related quality of life across 5 dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression), each with 3 levels of severity. The resulting index score reflects an individual’s overall health on a 0 (to represent death) to 1 (perfect health) scale [footnote8].

Although the ORP 3 survey did not collect full dimension-specific EQ-5D profiles, the self-rated physical health question was designed to capture overall functional health status in a way that is conceptually consistent with EQ-5D utility measurement. Population studies have shown strong correlations between global self-rated health and EQ-5D index scores, supporting the use of self-assessed health as a proxy for health-related quality of life in

Footnotes

[8] EQ-5D valuations can, in principle, include negative utility values (scores < 0) to represent health states considered “worse than death.” However, this concept is not relevant to the retrofit context, which concerns incremental improvements in housing quality and comfort rather than severe or life-threatening health conditions. Accordingly, negative values from the analysis were excluded. This aligns with the survey design, where respondents rated their physical health between “very poor” and “very good,” not including states conceptually below zero.

economic evaluation where full instruments are not available (Kind et al., 1999; Burström et al., 2001).

Research by Dolan (1997), who developed the original UK value set for EQ-5D, found that moderate health states (i.e., those with “some problems” in one or more EQ-5D dimensions) typically yield mean utility scores around 0.6–0.7. Based on this, “Fair” self-rated health was aligned with a utility score of ~0.65, “Poor” with ~0.50, and “Very poor” with ~0.30. Conversely, “Good” and “Very good” were mapped to ~0.75 and 0.90, respectively, consistent with general population norms reported in the literature. Kind et al. (1999) reported that the mean EQ-5D index for the general UK adult population lies between 0.85 and 0.90, which aligns with the assignment of 0.90 for “Very good” health. More recent analysis by Alava et al. (2022) for the NICE Decision Support Unit provides updated EQ-5D-3L estimates by age and sex, showing average utilities declining from 0.93 at age 30 to around 0.68–0.75 at age 90, which supports the use of 0.65–0.75 as reasonable utility scores for “Fair” and “Good” categories. Furthermore, Szende et al. (2014) provided cross-country evidence that upper-bound population norms typically range between 0.87 and 0.92, consistent with the upper utility assignment.

Table 11: Self-rated health to utility values (EQ-5D-5L)

Description	Approx. EQ-5D-5L level	Utility (EQ-5D-5L)
Very poor	Level 5 (extreme problems)	0.30
Poor	Level 4 (severe problems)	0.50
Fair	Level 3 (moderate problems)	0.65
Good	Level 2 (slight problems)	0.78
Very good	Level 1 (no problems)	0.90

Estimating QALY gains

Individual-level utility changes (post-minus-pre) were calculated and averaged to estimate the mean annual utility gain per person. For Package 2, mean utility increased from 0.66 to 0.68 (a gain of 0.02). For Package 4, mean utility increased from 0.67 to 0.72 (a gain of 0.05). To estimate total QALY gains per participant, it was assumed that the observed health improvements would persist over a defined duration. Given the retrofit context and uncertainty over long-term sustained effects of housing improvements, a 5-year horizon was adopted as a conservative base case. Sensitivity analysis was conducted using longer durations (e.g., 10 and 20 years) to test the robustness of results.

Under the 5-year base-case assumption, this corresponds to total per-person health gains of 0.10 QALYs for Package 2 and 0.25 QALYs for Package 4, which is broadly consistent with estimates reported in the housing and health literature. Milner et al. (2015) explored the health impact of housing renovations that aimed at improving indoor air quality. Using data from England and Wales, the authors found that home energy efficiency interventions that reduce exposure to air pollution would have a positive impact on mortality and morbidity from asthma, coronary heart disease, and lung cancer. These interventions would result in increased QALYs by 0.24 per person over 90 years. Similarly, another study explored the health effects of home energy-efficiency interventions in England, such as fabric and ventilation retrofits to meet building regulations (Hamilton et al., 2015). The authors found that these energy-efficiency retrofits would result in an average increase of 0.22 QALYs per person over 50 years of age due to improved indoor air quality and temperature.

It is important to note that baseline self-reported health among ORP 3 respondents is likely to be lower than the general population average, and potentially lower than the wider social housing population. This reflects the targeting of retrofit interventions toward households experiencing poorer housing conditions and higher levels of need. Lower baseline health implies greater scope for marginal improvement and is consistent with the programme's objectives. The QALY estimates, therefore, reflect within-person changes relative to each individual's own baseline, rather than comparisons with external population norms, helping to reduce bias associated with baseline health differences.

This method allows for the valuation of health benefits in economic terms, providing a bridge between subjective wellbeing and public health evaluation. While self-rated health is a coarse proxy for multi-dimensional health status, it is widely used in social epidemiology and has been validated as a predictor of morbidity, mortality, and health service use (DeSalvo et al., 2006; Idler & Benyamini, 1997).

Crosswalk from EQ-5D-5L to EQ-5D-3L (Sensitivity analysis)

Although the EQ-5D-5L framework offers improved sensitivity and reduced ceiling effects compared with the original 3-level version, much of the UK evidence base – including the Dolan (1997) value set used in the NICE reference case – remains anchored in EQ-5D-3L utilities. To ensure comparability with this established valuation framework, we apply a crosswalk to translate the 5-level self-rated health responses into the 3-level structure. This approach follows the mapping developed by van Hout et al. (2012), which provides an empirically validated method for converting EQ-5D-5L descriptive data to EQ-5D-3L index values. The mapping was constructed using datasets in which participants completed both the 3L and 5L versions, allowing the EuroQol Group to estimate statistical relationships between the 2 systems. The van Hout crosswalk was later supported by the hybrid value set for England developed by Devlin et al. (2018), which refines these mappings through a combination of discrete choice and time trade-off data.

In essence, the crosswalk aligns the 5 severity levels of the EQ-5D-5L with the broader 3-level categories of the original EQ-5D-3L instrument. The first and second levels of the 5L system ("no problems" and "slight problems") are treated as equivalent to "no problems" in the 3L version, the middle level ("moderate problems") corresponds to "some problems," and the 2 highest levels ("severe" and "extreme/unable") map to "extreme problems." This collapsing reflects both the conceptual structure of the 3L framework and the empirical calibration observed in van Hout et al. (2012), where the average 5L utility values within each group were benchmarked to the 3L UK tariff developed by Dolan (1997).

Because the analysis relies on self-rated overall health rather than dimension-specific EQ-5D profiles, this logic is applied at an aggregate level. The 5 self-reported categories – "Very poor," "Poor," "Fair," "Good," and "Very good" – are interpreted as corresponding to the 5L descriptive levels and then mapped onto the 3L system accordingly. "Very good" health is therefore treated as reflecting a state with no reported problems and assigned an approximate 3L utility of 0.90, consistent with UK population norms for full health (Dolan, 1997; Kind et al., 1999). "Good" and "Fair" health are mapped to the 3L "some problems" category, with an average utility of around 0.72, corresponding to moderate health states in the crosswalk model. "Poor" and "Very poor" health are grouped into the 3L "extreme problems" level, with an average utility of approximately 0.40, consistent with the mean of severe states in the van Hout and Devlin value sets. These approximate utilities preserve the relative differences observed across the 5-point scale while situating them within the established 3L valuation framework.

Table 12: Crosswalk from EQ-5D-5L to EQ-5D-3L

EQ-5D-5L Category	3L category	Utility (EQ-5D-Based)
Very poor/Poor	Extreme problems	0.40
Fair/Good	Some problems	0.72

Very good	No problems	0.90

This translation enables sensitivity testing of QALY estimates derived from the 5L-based primary approach against a 3L-compatible value structure. Using both sets of values allows for assessment of whether the choice of valuation system materially affects the estimated health benefits associated with ORP 3 retrofits.

For Package 2, under this definition, mean utility increased from 0.65 to 0.66 (a gain of 0.01). For Package 4, mean utility increased from 0.64 to 0.69 (a gain of 0.05).

Occupancy assumptions

To estimate the total health benefits associated with all tenants living in homes retrofitted under Packages 2 and 4, it was important to approximate the number of residents affected. As the available datasets do not include information on household size, data from the 2021 Census was used to estimate the average number of people living in social rented housing in Wales.

Using the Census table on household tenure by household size, the total number of individuals living in social rented homes was calculated (approx. 488,000) [footnote9] and divided by the total number of social rented homes (approx. 222,000). This yielded an estimated average household size of 2.20 persons per house.

This same occupancy assumption was also applied in the estimation of wellbeing benefits, ensuring consistency across the analysis.

Monetising health impacts

Health impacts were then monetised using published estimates of QALYs. According to HM Treasury's Green Book (2022) guidance, QALYs can be monetised by applying a value of £70,000 (in 2020 to 2021 prices) for each QALY gained. For example, if an intervention generates 0.4 QALYs (equivalent to 40% of a year in perfect health), the monetary benefit of the intervention would be £28,000 in 2020 prices (Alma Economics, 2024).

Different health impact valuations exist; however, in this analysis, the Green Book approach was followed, as it is the most appropriate for this exercise compared to other health impact

Footnotes

[9] The Census categories report household sizes from one person up to "6 or more." For this upper category, we conservatively assumed a household size of 6 people.

valuations. According to Mullin (2022), the £70,000 per QALY figure in the Green Book is based on academic research on the general willingness to pay for risk reduction or injury prevention, such as studies by Carthy et al. (1998). The Green Book applies this threshold in public health or injury prevention contexts, as the focus is on reducing overall social harm, rather than simply targeting the most cost-effective interventions [footnote 10].

Healthcare cost savings from improved health outcomes

Improved health outcomes from retrofit interventions can reduce pressure on the NHS by avoiding treatment costs associated with poor housing conditions. To estimate these savings, health-impact findings were combined with unit-cost data derived from Nicol et al. (2019).

According to Nicol et al. (2019), poor-quality housing generates an estimated £95 million per year in NHS treatment costs. Excess cold accounts for approximately £41 million annually, while dampness and mould contribute around £3 million. These estimates correspond to around 56,500 dwellings with category 1 excess-cold hazards and around 10,000 dwellings with category 1 damp and mould hazards.

In this evaluation, the household-level probability of poor housing hazards was calculated – specifically dampness and thermal comfort – before and after retrofit. Respondents were asked:

- "before the works… how much dampness or moisture did you notice in your home?" (scale from "None at all" to "Very high amount")
- "since the works… how much has dampness or moisture reduced?"

A similar question was used for thermal comfort.

For each hazard, the proportion of households experiencing a meaningful reduction following retrofit was calculated. Unit NHS cost estimates from Nicol et al. (2019) were then applied to calculate total savings. For example, Nicol et al. (2019) report that 10,000 homes with serious dampness generate £3 million in annual NHS costs – equivalent to approximately £300 per affected home per year. Using this benchmark, damp-related NHS savings were estimated in proportion to the reduction in reported dampness in the sample.

For thermal comfort, the NHS cost associated with excess cold was applied. Nicol et al. (2019) estimate this at £730 per affected dwelling per year.

Footnotes

[10] In contrast, the National Institute for Health and Care Excellence (NICE) sets a lower threshold range of £20,000 to £30,000 per QALY for approving medicines, as it aims to manage NHS spending more effectively.

Thus, annual savings for each hazard were calculated as:

Annual saving = (Number of homes with reduced hazard × Unit NHS cost per home)

with unit costs of £300 for dampness and £730 for thermal comfort.

For Package 2, the ORP 3 survey results indicated that 19% of respondents reported improved thermal comfort, and 83% of those who had previously experienced dampness stated that it had reduced by at least a minimal amount following the retrofit.

For Package 4, 32% of respondents reported improved thermal comfort, while 79% of those who had previously experienced dampness reported at least a minimal reduction after the works.

Summing across both hazards gives the total annual NHS savings. Assuming improvements persist for 5 years – aligned with the QALY time horizon – cumulative healthcare savings were calculated as:

Total saving = Annual saving × 5 years

One limitation is that Nicol et al. (2019) estimated savings from mitigating hazards entirely, while the survey results measure reductions in hazard levels. This may lead to some overestimation.

Nonetheless, this approach provides a transparent method for monetising health-service benefits attributable to retrofit-related hazard reductions, using empirical UK-specific evidence. While some uncertainty remains – particularly regarding the duration and stability of improvements – it offers a robust estimate of the NHS cost mitigation enabled by improved home conditions.

Increased wellbeing (WELLBYs)

Tenants may experience improvements in wellbeing due to reduced stress, enhanced comfort, and greater energy security resulting from retrofit interventions. To measure this, Wellbeing-Adjusted Life Years (WELLBYs) measure was used, which quantifies changes in subjective wellbeing (e.g., life satisfaction and happiness).

To evaluate the impact of the intervention on participants' subjective wellbeing, the Office for National Statistics' 4 core wellbeing questions were used, commonly referred to as the ONS-4. These questions capture self-reported assessments of life satisfaction, sense of worthwhileness, happiness, and anxiety, each measured on a scale from 0 to 10 (ONS, 2025). The anxiety item is reverse-coded such that lower anxiety corresponds to higher wellbeing. By combining responses across these 4 domains, a composite wellbeing score reflecting overall subjective wellbeing was constructed.

To estimate wellbeing changes attributable to the intervention, analysis was restricted to respondents who provided both pre- and post-intervention responses. For Package 2, the average composite ONS-4 wellbeing score increased from 6.54 pre-intervention to 7.05 post-intervention, representing an improvement of 0.52 points. For Package 4, the average score increased from 5.33 to 6.58, corresponding to a larger improvement of 1.26 points, calculated using unrounded underlying values (rounded figures shown for presentation).

The rationale for converting ONS-4 responses into WELLBYs lies in the need to express wellbeing impacts in a consistent and quantifiable unit, comparable across programmes and policy areas. A WELLBY represents one point of life satisfaction sustained for one person for one year – or, equivalently, a one-unit increase on the 0–10 wellbeing scale maintained over a year (with 10 indicating the highest possible wellbeing and 0 the lowest) (Green Book supplementary guidance: wellbeing). This approach enables meaningful aggregation of wellbeing changes over time and across beneficiaries, supporting comparison with other public investments.

The process involved first calculating individual ONS-4 scores by averaging each participant's responses to the 4 wellbeing questions (with anxiety reverse-coded). The change in these composite scores between pre- and post-intervention provided an estimate of the impact on subjective wellbeing.

To translate this change into WELLBYs gained, the difference in average wellbeing scores was multiplied by the assumed duration over which the wellbeing improvement persists. For example, if an intervention increases average wellbeing by 1 point on the 0–10 scale and the effect is expected to last for 5 years, the total WELLBY gain would be 5. This method assumes that wellbeing levels remain constant over the period considered and that changes in wellbeing correspond linearly to changes in quality of life.

According to the Green Book, "a robust estimate of a change in life satisfaction can be converted to a monetary value by multiplying by £13,000" (in 2019 prices). The guidance also illustrates the approach with a worked example: *"Example: … an improvement in wellbeing of 0.2 points … The monetary estimate … in 2019 prices is: wellbeing valuation = 0.2 × £13,000 = £2,600 per year."* WELLBY gains produced by the retrofit were monetised by multiplying the mean change in life satisfaction (0–10) per person per year by £13,000 (2019 prices) [footnote 11].

By converting ONS-4 data into WELLBYs, the analysis captures the broader non-health-related benefits of interventions, complementing traditional health utility measures such as QALYs. This provides policymakers with clearer evidence of the full social value of retrofit interventions.

It is important to note that there may be some overlap between QALYs and WELLBYs, as mental wellbeing and physical health are closely interconnected and can influence each other. Because of this overlap, including both measures fully in a CBA risks double-counting benefits. For this reason, CBAs typically use either QALYs or WELLBYs, but not both, to avoid overstating the overall impact.

Footnotes

[11] The baseline year for all monetary values in this analysis will be 2022 to 2023.

Annex C: Fieldwork materials

Survey for landlords

Background information

To better understand the needs of different landlords, we would like to gather some general information about your organisation. This will help us analyse responses based on factors such as housing stock size, geographical coverage, and property characteristics.

For any questions you do not wish to answer, you can select the ‘Prefer not to answer’ option at the bottom of each list.

1. Please provide the full name of the organisation you work for.

Section A: Evaluation of residential properties

2. What proportion of your residential properties meet the following criteria?

Scale per item [Vast majority (90%+); Many (70-89%); Some (40-69%); Few (20-39%); Very few (less than 20%); Don’t know; Prefer not to answer]

- Good state of repair
- Safe and secure
- Affordable to heat
- Environmentally friendly
- Have modern kitchen and utility areas
- Have modern bathrooms
- Comfortable to live in
- Promote tenant wellbeing

3. From your residential properties that have a garden or an outdoor space, what proportion meets the following criteria?

Scale per item [Vast majority (90%+); Many (70-89%); Some (40-69%); Few (20-39%); Very few (less than 20%); Don’t know; Not applicable; Prefer not to answer]

- Have a well-maintained garden
- Have enough outdoor space

B: WHQS – Awareness and sentiment

The following questions focus on the updated quality standard for social housing, the Welsh Housing Quality Standard 2023 (WHQS 2023). This sets updated requirements for rental properties, focusing on improving energy efficiency, sustainability, and tenant well-being. It introduces new expectations around decarbonisation, water efficiency, biodiversity, and tenant engagement, ensuring all homes meet a higher quality standard. For more details, you can refer to the following link.

4. How would you describe your level of understanding of WHQS 2023?

a. Very familiar (strong understanding of requirements)

b. Moderately familiar (aware of main changes/lack of detailed knowledge)

c. Slightly unfamiliar (heard but not well-informed)

d. Very unfamiliar (unaware of the update) [skip to section C]

e. Prefer not to answer

5. How well informed do you feel about the following aspects of WHQS 2023?

Scale per item [Very informed; Somewhat informed; Neither informed nor uninformed; Somewhat uninformed; Very uninformed; Prefer not to answer]

- Property condition assessments
- Compliance checks
- Energy efficiency improvements and decarbonisation targets
- Biodiversity and environmental sustainability measures
- Water efficiency and conservation requirements
- Flooring standards
- Tenant involvement and engagement strategies

Now, we'd like to understand how the transition from the previous WHQS to WHQS 2023 has been for you.

6. How has the transition to the WHQS 2023 been so far?

- Very straightforward
- Straightforward
- Neither straightforward nor challenging

- Challenging
- Very challenging
- Prefer not to answer [skip to Q5]

7. Please expand on your answer to how the transition to the new WHQS 2023 has been so far?

8. How clear do you find the new requirements of the WHQS 2023?

Disclaimer: WHQS 2023 introduces new requirements, including updated energy efficiency standards, improved accessibility measures, and enhanced tenant safety protocols. For more information, please follow this link: https://www.gov.wales/sites/default/files/publications/2024-06/welsh-housing-quality-standard-2023.pdf.

a. Very clear [skip to q7]
b. Mostly clear [skip to q7]
c. Somewhat clear
d. Somewhat unclear
e. Very unclear
f. Prefer not to answer [skip to q7]

9. What specific aspects do you find unclear?

10. How adequate has the support provided by the Welsh Government been in helping you meet WHQS 2023? This includes engagement sessions, topic-focused workshops, and additional resources offered to the sector.

a. Very adequate
b. Somewhat adequate
c. Neither adequate nor inadequate
d. Somewhat inadequate
e. Very inadequate
f. I am not aware of the guidance
g. Prefer not to answer

Meeting WHQS 2023 will require different approaches depending on your properties. We'd like to understand how often you assess compliance and what steps you're taking.

11. How often do you plan on assessing your properties to ensure compliance with WHQS 2023?

a. Every year
b. Every 2-3 years
c. Every 4-5 years
d. At change of occupancy
e. Not decided yet
f. Prefer not to answer

12. For what proportion of your housing stock have the following steps have been undertaken, in order to support compliance with the WHQS 2023?

Scale per item [Vast majority (90%+); Many (70-89%); Some (40-69%); Few (20-39%); Very few (less than 20%); Don't know; Prefer not to answer]

- Conducting Whole Stock property assessments
- Developing Targeted Energy Pathways
- Implementing energy efficiency retrofits (e.g., insulation, low-carbon heating, green energy solutions)
- Installing smart meters in homes
- Enhancing safety and security measures (smoke alarms, fire safety systems)
- Renovating internal spaces
- Improving outdoor areas
- None of the above
- Prefer not to answer

13. In meeting WHQS 2023, how do you plan to engage tenants about changes in their homes? Select all that apply.

a. Tenant satisfaction surveys / feedback forms
b. Concerns and compliments section on website
c. Drop-in surgeries
d. Tenant groups / boards

e. Social media
f. Newsletters
g. Other, please specify

14. How difficult do you find each of the following areas of WHQS 2023?

Scale per item [Very difficult; Somewhat difficult; Neutral; Somewhat easy; Very easy; Prefer not to answer]

- Meeting energy efficiency and decarbonisation targets
- Conducting full property assessments on time
- Securing the necessary funding
- Updating business plans to fit the new requirements (e.g. re-allocating budgets or adjusting corporate priorities)
- Engaging tenants effectively

15. How confident are you that you will achieve the delivery of homes with a minimum SAP 75 rating by 2030?

a. Very confident
b. Somewhat confident
c. Neutral
d. Not very confident
e. Not at all confident
f. Prefer not to answer

16. By 2040, what proportion of your housing stock do you anticipate achieving a minimum SAP 92/EPC A rating?

Disclaimer: We acknowledge that not all homes may reach this standard.

a. All (100%)
b. Vast majority (90-99%)
c. Many (70-89%)
d. Some (40-69%)
e. Few (20-39%)

f. Very few (less than 20%)
g. Don't know
h. Prefer not to answer

17. For those homes that you do not anticipate reaching a minimum SAP 92/EPC A rating by 2040, could you please explain the factors or reasons behind this?

18. How manageable do you anticipate the financial impact of meeting WHQS 2023 will be for your organisation?

a. Very manageable
b. Manageable
c. Neutral
d. Somewhat unmanageable
e. Very unmanageable
f. Prefer not to answer

C: Funding – ORP filter

19. Have you received ORP funding?

a. Yes
b. No [Skip to Section E]
c. Don't know [Skip to Section E]
d. Prefer not to answer [Skip to Section E]

D: ORP – Zoom in

20. How adequate do you feel the guidance provided for claiming the fund has been?

a. Very adequate
b. Somewhat adequate
c. Neither adequate nor inadequate
d. Somewhat inadequate
e. Very inadequate
f. I am not aware of the guidance
g. Prefer not to answer

21. Did you find Welsh Government ORP officials supportive during the delivery of ORP schemes?

a. Fully supportive
b. Somewhat supportive
c. Neither supportive nor unsupportive
d. Somewhat unsupportive
e. Very unsupportive
f. I am not aware of the guidance
g. Prefer not to answer

22. If applicable, please provide further details on the support or lack thereof from Welsh Government officials.

23. How easy was it to access ORP funding?

a. Very easy
b. Somewhat easy
c. Neither easy nor difficult
d. Somewhat difficult
e. Very difficult
f. Prefer not to answer

24. What challenges, if any, have you faced when claiming and accessing the fund? If you have delivered multiple ORP schemes, please highlight any shared challenges across the schemes.

25. Has your ORP scheme been more or less expensive than estimated in the initial scheme details and costings submitted to Welsh Government?

a. Much more expensive than anticipated
b. Somewhat more expensive than anticipated
c. Around the same expense as anticipated
d. Somewhat less expensive than anticipated
e. Significantly less expensive than anticipated

f. Prefer not to answer

26. How well did your ORP schemes fit with your existing retrofitting and property management strategies?

a. Very well
b. Well
c. Neither well, nor unwell
d. Not well
e. Not well at all
f. Prefer not to answer

27. Please expand on your answer to how well your ORP schemes fit your existing retrofitting and property management strategies?

28. To what extent has the ORP been helpful in learning about and incorporating innovative retrofitting practices into your general property management and retrofitting strategies?

a. Very helpful
b. Helpful
c. Neither helpful, nor unhelpful
d. Unhelpful
e. Very unhelpful
f. Prefer not to answer

29. If the Optimised Retrofit Programme (ORP) did not exist but the WHQS 2023 were still in place, would you have carried out any retrofits without ORP funding?

a. Yes
b. No
c. Prefer not to answer

30. If neither the Optimised Retrofit Programme nor the WHQS 2023 were in place, would you have carried out any retrofits without ORP funding?

a. Yes
b. No

c. Prefer not to answer

31. Which retrofits from those already undertaken would you have made?

E. ORP – Zoom in

32. Could you share the reasons why funding through the Optimised Retrofit Programme (ORP) was not allocated to you?

F. Thank you

Thank you for your time and energy in completing this survey! We greatly appreciate your contribution to this important project!

Surveys for tenants

WHQS 2023 Survey

A. Tenant home experience

1. How much do you agree with the following statements?

[Scale (Strongly agree; Agree; Somewhat agree; Neutral; Somewhat disagree; Disagree; Strongly disagree; Prefer not to answer)]

- My home is in a good condition
- My home is safe and secure
- My home is affordable to heat
- My home has an up-to-date kitchen (Disclaimer: When referring to an up-to-date kitchen, we mean it is less than 16-year-old)
- My home has an up-to-date bathroom (Disclaimer: When referring to an up-to-date bathroom, we mean it is less than 26-year-old)
- My home is comfortable and suits my needs
- My home has a suitable garden for my needs
- My home has a garden that is easy to maintain

B. Home Adaptations

2. Has any work been done to fix or update your home in the last 12 months?

a. Yes, and the improvements are finished

b. Yes, but the improvements are still in progress

c. No, but I have been told my home will be improved or updated in the future [skip to section C]
d. No, and I have not heard anything about any such improvement [skip to section D]
e. I do not know [skip to section D]
f. Prefer not to answer [skip to section D]

3. What work has been done or is being done in your home? Select all that apply.

a. Improvements in kitchens
b. Improvements in bathrooms
c. Improvements to staircases
d. Installation of new windows or doors
e. Improvements to heating (e.g., heat pumps, new boilers)
f. Installed solar panels
g. Improved protection against cold (e.g., improved walls, roof, flooring)
h. Security improvements (e.g., fire safety alarms)
i. Improvements to outdoor spaces
j. Fixing of damp problems
k. Added storage spaces
l. Other [Please specify]
m. Prefer not to answer

4. Who made the decision that the work should be carried out in your home? Select all that apply.

a. My landlord or housing provider
b. Myself or someone in my household
c. Myself or someone in my household, together with my landlord or housing provider
d. Other [Please specify]
e. I do not know
f. Prefer not to answer

5. [IF Q3 includes a] If you have been informed by the landlord about the works, do you know / have you been informed if these works are part of a broader housing improvement programme?

a. Yes, they are part of a planned programme for my area/building
b. No, they were done as a separate project
c. I do not know
d. Not applicable/ decision was not made by my landlord
e. Prefer not to answer

6. Please indicate how much you agree or disagree with the following statements about any improvements done to your home in the last twelve months.

[Scale (Strongly agree; Agree; Somewhat agree; Neutral; Somewhat disagree; Disagree; Strongly disagree; Prefer not to answer)]

Compared to the last year….

- The condition of my home has been improved
- My home keeps heat better and uses energy more efficiently
- My home is safer and more secure
- My home is more comfortable
- I feel happier in my home
- I feel healthier because of changes in my home

7. Compared to the previous winter (2023 to 2024), have you noticed any change in your energy bills this latest winter (2024 to 2025)?

a. Yes, the bills have decreased substantially
b. Yes, the bills have decreased slightly
c. No change
d. Yes, the bills have increased slightly
e. Yes, the bills have increased substantially
f. I was not living in this house last winter
g. I do not know

h. Prefer not to answer

C. Tenant inclusion and engagement

8. On a scale of 1 to 7, where 1 means “Strongly disagree” and 7 means “Strongly agree”, how much do you agree with the following statements?

Scale [Strongly agree; Agree; Somewhat agree; Neutral; Somewhat disagree; Disagree; Strongly disagree; Not applicable to me; Prefer not to answer] Single answer question

- I feel well-informed about the works done in my home
- I feel my opinions are heard about the works done in my home
- I feel supported when works are made in my home (like when new technology is installed, and I get help to use it)
- I am included in decisions about my home and living space

D. WHQS 2023 zoom in

9. Before this survey, had you heard about the Welsh Government’s standard which aims to improve the quality of homes, known as the Welsh Housing Quality Standard 2023 (WHQS 2023)? For more information about the WHQS 2023, please click here.

a. Yes, I have heard about it
b. No, I have not heard about it [Skip to WHQS 2023 message]
c. I am not sure [Skip to WHQS 2023 message]
d. Prefer not to answer [Skip to WHQS 2023 message]

10. How did you hear about the WHQS 2023? Select all that apply.

a. By my landlord/housing provider
b. From official documents/sources (Welsh Government and local authority documentation)
c. From online communications
d. From friends/neighbours
e. From social media
f. From community events/meetings
g. Other [Please specify]
h. None of the above

i. Prefer not to answer

11. Do you feel the information you were given about the WHQS 2023 was clear and useful?

a. Yes, it was clear and useful
b. Yes, but it could have been clearer
c. No
d. Prefer not to answer

SHOWCASE WHQS 2023 - OUTLINE TO ALL

The WHQS 2023 is a set of rules to ensure homes in Wales are safe, comfortable, good for the environment and do not cost much to heat. It focuses on improving social housing to make sure they are warm, in good condition, and healthy to live in.

This includes making homes warmer, safer, and cheaper to heat, as well as improving living spaces to make them more comfortable for people and families.

12. Which parts of the WHQS 2023 do you believe are most important for improving the quality of your home? Multiple answers allowed

a. My home being in a good condition
b. My home being safe and secure
c. My home being affordable to heat
d. My home having an up-to-date kitchen
e. My home having an up-to-date bathroom
f. My home being comfortable and suiting my needs
g. My home having a suitable garden for my needs
h. My home having a garden that is easy to maintain

13. Do you believe the changes under the WHQS 2023 will make a real difference to how happy you feel in your home? This ranges from feeling happier in your home due to reducing unwanted health impacts (e.g. allergies) or improving aspects of your health (e.g. breathing).

a. Yes, they will make me feel substantially happier
b. Yes, they will make me feel a little happier

c. No, no real difference expected [skip to section E]
d. Yes, they will make me feel a little less happy
e. Yes, they will make me feel substantially less happy
f. I do not know
g. Prefer not to answer [skip to section E]

14. Can you let us know how or why the changes under the WHQS 2023 will make the difference you selected above?

E. Background information

In this section, we will ask you questions about you and your household. This information helps us understand the needs of different tenants and ensure housing improvements benefit everyone. Your answers are anonymous. For any questions you do not wish to answer, you can the ‘Prefer not to answer’ option at the bottom of each list.

15. What is your sex?

a. Female
b. Male
c. Prefer not to answer

16. Is the gender you identify with the same as your sex registered at birth?

a. Yes
b. No

17. Please write in your gender identity.

18. What is your age?

a. Under 18
b. 19-24
c. 25-34
d. 35-44
e. 45-54
f. 55-64
g. 65-74

h. 75-84

i. 85-94

j. 95+

k. Prefer not to answer

19. In which local authority area is your current home located?

a. Cardiff

b. Caerphilly

c. Blaenau Gwent

d. Torfaen

e. Monmouthshire

f. Newport

g. Isle of Anglesey

h. Gwynedd

i. Conwy

j. Denbighshire

k. Flintshire

l. Wrexham

m. Ceredigion

n. Powys

o. Pembrokeshire

p. Carmarthenshire

q. Swansea

r. Neath Port Talbot

s. Bridgend

t. Rhondda Cynon Taf

u. Merthyr Tydfil

v. Vale of Glamorgan

w. Prefer not to answer

20. What is your ethnic group?

a. Asian / Asian British
b. Black / African / Caribbean / Black British
c. Mixed / Multiple ethnic groups
d. White
e. Other ethnic group
f. Prefer not to answer

21. Please choose the option that best describes your ethnic group or background – Asian / Asian British

a. Indian
b. Pakistani
c. Bangladeshi
d. Chinese
e. Other [Please specify]
f. Prefer not to answer

22. Please choose the option that best describes your ethnic group or background – Black / African / Caribbean / Black British

a. African
b. Caribbean
c. Other [Please specify]
d. Prefer not to answer

23. Please choose the option that best describes your ethnic group or background – Mixed / Multiple ethnic groups

a. White and Black Caribbean
b. White and Black African
c. White and Asian

d. Other [Please specify]

e. Prefer not to answer

24. Please choose the option that best describes your ethnic group or background – White Welsh / English / Scottish / Northern Irish / British

a. Irish

b. Gypsy or Irish Traveller

c. Other [Please specify]

d. Prefer not to answer

25. Please choose the option that best describes your ethnic group or background – Other ethnic group

a. Arab

b. Other [Please specify]

c. Prefer not to answer

26. What type of property do you live in?

a. Terraced house

b. Semi-detached house

c. Detached house

d. Flat/apartment

e. Bungalow

f. Other [Please specify]

g. Prefer not to answer

27. How many people, including yourself, live in your household?

a. 1

b. 2

c. 3

d. 4

e. 5+

f. Prefer not to answer

28. Which of the following best describes your household?

a. Living with a spouse/partner with children
b. Living with a spouse/partner without children
c. Living without a spouse/partner with children
d. More than one family living together
e. Living with both parents
f. Living with a single parent
g. Living with other family members
h. Other, please specify
i. Prefer not to answer

29. How many children (under 18-years-old) live in your household?

a. 1
b. 2
c. 3
d. 4
e. 5+
f. Prefer not to answer

30. Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?

a. Yes
b. No
c. Prefer not to answer

31. Do any of your conditions or illnesses reduce your ability to carry out day-to-day activities?

a. Yes, a lot
b. Yes, a little
c. Not at all
d. Prefer not to answer

32. Does anyone in your household have care needs that require regular support with day-to-day tasks, such as managing household chores, personal care, or other daily activities?

a. Yes
b. No
c. Prefer not to answer

33. Are you or any person in your household care experienced?

a. Yes, myself
b. Yes, another person in my household
c. Both, myself and another person in my household
d. No
e. Prefer not to answer

34. Who is your social landlord?

a. Council / local authority
b. Housing association
c. Other [Please specify]
d. Prefer not to answer

35. How long have you lived in this property?

a. Less than 6 months
b. months to less than 1 year
c. 1 year to less than 3 years
d. 3 years to less than 5 years
e. 5 years to less than 7 years
f. years to less than 10 years
g. years to less than 15 years
h. 15 years to less than 20 years
i. 20 years +
j. Prefer not to answer

F. Thank you

Thank you for your time and energy in completing this survey! We greatly appreciate your contribution to this important project!

ORP Survey

A. Tenant home experience

1. How much do you agree with the following statements?

[Scale (Strongly agree; Agree; Somewhat agree; Neutral; Somewhat disagree; Disagree; Strongly disagree; Prefer not to answer)]

- My home is in a good condition
- My home is safe and secure
- My home is affordable to heat
- My home has an up-to-date kitchen (Disclaimer: When referring to an up-to-date kitchen, we mean it its less than 16-year-old)
- My home has an up-to-date bathroom (Disclaimer: When referring to an up-to-date bathroom, we mean it its less than 26-year-old)
- My home is comfortable and suits my needs
- My home has a suitable garden for my needs
- My home has a garden that is easy to maintain

2. Before this survey, have you heard about the Welsh Government plan aimed at improving the energy efficiency of homes by renovating them, known as Optimised Retrofit Programme (ORP)?

a. Yes, I have heard about it
b. No, I have not heard about it
c. I am not sure
d. Prefer not to answer

3. Have any improvements been made to your home in the past 3 years?

a. Yes
b. No [Skip to Section D]

c. I do not know [Skip to Section D]

d. Prefer not to answer [Skip to Section D]

4. Were you living in the property when these improvements were made?

a. Yes

b. No [Skip to section D]

c. Prefer not to answer [Skip to section D]

5. Which of the following improvements have been made to your home as part of the works? Select all that apply.

a. Improved wall covering

b. Upgraded loft covering

c. Upgraded floor covering

d. New windows and doors

e. Installed heat pump systems

f. Installed solar panels

g. Installed energy storage batteries

h. Installed smart home devices (e.g., smart thermostats)

i. Storage heaters and heat panels

j. Upgrades to air circulation

k. Other [Please specify]

l. I do not know

m. Prefer not to answer

6. Do you have any technology in your home that help track how well such improvements are working? (e.g., smart meters, energy monitors)

a. Yes

b. No

c. I do not know

d. Prefer not to answer

B. Experience with works

7. Overall, how satisfied were you with the communication from your landlord about the works in your home?

a. Very satisfied
b. Satisfied
c. Somewhat satisfied
d. Neutral
e. Somewhat dissatisfied
f. Dissatisfied
g. Very dissatisfied
h. Prefer not to answer

8. Were you provided with clear and consistent information about the works being done to your home, throughout the process?

a. Yes, I was given clear information about what the works would entail
b. Yes, but some aspects were unclear
c. No, I was not well informed about the works process
d. Unsure
e. Prefer not to answer

9. Select the information your landlord provided to you with, at any stage of the work. Select all that apply.

a. When the work would begin
b. What the work would involve
c. Who will be responsible for the work
d. How long the work would take
e. How the work would be carried out
f. How the work might affect your home
g. The benefits of the work
h. None of the above

i. Prefer not to answer

10. Before the works started, were you asked for your opinion about changes to your home?

a. Yes, I was asked

b. Yes, but I could have been consulted more

c. No, I was not asked at all

d. Prefer not to answer

11. During the process of the works, were you asked about your views?

a. Yes, I was asked

b. Yes, but I could have been consulted more

c. No, I was not asked at all

d. Unsure

e. Prefer not to answer

12. Did you experience any of the following challenges during the time the work was being carried out? Select all that apply.

a. Interruptions to your daily routine

b. The process felt invasive (loss of privacy, frequent disruptions)

c. Less available space (storage limitations, changes to room layout, bulky equipment)

d. Delays or unexpected changes in the work schedule

e. Other [Please specify]

f. I did not experience any challenges

g. Prefer not to answer

13. How well did the new changes fit with your home (e.g., size, placement, appearance, ease of use)?

a. Very well

b. Fairly well

c. Slightly well

d. Neither well, nor poorly

e. Slightly poorly

f. Fairly poorly

g. Very poorly

h. Unsure/Too soon to tell

i. Prefer not to answer

14. After the home improvements, were you informed about how to adapt to the following technologies?

[Scale (Yes, I was informed and felt prepared; Yes, but I could have received more information ; No, I wasn’t informed at all; Unsure; Not applicable to me; Prefer not to answer]

- New technologies include things like smart devices, energy-saving appliances, or other new systems added during the home improvements.
- Environmental sensors
- Smart home systems
- Heat pumps
- Solar panels
- Battery storages

C. Impact of home improvements on well-being

We would now like to focus on how these works have affected your life overall. We’ll ask you a series of questions about various aspects of your life, both before and after the works, including areas like physical and mental health and wellbeing.

PART A [Questions in this section are optional]

This part includes 4 questions which ask you about broad aspects of your life in relation to your home before and after the works completed. You are asked to provide your answers on a scale from 0 to 10. Please read carefully how to interpret the scale in each question. Feel free to skip any questions you do not want to answer.

15. Life satisfaction: On a scale from 0 to 10, where 0 is "not at all satisfied" and 10 is "completely satisfied," how satisfied were you with your life before the works in your home?

16. Using the same scale, how satisfied are you with your life now, after the works in your home have been completed?

17. Worthwhile: On a scale from 0 to 10, where 0 is "not at all worthwhile" and 10 is "completely worthwhile," before the works in your home, to what extent did you feel that the things you did in your life were worthwhile? Note: By 'worthwhile,' we mean how much value or satisfaction you get from the things you do, like work, hobbies, or personal activities.

18. After the works in your home have been completed, to what extent do you feel that the things you do in your life are worthwhile?

19. Happiness: On a scale from 0 to 10, where 0 is "not at all happy" and 10 is "completely happy", how happy did you feel before the works in your home?

20. Using the same scale, how happy do you feel now, after the works in your home have been completed?

21. Anxiety: On a scale from 0 to 10, where 0 is "not at all anxious" and 10 is "completely anxious", how anxious did you feel before the works in your home?

22. Using the same scale, how anxious do you feel now, after the works in your home have been completed?

PART B

This part includes 8 questions which ask you about some aspects of your life more closely related to your living conditions, in relation to your home before and after the works completed. Again, you are asked to provide your answers on a scale, but the scale to use is different for each question. Please read carefully how to use the scale in each question. Feel free to skip any questions you do not want to answer.

23. Overall physical health: How would you describe your overall physical health before the works in your home? [Scale: Very poor; poor; fair; good; very good; I don’t know; Prefer not to say]

24. Using the same scale, how physically healthy are you after the works in your home have been completed?

25. Dampness: Before the works in your home, how much dampness or moisture did you notice in your home? [Scale: None at all [skip to Q7]; A minimal amount; a moderate amount; a high amount; a very high amount; I don’t know; Prefer not to say].

26. Using the same scale, since the works in your home have been completed, how much has dampness or moisture reduced in your home?

27. Impact of dampness: Before the works in your home, how much did you feel that dampness or moisture affected your health [Scale: Not at all affected; slightly affected; moderately affected; mostly affected; extremely affected; I don't know; Prefer not to answer]

28. Since the works in your home have been completed, how much improvement have you noticed in health conditions related to dampness? [Scale: No improvement at all, Slight improvement, Moderate improvement, Big improvement, Very big improvement; I don't know; Prefer not to say]

29. Excess heat: Before the works10 in your home, how often did you experience excessive heat in your home during the summer or warmer months? [Scale: Never; almost never; sometimes; often; always; I don't know prefer not to say].

30. Using the same scale, since the works in your home have been completed, how often do you experience excessive heat in your home during the summer or warmer months?

31. Impact of excess heat: Before the works in your home, how much did excessive heat affect your health (e.g. sleep problems, dehydration, headaches)? [Scale: Not at all affected; slightly affected; moderately affected; mostly affected; extremely affected; Prefer not to answer]

32. Since the works in your home have been completed, how much improvement have you noticed in health conditions related to excessive heat? [Scale: No improvement at all, Slight improvement, Moderate improvement, Big improvement, Very big improvement; I don't know; Prefer not to say]

33. Thermal comfort: Before the works in your home, how comfortable did you feel with the temperature inside your home throughout the year? [Scale: Very uncomfortable; Somewhat uncomfortable; Neutral; Somewhat comfortable; Very comfortable; Prefer not to answer]

34. Using the same scale, how comfortable do you feel with the temperature inside your home after the works in your home have been completed?

35. Heating affordability: Before the works in your home, how affordable was it to heat your home? [Scale: Very unaffordable; Somewhat unaffordable; Neutral; Somewhat affordable; Very affordable; Prefer not to answer]

36. Using the same scale, how affordable is it to heat your home after the works in your home have been completed? [Skip to section E]

D. Life satisfaction

This section is shown to respondents who either did not know their residence underwent ORP retrofits or were not living in the property at the time the work was carried out.

PART A [Questions in this section are optional]

This part includes 4 questions which ask you about broad aspects of your life in relation to your home before and after the works completed. You are asked to provide your answers on a scale from 0 to 10. Please read carefully how to interpret the scale in each question. Feel free to skip any questions you do not want to answer. Single answer questions

37. Life satisfaction: On a scale from 0 to 10, where 0 means "not at all satisfied" and 10 means "completely satisfied", how satisfied are you with your life overall?

38. Worthwhile: On a scale from 0 to 10, where 0 means "not at all worthwhile" and 10 means "completely worthwhile", to what extent do you feel that the things you do in your life are worthwhile? Note: By 'worthwhile,' we mean how much value or satisfaction you get from the things you do, like work, hobbies, or personal activities.

39. Happiness: On a scale from 0 to 10, where 0 means "not at all happy" and 10 means "completely happy", how happy do you generally feel?

40. Anxiety: On a scale from 0 to 10, where 0 means "not at all anxious" and 10 means "completely anxious", how anxious do you generally feel?

PART B

This part includes 8 questions focused on your current living conditions. Each question has its own scale — please read the options carefully. Feel free to skip any questions you do not want to answer.

41. Overall physical health: How would you describe your overall physical health [Scale: Very poor; poor; fair; good; very good; I don’t know; Prefer not to say]

42. Dampness: How much do you currently notice dampness or moisture in your home? [Scale: None at allskip to Q4; A minimal amount; a moderate amount; a high amount; a very high amount; I don’t know; Prefer not to say].

43. Impact of dampness: How much do you feel that dampness or moisture in your home affects your health? [Scale: Not at all affected; slightly affected; moderately affected; mostly affected; extremely affected; I don’t know; Prefer not to answer]

44. Excess heat: How often do you experience excessive heat in your home during the summer or warmer months? [Scale: Never [Skip to Q6]; almost never; sometimes; often; always; I don't know prefer not to say].

45. Impact of excess heat: How much does excessive heat affect your health (e.g. sleep problems, dehydration, headaches)? [Scale: Not at all affected; slightly affected; moderately affected; mostly affected; extremely affected; I do not know; Prefer not to answer]

46. Thermal comfort: How comfortable do you feel with the temperature inside your home throughout the year? [Scale: Very uncomfortable; Somewhat uncomfortable; Neutral; Somewhat comfortable; Very comfortable; Prefer not to answer]

47. Heating affordability: How affordable is it to heat your home? [Scale: Very unaffordable; Somewhat unaffordable; Neutral; Somewhat affordable; Very affordable; Prefer not to answer]

E. Background information

In this section, we will ask you questions about you and your household. This information helps us understand the needs of different tenants and ensure housing improvements benefit everyone. Your answers are anonymous. For any questions you do not wish to answer, you can the 'Prefer not to answer' option at the bottom of each list.

48. What is your sex?

a. Female
b. Male
c. Prefer not to answer

49. Is the gender you identify with the same as your sex registered at birth?

a. Yes
b. No

50. Please write in your gender identity.

51. What is your age?

a. Under 18
b. 19-24
c. 25-34
d. 35-44

e. 45-54

f. 55-64

g. 65-74

h. 75-84

i. 85-94

j. 95+

k. Prefer not to answer

52. In which local authority area is your current home located?

a. Cardiff

b. Caerphilly

c. Blaenau Gwent

d. Torfaen

e. Monmouthshire

f. Newport

g. Isle of Anglesey

h. Gwynedd

i. Conwy

j. Denbighshire

k. Flintshire

l. Wrexham

m. Ceredigion

n. Powys

o. Pembrokeshire

p. Carmarthenshire

q. Swansea

r. Neath Port Talbot

s. Bridgend

t. Rhondda Cynon Taf
u. Merthyr Tydfil
v. Vale of Glamorgan
w. Prefer not to answer

53. What is your ethnic group?

a. Asian / Asian British
b. Black / African / Caribbean / Black British
c. Mixed / Multiple ethnic groups
d. White
e. Other ethnic group
f. Prefer not to answer

54. Please choose the option that best describes your ethnic group or background – Asian / Asian British

a. Indian
b. Pakistani
c. Bangladeshi
d. Chinese
e. Other [Please specify]
f. Prefer not to answer

55. Please choose the option that best describes your ethnic group or background – Black / African / Caribbean / Black British

a. African
b. Caribbean
c. Other [Please specify]
d. Prefer not to answer

56. Please choose the option that best describes your ethnic group or background – Mixed / Multiple ethnic groups

a. White and Black Caribbean

b. White and Black African
c. White and Asian
d. Other
e. Please specify [open text]
f. Prefer not to answer

57. Please choose the option that best describes your ethnic group or background – White

a. Welsh / English / Scottish / Northern Irish / British
b. Irish
c. Gypsy or Irish Traveller
d. Other [Please specify]
e. Prefer not to answer

58. Please choose the option that best describes your ethnic group or background – Other ethnic group

a. Arab
b. Other [Please specify]
c. Prefer not to answer

59. What type of property do you live in?

a. Terraced house
b. Semi-detached house
c. Detached house
d. Flat/apartment
e. Bungalow
f. Other [Please specify]
g. Prefer not to answer

60. How many people, including yourself, live in your household?

a. 1
b. 2
c. 3

d. 4
e. 5+
f. Prefer not to answer

61. Which of the following best describes your household?
   a. Living with a spouse/partner with children
   b. Living with a spouse/partner without children [Skip to Q15]
   c. Living without a spouse/partner with children
   d. More than one family living together
   e. Living with both parents
   f. Living with a single parent
   g. Living with other family members
   h. Other, please specify
   i. Prefer not to answer

62. How many children (under 18-years-old) live in your household?
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5+
   f. Prefer not to answer

63. Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?
   a. Yes
   b. No
   c. Prefer not to answer

64. Do any of your conditions or illnesses reduce your ability to carry out day-to-day activities?
   a. Yes, a lot

b. Yes, a little

c. Not at all

d. Prefer not to answer

65. Does anyone in your household have care needs that require regular support with day-to-day tasks, such as managing household chores, personal care, or other daily activities?

a. Yes

b. No

c. Prefer not to answer

66. Are you or any person in your household care experienced? Single answer question

a. Yes, myself

b. Yes, another person in my household

c. Both myself and another person in my household

d. No

e. Prefer not to answer

67. Who is your social landlord?

a. Council / local authority

b. Housing association

c. Other [Please specify]

d. Prefer not to answer

68. How long have you lived in this property? Single answer question

a. Less than 6 months

b. months to less than 1 year

c. 1 year to less than 3 years

d. 3 years to less than 5 years

e. 5 years to less than 7 years

f. years to less than 10 years

g. years to less than 15 years

h. 15 years to less than 20 years

i. 20 years +

j. Prefer not to answer

F. Thank you

Thank you for your time and energy completing this survey! We greatly appreciate your contribution to this important project!

Discussion guide for interviews with landlords

Warm-up

1. Is there anything I should know about your organisation before we begin the interview? For example, this could include any recent or upcoming re-structuring, the age of your stock profile, or specific challenges that could help contextualise our discussion.

Welsh Housing Quality Standard 2023

WHQS: Awareness and understanding

2. How comprehensive would you say your understanding of the Welsh Housing Quality Standard (WHQS) 2023 is?

Prompt: To what extent is the Standard known and understood within your organisation?

Prompt: Are there any elements which required you to seek external support or clarification? If so, who from? (e.g. WG, Consultants, CHC, WLGA, LA, Tai Pawb, TPAS)

[Follow-up] Was this learning shared with other RSLs/LHAs?

Prompt: Within the WHQS 2023, are there elements for which you find (or found) it challenging to understand how to implement?

WHQS: Early experience

3. In your experience, how was the transition to the new WHQS 2023 managed?

Prompt: Was the communication from Welsh Government clear and timely?

Prompt: Was there sufficient time for consultation?

Prompt: Did you feel your and your sector's views were reflected in the consultation?

Prompt: Do you feel the guidance and support provided regarding the new Standard has been adequate?

4. Have you personally been involved in the completion of a Compliance Policy as part of WHQS 2023?

[Follow-up if yes] How was your experience completing a Compliance Policy as part of WHQS 2023?

Prompt: Did you receive sufficient guidance from the Welsh Government to complete the compliance policy?

Prompt: Did you have to seek any clarifications regarding the WHQS when producing your Compliance Policy? If so, who from?

[Follow-up] Was this learning shared with other RSLs/LHAs?

5. What has your experience been so far of engaging tenants when implementing the WHQS 2023?

Prompt: How aware do you think tenants are of the WHQS 2023 and what it means for them?

Prompt: How did you engage tenants in the production of your Compliance Policy?

WHQS: Feasibility

6. Have you begun assessing the extent of the changes to properties which will be required to meet the Standard?

Prompt: Have you estimated the total cost of meeting the Standard? If so, is this broken-down by element of the WHQS – and would this data be shareable for the evaluation?

Prompt: Do you feel that you have sufficient access to the networks and skills that you will need to implement WHQS 2023?

7. Have you already made changes to properties in order to meet the updated Standard? If so, what changes have been made?

Prompt: Do you think these works would have occurred if the Standard had not been updated?

8. Which aspects of WHQS 2023 do you consider to be the most straightforward to meet?

Prompt: Of the new requirements, those not part of the original WHQS, which are the most straightforward to meet?

8. Which aspects of WHQS 2023 do you consider to be the most challenging?

Prompt: What makes these aspects the most challenging (e.g. cost, lack of workforce, lack of specialists, lack of supply chain, refusals)?

Prompt: Do you have strategies or early ideas to mitigate these challenges?

Prompt: [If funding raised] Have you explored alternative or innovative funding options to meet the cost of achieving WHQS 2023?

9. Do you feel that the Standard complements existing property management practices, such as promoting the replacing of features or retrofitting of properties at the end of their useful and/or economic life?

Prompt: If yes, are there any particular aspects of the Standard which facilitate this complementary approach? (For example, allowing for acceptable fails)

Prompt: If no, what aspects of the Standard do not complement your existing property management practices and plans? (Note for interviewer: EPC C by 2030 raised in scoping interviews, but do not raise this in interviews unprompted).

WHQS: Assessing compliance

10. How frequently do you survey your properties to assess compliance with the Standard?

Prompt: How do you expect this to change during the lifespan of the Standard?

11. Are you confident in your understanding of the general principles to assess adherence to the WHQS 2023?

Prompt: For example, are you confident in assessing properties relative to “the national average for that particular type and age of dwelling”?

Prompt: Are there any property types where it is more difficult to confidently make this assessment?

12. Are you confident in your understanding of the assessment hierarchy that should be used (i.e. N/A, Pass, Conditional Pass, Temporary Fail)?

Prompt: Do you have any comments on these assessment categories?

Prompt [If used]: How have you applied the conditional pass and temporary fail criteria?

Prompt: Is there anything that evaluators should consider when using these assessments (and their sub-codes) in future about how they are applied in practice?

13. Do you intend to inform tenants of your assessments of whether their home is compliant with each element of the Standard?

Prompt: If not, what are the barriers which prevent this?

Prompt: Could you estimate the cost of informing tenants of their home’s compliance?

14. Do you have comments on how Welsh Government collects data for the WHQS 2023?

Prompt: How could this be strengthened in future?

Optimised Retrofit Programme

ORP: Guidance and support

15. In which phases of ORP have you been involved?

16. Do you feel the guidance provided for claiming and accessing the fund has been adequate?

Prompt: Are there any elements of the ORP which required you to seek external support or clarification? If so, who from?

17. Did you feel that you received sufficient support from the Welsh Government when preparing proposals and schemes which would use ORP funding?

Prompt: Did this vary over time? For example, being different during ORP 1, 2, or 3?

18. Did you make use of Welsh Government support during the delivery of ORP-funded schemes? For example, seeking technical advice?

Prompt: Was this useful?

ORP: Innovation and funding

19. What retrofits did you do with ORP?

20. Did you feel that the type of retrofits proposed and achieved by your organisation was similar across all years of the ORP? Did the degree of innovation change between ORP 1, 2, and 3?

21. Did you receive sufficient funding to meet the costs of the retrofits delivered as part of the ORP?

Prompt: Did you feel that your organisation's contribution to the costs of the retrofits were reasonable?

Prompt: Did the costs change from the application stage to the delivery of the retrofits?

ORP: Testing and learning

22. Did you feel that the ORP created sufficient opportunities and frameworks for you to 'test' the effectiveness of your interventions?

Prompt: Can you provide details on how you tested the effectiveness of your interventions?

23. Did you feel that the Welsh Government and partners created opportunities for you to share 'learnings' from your ORP-funded schemes with the wider sector?

Prompt: What were the most effective aspects of these opportunities?

Prompt: How could these opportunities to share best practice be improved?

24. Did you feel that the Welsh Government and partners created effective opportunities for you to learn about the successes, challenges, and effectiveness of other ORP-funded schemes?

Prompt: Which schemes were most influential upon your work?

Prompt: How could these opportunities to share best practice be improved?

ORP: Perceived impacts

25. Looking at it holistically, what do you think have been the one or two main impacts of the Optimised Retrofit Programme for: a) the tenants in retrofitted properties, b) your organisation, c) the wider social housing sector in Wales, and d) the retrofit supply-chain?

Debrief

26. Is there anything else that we haven't touched upon already that you think would be useful for us to discuss?

Discussion guide for interviews with tenants WHQS 2023

Warm-up and views on their home

1. Could you tell me how long you have lived in your current property?

Follow-up: Does anyone else live in your home? If so, how many people?

Follow-up: Where in Wales do you live?

2. How do you currently feel about your home?

Prompts:

- Is it in good condition?
- Is it safe and secure?
- Is it affordable to heat?
- Does it have an up-to-date kitchen?
- Does it have an up-to-date bathroom?
- Is it comfortable (and does it suit your needs)?
- Does it have a garden suitable for your needs?

- Does it have a garden that is easy to maintain?

Awareness of the Welsh Housing Quality Standard 2023

3. Had you heard about the Welsh Housing Quality Standard 2023 before this research?

Follow-up: [If yes] If so, can you share with me what you know about it?

To provide some background information, the Welsh Housing Quality Standard 2023 which is in place to ensure that all social housing meets a minimum standard, for example:

- They are in good condition.
- They are safe and secure.
- They do not cost too much to heat (which can be bad for the environment).
- They have an up-to-date kitchen.
- They have an up-to-date bathroom.
- They are comfortable (and suit the person living there).
- They have a garden if possible.
- They have a garden that is easy to maintain.

The newest version of the Standard is about using less energy and water, improving floors, encouraging people to use more active ways of getting around (e.g. cycling), and reducing loud noises (e.g. from trains/traffic).

4. Do you know if your landlord has made any improvements to your home in the last year or so? To be clear, I'm referring to upgrades in your house, not fixing broken items, for example. If you are unsure, we can discuss further.

[If yes] Move to Branch 1

5. Has your landlord spoken to you about the need to make any improvements to your home in the future?

[If yes] Move to Branch 2

[If no] Move to Branch 3

<u>Branch 1: Tenants who have improvements made in the last 12 months</u>

6. What changes have been made to your home in the last 12 months?

Prompts:

- Under the Standard your home should be safe and secure:

- Installed secure doors (WHQS 2023)
    - New windows (WHQS 2023 & ORP)
    - Installed smoke alarms (WHQS 2023)
    - Installed other fire safety systems (WHQS 2023)
- Under the Standard your home should not cost too much to heat:
    - Smart energy meters (e.g. to monitor how much energy to use) (WHQS 2023 & ORP)
    - Somewhere to store recycling (either inside or outside) (WHQS 2023)
    - Improved insulation (e.g. loft and walls) (WHQS 2023 & ORP)
    - Improved ventilation (e.g. stop damp) (WHQS 2023 & ORP)
    - High efficiency gas boilers or heat pumps (ORP)
- Under the Standard you should have an up-to-date kitchen (WHQS 2023)
- Under the Standard you should have an up-to-date bathroom (WHQS 2023)
- Under the Standard your home should be comfortable (and suit the person living there).
- Under the Standard your home should have a garden if possible:
    - Installed water butts (containers which collect rainwater and can be used to water their gardens) (WHQS 2023)
- Under the Standard your home should have a nice outside space if possible:
    - Outside bike shed or storage (WHQS 2023)

7. How did you find the process for setting up [add in improvement]?

Follow-up: Did your landlord contact you about these changes before they were installed? Were you able to suggest any changes yourself?

Follow-up (if relevant): Were you provided with clear information how to use the new technology?

8. Did any of the changes make your home better?

Prompts: better quality appliances, etc.

Prompts: Were the changes done well, or have you had any problems with them?

9. If you had any problems, what were these? Did you find a way to overcome them?

10. An important part of the new standard is saving energy. Have there been any changes to how you are able to heat your home since these changes were made?

Prompt: Are you satisfied with how you able to heat your home?

Follow-up: Have you noticed any changes in your bills since the changes were made?

11. Have the works changed how you feel about your home? In what way?

12. Which adjustment has the most impact on your living conditions?

Follow-up: Which has had the least impact on your living conditions?

13. Have any of the changes to your home had a positive or negative impact on your physical and mental health and wellbeing?

Prompts: feeling happier, avoiding illness, improved the quality of your life, etc.

Prompts: Which change has the most impact on your mental or physical health? Which has had the least impact on your on your mental or physical health?

Prompt: Has these been any impacts on family members/ others living in your home?

14. Have there been any other positive or negative impacts on your life due to the changes in your home? (Prompt: finances)

<u>Branch 2: Tenants who have not had improvements made in the last 12 months (that they are aware of) but are due to</u>

15. What has your landlord shared about the changes which will be made to your home?

Prompt: What changes are planned for your home?

Follow-up: How did they contact you? (Prompts: letter, phone call, text)

Follow-up: Has the communication been clear? Did you feel you could ask any follow-up questions?

Follow-up: Did you have an opportunity to make suggestions or give feedback?

16. [If plans are known] Do you want these changes?

[Follow-up if no] What changes would you like and why?

Prompts:

- Under the Standard your home should be safe and secure:
    - Installed secure doors (WHQS 2023)

    - New windows (WHQS 2023 & ORP)
    - Installed smoke alarms (WHQS 2023)
    - Installed other fire safety systems (WHQS 2023)
- Under the Standard your home should not cost too much to heat:
    - Smart energy meters (e.g. to monitor how much energy to use) (WHQS 2023 & ORP)
    - Somewhere to store recycling (either inside or outside) (WHQS 2023)
    - Improved insulation (e.g. loft and walls) (WHQS 2023 & ORP)
    - Improved ventilation (e.g. stop damp) (WHQS 2023 & ORP)
    - High efficiency gas boilers or heat pumps (ORP)
- Under the Standard you should have an up-to-date kitchen (WHQS 2023)
- Under the Standard you should have an up-to-date bathroom (WHQS 2023)
- Under the Standard your home should be comfortable (and suit the person living there).
- Under the Standard your home should have a garden if possible:
    - Installed water butts (containers which collect rainwater and can be used to water their gardens) (WHQS 2023)
- Under the Standard your home should have a nice outside space if possible:
    - Outside bike shed or storage (WHQS 2023)

17. What do you think the impact of these changes will be?

Prompt: Do you think it would have any impact on your finances? [If yes] If so, how?

Prompt: Do you think it would have any impact on your physical health? [If yes] If so, how?

Prompt: Do you think it would have any impact on your mental health and wellbeing? [If yes] If so, how?

Follow-up: [If applicable] Do you think it would have any impact on your family or whoever lives with you? [If so] What would that be?

Branch 3: Tenants who have not had improvements made and are not aware of future plans for works to be done

18. Has your landlord previously sent any updates related to any planned improvements in your home?

Prompt: What improvements were these?

Follow-up: How did they contact you? (Prompts: letter, phone call, text)

Follow-up: Had the communication been clear? Did you feel you could ask any follow-up questions?

Follow-up: Did you have an opportunity to make suggestions or give feedback?

Follow-up: In the end, how satisfied were you with the improvements previously made in your home?

19. Would you like changes made to your home to improve each of the criteria listed above?

Follow-up: What would be your priority and why?

Follow-up: Is there any change you do not want and why?

Prompts:

- Under the Standard your home should be safe and secure:
  - Installed secure doors (WHQS 2023)
  - New windows (WHQS 2023 & ORP)
  - Installed smoke alarms (WHQS 2023)
  - Installed other fire safety systems (WHQS 2023)
- Under the Standard your home should not cost too much to heat:
  - Smart energy meters (e.g. to monitor how much energy to use) (WHQS 2023 & ORP)
  - Somewhere to store recycling (either inside or outside) (WHQS 2023)
  - Improved insulation (e.g. loft and walls) (WHQS 2023 & ORP)
  - Improved ventilation (e.g. stop damp) (WHQS 2023 & ORP)
  - High efficiency gas boilers or heat pumps (ORP)
- Under the Standard you should have an up-to-date kitchen (WHQS 2023)

- Under the Standard you should have an up-to-date bathroom (WHQS 2023)
- Under the Standard your home should be comfortable (and suit the person living there).
- Under the Standard your home should have a garden if possible:
    - Installed water butts (containers which collect rainwater and can be used to water their gardens) (WHQS 2023)
- Under the Standard your home should have a nice outside space if possible:
    - Outside bike shed or storage (WHQS 2023)

20. What would you expect the impacts of these changes to be?

Prompt: Do you think they would have any impact on your finances? [If yes] If so, how?

Prompt: Do you think they would have any impact on your physical health? [If yes] If so, how?

Prompt: Do you think they would have any impact on your mental health and wellbeing? [If yes] If so, how?

Follow-up: [If applicable] Do you think they would have any impact on your family or whoever lives with you? [If so] what would that be?

<u>Debrief</u>

21. Is there anything else that we haven't touched upon already that you think would be useful for us to discuss?

Discussion guide for interviews with tenants ORP

<u>Warm-up and views on their home</u>

1. Could you tell me how long you have lived in your current property?

Follow-up: Does anyone else live in your home? If so, how many people?

Follow-up: Where in Wales do you live?

1. How do you currently feel about your home?

Prompts:

- Is it in good condition?
- Is it safe and secure?

- Does it cost too much to heat (which can be bad for the environment)?
- Does it have an up-to-date kitchen?
- Does it have an up-to-date bathroom?
- Is it comfortable (and suit the person living there)?
- Does it have a garden?
- Does it have a nice outside space?

Awareness of the Optimised Retrofit Programme

3. Had you heard about the Optimised Retrofit Programme before this research?

Follow-up: [If yes] If so, can you share with me what you know about it?

The Optimised Retrofit Programme helps social landlords make their buildings use less energy and cost less to heat. It does this by adding things like better insulation, smart energy systems, and technology to keep track of how the building uses energy. This helps the environment and makes it cheaper to live in.

Tenant experiences with the Optimised Retrofit Programme

4. What changes have been made to your home in the last three years?

Prompts:

- Smart energy meters (e.g. to monitor how much energy to use) (WHQS 2023 & ORP)
- Improved insulation (e.g. loft and walls) (WHQS 2023 & ORP)
- Improved ventilation (e.g. stop damp) (WHQS 2023 & ORP)
- High efficiency gas boilers or heat pumps (ORP)
- Solar panels on roofs (ORP)
- Lithium ion batteries (ORP)

5. How did you find the process for setting up [add in improvement]?

Follow-up: Did your landlord contact you about these changes before they were installed? Were you able to suggest any changes yourself?

Follow-up: Were you provided with clear information how to use the new technology?

6. Did any of the changes make your home better?

Prompts: better air quality, etc.

Prompts: Were the changes done well, or have you had any problems with them?

7. If you had any problems, what were these? Did you find a way to overcome them?

8. Have there been any changes to how you are able to heat your home since these changes were made?

Prompt: Are you satisfied with how you able to heat your home?

Follow-up: Have you noticed any changes in your bills since the changes were made?

9. Have the works changed how you feel about your home? In what way?

10. Which adjustment has the most impact on your living conditions?

Follow-up: Which has had the least impact on your living conditions?

11. Have any of the changes to your home had a positive or negative impact on your mental or physical health?

Prompts: avoiding illness, improving health, etc.

Prompts: Which change has the most impact on your on your physical and mental health and wellbeing? Which has had the least impact on your on your mental or physical health?

Prompt: Has there been any impacts on family members/ others living in your home?

12. Have there been any other positive or negative impacts on your life due to the changes in your home? (Prompt: finances)

<u>Debrief</u>

13. Is there anything else that we haven’t touched upon already that you think would be useful for us to discuss?