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Evaluation of Arbed 3: Final Report



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Evaluation of Arbed 3: Final Evaluation Report

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary

Acronym/Key word	Definition
AaB	Arbed am Byth
BEIS	Department for Business, Energy and Industrial Strategy
DEA	Domestic Energy Assessors
EEM	Energy Efficiency Measures
EPC	Energy Performance Certificate
ERDF	European Regional Development Fund
GHG	Greenhouse Gas
ITT	Invitation-to-Tender
KPIs	Key Performance Indicators
LA	Local Authority
Mj	Megajoule
NRLA	National Residential Landlords Association
EW	East Wales
RCT	Rhondda Cynon Taf
RFT	Right first time
SAP	Standard Assessment Procedures
SMEs	Small and Medium Enterprises
SLA	Service-level Agreement
WEFO	Welsh European Funding Office
WG	Welsh Government
WIMD	Welsh Index of Multiple Deprivation
WW&V	West Wales and the Valleys
WHA	Whole House Assessment

1. Introduction and Background

- 1.1 Miller Research was commissioned by Welsh Government in April 2020 to undertake a process and impact evaluation of the European Regional Development Fund (ERDF) supported Arbed 3 programme. This report assesses the success of the Arbed 3 programme against its stated outputs and delivery objectives reflecting ERDF claims up to March 2021. The report also explores the wider outcomes and impacts of the programme and includes conclusions and recommendations relevant to similar, future programmes in Wales.

Arbed 3 Overview

- 1.2 The Arbed 3 programme is a strategic area-based fuel poverty¹ scheme co-funded by Welsh Government and the ERDF. The programme covers two ERDF Operations across East Wales (EW) and West Wales and the Valleys (WW&V). The programme has a flexible partnership approach to funding which entails the allocation of domestic Welsh Government funding to fund interventions in houses which are ineligible under the agreed ERDF criteria in order to maintain a critical mass within scheme areas. Combined, these two Operations, hereafter referred to as the Arbed 3 programme, aim to provide energy efficiency measures and renewable energy technologies in existing homes located in areas of Wales experiencing fuel poverty.
- 1.3 The Arbed 3 programme aligns with Specific Objective 3.2 (EW)² and 3.3 (WW&V)³ of the ERDF Programme in Wales; to increase the energy efficiency of the existing Welsh housing stock, particularly in areas of fuel poverty.
- 1.4 As part of the Welsh Government's Warm Homes Programme⁴, Arbed 3 is an area-based intervention targeting existing homes located in the most deprived areas of Wales who are suffering from fuel poverty and severe fuel

¹ A household is regarded as being in fuel poverty if they have to spend more than 10 per cent of their income on maintaining a satisfactory heating regime, as defined by the World Health Organisation (WHO).

² [East Wales ERDF Operational Programme 2014-2020](#)

³ [West Wales ERDF Operational Programme 2014-2020](#)

⁴ Welsh Government's flagship fuel poverty programme delivered through Arbed and Nest that aims to improve the quality of homes across Wales by supporting people who continue to struggle to meet the cost of their home energy needs.

poverty.⁵ At the outset, homes receiving improvement measures paid for by ERDF had to be categorised as being in severe fuel poverty, characterised by having an E, F or G Energy Performance Certificate (EPC) rating, and to achieve a minimum uplift of two EPC bands. This was subsequently revised to permit a proportion of D rated households and a minimum uplift of one EPC band.⁶ Welsh Government funding would be targeted at homes categorised as being in fuel poverty and to recognise and put in place procedures to reflect that there was a much larger proportion of homes requiring interventions costing more than an agreed maximum value or cap to achieve the required EPC uplift.⁷ The Arbed 3 programme offers a wide range of energy efficiency advice and measures to improve the energy performance of the properties in these areas to support householders out of fuel poverty.⁹ Arbed 3 aims to reduce the carbon footprint of Wales' existing housing stock, and in doing so provide resilience to households against rising energy costs.

1.5 In terms of management and delivery, Welsh Government is responsible for overall governance of the Arbed 3 programme. Arbed am Byth (AaB) have been appointed to deliver the programme, which includes scheme selection, the marketing and awareness raising activity surrounding the scheme, scheme delivery, and overall collaboration with Local Authorities and stakeholders. Welsh Government and AaB meet on a monthly basis to discuss progress against the Key Performance Indicators (KPIs) and review all schemes that go ahead, making recommendations.

1.6 The Arbed 3 programme offers a whole house approach, installing home energy efficiency measures which are most appropriate to individual houses. Using data primarily from the Welsh Index of Multiple Deprivation (WIMD), it targets areas characterised by a concentration of low-income households

⁵ A household is regarded as being in severe fuel poverty if they have to spend more than 20 per cent of their income on maintaining a satisfactory heating regime, as defined by the World Health Organisation (WHO).

⁶ In October 2019 WEFO advised, based on consultation with the Arbed team, that the original programme target uplift two EPC ratings will be reduced to a target increase of one EPC rating after difficulties in meeting the original target. The targeting of E, F and G properties led to the exclusion of a large number of properties, resulting in a contract change so that D-rated properties became eligible but had to form the minority of the scheme.

⁷ Specification for: Evaluation of Arbed 3.

⁸ Although some over cap properties were funded through ERDF where the required EPC uplift was achieved

⁹ Arbed Annual Report 2018-2019.

and high private ownership, as well as houses that are least energy efficient and hardest to treat. This process is further expanded on under 'scheme selection' in section 3.

Evaluation Rationale and Objectives

- 1.7 Evaluation is a condition of the ERDF award by the Welsh European Funding Office (WEFO) to assess the performance of the operations against the outputs and objectives set out in the business case for ERDF funding. As such, it is imperative that an effective approach is undertaken to evaluating the Arbed 3 programme.
- 1.8 The evaluation's overall objective is to "analyse the progress of the key monitoring requirements for the EW and WW&V Operations in terms of the KPIs and immediate economic, social, and environmental benefits resulting from the project implementation period"¹⁰.
- 1.9 A number of requirements were set out at the inception stage of the evaluation in order to comprehensively determine the success of the Arbed 3 programme.
- 1.10 These are to:
 - Assess whether the Arbed 3 programme has met the aims and targets as set out in the business plan, including the cross-cutting themes. In addition, examine whether any wider outcomes and impacts identified in the Programme logic model have been realised and can be attributed to the operation.
 - Provide a final assessment of the effectiveness of the programme management and monitoring processes and identify how these may be improved for future, similar programmes.
 - Examine the overall contribution of the Arbed 3 programme towards meeting the key Welsh Government policy and strategic priorities including the Well-being of Future Generations (Wales) Act, and Fuel Poverty Strategy.
 - Identify whether the social, environmental, and economic impacts of the programme, as identified in the logic model, have been, or are likely to be realised in the future.

¹⁰ Specification for: Evaluation of Arbed 3.

- Evaluate householders' perceptions and satisfaction of the Arbed 3 programme measures and delivery, and any associated attributable outcomes e.g. Well-being changes, energy cost changes, behavioural changes etc.
- Examine the extent to which the operations support the Welsh Government's aims and objectives for the Welsh language, as set out in Cymraeg 2050.
- Identify any key lessons relevant to this and future operations to achieve the Welsh Government's strategic aims.

Implications of COVID-19 for the Evaluation

- 1.11 COVID-19 was declared a Public Health Emergency of International Concern in January 2020 and a pandemic in March 2020. The pandemic has caused major social and economic disruption in Wales with the response to the outbreak of the disease including preventive measures such as travel restrictions, lockdowns, workplace and facility closures.
- 1.12 The disruption caused by the implementation of lockdown measures resulted in all schemes associated with the Arbed 3 programme being put on hold and consequently most staff from AaB being furloughed between the months of June and September 2020, due to the incapacity to deliver measures. This resulted in a complete loss of three months of delivery and a further three months required for re-mobilisation, given the need to bring internal staff back into post and to re-engage the supply chain. Further challenges have arisen throughout 2020 for AaB staff in terms of engaging with householders, undertaking marketing and awareness events, and also in securing post intervention Energy Performance Certificate (EPC) checks. These challenges have led to cash flow pressures on AaB. Welsh Government has demonstrated some flexibility in funding to ensure suppliers are paid and to maintain viability of the Arbed 3 programme.
- 1.13 Delays have also led to a re-profiling of ERDF programme delivery. This was discussed following delays earlier in the contract but was put on hold during the pandemic. However, in November 2020, a de-commitment of £7.5m was agreed with WEFO¹¹, which led to the WW&V target of the number of

¹¹ WEFO is part of the Welsh Government and manages the delivery of the EU Structural Funds programmes in Wales.

properties with improved energy consumption being reduced from 3,060 to 1,875 properties.¹² An amended business case was subsequently agreed formally with WEFO.

1.14 COVID-19 has had no direct impact on the evaluation of the Arbed 3 programme.

Report Structure

1.15 This report is structured as follows:

- Section 2 sets out the methodological approach.
- Section 3 presents the findings of the Arbed 3 evaluation, specifically the programme's delivery, management and outputs, as well as its impact on Cross-Cutting Themes.
- Section 4 explores the outcomes and impacts of the Arbed 3 programme including the counterfactual.
- Section 5 outlines the conclusions on the programme's success against targets and KPIs, including a summary of key barriers and enablers to successful delivery, lessons learnt and recommendations for the delivery of future similar programmes.

¹² The EW Operation target and budget remains unchanged from the original profile.

2. Methodology

- 2.1 The design of the evaluation of the Arbed 3 programme has been based on a two-stage, process and impact evaluation with a three-wave household beneficiary survey. The first stage entailed a review of programme documentation as well as the development of a logic model based on the Theory of Change Approach.¹³ This was accompanied by the production of an evaluation framework and initial fieldwork with key stakeholders.
- 2.2 The final (impact) evaluation stage took place between January and July 2021. It complements and builds on the work undertaken for the interim evaluation phase that was undertaken in the period April 2020 – March 2021.
- 2.3 The final evaluation stage contained the following fieldwork:
- Quantitative survey of household beneficiaries
 - Qualitative interviews with household beneficiaries
 - Qualitative interviews with Local Authorities
 - Qualitative interviews with contractors and suppliers
 - Qualitative interviews with AaB staff
 - Qualitative interviews with Welsh Government
 - Qualitative interview with representative of the Private Rented Sector
 - Final monitoring data review and analysis
 - Impact and counterfactual assessment

Quantitative Survey of Household Beneficiaries

- 2.4 A telephone survey of household beneficiaries whose properties were included in ERDF claims was conducted to ensure a high response rate and provide a more representative sample than a postal or web-based approach would have achieved.
- 2.5 Telephone surveys were undertaken in three waves, approximately one year after the intervention had taken place in sample households. This provided sufficient time for households to notice the impacts of changes made. This approach also removed the seasonality effect from the data, as all

¹³ This was built on two key approaches; UK Treasury Magenta Book guidance and the EU Better Regulations framework. It started with the expected impacts and outcomes of Arbed 3 and worked back through outputs, activities, and inputs, to understand why and how they happened.

householders were able to base their judgements having experienced all seasons.

2.6 It was agreed that a fourth wave of fieldwork to cover interventions between April and June 2020 would not be undertaken due to the impact of COVID-19 limiting deliveries during this period. It was therefore decided that a larger sample from the initial three waves should be obtained.

2.7 In total there were 506 responses to the householder survey. This was higher than the estimated maximum sample size of 495 for the three waves. 417 responses were from households in WW&V while the remaining 89 responses were from households in EW. In WW&V this represents 23.4 per cent of the total number of households who received works. In EW this was 11.6 per cent. However, in terms of the total number of properties eligible for survey sampling, the response rate was 47% in both WW&V and EW. The sampling approach adopted is discussed in the Annex C.

Qualitative Interviews

2.8 Qualitative interviews were undertaken with a range of stakeholders including household beneficiaries, Local Authorities, contractors and suppliers, and AaB staff.¹⁴ Interviews with householder beneficiaries were undertaken across Wales with a range of age groups, home ownership status, household size, and income.

2.9 In total 41 interviews were undertaken¹⁵ covering a range of topics including the management and governance of Arbed 3, overall delivery of the programme, outcomes and impacts, and recommendations for future programmes.

2.10 Interviews informed the identification of a series of common themes associated with the delivery of interventions in a range of Local Authorities across Wales.

¹⁴ Qualitative interviews with householders took place between March and June 2021. Beneficiaries interviewed had received installations between the period March 2020 to October 2020.

¹⁵ A breakdown of all stakeholders interviewed for the final evaluation is provided in Annex A.

Final Monitoring Data Review and Analysis

- 2.11 A final review and analysis of monitoring data, review of final ERDF claims to WEFO and associated documents, and a review of quality assurance audit reports (compiled by Pennington's Choices¹⁶) against the programme's objectives was undertaken.
- 2.12 Findings from this review were then triangulated – a process through which findings from different data sources are cross-verified and compared.
- 2.13 Monitoring data, final claims and associated documents, and build quality reports were triangulated against findings of the household beneficiary survey and qualitative interviews.
- 2.14 Utilising mapping software, the qualitative data gathered through interviews was analysed alongside the monitoring data and responses to the household beneficiary survey.

Impact and Counterfactual Assessment

- 2.15 A key aspect of a robust evaluation is the consideration of the counterfactual or additionality of an intervention, to understand what would have happened in the absence of the operation and hence the value that has been added.
- 2.16 The impact and counterfactual assessment has explored four deadweights and has been informed by the household beneficiary survey, qualitative interviews, and the final monitoring data review and analysis.
- 2.17 The four deadweights to be explored are listed below:
- Deadweight 1—the extent to which households would have made changes to improve energy efficiency and address fuel poverty anyway, without the Arbed 3 programme.
 - Deadweight 2 —the extent to which households would have found similar support elsewhere.
 - Deadweight 3— the extent to which the Arbed 3 programme duplicates other programmes that provide similar support (links to Nest and role within Warm Homes programme).

¹⁶ Pennington Choices are contracted by Welsh Government to conduct quality assurance audits of works undertaken by Arbed am Byth.

- Deadweight 4 - the extent to which the observed results are entirely due to the intervention received.

Limitations of the Approach

- 2.18 The survey explored householders' views on the installation process and the outcomes they had experienced including; perceptions of impact on energy bills, health, and awareness of environmental issues. When considering the survey findings, the limitations of such self-reported data and the time period individuals were being asked to comment on should be recognised. These findings have not been triangulated and verified with other data sources and differ from the methodologies used for official reporting.
- 2.19 Establishing whether Arbed 3 targeted areas in severe fuel poverty has been constrained by the lack of pre-installation household data. A full fuel poverty assessment could not be completed as part of this evaluation, as a significant amount of information about both the household (e.g. detailed income, housing costs) and dwelling (e.g. size, structure, insulation) would be required in order to carry out the full fuel poverty calculation used for calculating UK Government fuel poverty statistics, which was beyond the scope and resources available.
- 2.20 The evaluation attempted to mitigate this by asking household survey participants to estimate the proportion of their income spent on energy bills before and approximately 12 months after installation. The survey findings related to estimates of fuel poverty should therefore be treated as indicative and used for analysis, rather than providing robust indications of prevalence or profile.

3. Findings: Delivery, Management, Outputs and Key Performance Indicators

Programme Delivery and Management (enablers and barriers)

- 3.1 The management structures of the Arbed 3 programme differs from the arrangements of the previous Arbed programmes. The Welsh Government Arbed team has been set up to oversee delivery and management of the programme, to establish appropriate governance and management arrangements, to continue to work with and engage with stakeholders, and to ensure that finance and audit procedures are compliant. The team also takes responsibility for the delivery of the communication plan.¹⁷
- 3.2 AaB is responsible for managing the programme, which includes identifying scheme locations, liaising with Local Authorities, recruiting contractors, marketing and publicising schemes, scheme delivery, and progress reporting. This is in contrast to Arbed 2 where Local Authorities had a more direct relationship with Welsh Government, proposing schemes for selection and liaising with the contractors.

Scheme selection

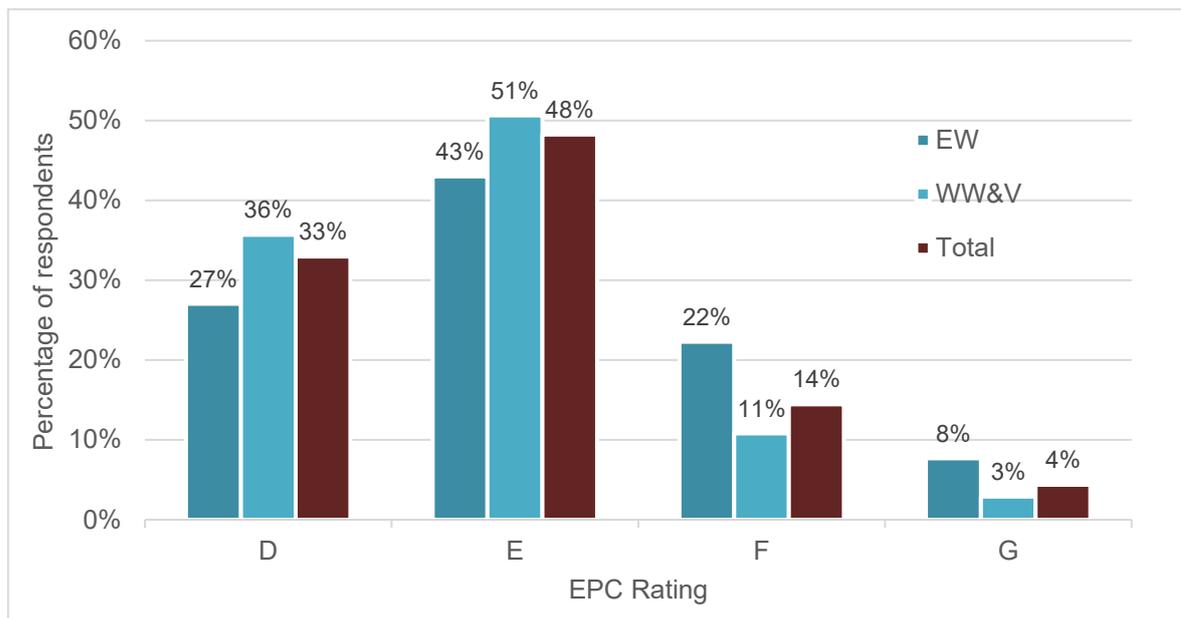
- 3.3 Arbed 3 was delivered through area-based schemes that involved installing measures in households in an area of high fuel poverty which had low Energy Performance Certificate (EPC) ratings. Initial identification of prospective schemes was made by AaB using WIMD data (specifically measures of income, housing, and health). This information was overlaid with EPC data¹⁸ for households in the geographic area to identify energy inefficient “hotspots”.
- 3.4 AaB worked alongside the relevant Local Authority to ‘sense check’ the proposed scheme, based on the latter’s contextual knowledge of the local community and housing stock. Local Authorities who were more engaged in the programme, were also able to advise on planning or conservation issues that would not have been identified through the desk-based exercise.

¹⁷ Arbed WEFO Business Plan, p.51.

¹⁸ AaB also looked at the confidence level of the EPC data, which is calculated using a combination of the percentage of houses in the defined area with an EPC assessment and the currency of the available EPC assessments.

- 3.5 The scheme selection process relied on gaining consent from individual householders, given that sufficient numbers of properties were required to make a scheme viable. Once a scheme was provisionally approved, marketing and communication exercises within the local area were conducted to encourage sign-up of householders to an independent whole house assessment (WHA), which was required to confirm eligibility (EPC rating) and recommend measures.¹⁹
- 3.6 The Arbed Business Plan notes that households are more likely to be living in fuel poverty if they live in a house with an EPC rating of E, F, or G and so the programme focussed on such homes.²⁰ However, this risked the exclusion of a large number of properties, thereby compromising the ‘area-based’ philosophy of the scheme. As such, D-rated properties were eligible but had to form the minority of the scheme. This was borne out in practice, with two-thirds of all ERDF-funded interventions being carried out on properties rated at E-G.

Figure 1: Distribution of Household EPC Ratings, pre intervention



Source: AaB / Miller Research

¹⁹ The whole house assessment process is discussed from paragraph 3.26 below.

²⁰ Arbed Business Plan, p.38

Collaboration with Local Authorities

- 3.7 An important element of scheme selection was the collaboration between AaB and Local Authorities. The role of the Local Authority differed greatly across Wales, with some proactively working with AaB and using the WIMD to address areas they highlighted that were in need, while others had minimal involvement in scheme selection. The different approaches taken by Local Authorities meant there were varied experiences of collaborating with AaB.
- 3.8 Some Local Authorities welcomed the approach taken for scheme selection, suggesting that they neither had the ability or capacity to undertake scheme identification, marketing and communications, and engagement with contractors. This often depended on the level of buy-in to Arbed in the Local Authority– often according to their own capacity to support the programme: *“Some are much more pro-active, others just let us get on with it.”* (AaB). In one area, the Local Authority printed leaflets about the Arbed scheme at their own expense, and housing officers went door knocking to help promote the scheme. In other areas a lack of capacity within the Local Authority’s housing department meant that their involvement was necessarily limited.
- 3.9 Similarly, collaborative identification of schemes was reported to be typically straightforward: *“No real issues with differences of opinion – most of the WIMD data aligns with their local knowledge of the area. Occasionally it can be different”* (AaB).
- 3.10 On the other hand, some Local Authorities expressed concern that the approach led by AaB meant that they lacked control over schemes which resulted in houses in need not becoming eligible for support. One Local Authority officer stated: *“They [AaB] should work more closely with us. We have the resource to provide the advice and support, be the face for the scheme, introduce the brand... it’s about proper communication, actually making decisions collaboratively.”* (Local Authority officer).
- 3.11 Another of the issues experienced by Local Authorities was that AaB’s communications and marketing strategy relied on mass communications in a locality utilising local events, social media, and posting letters. Although Local Authorities acknowledged the effectiveness of this campaign, there was concern that AaB were promising more than they could actually deliver. One Local Authority officer commented that *“One householder said they’d been*

overpromised and under delivered [sic] and comms was lacking". Local Authorities also reported having to deal with queries and criticisms about scheme eligibility or delays to approved schemes but were unable to get clarity from AaB: *"We've had inconsistent messages [from AaB] in terms of eligibility of some areas – saying an area was eligible and we'd communicated this to the community and councillors and then saying might be pulled. Made us look very bad."* (Local Authority officer)

- 3.12 A number of Local Authority representatives suggested that they had little to no oversight regarding what was being delivered as part of the scheme and felt that AaB were poor at sharing information and data. This was, in part, attributed to high levels of staff turnover amongst AaB staff and Local Authority officers not knowing who to ask as a result.

Support for the Private Rented Sector (PRS)

- 3.13 The Arbed 3 programme has placed very little focus on the PRS, despite an area-based approach being ownership agnostic in theory. It is estimated that some four percent of households receiving measures have been in the sector, despite this accounting for an estimated 20 percent of fuel poor households across Wales, compared with 11 percent of owner-occupied households.²¹
- 3.14 This low figure can partly be explained by the application process for Arbed which presented some possible barriers to PRS households benefiting from Arbed. Specifically, AaB had to engage with tenants to "sell" the idea of energy improvements, but tenants would subsequently have to ask permission of the landlord for measures to be installed, limiting their involvement.
- 3.15 Welsh Government stakeholders felt that the focus of housing policy in Wales had been on driving the Welsh Housing Quality Standard and on social landlords. Regulations for private landlords in relation to energy efficiency of properties were set at a UK level by the Department for Business Energy and Industrial Strategy (BEIS) and enforced in Wales by Rentsmart Wales, which checks EPC ratings meets minimum standards when a property is registered. Currently in Wales there is an arrangement whereby properties where

²¹ [Fuel poverty estimates for Wales: 2018](#)

improvements would cost more than £3,500 can be let on a lower EPC. In England this cap has been raised to £10,000 and there are some concerns that a similar approach in Wales could lead to empty properties or illegal tenancies being implemented. The Rentsmart Wales approach has been recognised as good practice and has led to an increase in EPC ratings of many PRS homes.

- 3.16 Evidence of how the PRS has been supported in this respect is demonstrated by Nest²², albeit with a cap of three properties per landlord.²³ The cap was introduced to avoid landlords with substantial property portfolios absorbing a high proportion of the available grant support. In previous programmes, property agents had created difficulties through aggregated demand for support for their clients.
- 3.17 It was acknowledged that there is a tension between the perceived risk of subsidising private landlords, who could avoid legal obligations through support, and meeting the needs of fuel poor tenants. However, the potential exists to offer partial grants to landlords to achieve leverage of private sector finances. This facility was removed by Welsh Government following previous Arbed programmes, as it was not being used but could potentially be reintroduced.

Contractor engagement and recruitment

- 3.18 Contractors were recruited onto a framework at the start of the Arbed 3 programme, following a series of meet-the-buyer events and selection via Sell2 Wales.²⁴ One contractor reported becoming aware of the programme more informally, after being approached by another contractor on the framework about being a subcontractor on an Arbed scheme. Another contractor stated that they became aware of the programme as they had a connection to AaB. Contractors suggested that recruitment onto the framework was a relatively easy process conducted via Sell2Wales.
- 3.19 Some contractors reported a perceived preference within AaB for larger and cheaper contractors: *“They need a number of contractors on each scheme –*

²² [Nest | nest.gov.wales](https://www.nest.gov.wales)

²³ Additional properties could be added with permission from Welsh Government.

²⁴ Sell2Wales is the national advertising portal where Welsh public sector organisations post their contract opportunities

if you are the cheapest you have first refusal. We are very much on the periphery, being more expensive." (Contractor). It was suggested that larger contractors were able to provide trades across all the required disciplines for a scheme and so might find it easier to win work.

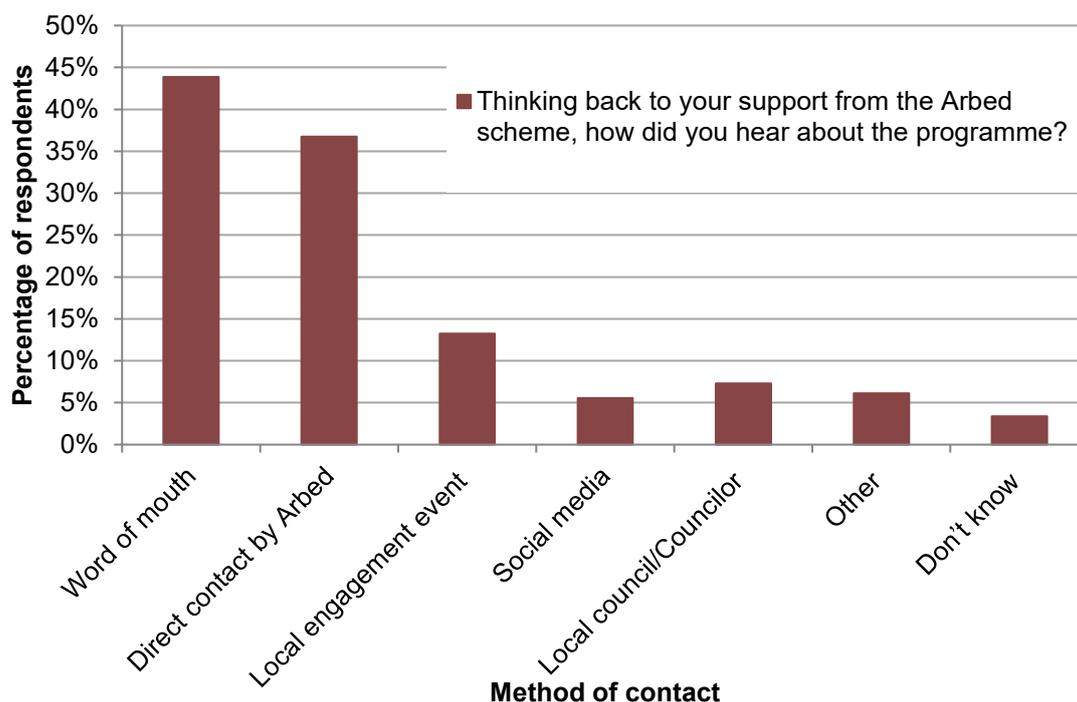
- 3.20 One of the issues reported by contractors was that specifications issued for schemes often lacked detail for the set of requirements of work to be procured. This included gaps in information as fundamental as the size of photovoltaic panels required. One contractor felt that they were unable to tender for schemes 'on a level playing field': "*We were benchmarking based on the quality expected from Arbed 2... but we didn't feel that it was driven by quality but price... the first seven or eight tenders that came out, we didn't even feature – we were too expensive.*" (Contractor)
- 3.21 Several contractors would have welcomed greater communication regarding the pipeline of work, to allow for more effective planning of resources. "*[AaB] could be a bit more transparent on number of jobs coming in and when a scheme will stop, when the numbers [of houses] will increase – I don't know why they can't be more transparent.*" (Contractor)
- 3.22 AaB recognised that there was scope to improve communication with contractors about the flow of work available through the programme and made an effort to increase dialogue and transparency: "*In the past installers were critical that they were offered a hundred jobs, but then only actually given seventy – we're a bit more pragmatic about looking it at realistically and offering a realistic number of jobs.*" (AaB)
- 3.23 According to AaB, the supply of contractors was very area dependent, with North Wales experiencing a greater shortage of overall numbers as well as gaps in specific expertise, for example cavity wall insulation. This makes it even more critical to ensure openness about the scale of work available to allow for contractors to factor Arbed schemes into their planning.

Marketing and awareness raising

- 3.24 Marketing and promotion of Arbed schemes to local communities was an important part of the programme and essential to delivering the anticipated impacts and outcomes as sign-up to a scheme is voluntary.
- 3.25 AaB also used targeted marketing through the local press, on the Local Authority website, via local community groups such as Help the Aged and mother and toddler groups, and by distributing branded leaflets. A marketing company was commissioned to design leaflets that can be adapted to different schemes and these were sent out with letters to households in scheme areas. The logos of the relevant Local Authority (as a trusted local brand) – and to a lesser extent of AaB and Welsh Government (and ERDF) – were fundamental to this print material.
- 3.26 Beneficiaries, Local Authorities, and contractors were generally positive about the effectiveness of engagement events in community venues as a marketing strategy, pre COVID-19. They were described as being useful and providing the right information to potential householders, adding a sense of legitimacy and confidence on what was being delivered. These events tended to be drop-in sessions, where AaB staff would provide information about the relevant scheme and examples of measures available to households.
- 3.27 However, communication and the interactions between AaB and various stakeholders was reportedly an issue, with some householders receiving mixed messages about their property's eligibility for the scheme between the local community engagement event and subsequent assessments. It should be noted that no individuals whose properties were ineligible were interviewed and so this issue may be under-stated here.
- 3.28 According to interviews with Local Authority officers, householder scepticism was perceived to be the main challenge for marketing the schemes, which is why the involvement of the Local Authority as a trusted brand was considered to be critical: *"People are suspicious of anything that is free."* (Local Authority officer).

- 3.29 Some Local Authority stakeholders suggested that they had a limited role in the engagement events. They suggested that a greater Local Authority presence at events, beyond using the Local Authority logo, would have provided further credibility to the scheme and allowed AaB to benefit more from local knowledge. One Local Authority officer who had attended an engagement event in the early days of the Arbed 3 programme was critical about the quality and accuracy of the information conveyed to members of the local community regarding the measures they would be eligible for.
- 3.30 A number of the Local Authorities raised concerns that the engagement events, as well as some of the other methods of marketing and communicating utilised by AaB, overpromised on what they actually could and did deliver. One Local Authority officer stated that *“AaB promised that new measures would be installed to make costs cheaper and more energy efficient without acknowledging that this only applied to houses that were D, E, F, G rated. We had a lot of angry calls from people who felt they were promised something for nothing but were ineligible”*. It was acknowledged by some Local Authority stakeholders that to secure buy-in and to get the scale to successfully deliver a scheme required such an approach. But according to them, this also led to a number of disappointed householders ineligible for support. They stated many were confused as to their ineligibility and complained to Local Authorities when unable to contact AaB or were unaware that it was not a Local Authority led scheme.
- 3.31 Achieving critical mass and momentum in a scheme, whilst still at the ‘prospective’ stage, was also a challenge and could lead to a vicious circle, where low levels of sign-up by householders affected the potential viability of the scheme, which reduced the focus on marketing, and consequently impacted further take-up: *“It [the scheme] had hit the press and gathered momentum and then communication and progress dried up ... the reason seemed to be that they didn’t have enough properties [signed up] in the area.”* (Local Authority officer)
- 3.32 Local presence and word of mouth was also cited as the most useful marketing and communication tool for AaB, and this is supported by findings from the householder beneficiary survey. Of those surveyed, 44 per cent of respondents suggested that they had heard about the scheme through word of mouth, with direct contact with AaB the second most commonly reported

form of communication with 37 per cent (Figure 2). Sandwich boards and banners on scaffolding of houses already engaged in the scheme were successful in visually displaying a presence within a scheme area and AaB staff suggested that local communication channels were key in increasing sign-up.

Figure 2: Survey responses to awareness of Arbed 3 programme

Source: Beneficiary survey n=506

3.34 The onset of the pandemic prevented communal publicity events and so door-knocking was increased in scheme areas. This was reported to be very effective, increasing engagement through an initial distribution of letters and leaflets followed by door-to-door visits: *“Since COVID, there’s been more door knocking, which has been very effective way to engage people – you can’t just rely on people being proactive in coming forward!”* (Local Authority officer).

3.35 Generally, interviewees suggested that AaB adapted well to the challenges that the pandemic posed in terms of communication and marketing the schemes.

Whole House Assessment

3.36 The independent Whole House Assessment (WHA) was intended to ensure that an individual property fulfilled (met) the requirements of the Arbed 3 programme, and the assessments were carried out by externally contracted, qualified and accredited, Domestic Energy Assessors (DEAs). The WHA entailed capturing an accurate baseline EPC rating. It is acknowledged that

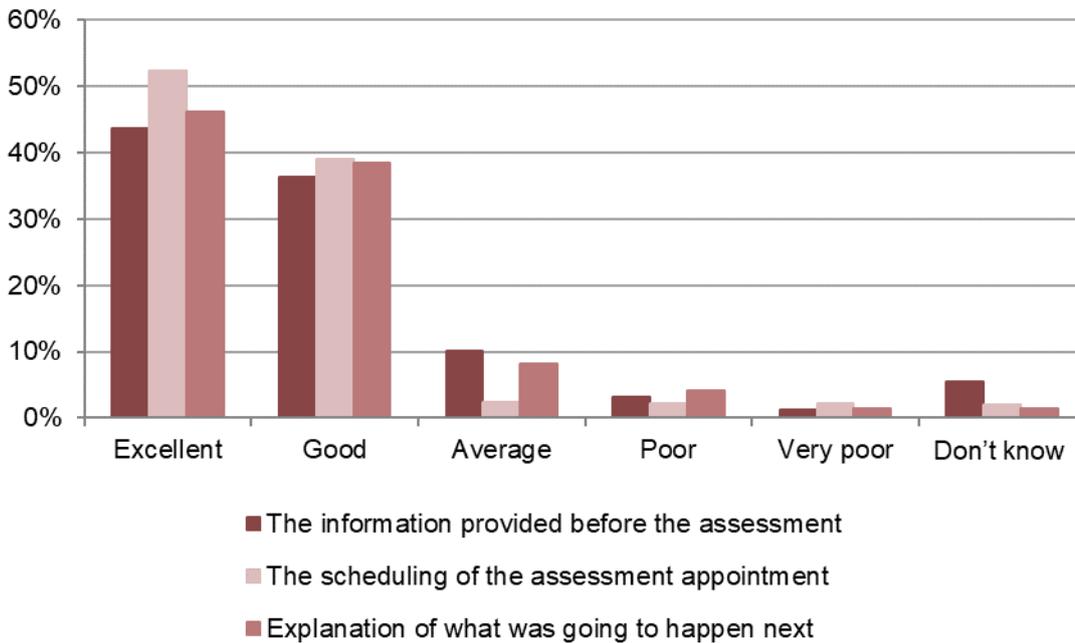
the UK Government database for EPC ratings²⁵ can be outdated or inaccurate and so this was seen as essential in determining the viability of an intervention. The independent WHA provided a crucial real time assessment of the property's EPC.

- 3.37 Once each WHA was compiled, the results were returned to AaB for further review. All reports were collated for the proposed scheme area to confirm overall eligibility (>50 per cent EPC E, F or G) and to explore what measures could be installed.
- 3.38 As part of the Stage 2 assessment, a technical survey was carried out to confirm that measures recommended in the WHA and modelled by AaB were appropriate for installation. Properties had to have a maximum baseline EPC of a D to qualify for installation of measures, with the majority to be E, F or G rated. The recommended measures within the WHA also had to be financially viable under the individual property spending cap. The proposed measures were presented as a package and householders were able to accept or reject, but not pick elements of the package for installation if they wanted to participate in the scheme.
- 3.39 AaB placed an initial focus on houses rated E, F, and G. Each house was analysed on the basis of the WHA and then modelled to consider which measure, or combination of measures, would ensure the required uplift and cost effectiveness of the intervention. The updated EPC ratings could reduce the scale of schemes by recording more D rated homes in the sample, in turn reducing the proportion of E, F and G rated homes. This made scheme development more challenging for AaB but could be seen as improving actual outcomes for Welsh Government.
- 3.40 As Figure 3 shows, overall beneficiaries considered the WHA process to be either excellent or good. The guidance provided beforehand was rated either excellent or good by 80 per cent of survey respondents with only four per cent considering it to be either poor or very poor. Respondents were even more positive for the scheduling of the assessment of the appointment with 91 per cent considering the process excellent or good. Eighty-five per cent considered the explanation of what was going to happen next as excellent or

²⁵ [Find an Energy Certificate](#). UK Government.

good. The survey responses suggest that overall beneficiaries had a positive experience of the WHA process.

Figure 3: Survey responses to satisfaction with the Whole House Assessment



Source: Beneficiary survey n=406 (100 respondents did not answer question)

1

- 3.41 Although beneficiaries were very positive, some Local Authorities reported frustration at their lack of involvement in the WHA process (and subsequent decisions over measures), and this could be an issue when customers queried why they had not been offered certain measures: *“We were getting questions about solar panels, and we’d had no involvement in deciding who was and who wasn’t getting solar panels – the householders felt they weren’t being heard.”* (Local Authority)
- 3.42 Despite the rigorous selection process, there was criticism from one contractor regarding some of the measures proposed: *“sometimes the measures they’ve asked us to do won’t work – e.g. they want a solar panel fitted but there are roof windows so it’s not possible at all.”* (Contractor)

3.43

Quality assurance and performance management

3.44 Quality assurance within the Arbed contract is measured against two, separate, annual KPIs in relation to the Right First Time²⁶:

- One assessment undertaken by the Scheme Manager on the performance of the installers, adhering to defined industry standard and is based on inspecting all delivered properties within a month. To incentivise the scheme manager to deliver a high-quality service, performance fees payments are linked to this KPI on a sliding performance percentage band scale. This assessment aims to achieve a ≥ 98 per cent right first-time pass rate. In the final year of the contract a rate of 99.7 per cent was achieved.
- A second based on Pennington's Choices, an independent Quality Assurance Agent (QAA), undertaking a random sample audit, based on achieving 100 per cent quality. This is reported independently of the Scheme Manager, who nevertheless has the opportunity to review and challenge the findings. If evidence can be provided to support their position on occasion the initial result of QAA may be overturned. This reflects the fact that inspection criteria have been defined and aligned to industry standards. In the final year of the contract a rate of 98.03 per cent quality was achieved, falling slightly short of the target. This was, however, not seen as a significant shortfall by the programme manager.

3.45 Standards reportedly improved throughout the programme, but much of this was attributed to established ways of working and lack of attention to documentation at the start of the contract. It was noted by Arbed am Byth staff that this was commonly experienced on interventions of this type, as contractors worked towards the expected standards.

3.46 A perceived emphasis on the quality of paperwork (rather than quality of the installation work) was criticised by some contractors, who felt that it was over-burdensome. There was a recognition within AaB of the need to reduce

²⁶ This refers to post-installation inspections carried out by the independent quality assurer Pennington Choices. Properties chosen were based on a random sample to determine whether or not the installations have been carried out in line with the requirements of the contract, industry and manufacturer's installation standards. If they passed the first inspection they were considered 'Right First Time'.

any unnecessary paperwork, but with the caveat that without adequate documentation invoices could not be serviced.

- 3.47 The stringent audit process required a number of visits to some households and beneficiaries interviewed were reported to have felt that the process was over-intrusive where six or seven visits took place across the intervention, from whole house assessment and technical assessment to installation and quality assurance.

Householder Experiences

- 3.48 As stated in the methodology, a telephone-based survey of household beneficiaries was conducted with a total response sample of 506 beneficiaries, along with 10 qualitative interviews. As Figure 4 shows, a large number of questions were asked of beneficiaries' experiences of the Arbed programme.
- 3.49 Of the beneficiaries surveyed, 88 per cent were either very satisfied, or fairly satisfied, with the overall experience of participating in the Arbed scheme process, with eight per cent describing themselves as either fairly or very dissatisfied.²⁷ Across each of the different stages, the beneficiaries that were very satisfied were in the majority, and only in the aftercare provided (i.e., support after the installation of measures) did the very satisfied / fairly satisfied go below the 70 per cent mark. This was supported by interviews with householders who expressed satisfaction with their participation in the scheme. Overall, this would show that beneficiaries were positive about their experience of the delivery of the Arbed scheme that they participated in.
- 3.50 Based on the survey of beneficiaries, there were some areas of improvement highlighted by the beneficiaries' experiences. Firstly, in terms of the aftercare provided, 18 per cent were either fairly or very dissatisfied, which means that in the entire delivery process this was the stage where beneficiaries' experiences were least satisfactory. Secondly, some beneficiaries were also dissatisfied with the instructions on how to use the installation, with 16 per cent stating they were either fairly or very dissatisfied. Similar to survey respondents, qualitative interviews revealed that beneficiaries were satisfied

²⁷ The remaining four per cent stated they were 'neither satisfied nor dissatisfied'.

with the timekeeping of the installer, their accommodation of household needs, as well as overall cleanliness and efficiency.

Table 1: Beneficiary Satisfaction Responses

Survey Question	Per Cent				
	Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied
Time between the energy performance survey and the installation appointment	58	28	6	5	3
Communication about the measures to be installed	65	21	3	6	5
Communication about how long the installation would take	68	20	3	5	3
Flexibility around timings for the installation to suit you	71	20	3	3	3
Timekeeping of the installer	78	16	2	2	3
Accommodation of your needs \ space during the installation	74	20	2	3	2
Overall efficiency and cleanliness of the installation	74	16	3	3	4
Instructions on how to use the installation (if relevant)	57	22	6	9	7
Energy efficiency advice provided by the installer	55	25	10	6	4
The amount of paperwork you needed to fill in	71	24	4	0	1
The aftercare provided (i.e., support after the installation) (if relevant)	53	18	11	8	10
The follow-up inspection appointment after the installation	58	24	7	6	5
Energy efficiency advice provided by the person who carried out the follow-up inspection	54	23	9	7	7
Your overall experience of the process	68	20	4	4	5

Source: Arbed 3 beneficiary survey (n=506). Totals that did not equal 100 per cent were rounded accordingly.

Programme Delivery

Contribution to the ERDF Result Indicator - Improved energy consumption performance in 5,500 homes in WW&V and 4200 in EW

- 3.51 The Arbed 3 business plan sets out delivery against ERDF specific objectives 3.3 (WW&V) and 3.2 (EW). These aim to increase the energy efficiency of the existing Welsh housing stock, particularly in areas that are experiencing

fuel poverty.²⁸ The number of households supported through the Arbed 3 programme has contributed one third towards the overall WW&V ERDF operational programme target (1,875) and 18 per cent of the EW target (765).²⁹ This contribution has been significantly affected by the COVID-19 pandemic and consequent inability to conduct engagement with potentially vulnerable households.

- 3.52 The Arbed 3 programme complements Thematic Objective 4 of the ERDF, which has the aim of supporting a shift to a low-carbon economy in all sectors. Within this, Investment Priority (C) is aimed at supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector.³⁰ The Arbed programme has also contributed to energy production via the installation of solar PV measures:
- 3.53 Small areas affected by fuel poverty are difficult to identify, given the range of factors which contribute to households experiencing it. Welsh Government produces estimates based on survey data and fuel prices and these suggested that in 2018 12 per cent (155,000) of households in Wales were living in fuel poverty and two per cent (32,000) were living in severe fuel poverty.^{31,32}
- 3.54 As paragraph 2.18 and Annex C outline, a robust fuel poverty assessment could not be undertaken as part of this evaluation, as a significant amount of information about both the household and dwelling would be required in order to carry out the full fuel poverty calculation used for calculating UK Government fuel poverty statistics. AaB did not collect any household data relating to energy spend or household income at the outset, as eligibility under the area-based approach was not based on individual or household means. In order to assess contribution to the result indicator and to gauge the potential economic impact of the Arbed 3 programme, the evaluation attempted to mitigate this by asking survey respondents to estimate the proportion of household income spent on energy bills before and after the

²⁸ Arbed WEFO Business Plan, p6

²⁹ [EU Structural Funds programmes 2014 to 2020: operational programmes](#)

³⁰ [Investment Priorities: What are they? What is their use?](#)

³¹ In Wales, a household is defined as being in fuel poverty if they would have to spend more than 10 per cent of their income on maintaining a satisfactory heating regime. Any household having to spend more than 20 per cent is defined as being in severe fuel poverty.

³² [Fuel Poverty Estimates for Wales](#)

installation, with the answer categories of ‘less than 10 per cent’, ‘between 10 and 20 per cent’ and ‘more than 20 per cent’. This approach has additional methodological limitations as it entails relying on self-reported information from beneficiaries from a time-period dating back over a year (see paragraph 2.12 and Annex C).

3.55 Of the 358 beneficiaries who responded (excluding the 148 who answered ‘don’t know’), the data suggests that prior to measures being installed: 31 per cent estimated they spent less than 10 per cent of income on energy bills; 39 per cent estimated that they spent between 10 and 20 per cent (indicative of fuel poverty); and 30 per cent estimated they spent more than twenty per cent (indicative of severe fuel poverty).³³ Following installation 61 per cent estimated they spent less than 10 per cent of income on energy bills; 35 per cent estimated they spent between 10 and 20 per cent; and 5 per cent estimated they spent more than 20 per cent (see Table 2 and paragraph 4.11). Those respondents who were unaware of their energy spend were more likely to be from low-income households, with those who earned less than £10,400 annually comprising 34 per cent of ‘don’t know’ respondents. A further 25 per cent of respondents in the same category earned between £10,499 and £20,799 annually, which given the links between poverty and fuel poverty, implies that the true proportion in severe fuel poverty may have been higher than expressed above.

3.56

Table 2: Self-declared energy spend before and after intervention

Estimated proportion of household income spent on energy	Per cent	
	Before Intervention	After Intervention
Less than 10 per cent	31	61
Between 10 and 20 per cent	39	34
More than 20 per cent	30	5
More than 10 per cent	69	39

Source: Arbed beneficiary survey. (n=358) 148 ‘don’t know’ responses not included in the table.

Progress against ERDF output indicator targets

³³ In Wales, a household is defined as being in fuel poverty if they would have to spend more than 10 per cent of their income on maintaining a satisfactory heating regime. Any household having to spend more than 20 per cent is defined as being in severe fuel poverty.

3.57 Progress against delivery targets has been taken from claims to WEFO for WW&V and EW over the lifetime of the Arbed 3 programme to date (March 2021). At the time of writing, two claims have been submitted, with a third in draft. A further claim will be submitted to close the ERDF operations towards the end of 2021, which will cover remaining measures installed and management fees not claimed before that time. Claims to date relate to the following periods:

- Claim 1: April 2019 to December 2019 inclusive
- Claim 2: January 2020 to March 2020 inclusive
- Claim 3 (draft): April 2020 to March 2021 inclusive.

Number of homes with improved energy consumption classification

3.58 The Arbed 3 programme was originally intended to deliver improved energy consumption ratings in 3,060 households in WW&V and 765 in EW totalling 3,825 homes. Following a de-commitment of £7.5m of ERDF funds following Claim 2 (March 2020) to reflect the impacts of the COVID-19 pandemic on delivery, the WW&V target was revised to 1,875, with the EW target remaining unchanged totalling 2640.

3.59 Arbed 3 programme delivery was re-profiled, with targets effectively being reset following Claim 2 to reflect measures delivered at that time to 1,273 homes in WW&V and 390 in EW. A new delivery profile for a further 602 interventions in WW&V and 375 in EW was set for the remainder of the programme.

Table 3: Arbed 3 programme: Delivery profile 2021

	Period:	0	1	2	3	4
No. of households with improved energy consumption classification ratings	Total	Claim 2	Mar-2021	Jun-2021	Sep-2021	Dec-2021
	WW&V	1273	150	150	150	152
EW	765	390	93	93	93	96

Source: Welsh Government

3.60 These were profiled as shown above. However, by the end of March 2021, Arbed 3 had delivered measures to 1781 households in WW&V against the revised ERDF end of programme target of 1875, and 765 households in EW, meeting the final target. Measures to additional properties have been

installed, funded through the partnership programme (see paragraph 1.2), but these are not covered in this evaluation and work in progress continues. Based on current progress, the Arbed 3 programme is extremely likely to meet the revised ERDF targets by the end of the programme period.

3.61 The majority of households supported were in three Local Authority areas: Rhondda Cynon Taf (RCT), Flintshire, and Blaenau Gwent. The geospatial breakdown of the installation of figures can be seen in Figure 4. Five Local Authority areas did not benefit from any interventions for a variety of reasons. This ranged from not choosing to engage with AaB, to not having a sufficient number of eligible properties due to their rural location. In addition to those listed below, schemes were under way in Ceredigion and Conwy at the time of the March 2021 report.

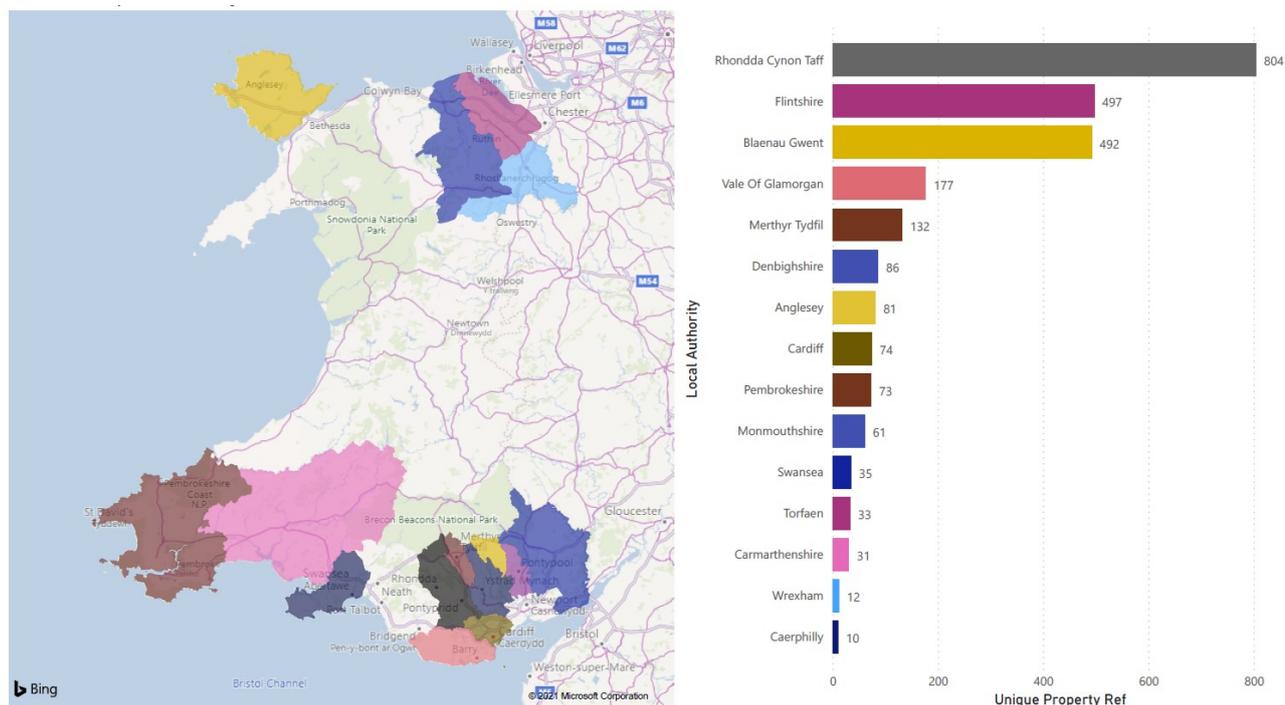
Table 4: Households with improved energy consumption ratings: households with measures delivered

	Apr 19 – Mar 20 (Claims 1&2)		Apr 20 – Mar 21 (Claim 3)		Total to date (Claim 3)	
	Target	Achieved	Target	Achieved	Target	Achieved
WW&V	1273	1273	602	508	1875	1781
EW	390	390	375	375	765	765

Source: Arbed monitoring data / Miller Research

3.62 Actual delivery has exceeded these figures, but final properties for WW&V will be processed in Claim 4, subsequent to this evaluation.

Figure 4 Delivery profile by Local Authority area (households claimed)



Source: Arbed monitoring data / Miller Research

Increases in EPC Rating

Improvements in the energy efficiency of properties from target levels of E,F and G by at least one rating

3.63 All households where funded measures were installed experienced an EPC uplift of at least one band. Monitoring data from AaB shows that there has clearly been a significant uplift in Standard Assessment Procedures (SAP) scores and EPC ratings as a result of the programme.

Table 5: Increase in EPC ratings after installation of measures

EPC Uplift (Bands)	EW	WW&V	Total
1	451	1336	1787
2	220	381	601
3	72	49	121
4	21	14	35
5	1	1	2
Total	765	1781	2546

Source: Arbed monitoring data / Miller Research

3.64 Of the 2,546 properties receiving measures, from which all experienced a minimum one band uplift, 70 per cent experienced an uplift of one EPC band, 24 per cent were raised two bands and five per cent three bands.³⁴ An analysis of the change in EPC rating, pre and post installation of measures, shows that a two-band uplift was most likely to be achieved in the more energy inefficient properties. For instance, those properties rated F pre installation were most commonly uplifted to a D rating post installation, whilst properties rated EPC level D pre installation were most likely to experience an uplift of one EPC level to a C rating. Similarly, E-rated properties were most likely to uplift to an EPC level D rating.

Programme finances

3.65 The original budget for the Arbed 3 programme was approximately £35.5m, of which £23.2m was allocated from ERDF, with the balance made up of Welsh Government funding from domestic budgets. Following de-commitment in March 2020 this was reduced to an overall total of £24.7m, of which £15.7m was from EU sources.

³⁴ Of the properties receiving measures 2 per cent received an uplift of 4 or 5 bands.

Table 6: Arbed 3 programme: sources of funding

		£	Per cent	£	£
Area		EU Funds	Intervention Rate	WG Funds	Total
WW&V	Capital	11,870,575	69.43	5,226,609	17,097,184
	Revenue	347,544	69.43	153,023	500,567
	Total	12,218,119		5,379,633	17,597,752
EW	Capital	3,487,430	50.00	3,487,430	6,974,860
	Revenue	62,570	50.00	62,570	125,140
	Total	3,550,000		3,550,000	7,100,000
Pan Wales		15,768,119		8,929,633	24,697,752

Source: Arbed monitoring data / Miller Research

3.66 At the time of claim 3, a total of £17.85m had been spent, of which £11.03m was ERDF funded. A fourth claim is expected to account for a further £4.62m in ERDF funding, to cover installations already delivered, but for claims which have not yet been finalised.

Table 7: Arbed 3 programme: funding claims to date (Claim 3)

		£	Per cent	£	£
Area		EU Funds	Intervention Rate	WG Funds	Total
WW&V	Capital	7,288,459	69.43	3,209,105	10,497,564
	Revenue	209,505	69.43	92,245	301,750
	Total	7,497,964		3,310,350	10,799,314
EW	Capital	3,487,429	50.00	3,487,429	6,974,858
	Revenue	39,784	50.00	39,784	79,568
	Total	3,527,213		3,527,213	7,054,426
Wales		11,025,177		6,828,563	17,853,740

Source: Arbed monitoring data / Miller Research

Reduction in greenhouse gas (GHG) emissions - Total savings of 2.34 tonnes of CO2 (expressed as GHG in practice) as a result of measures installed. (Revised to 7.02 kilotons of CO2)

3.67 Annual targets were set for the estimated decrease in GHG from the beginning of the programme period. Initially a reduction of 1.8t GHG per household was modelled, although empirical measurement 12 months after installation suggested a figure closer to 2.0t GHG per household.

3.68 Progress measures were modelled back to the start of each respective installation and were claimed only up until the end of the delivery period. Given that the lifetime savings of measures would be expected to be delivered over at least a ten-year period, this is clearly a conservative measure.

3.69 At the time of the de-commitment, the targets for GHG reduction were revised significantly, with a threefold increase from 2,340 to 7,020 ktCO₂. This target will be met as a result of measures installed to March 2021.

Table 8: Reduction in GHG emissions

				ktCO ₂ e
Area	Original Target (ktCO ₂ e)	Revised Target	Projected to End of Programme	
WW&V	1,620	5,074	5,074	
EW	720	1,946	1,946	
Total	2,340	7,020	7,020	

Source: Arbed monitoring data / Miller Research

Progress against Programme Key Performance Indicators (KPIs)

3.70 This section shows how the delivery of the Arbed 3 programme performed against its annual KPI performance targets. This data is drawn primarily from the AaB KPI performance scorecard for March 2021.

Householder Satisfaction

3.71 The householder satisfaction KPI is measured across two areas; the number of households that were satisfied or happy with the Energy Efficiency Measures (EEM) installation and satisfaction with the in-home advice service.

Table 9: Householder Satisfaction

KPI	Period	Target	Per cent
			Achieved
Energy efficiency measure (EEM) installations	2019/20	>=95	99.8
	2020/21	>=95	100
	End of contract	>=95	99.9
In-home advice services.	2019/20	>=95	99.98
	2020/21	>=95	100
	End of contract	>=95	99.9

Source: AaB

3.72 In each case, the KPI is for satisfaction levels to be at or above 95 per cent satisfied in each year of delivery. Both KPIs exceeded this target achieving 99.9 per cent and 100 per cent over the life of the contract, respectively.

Householder Complaints

3.73 The household complaints KPI measures how many households submitted a complaint in response to the installations and in-home energy advice assistance they received.

Table 10: Householder Complaints

KPI	Period	Target	Per cent
			Achieved
Energy efficiency measure (EEM) installations	2019/20	<3	2.5
	2020/21	<3	1.2
	End of contract	<3	2.2
In-home energy advice services.	2019/20	<3	0.0
	2020/21	<3	0.0
	End of contract	<3	0.0

Source: AaB

3.74 The data shows that both household complaints targets were met – with an end of contract performance of 2.2 per cent complaints in relation to EEM installations and zero complaints regarding in home energy advice measures. There was a reduction in the proportion of complaints as the contract progressed, implying an increase in quality which may reflect the effectiveness of the monitoring programme and associated quality management.

Quality

3.75 Quality KPIs measure how well the installation service was carried out. This includes if the measures were installed correctly the first time and achieving the standard of quality required.

3.76 As referenced in paragraph 3.42, within the Arbed contract there are two annual KPI in relation to the Right First Time. The first is an assessment on the performance of the installers based on inspecting all delivered properties (e.g. 150 – 180) within a month and is based on achieving ≥98 per cent right first-time pass. The second is based on Pennington’s Choices undertaking a

random sample audit (e.g. currently a minimum of 15 properties) per month and based on achieving 100 per cent quality.

3.77 It should be noted that the two KPIs do not align and operate independently, although with a common aim of delivering high quality outputs and to identify any issues with suppliers early. Due to the time required for the scheme manager to complete their inspection process and report details to the QAA, the random sampling identification process and associated work planning required by the QAA, the inspection of properties can span a two/three month period and so the reported datasets may not align. However, the desire of the contract and the two KPI's are to focus on high quality delivery.

Table 11: Quality of Installations

KPI	Period	Target	Achieved
<i>Per cent</i>			
Installations achieving first time pass (RFT) –AaB inspection	2019/20	98	99.2
	2020/21	98	99.7
Installations achieving first time pass (RFT) –Pennington Choices audit	2019/20	100	96.48
	2020/21	100	98.03

Source: AaB / Pennington's Choices

3.78 Based on inspections conducted by AaB, installations exceeded the right first time (RFT) target of 98 per cent for all periods including end of contract, achieving a RFT success rate of 99.8 per cent.

3.79 According to data from Pennington Choices, there was an overall RFT success rate of 97.99 percent for the contract period 2019/20, against the target of 100 per cent. However, this was not considered by the contract manager to present a risk to the householder and the improvements made in quality. Meeting this target was not linked to Service-level Agreement (SLA) penalties or performance payments.

Supported Households

3.80 This performance indicator measures the number of households supported receiving the free EEM packages. This number is higher than that for households verified as achieving an EPC uplift, as it comprises all properties which have been treated and inspected.

Table 12: Supported Households

KPI	Period	Target	Achieved
Households receiving Advice and Support ³⁵	2019/20	≥ 6,500	1,624
	2020/21	≥ 6,500	324
	End of contract	≥3,825	3,099
Free EEM Package (ERDF)	2019/20	>6,500	1624
	2020/21	>6,500	324
	End of contract	≥3,825	3,099

Source: AaB

- 3.81 The data in Table 12 shows that Arbed 3 programme has not met the end of contract delivery target.

Reduced Fuel Poverty

- 3.82 A central objective of the Arbed 3 programme was to reduce the number of households suffering from fuel poverty. The programme sets out to ensure households experiencing fuel poverty can lower their household energy costs and increase their energy performance rating. This KPI is broken down into the average reduction in energy costs and the percentage increase in energy ratings to an EPC rating C or above.

Table 13: Reduction in fuel poverty (per household)

KPI	Period	Target	Achieved
Avg. Reduction in Modelled Energy Costs	2019/20	>425	313.41
	2020/21	>425	345.65
	End of contract	>425	329.53

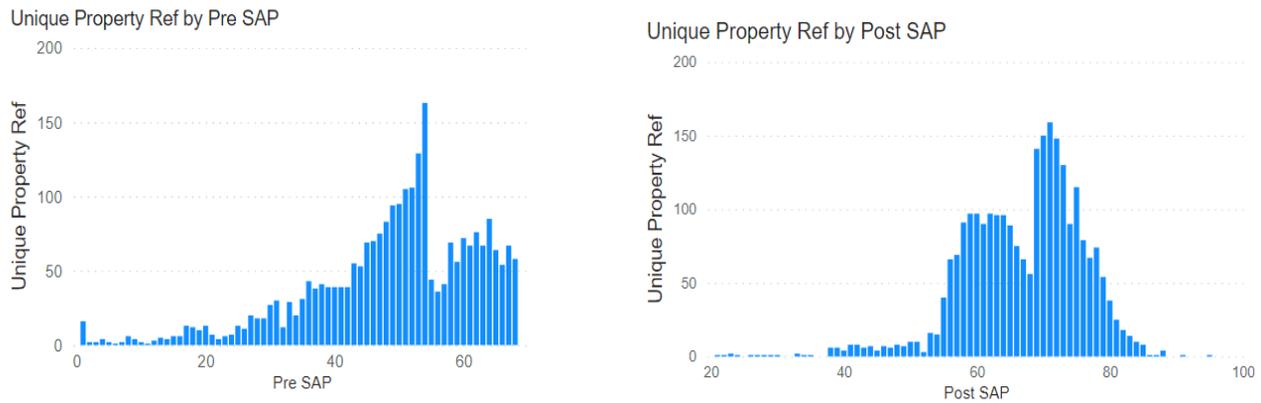
Source: AaB/Pennington Data

- 3.83 Across the Arbed 3 programme period, draft data suggests that average reductions in modelled household energy costs were approximately £330 against a target of £425.
- 3.84 On the second indicator, originally the KPI was for 80 per cent of households to achieve an EPC of C from a starting position of E, F or G to receiving an intervention to achieve at least a one-band increase in EPC rating or a 10

³⁵ Target figure - includes outputs within the Warm Homes programme but outside this project.

SAP point uplift. This reflected that it was determined that there was a much higher proportion of D rated properties across Wales than envisaged. The target was reduced from a two band EPC uplift in October 2019 after a new scheme development regime was introduced. As can be seen from Figure 5, the revised measure was comfortably exceeded, with all interventions claimed against ERDF meeting this criterion (100 per cent).

Figure 5: Change in SAP rating profile; pre and post interventions



Source: Arbed monitoring data / Miller Research

Environmental Benefit

3.85 The environment is also a central theme of the Arbed 3 programme, and contributes towards the ERDF TO4 indicator, to help lower carbon across all sectors. This KPI seeks to measure the average reduction in modelled energy and the estimated reduction in Carbon (tCO₂).

Table 14: Environmental Benefits

KPI	Period	Target	Mj ³⁶	
			Target	Achieved
Avg. reduction in modelled energy per household	End of contract	>15,000		41,592 tonnes
Reduction in carbon impact	End of contract			
WW&V		5,074		5,074
EW		1,946		1,946

Source: AaB/Pennington Data

³⁶ Megajoule is a metric unit of energy measurement.

3.86 KPI data shows that the average reduction in modelled energy stood at 41,592 Megajoules (Mj) against a target of 15,000 Mj per household. The reduction in carbon impact is projected to be 7.02Kt of CO2 by the end of the project, in line with the revised targets.

Economic benefits

3.87 The economic benefits measure the proportion of installations completed by small and medium enterprises (SMEs) and more importantly, whether these installations were completed by Welsh businesses.

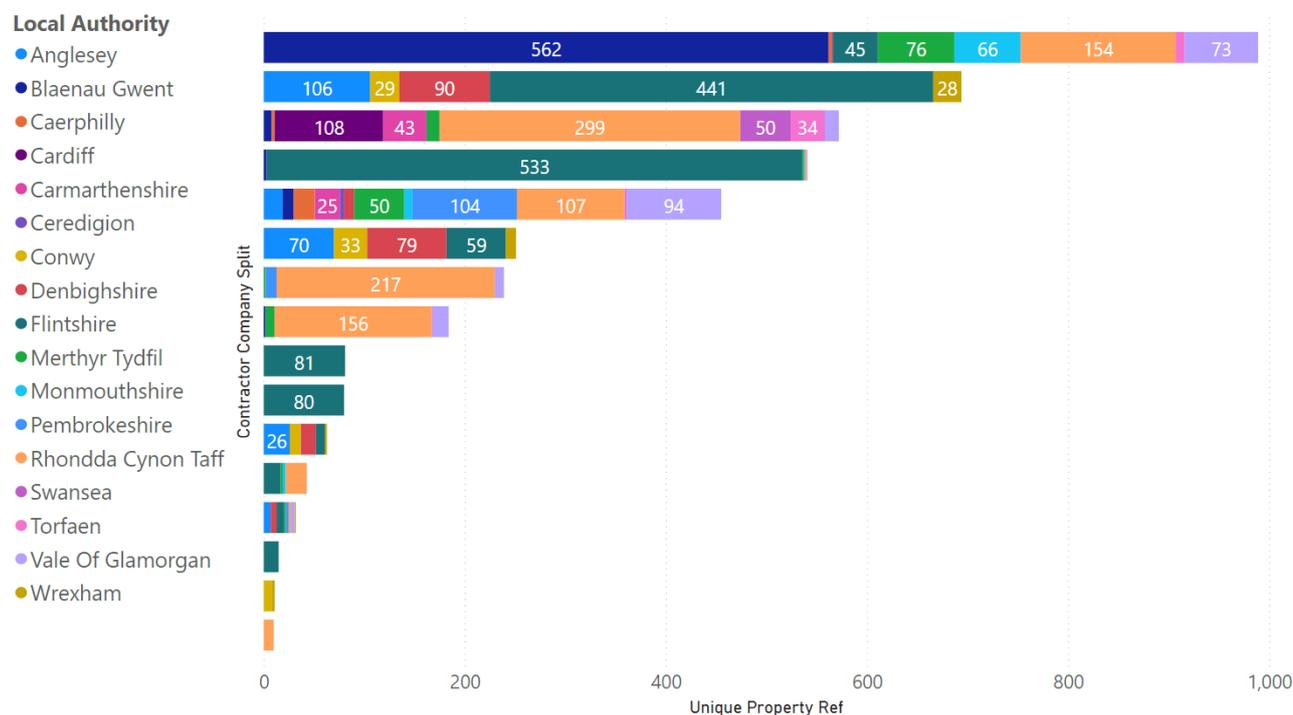
Table 15: Economic Benefits

KPI	Period	Target	Per cent	
			Target	Achieved
Proportion of Installations Completed by SMEs (90% of which should be Welsh SMEs)	2019/20	100	100	100
	2020/21	100	100	100
	End of contract	100	100	100

Source: AaB/Pennington

3.88 The economic benefits of the Arbed 3 programme include driving local business activity such as the use of SME businesses to undertake the installations and building local supply chains. Figure 5 below highlights the split of company contractors across the various Local Authority areas. Across all periods in the table, 100 per cent of all contracted businesses were logged as SMEs and in most Local Authority areas, the contracted suppliers were locally based. This does not include the installation of gas connections, however, which were carried out by a major utility company.

Figure 6: Household interventions by contractor and Local Authority



Source: Arbed monitoring data / Miller Research

Delivery against Cross-Cutting Themes

- 3.89 A key part of the evaluation of operations funded through the 2014-2020 ERDF programme in Wales is their contribution towards the Cross-Cutting Themes (CCTs) of equal opportunities and gender mainstreaming (including the Welsh language), sustainable development, and tackling poverty and social exclusion.
- 3.90 From the evidence provided, the Arbed 3 delivery team has embedded consideration of CCTs into the delivery of the programme with relative success, meeting the requirement of one reported instance from each activity across the WW&V and EW operations.
- 3.91 The paragraphs below set out how the operation has performed against the CCTs, including details of what has worked well and less well, and with references to other sections of the report where relevant.
- 3.92 Case Level CCT Indicators were set for the Arbed 3 programme at the outset. These are reviewed below.

Equal opportunities and gender mainstreaming (including the Welsh Language)

CCT Indicators: Positive action measures – other vulnerable people

- 3.93 As of June 2021, the AaB workforce was 42 per cent female, meeting the 60/40 minimum outlined in the CCT targets. AaB aimed to promote gender mainstreaming through gender-neutral job advertisements and a consistent recruitment process where all applicants are asked the same questions. Delivery against equal opportunities was also demonstrated during the procurement process, where AaB had criteria in place so that contractors were scored on equal opportunities, as well as internal policies that were available to all contractors.
- 3.94 The Business Plan for the Arbed 3 programme placed a strong emphasis on the robustness of the equal opportunities policy in place and AaB's commitment to ensuring standards would be replicated down the supply chain. As such, an Equality Impact Assessment has been completed and provided to WEFO.
- 3.95 The Welsh Government's language Strategy 'Cymraeg 2050: A million Welsh speakers' lays out aims to improve the range of services offered in Welsh and also to increase the level of Welsh spoken in the workplace.³⁷ AaB identified key areas where equality of language was essential and appointed a Welsh speaker within its contact centre. However, staff reported increased difficulty in ensuring the provision of customer service in Welsh whilst working from home and there were suggestions that AaB should ensure the presence of a Welsh speaker in the office at all times. AaB promoted the Welsh language by producing bilingual material for scheme promotion, through emails, social media posts, and letters.
- 3.96 It is understood that 50 per cent of the Welsh Government Arbed team are Welsh speakers, and the team has defined Ministerial targets to comply with regulations developed by the Welsh Language Commission. These requirements are passed through to AaB as a contractual requirement including aftercare services 12 months after the contract ends. Beyond this, there are no apparent measures in place to encourage an increase in the use of Welsh for internal administration or for delivery by contractors.

³⁷ Welsh Government, *Cymraeg 2050: A million Welsh speakers* (2017), [Cymraeg 2050: A million Welsh speakers](#)

Alignment with the Wellbeing of Future Generations Act (WBFGA) 2015

- 3.97 An important aspect of the delivery of CCTs is the extent to which Arbed 3 is contributing towards the goals of the Wellbeing of Future Generations Act 2015. The use of the Welsh Government Community Benefits Toolkit reports how the Arbed 3 programme is contributing to the respective goals of the Act; specifically, 'A Prosperous Wales', 'A Healthier Wales', and 'A More Equal Wales'.³⁸
- 3.98 The Community Benefits toolkit provides data up to March 2020, although it is not clear whether this relates exclusively to ERDF-funded delivery, or includes partnership supported activity as well. At that time, the following benefits were reported against the goal of a prosperous Wales:
- The toolkit uses an impact multiplier of 1.95 for funds spent with Welsh businesses.
 - On the basis of a £7.8m direct spend, 81 per cent of which went to Welsh suppliers, an overall impact on the Welsh economy of £15.2m was realised and 32.96 per cent of this was spent with SMEs.
 - A total of 667 jobs were safeguarded and 288 training opportunities were claimed over the period.

Sustainable development

Case Level Indicators - Local supply chain development, Resource Efficiency Measures, Site Environmental Management Plans (on-site waste)

- 3.99 The CCT assessment notes that sustainable development is an intrinsic core of the Arbed 3 programme, as it focuses on key social issues by:
- Targeting household most in need and affected by, or vulnerable to, severe fuel poverty
 - Stimulating economic activity through supply chain opportunities, employment, and training
 - Improving home energy efficiency
 - Reducing greenhouse gas emissions and contributing to reducing Wales' carbon footprint

³⁸ [Procurement: community benefits measurement tool](#)

- Using sustainable procurement, locally sourced, and environmentally friendly materials.
- 3.100 Arbed 3 has demonstrated its commitment to sustainable development through scoring contractors on sustainability during the procurement process. The Arbed 3 programme actively seeks to promote sustainable development by recruiting and establishing a local supply chain in its delivery. By utilising local supply chains, the programme has created more work for local installers. As things stand, there are 55 contractors on the Arbed 3 framework and the programme has created 27 new jobs for local people. This is complemented by AaB's status as a living wage employer. In practice, however, AaB uses fewer than 20 of the contractors on its framework, demonstrating some limitations to the extent it creates work for local installers.
- 3.101 The Arbed 3 programme also meets the cross-cutting theme of sustainable development through employing resource efficiency and renewable energy measures during the installation process. This includes installing a new boiler, cavity walls, solar PV, and other measures, which collectively contribute to the carbon reduction targets set by the programme through a whole house, "fabric first"³⁹ approach.
- 3.102 In some cases, there is a potential conflict between addressing the needs of fuel poor households and installing renewable or carbon-friendly technologies. The Arbed 3 programme was responsible for the installation of solar PV in more than 2,000 properties, but this was matched by installation of gas boilers (and 45 oil-fired boilers) which met the priority of fuel poverty alleviation.
- 3.103 It is noted, however, that there was limited reporting in regards to the proportion of recycled materials used, with the exception that between 15 per cent and 17 per cent of recycled steel was used in the manufacture of radiators installed across the programme. This is despite an obligation to adhere to Welsh Government waste targets, which require a minimum of 10 per cent of materials used to be derived from recycled or reused sources. Arbed 3 has, however, reported contributing to sustainable development by

³⁹ Fabric first is an approach to improving the thermal performance of properties through the installation of insulation e.g. insulating the loft and external, cavity and internal walls.

diverting 98 tonnes of waste from landfill, contributing towards a more resilient Wales.

Tackling poverty and social exclusion

Case Level Indicators - Community skill building activity, Volunteering schemes (both relating to training and employment)

- 3.104 The CCT Assessment noted that Arbed 3 would directly focus on areas of Wales at risk of severe fuel poverty and aim to contribute to reduced emissions. It has been noted earlier in this document that the area-based approach was relatively successful in targeting fuel-poor households and removing beneficiary households from severe fuel poverty.
- 3.105 The CCT assessment also identified the additional benefits of providing training and employment for local people and the contribution to economic activity that this could bring. There has been a total of 288 employment and training opportunities across the 22 Local Authorities in Wales, with 527 training weeks achieved to date, the majority of which has been concentrated in one Local Authority. Specifically, there have been 308 Apprenticeship training weeks completed throughout the programme, with 19 Apprenticeships taken on by contractors to date.⁴⁰ These figures evidence the ability of the Arbed 3 programme to create employment and employment opportunities, as well as upskill. Furthermore, although the COVID-19 pandemic has disrupted the flow of work for contractors throughout Arbed 3, the number of staff employed who have been retained is at 66, showcasing the programme's potential to not only create employment, but also retain it.
- 3.106 AaB produces regular briefing notes on community support activities as part of wider progress reporting. By carrying out community skills-building activities, Arbed 3 also contributes towards the theme of tackling social inclusion. Schemes where a polytunnel was built or a heating system put in place were cited by AaB staff as good examples of how the programme strengthens local communities. During the procurement process, AaB emphasised the need for contractors to evidence how they would provide community benefits in its Invitation-to-Tender (ITT) document, and feedback

⁴⁰ Arbed am Byth Progress Report July 2020-March 2021 and Community Benefits Tool.

from AaB staff indicates that contractors have enthusiastically engaged with community building events.

- 3.107 The CCT assessment notes the opportunity for community benefits through collaboration with external placement schemes such as Communities4work. It also refers to the consultation and engagement strategy and notes the need for accessible venues and support for Welsh language at events. These are covered in the contract and have been respected by AaB in practice.

Community Benefit Champion Role

- 3.108 AaB also has a dedicated community benefit champion whose role entails working in close partnership with Local Authorities, contractors, communities, and the voluntary sector. The Arbed 3 programme's contribution towards CCTs has been overseen and supported by a designated CCT champion within the Welsh Government Arbed team, but some interviewees felt that this was limited due to the delivery challenges presented by the COVID- 19 pandemic. Overall stakeholders felt that the position of community benefit champion was a key pillar in meeting the CCT objectives, especially in getting contractors on board to deliver community benefits.

4. Outcomes and Impacts

- 4.1 The effects of the Arbed 3 programme are set out in the programme logic model (see Annex A) and include its outcomes (the medium-term change arising from its outputs) and its impacts (the longer-term and much more indirect change, partially arising from the programme). It includes analysis of quantitative data provided by Welsh Government and AaB, as well as from the householder beneficiary survey. Qualitative data has been gathered through engagement with stakeholders and interviews with householders. Impacts are necessarily longer term and many of these are yet to be fully realised, however, there are clear indicators of the likelihood of the anticipated impacts coming to fruition.

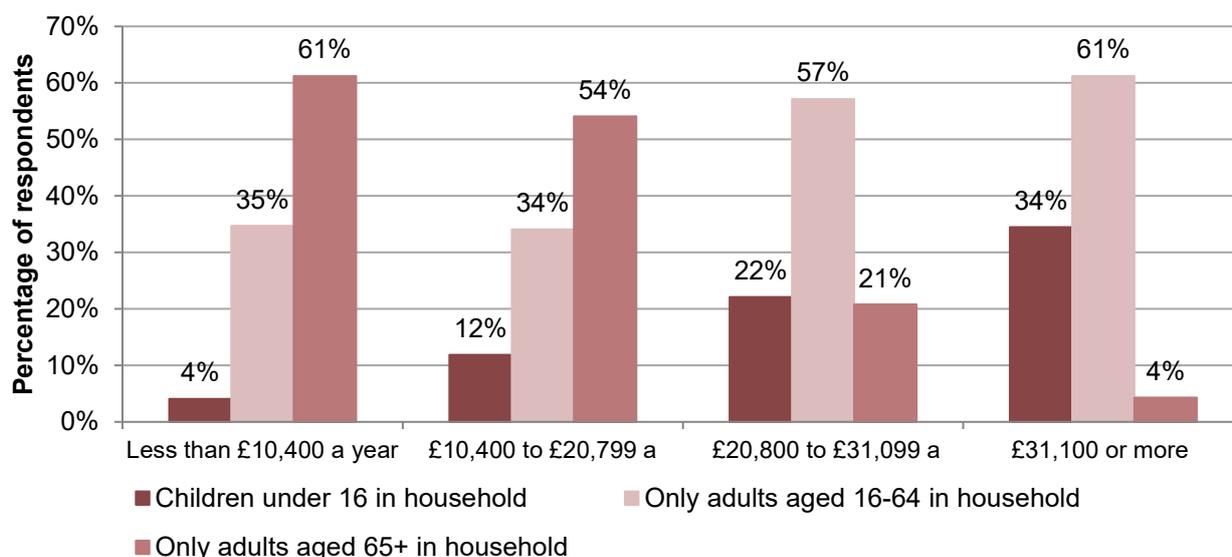
Improved energy consumption of households

- 4.2 Stakeholder interviewees across Local Authorities, contractors and AaB referenced improving the energy consumption of households, especially in areas of severe fuel poverty, as a central aim of the Arbed 3 programme.
- 4.3 As identified earlier, the Arbed 3 programme has clearly improved the energy consumption of households, with 69 per cent of targeted properties experiencing an uplift of one EPC rating, and a further 24 per cent uplifting by two bands, as well as increasing the SAP ratings of those properties.
- 4.4 In qualitative interviews several householder beneficiaries recognised the improved energy efficiency of their homes following the installation of measures, referencing that their homes were heating much faster post-installation, and thus, they were decreasing the amount of gas and electricity they were using. In support of the monitoring data, they also cited receiving energy saving advice throughout the installation process, and reported satisfaction with the standard of advice given, as well as the quality of the measures installed.
- 4.5 Nevertheless, stakeholders within Local Authorities and contractors also cited that ensuring long-term success was dependent on householders themselves becoming knowledgeable on how best to utilise and maintain the new measures installed in their properties.

Reduced energy bills, increasing household disposable income

4.6 The age composition of beneficiaries by income group provides a useful indication of the nature of beneficiaries. Over 50 per cent of beneficiaries in both the 'less than £10,400' and '£10,400 to £20,799' categories were households comprised of only adults aged 65+. In contrast, beneficiaries with an annual income in excess of £20,800 were most likely to be households comprised of only adults aged between 16-64 (see Figure 6).

Figure 7: Composition of beneficiary income groups by age



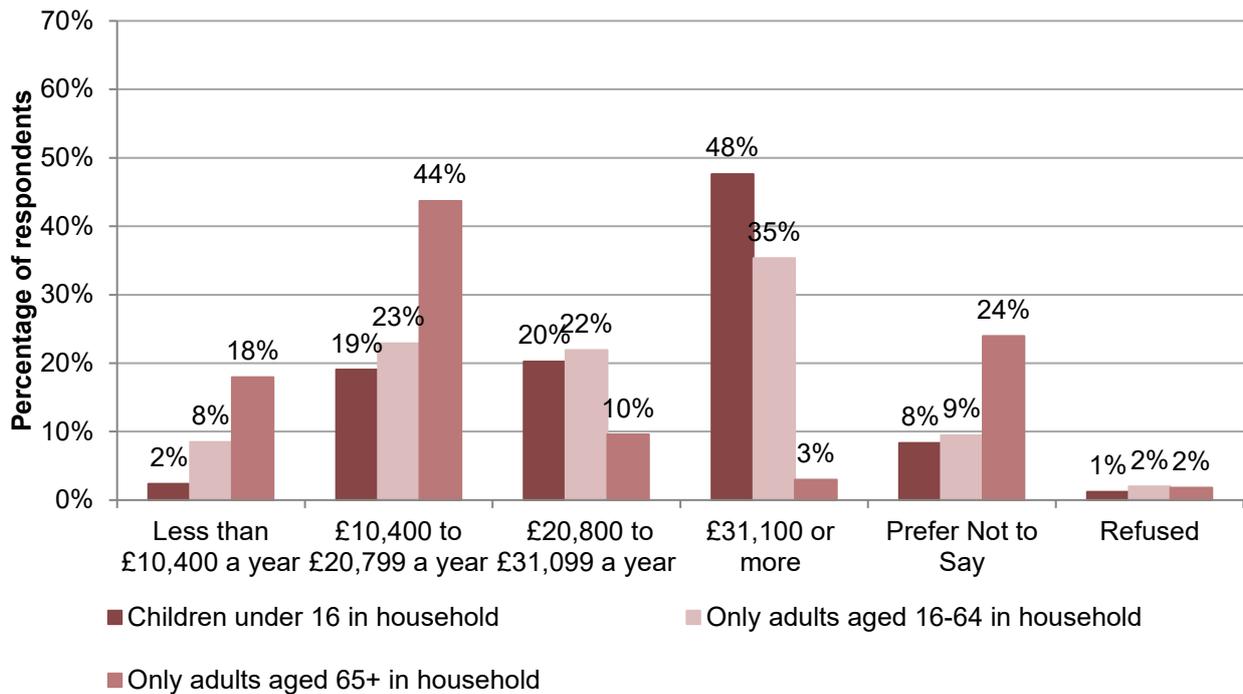
Source: Beneficiary survey n=506

4.7 The distribution of beneficiary income groups by household age category also elucidates the extent of interventions by the Arbed 3 programme and its effects on households. Figure 7 **Error! Reference source not found.** shows the percentage of beneficiaries in an age group within each income bracket. In terms of the absolute number of interventions, the most interventions occurred amongst respondents in households within an annual income of either £10,400-20,799, or £31,100 or more. Sixty-two per cent of households with only adults aged 65+ had an annual income of less than £20,799, while 48 per cent of households with children under the age of 16 had an annual income of more than £31,100.

4.8 Findings from qualitative interviews with beneficiaries showed that most householders were uncertain as to the proportion of income they spent on

energy bills, both before and after they had measures installed in their property. Most estimated that it was around 10 percent of their monthly income, with no significant alteration following installation. When asked as to whether they had saved money on their annual household energy costs as a result of the Arbed works, most felt it was too early to determine as they had not yet received an annual bill.

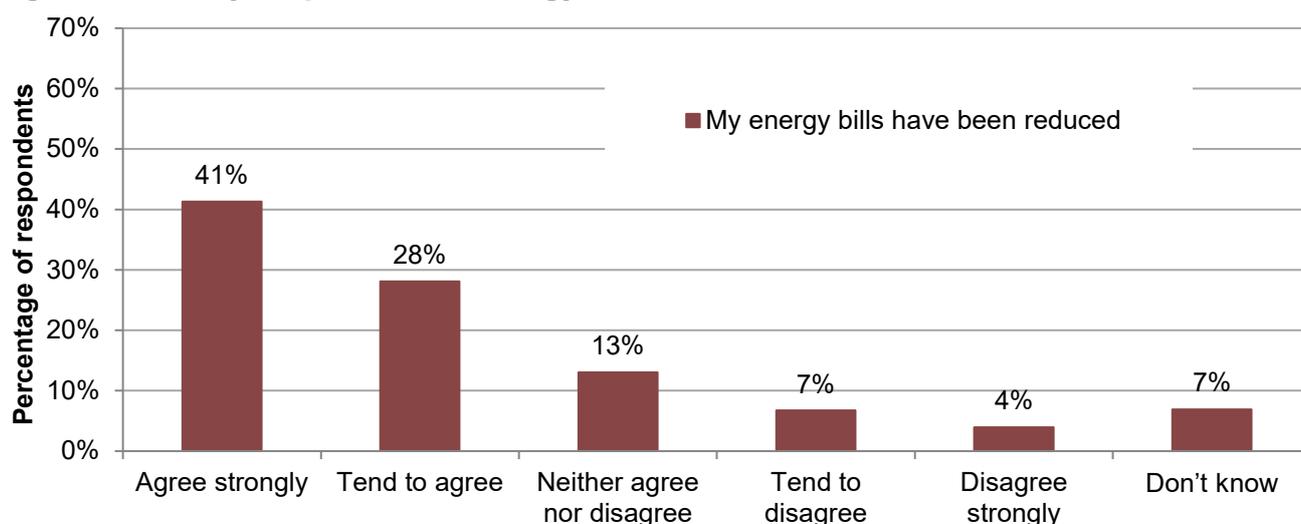
Figure 8: Household income by age of household



Source: Beneficiary survey n=506

4.9 Findings from the householder survey indicate that the measures installed as a result of the Arbed 3 programme have reduced the energy bills of beneficiaries. Forty-one per cent of respondents agreed strongly with the statement “my energy bills have been reduced”, supported by 28 per cent who tended to agree. Conversely, only 11 per cent felt they had not seen a reduction in their energy bills (seven per cent for tend to disagree and four per cent for disagree strongly).

Figure 9: Survey responses on energy bill reductions



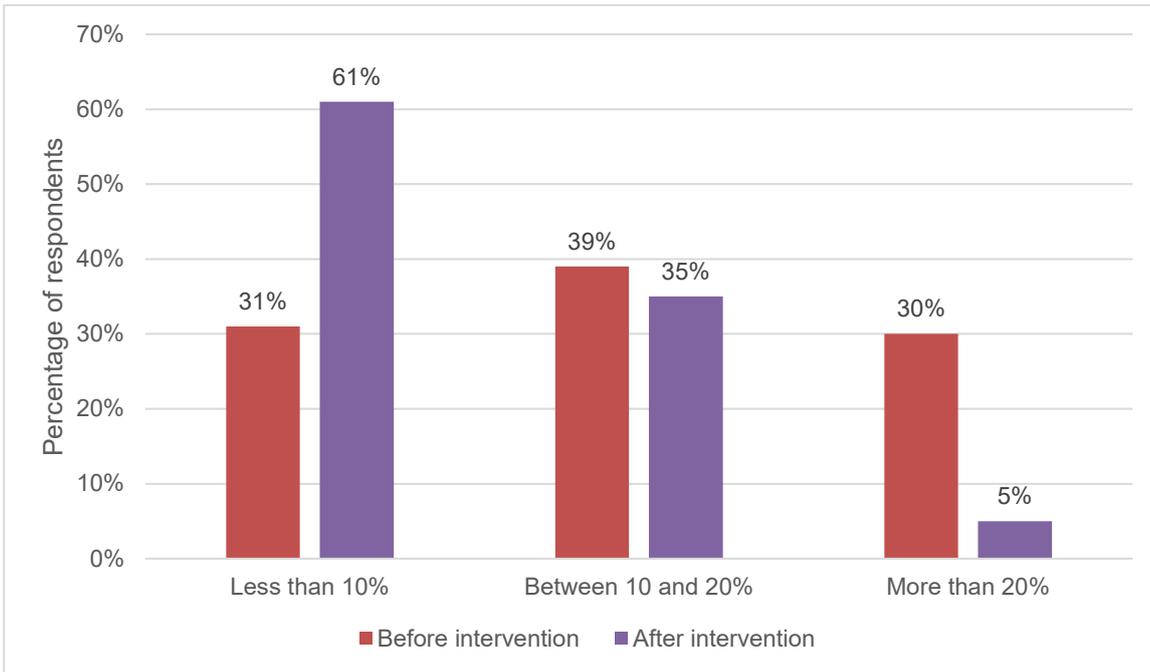
Source: Beneficiary survey n=506

4.10 The small number of householders who participated in qualitative interviews, however, were more likely to feel that the measures installed had had a negligible impact on reducing their energy bills to date. In some cases, beneficiaries recognised that their energy bills had decreased, but were uncertain that this was directly attributable to the measures installed in their homes through the Arbed 3 programme. Whilst for other households, they acknowledged that due to the installation of certain measures, such as solar panels, it would take time before noticing a significant bill change, given the nature of the measure and the time of year it was installed. Finally, some beneficiaries admitted they had not checked to see if their bills had changed at all.

4.11 The quantitative survey showed that those likely to be in severe fuel poverty appeared to benefit from the greatest proportional savings through the measures installed. 30 per cent of survey respondents stated that they spent more than 20 per cent of their income on energy bills pre-installation, this reduced to 5 per cent stating they spend more than 20 per cent post-installation, demonstrating the likely impact the measures had on increasing monthly disposable income.

4.12 Following the installation of measures, 61 per cent of householders claimed they now spend less than 10 per cent of their household income on energy bills every month, compared to 31 per cent pre-installation.

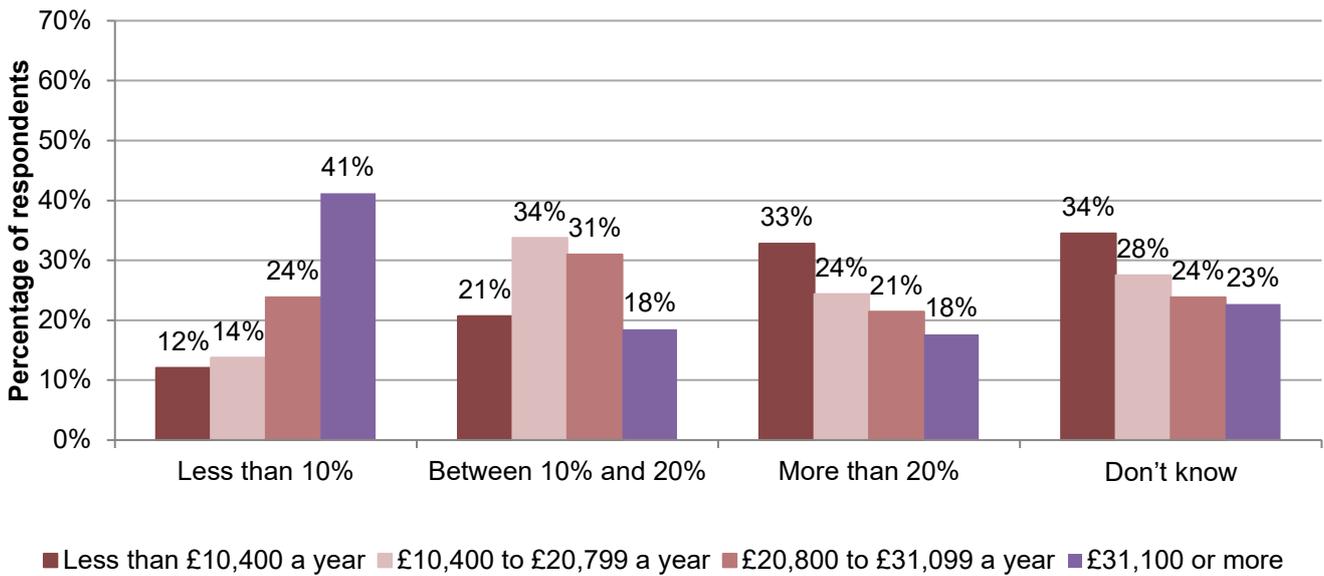
Figure 10: Survey responses to estimated total spend on energy bills as a percentage of income before and after intervention.



Source: Beneficiary survey n=358 (excluding 148 'don't knows')

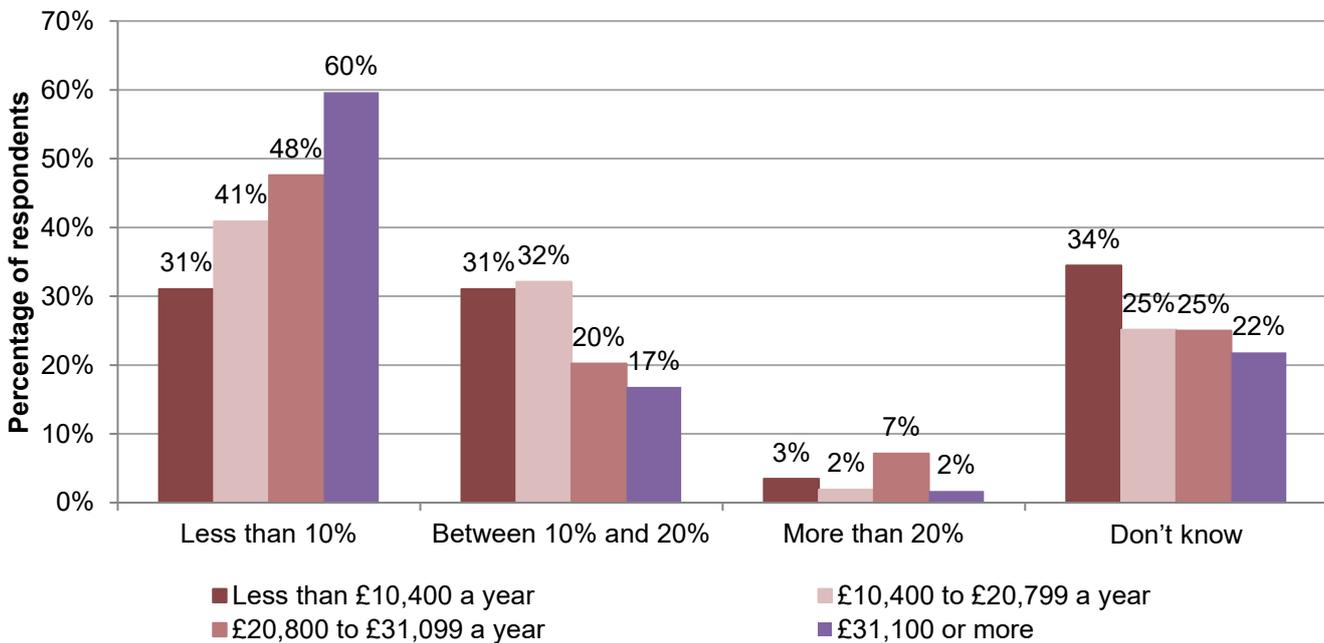
4.13 With regard to household income, prior to intervention, those on the lowest incomes were most likely to be in severe fuel poverty on this measure. Thirty five percent of beneficiaries earning less than £10,400 per year could estimate proportion of their income spent on energy bills. The figure below outlines the distribution of income spent on energy bills by income bracket.

Figure 11: Survey responses to estimated proportion of income spent on energy bills per year before intervention as percentage of household income category



Source: Beneficiary survey n=506

Figure 12: Survey responses to estimated proportion of income spent on energy bills per year after intervention as percentage of household income category

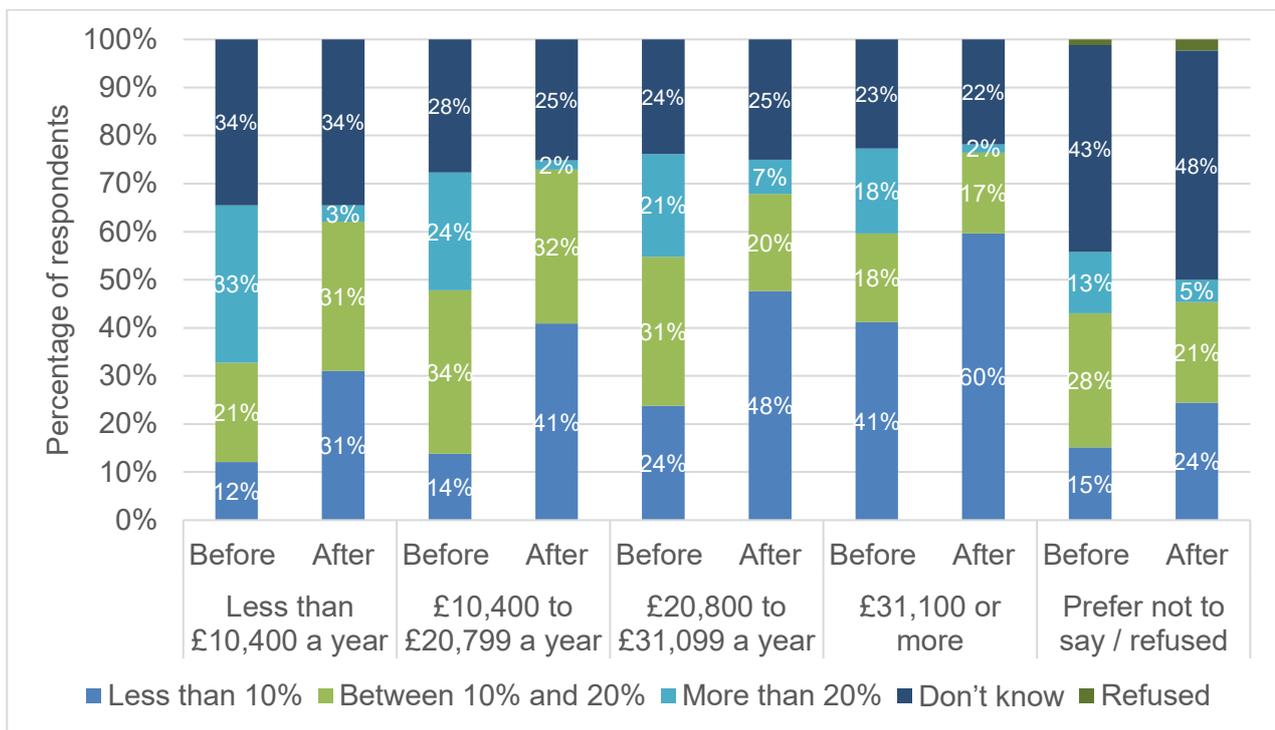


Source: Beneficiary survey n=506

4.14 Post intervention, the percentage of each income group spending less than 10 per cent of their annual income on energy bills had increased between 19 and 27 percentage points. For those earning less than £10,400 a year, the

percentage increased from 12 per cent to 31 per cent. Respondents who earned between £10,400 to £20,799 a year saw the biggest increase across income categories, from 14 per cent to 41 per cent. Likewise, the group who earned between £20,800 and £31,099 annually witnessed a change from 24 per cent spending less than 10 per cent annually on energy bills up to 48 per cent. Finally, those who earned £31,100 or more increased from 41 per cent to 60 per cent post-intervention.

Figure 13: Survey responses to estimated proportion of income spent on fuel before and after intervention as percentage of household income category



Source: Beneficiary survey n=506

4.15 There have been significant reductions in the percentage of beneficiaries in all income groups spending more than 20 per cent of income on energy. Those on the lowest income category who spent more than 20 per cent on energy bills decreasing from 33 per cent to three per cent post intervention. Similarly, respondents who earned between £10,400 and £20,799 dropped from 24 per cent to two per cent, and beneficiaries who earned between £20,800 and £31,099 dropped from 21 per cent pre intervention to seven per cent following the installation of measures. The trend continued for the highest earning income category, with a decrease from 18 per cent spending more than 20 per cent annually on energy bills down to two per cent.

However, the proportions of those spending between 10 and 20 per cent has remained pretty stable. It is worth noting that those on the lowest incomes were no more likely than the average to remain in severe fuel poverty.

Increased number of homes connected to the gas network

- 4.16 According to monitoring data, gas connections were supplied to a total of 462 homes, of which 455 were located in Flintshire (across three schemes). All mains gas installations were conducted by a major utility company at a cost of £1.39m and the installations resulted in higher-than-average EPC uplifts in most cases.

Table 16: Arbed 3 programme: gas connections installed

Area	Local Authority	Household gas connections
WW&V	Blaenau Gwent	3
	Merthyr Tydfil	1
	RCT	2
EW	Flintshire	455
	Monmouthshire	1
	Total	462

Source: Arbed monitoring data / Miller Research

- 4.17 Gas connections can clearly help to address fuel poverty, as they allow access to cheaper energy. An issue here was that rural areas (which are likely on average to have a higher proportion of fuel poor households)⁴¹ were less likely to have access to the gas network and so might require more expensive interventions in order to address fuel poverty through remedial measures. Stakeholders raised concerns that as an area-based scheme, Arbed 3 would inevitably rule out rural areas that were off the gas network, as there was not a sufficient concentration of houses for the properties to be eligible, or gas mains was not available.

⁴¹ [Welsh Housing Conditions Survey 2017-18](#)

Increased levels of employment and training

- 4.18 Contractors engaged in delivering the Arbed 3 programme were required to provide training and employment opportunities as part of the contract.

Table 17: Employment and Training Data

	Indicator	To March 2021
Total number of Employment and Training opportunities created		288
Number of training weeks (accredited and non-accredited) achieved		527
	Apprenticeships started	31
	Apprenticeship weeks delivered	308

Source: Arbed monitoring data

- 4.19 There has been an increase in the levels of employment and training amongst contractors on the supplier framework. In total there have been 19 apprentices taken on by contractors through programmes such as Jobs Growth Wales (see paragraph 3.96). The type and scale of employment opportunities stemming from Arbed have ranged depending on the individual contractor.
- 4.20 It is important to note that most contractors stated that many of these apprenticeships did not exclusively work on schemes within the Arbed 3 programme, and thus Arbed cannot be considered the sole reason for the increase in employment of apprentices. Furthermore, contractors repeatedly cited the lack of consistent work stemming from Arbed as an issue and the reason why they could not take more apprentices on.

Decreased carbon emission levels in the domestic sector

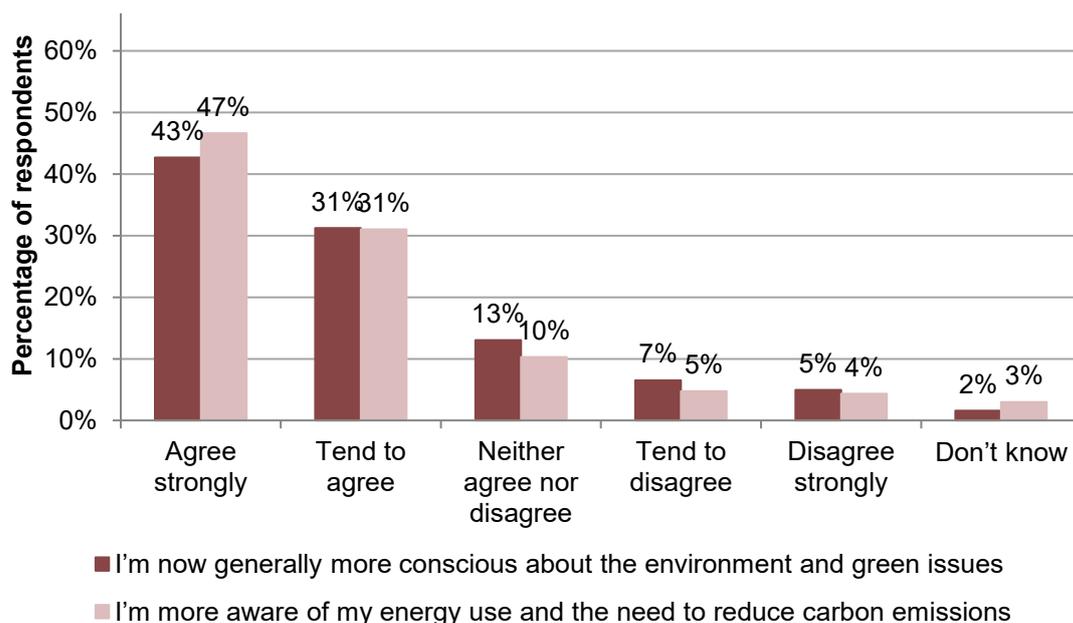
- 4.21 Although reducing the carbon emission levels within housing stock in Wales was not viewed by stakeholder groups as the primary aim of the Arbed 3 programme, there was widespread recognition of its importance and the capability the programme had to meet its environmental targets. However, stakeholders also perceived the approach undertaken in many scheme areas was limiting the programme's capability and potential to reduce carbon emissions. One contractor stated "*there needs to be more of an emphasis on*

renewables going forward. Solar panels are a measure of last resort currently".⁴²

- 4.22 Both Local Authority officers and contractors viewed the delivery of the Arbed 3 programme as coming at an awkward time in terms of maximising the environmental benefits of the programme, given that the technology of certain renewable measures will be much more feasible in 5-10 years' time. Many stated that installing renewable measures, such as ground and air source heat pumps, would only be effective if the property is fully insulated first, and thus wall insulation should have been the primary focus of the Arbed 3 programme. Stakeholders also determined that household beneficiaries would require education on how to effectively utilise renewable measures. Additionally, some contractors identified the potential of installing hydrogen boilers instead of gas as a means of decreasing carbon, but at the same time recognised that this would not be a feasible option in the short-term.
- 4.23 From a beneficiary perspective, there was a mixed response from householders interviewed when asked whether having measures installed at their property changed how much they thought about environmental issues, with those who had solar panels installed on their roofs more likely to be aware and interested in environmental issues. One beneficiary reflected that it had made their children more engaged with environmental issues. However, other interviewees stated that they were already environmentally minded pre-installation and that the measures installed through the Arbed programme had had no change to their perception on the issue.
- 4.24 As can be seen in Figure 13, 43 per cent of survey respondents agreed strongly that they were now more conscious about the environment and green issues following installation. A further 31 percent 'tended to agree', leaving only seven per cent who tended to disagree, and five per cent who disagreed strongly. Furthermore, a similar proportion of respondents (47 per cent) strongly agreed that they are now more aware of their energy use and the need to reduce carbon emissions, in contrast to four per cent who disagreed strongly.

⁴² Decisions regarding what measures are installed per property are determined by the whole house assessment. In total there has been near 2000 solar panels installed as part of the Arbed 3 programme.

Figure 14: Survey responses on environmental issues



Source: Beneficiary survey n=506

4.25 At a programme level, Arbed 3 is set to exceed its targets of decreasing the levels of carbon in the domestic sector. The improved energy efficiency of homes, the widespread installation of renewable measures such as solar panels, and the relative increase of householders thinking about the environment all demonstrate the environmental benefits of the programme. Nevertheless, there is a widely held sentiment across stakeholder groups that there could have been a further emphasis placed on delivering more environmentally friendly measures, and that if there were any future energy efficiency programmes, it should be considered a top priority.

Impacts

Contribution to the eradication of fuel poverty in Wales

4.26 Arbed 3 programme delivery data suggests ERDF supported measures were installed in a total of 2,546 households in Wales. Analysis of the household survey suggests that installation of measures led to a reduction in fuel poor households from 69 per cent to 39 per cent and in severely fuel poor households from 30 per cent to five percent. On this basis some 751 households would have been taken out of fuel poverty and 652 out of severe

fuel poverty⁴³. This equates to some 0.5 per cent of fuel poor households and 2.04 per cent of severely fuel poor households in Wales. There was consensus amongst stakeholders that the Arbed 3 programme was effective in targeting households defined as living in fuel poverty.

Stronger local communities

- 4.27 The fact that eligibility for Arbed 3 was not determined by means-testing was welcomed by several beneficiaries and was viewed as an effective way to avoid community tensions. Conversely, concerns were expressed across numerous stakeholder groups that determining eligibility by postcode inevitably meant that on the same street some households would receive support whilst others would not, leading to confusion within the community.
- 4.28 Community contributions through the community benefits programme will have helped to build stronger and more resilient local communities, through improvements to community buildings and spaces, and support for community groups in Arbed 3 scheme areas.

Boosted economic development in Wales

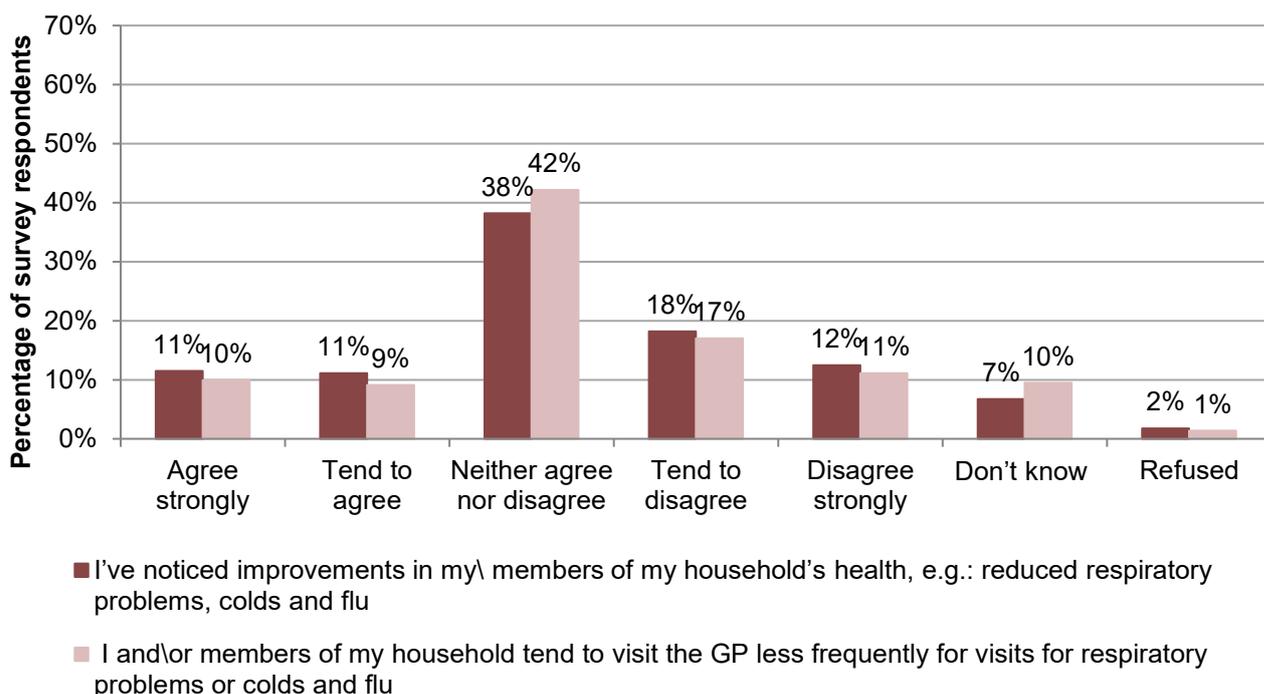
- 4.29 Given that the Arbed 3 programme has delivered employment and training opportunities (see paragraph 3.98) through the participation of contractors on its framework, it can be considered to have contributed towards developing the economy in Wales. In some cases, stakeholders within Local Authorities cited the missed opportunity to use contractors local to the scheme area and thus further boost the regional economy – this was something that Local Authorities felt would have been promoted to a greater extent if they had a more direct involvement in Arbed 3, and there was frustration that they did not have more involvement in contractor selection. Despite this, there was also an understanding that in some particular scheme areas, there was no suitable local contractor who had the skillset and capacity to deliver the contract.

⁴³ Based on 2,546 properties receiving measures and applying the survey percentages for fuel poverty and severe fuel poverty. This is then divided into a recent estimate of 155,000 fuel poor households and 32,000 severely fuel poor households. It should be noted that many of those moving out of severe fuel poverty will remain in fuel poverty.

Improved social, health and cultural well-being of households

- 4.30 An important aspect of the Arbed 3 programme is its ability, either directly or indirectly, to deliver not only economic benefits to householders, but also social and health and wellbeing benefits. When survey respondents were asked if they were able to heat/use more rooms in their homes following installation, 56 per cent agreed with the statement, in contrast to 18 per cent who tended to disagree or disagreed strongly. Furthermore, 46 per cent of respondents agreed strongly with the statement that 'my home feels warmer and more comfortable', with an additional 24 per cent tending to agree. Conversely only 12 per cent disagreed, illustrating the demonstrable impact measures had had on beneficiary comfort levels.
- 4.31 As can be seen in Figure 14, evidence from the household beneficiary survey indicates that Arbed 3 measures may have contributed to some health benefits for householders, with 22 per cent agreeing that they have noticed improvements in their own, or other household members' health post-installation (11 per cent agree strongly and 11 per cent tend to agree). The largest contingent of respondents, however, neither agreed nor disagreed that Arbed measures has positively changed their health (38 per cent). Equally, when asked if they agree with the statement that householders now visit the GP less frequently as a result of the measures installed, only 19 per cent agreed to any extent in comparison to 28 per cent who disagreed.

Figure 15: Survey responses on health issues



Source: Beneficiary survey n=506

4.32 At a household level, 41 per cent of respondents to the beneficiary survey agreed that they would be more likely to invite guests or children’s friends to their house because of increased warmth / comfort. In this context, the programme will have contributed to community cohesion and social interaction.

Contribution towards climate change targets through reduction of carbon emissions

4.33 The alignment between the Arbed 3 programme and the Welsh Government’s climate change target of reaching net zero emissions by 2050 was a widely discussed issue throughout the evaluation. The continued installation of gas boilers was criticised by several Local Authority stakeholders and some contractors as a measure that was counterproductive towards efforts to meet the climate change agenda and it was felt that, in some respects, Arbed 3 was committed to reducing fuel poverty, even at the expense of the environmental considerations.

4.34 However, improved monitoring and reporting might be able to demonstrate the relative benefits of gas boilers as a replacement for oil, solid fuel or inefficient electric heating in fuel poor households.

Counterfactual

4.35 As part of the evaluation, it is important to address the counterfactual – that is what would have happened in the absence of the programme. The evaluation has taken the approach of using a self-assessment approach based primarily on the householder survey to understand what alternatives individuals would have considered. These are considered under four areas of potential deadweight.

- Deadweight 1—the extent to which households would have made changes to improve energy efficiency and address fuel poverty anyway, without the Arbed 3 programme. In response to the household beneficiary survey:
 - 60 per cent of beneficiaries stated they would not have made any of the changes without the involvement of Arbed 3.
 - 27 per cent stated they would have made some changes but not others.
 - 12 per cent of respondents felt they would have made all of the changes anyway. Those on lower incomes and in older age brackets were less likely to respond that they would have made changes.
- Of beneficiaries who would not have made any of the changes;
 - 81 per cent cited cost of installation as the key factor in their decision not to undertake any works.
 - 69 per cent of those who would have done some work but not others also cited cost of installation as the reason for not undertaking works. Of the works that would not have been undertaken, solar panels and radiators were the alterations that were least likely to have been installed.
 - In total, 66 per cent of beneficiaries cited cost as a key driver preventing them from undertaking any of the works without support from Arbed 3.
- Deadweight 2 —the extent to which households would have found similar support elsewhere. There were no indications of alternative support available for a whole house approach, or indeed for individual measures, other than the Welsh Government Nest Programme.
- Deadweight 3— the extent to which Arbed duplicates other programmes that provide similar support. The Arbed 3 programme complements Nest by targeting those in fuel poverty, but not fulfilling the benefit eligibility criteria

of Nest. The relative success in targeting those in fuel poverty and severe fuel poverty suggests that this complementarity works well.

- Deadweight 4 - the extent to which the observed results are entirely due to the intervention received. The reported position that the great majority of respondents would not have made changes in the absence of Arbed 3 suggests that the programme is entirely responsible for changes made and the subsequent impacts on fuel costs.

5. Conclusions and Recommendations

Overall success of the programme

- 5.1 The Arbed 3 programme has faced substantial challenges during its delivery period as highlighted in this report. However, it has demonstrated success in targeting of fuel poor and severely fuel poor households and has delivered well against (revised) ERDF targets. The programme has led to improved EPC ratings in 2,546 D, E, F & G rated homes in Wales, with subsequent long-term improvements in living conditions, financial position of householders, and carbon reduction against Welsh Government commitments.

Programme success against aims and targets

- 5.2 Monitoring data and findings from the householder survey and qualitative research conducted for this evaluation would suggest that Arbed 3 has been effective at targeting households in need - those likely to be in severe fuel poverty. This conclusion should be caveated by a recognition of the limitations of the methodology applied in that it is based on self-assessed data, and not comparable to the methodologies used to produce official fuel poverty statistics (see paragraphs 2.17-2.19).
- 5.3 The survey data gathered for this evaluation would suggest that 69 per cent of households spent more than 10 per cent of their household income on fuel bills prior to measures being installed; with the proportion falling to 39 per cent following the intervention.⁴⁴ Of those households, measures installed through Arbed 3 has directly uplifted most from those likely to be in severe fuel poverty (sometimes into fuel poverty). This demonstrates the programme's ability to positively affect the situation of vulnerable households, albeit not on a large enough scale to make a significant contribution towards ending fuel poverty in Wales.
- 5.4 Overall, the Arbed 3 programme has been successful in meeting key ERDF targets, albeit a revision in programme targets proportionate to the de-commitment in funding as a result of delays caused by the COVID-19 pandemic. In future schemes, we would recommend that the programme

⁴⁴ Excludes don't knows

targets are made more ambitious with fewer revisions throughout the course of delivery.

- 5.5 The cost per household of achieving a movement out of fuel poverty was of the order of £6,600 per household.⁴⁵ Welsh Government's own estimates using a Low-Income High Cost (LIHC) measure are for fuel poverty to be addressed at a cost of £431 per household.⁴⁶ However, this is based on an annual reduction in fuel costs, and so taking an average asset life of 10 years for measures installed, the cost of addressing fuel poverty for those benefiting from the Arbed 3 programme would be of the order of £660 per household per year. Future programmes would benefit from a monitoring regime aligned more closely to the Green Book⁴⁷ model or the Salix Finance compliance toolkit⁴⁸ compiled by Carbon Trust, to allow for a more nuanced understanding of the value achieved.

The area-based approach

- 5.6 The area-based approach of the Arbed 3 programme has attracted much attention throughout the course of the evaluation, with stakeholders comparing it to the 'needs-based' approach of NEST. Results of the householder survey suggest that the targeting approach was relatively successful at identifying areas of fuel poverty and severe fuel poverty, which is a success of the programme.
- 5.7 The method of scheme selection was disputed amongst stakeholders, specifically in regard to the choice of Local Authority areas for intervention. There was criticism that some areas received minimal focus from the Arbed 3 programme, despite having the highest proportion of households affected by fuel poverty at a Local Authority level.⁴⁹ Whilst this, to some extent, reinforces the targeted small-area approach taken by the programme, it also suggests that some more rural Local Authority areas may have missed out through the approach, especially where properties could not be connected to the mains gas network. Nevertheless, it should be taken into consideration that Local

⁴⁵ Based on 2,546 households receiving measures at a cost of £17.85m

⁴⁶ [Tackling fuel poverty 2020 to 2035](#)

⁴⁷ [The Green Book 2020](#)

⁴⁸ [Salix Finance Compliance Tools](#)

⁴⁹ [Welsh Housing Conditions Survey 2017-18](#)

Authorities had influence over scheme selection, and in some cases, opted for more modest interventions.

- 5.8 The fact that the Arbed 3 programme did not determine household eligibility based on means-testing was viewed positively by beneficiaries. Yet there were also some concerns, and confusion, amongst beneficiaries and Local Authority stakeholders that homes on the same street could differ in eligibility for the scheme. Stakeholders in some rural areas felt that despite having a need for household measures, the area approach inevitably meant that they would be eligible for fewer schemes in comparison to urban areas, given they are more sparsely populated.
- 5.9 Although data is limited, it appears that the great majority of measures were installed in owner-occupied homes and there was little penetration of the private rented sector. Welsh Government data suggests that 20 per cent of all households in the private rented sector are likely to be in fuel poverty compared with 11 per cent of owner-occupied and this remains an area for future focus⁵⁰. To address this, Rentsmart Wales could be introduced into future schemes as a partner. As the regulatory enforcement agency for private landlords in regards to EPC standards, they would enable the identification of PRS households in a potential scheme area and then support engagement through data and / or communications.
- 5.10 Overall, however, there was recognition amongst stakeholders that given the limited resources of a grant-based scheme, the area-based approach adopted was appropriate. In terms of the measures installed, the household survey data suggests that the installation of boilers is more subject to deadweight than are solar PV installations. That is, of those who said that they would have installed some measures anyway, 55 per cent said they would not have installed PV, whereas only 12 per cent said the same of a new boiler. This might inform considerations of future measures.

Effectiveness of programme management and monitoring processes

- 5.11 The management surrounding the Arbed 3 programme has improved considerably over the last year when compared to the early stages of delivery. However, AaB's communication with other stakeholder groups has

⁵⁰ [Tackling fuel poverty 2020 to 2035](#)

been criticised, with the frequent turnover of staff cited as resulting in periods of sporadic and even dormant communication.

- 5.12 In terms of the monitoring processes in place, as discussed earlier in the report, the programme has effectively monitored progress across a range of targets and indicators but the data is limited in its meaning. In future schemes, there should be a clearer explanation of the rationale for the monitoring of certain targets, as well as the processes undertaken to capture those targets. Again, the adoption of a formal compliance / impact tool such as that used for Salix Finance compliance toolkit would be beneficial in tracking carbon impacts and value for money.

Quality control and contractor management

- 5.13 Following the installation of measures, the Arbed 3 programme has been consistent in implementing the inspection and quality assurance processes required (see paragraphs 3.42 and 2.73). This has improved over the course of the programme with contractors adapting to the necessary requirements of auditing. Household beneficiaries reported satisfaction at the quality of measures installed, but also contractor follow-up given any issues.
- 5.14 Contractor management in Arbed 3 has proved challenging at times, with AaB staff expressing the difficulties that come with not being able to provide consistent work for contractors throughout the programme, as well as the limited notice provided for the awarding of work. Nevertheless, there was positive feedback surrounding the standard and ability of the contractors on the current framework. This was supported by householders who provided strongly positive feedback on the contractors throughout the installation process.

Programme contribution towards meeting key Welsh Government policy and strategic priorities

- 5.15 The Arbed 3 programme has been relatively successful in contributing towards key Welsh Government policy, such as the Wellbeing of Future Generations Act, with the Community Benefit Toolkit outlining how the programme meets the individual goals of the Act. The programme has contributed towards 'A More Prosperous Wales' with direct spend on Welsh SMEs and suppliers, as well as supporting the Welsh economy through

employment and training. In terms of strategic priorities, Arbed has prioritised the reduction of fuel poverty in alignment with the Fuel Poverty Strategy and Tackling Fuel Poverty 2020-2035 which sets out four actions Welsh Government can take between now and 2023 to reduce fuel poverty in Wales further by 2035.⁵¹ Of these four actions, the Arbed 3 programme contributes to three: identifying people who need help, prioritising and protecting those with the greatest need, and making homes more energy efficient.

Social, environmental, and economic impacts of the Arbed 3 programme

- 5.16 The data from the householder survey highlights the ability of Arbed 3 to reduce the amount beneficiaries spend on their energy bills post-installation. The employment and training opportunities created by Arbed 3, especially for SMEs, is further indication of the programme's positive economic impact.
- 5.17 The environmental impact of the Arbed programme has been notable, exceeding the per household contractual target in the average reduction in modelled energy, as well as being on track to meet the revised ERDF target of the reduction in GHG by 7.02Kt. The installation of measures, such as solar panels, has increased the amount that householders think about environmental issues and the need to reduce carbon (especially given that 55 per cent of survey respondents stated they would not have installed solar panels in the absence of Arbed 3). There was a consensus, however, that the programme could have gone further in seeking to maximise the environmental impact of the Arbed 3 programme, and that this should be at the forefront of any future energy efficiency programme.
- 5.18 The social benefits delivered by Arbed 3 including improving the social, health, and cultural wellbeing of households has been minimal with a majority of households stating there had been no real change to their health as a result of the measures installed.

Householder perceptions of and satisfaction with the programme measures and delivery

- 5.19 Householders were satisfied with the quality of the measures installed and the difference they had made post-installation, especially considering they

⁵¹ [Tackling fuel poverty 2020 to 2035 | GOV.WALES](#)

did not have to financially contribute. Householders were satisfied with the installation process and reported a good relationship with contractors, complimenting their politeness, efficiency, and trustworthiness.

- 5.20 Nevertheless, there was consensus amongst beneficiaries that participating in the scheme was worthwhile, reflecting satisfaction with the programme. Without the Arbed 3 programme, it is unlikely that many beneficiaries would have installed the measures at their own costs, highlighting the tangible difference the programme has made.

Programme support for Cross Cutting Themes

- 5.21 The contribution of the Arbed 3 towards achieving CCT aims and objectives has been relatively successful, with the programme contributing more towards certain themes than others. In the case of Equal Opportunities and Gender Mainstreaming, including the Welsh language, it appears that the Arbed 3 programme has met the minimum requirements, but there is no real evidence of added value. On the other hand, the programme has demonstrated its support and contribution towards the theme of sustainable development through its procurement practices and utilisation of local supply chains, as well as installing renewable measures and adopting a whole house “fabric first” approach. Arbed 3 has tackled poverty and social exclusion through creating employment and training opportunities as discussed previously. Both contractors and AaB have demonstrated their willingness to contribute towards community support events, driven by the role of the Community Benefits Manager.

Recommendations on designing the scale and impact of future programmes

- 5.22 Possibly the biggest challenges are those of scale and future proofing. Whilst the area-based approach appears reasonable, the level of impact needs to be increased by an order of magnitude at least to make substantial inroads into the levels of fuel poverty in Wales. In terms of future proofing, the challenge of enabling affordable, low carbon heating is one that faces Governments beyond Wales and careful consideration of the most effective technologies for future interventions should be carefully considered prior to investing.

- 5.23 Whilst the Arbed 3 programme can be considered a success in many respects, there are several elements where recommendations and changes can be adopted going forwards, including future energy efficiency programmes. Firstly, there should be more of a concerted effort to gather data surrounding the economic status of potential beneficiaries at the outset, ahead of scheme selection. This includes information on householder energy spend and annual income, ensuring there is no reliance on self-reported data from a household beneficiary survey to determine the programme's economic impact.
- 5.24 There should also be an increased focus on the Private Rented Sector, with the possibility that landlords contribute towards the costs of installation. This would ensure a more sustainable funding arrangement, potentially allowing for a larger budget per property. In turn, this would enable the installation of longer-lasting measures that makes an even greater economic, environmental, and social impact at a programme level. Alternative funding arrangements could include partial homeowner contribution or the introduction of interest free loans for beneficiaries having measures installed.
- 5.25 Given the heavy involvement of Local Authorities in Arbed 1 and 2, the 'intermediary' role of Local Authorities in Arbed 3 led to an inconsistent relationship with AaB depending on Local Authority area. Although involved in scheme selection and promotion, many authorities felt they were not used to their potential given the legitimacy, knowledge, and reputation they have in the community, as well as citing a lapse in communication with AaB following staff turnover. Therefore, in future operations any third party should look to collaborate closely with Local Authorities, using them in a strategic capacity to help research local data on fuel poverty and effectively target the area's most in need, alongside achieving buy-in from beneficiaries.
- 5.26 As well as holding more communication with Local Authorities, there should be more regular and consistent communication with householders throughout the duration of the process.

6. Annexes

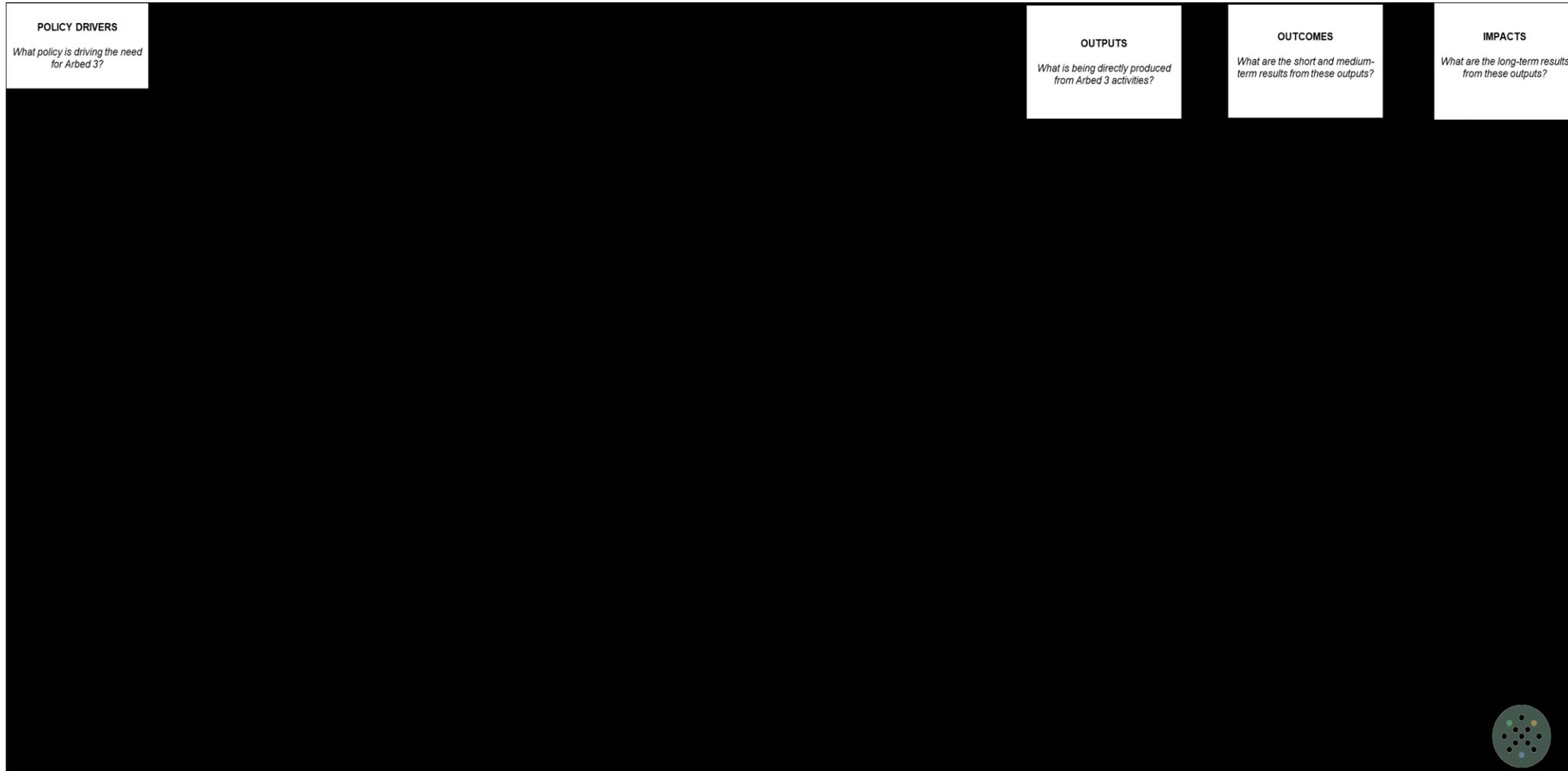
Annex A: Programme Logic Model

Annex B: Stakeholder Interviews

Annex C: Sampling Approach

Annex D: Final Household Survey Questionnaire

Annex A: Programme Logic Model



Annex B: Stakeholder Interviews

Stakeholder Group	Numbers interviewed
Arbed am Byth staff	15
Local Authority officers	26
Contractors on the Arbed supplier framework	9
Pennington's Choices	2
Householder beneficiaries	10
Welsh Government staff	6
Private Rented Sector representative	1
Total	69

Annex C: Household Survey Sampling Approach

The research universe for the survey of Arbed beneficiaries was households where work had been completed in the period July 2019 to March 2020 and where properties were included in WEFO claims - i.e. had met WEFO's EPC uplift criteria (see paragraph 3.57).

The survey explored householders views on the installation process, outcomes they had experienced including perceptions of impact on energy bills, health, and awareness of environmental issues. In total contact details including telephone numbers for 1,055 properties who met the above criteria were available. This formed the sample frame for this research. In order for householders to be able to assess any impact of the work on their property it was felt some time was needed to elapse before these judgments could be made. It was also important to avoid any seasonal effects in the data and therefore it was decided that survey completion dates for all householders should be at least one year after completion of works. This meant that all householders were able to base their judgements having experienced all seasons.

In order to facilitate the above, fieldwork for the survey was split into three separate waves, so that for all householders the point at which survey questions were answered was a similar time period post completion of work on their home (13-16 months). Due to the impact of COVID-19 on delivery between April and June 2020, it was agreed that a fourth wave would not be undertaken. It was therefore decided that a larger sample from the initial three waves should be obtained. This is set out in Table 1 below:

Table 1: Fieldwork schedule vs. date of work completed⁵²

Wave	Work completed on property	Survey undertaken with householders
1	July 2019 – Sept 2019	Oct 2020 – Nov 2020
2	Oct 2019 – Dec 2019	Feb 2021
3	Jan 2020 – March 2020	May 2021

For each stage of fieldwork, different numbers of contact details were available, reflecting the amount of properties that were completed under the scheme in each month. For each wave, the aim was to maximise the number of interviews from the available contact details

⁵² It was agreed that a fourth wave of fieldwork to cover interventions between April and June 2020 would not be undertaken due to the impact of COVID-19 limiting deliveries during this period.

with a minimum target of 400 responses for all waves. To ensure that the sample of responses were representative of geographical location/ type of households, a monitoring quota was set on WEFO claim region – i.e. East Wales or West Wales and Valleys.

Table 2 below shows the available contact details at each wave as well achieved sample sizes. The number of responses achieved at each wave, including the split by region, were broadly in line with universe proportions and therefore only marginal weighting of the data (by wave and region) was required to bring the sample closer to sample frame proportions on these factors.

A total of 506 survey responses was achieved.

Table 2: Sample profile

Wave	Region	Available on sample frame		Unweighted sample		Weighted sample	
		n	%	n	%	n	%
1	West Wales and Valleys	522	48.9	239	47.2	247	48.8
	East Wales	12	1.1	7	1.4	6	1.1
	TOTAL	534	50.0	246	48.6	253	49.9
2	West Wales and Valleys	119	11.2	58	11.5	57	11.3
	East Wales	57	5.3	22	4.3	27	5.3
	TOTAL	176	16.5	80	15.8	84	16.6
3	West Wales and Valleys	239	22.4	120	23.7	113	22.3
	East Wales	118	11.1	60	11.9	56	11.1
	TOTAL	357	33.5	180	35.6	169	33.4
TOTAL	West Wales and Valleys	880	82.5	417	82.4	417	82.4
	East Wales	187	17.5	89	17.6	89	17.6
	TOTAL	1,067	100.0	506	100.0	506	100.0

When considering the survey findings the limitations of such self-reported data and the time period individuals were being asked to comment on should be recognised. These findings have not been triangulated and verified with other data sources and differ from the

methodologies used for official reporting of fuel poverty estimates. A full fuel poverty assessment could not be completed as part of this evaluation as a significant amount of information about both the household (e.g. detailed income, housing costs) and dwelling (e.g. size, structure, insulation) would be required in order to carry out the full fuel poverty calculation used for calculating UK Government fuel poverty statistics. The figures related to fuel poverty should therefore be treated as indicative and used for analysis, rather than providing robust indications of prevalence or profile.

Annex D: Final Household Survey Questionnaire

Introduction

Good morning/ Bore da

Good afternoon/ Prynawn Da

Good evening / Noswaith Dda. May I speak to [NAME - Drawn from database].

My name is [INTERVIEWER NAME] from Beaufort Research and I am calling on behalf of the Welsh Government. Within the last year or so we understand that you have received measures in your home to help with energy efficiency from the Welsh Government Warm Homes Arbed scheme. These measures could have included, for example, a new gas boiler, water efficient taps or cavity wall insulation.

As part of an evaluation of the Welsh Government Warm Homes Arbed scheme, the Welsh Government is undertaking a survey to understand people's experiences of the scheme and the impact it has made. Responses to the survey will be summarised in a report, and you will not be identified in any way. All information you provide is completely confidential.

The survey should take no more than 10-12 minutes to complete.

There are a few things around data protection I need to cover before we start:

- The legal basis for this data collection exercise is Welsh Government's public task
- Your contact details have been provided to us by Welsh Government
- Personal information that will be collected during this survey will include data on
 - The number people in your household and their ages;
 - Changes in you or your household's health;
 - Visits to GP;
 - Your household income; and
 - Your employment status.
- Any personal data will be deleted 3 months after the end of this contract

The information you provide will be used for the purposes of this evaluation and will be anonymised

You have the right to withdraw your consent to take part in this interview at any time.

You can view full details of our Privacy Notice at -----

QR1 Are you happy to continue (now or at another time)?

01: Yes – IF YES, CONTINUE

02: No – IF NO, THEN PLEASE THANK THEM FOR THEIR TIME AND END THE INTERVIEW.

QR2 We can conduct this interview in Welsh or English. Which would you prefer?

01: English

02: Welsh

CONTINUE IN RESPONDENT'S PREFERRED LANGUAGE

QR3 Can I check if you remember having [cross-check with the database to refer to specific intervention(s)] s installed in your home under the scheme?

01: Yes

02: No – IF NO, CHECK IF ANYONE ELSE IN HOUSEHOLD WHO MIGHT REMEMBER, OTHERWISE CLOSE

1. General questions

Q1.1. Can I just check, is your home....?

READ OUT AS NECESSARY

01: Owned outright with no mortgage

02: Owned with a mortgage

03: Rented from the council

04: Rented from housing association \ housing co-operative

05: Rented from a private landlord

06: Shared ownership (part rent \ part buy)

07: Other (please specify)

08: Prefer not to say (**DO NOT READ OUT**)

Q1.2. Thinking back to before you had work undertaken under the scheme, which of the following heating systems / appliances did you have in your home? Select all that apply

READ OUT

- 01: Central heating (gas boiler with radiators)
- 02: Central heating (oil boiler with radiators)
- 03: Wood fires or stoves
- 04: Electric fire
- 05: Electric storage heaters
- 06: Other – please specify
- 07: None of these (**DO NOT READ OUT**)



2. Experience of Engaging with Arbed

Q2.1. Thinking back to your support from the Arbed scheme, how did you hear about the programme? Select all that apply

INTERVIEWER: ENCOURAGE ESTIMATE

READ OUT

- 01: Local engagement event (in village hall, community centre etc)
- 02: Direct contact by the Arbed team (i.e.: through a letter in the post)
- 03: Word of mouth
- 04: Press
- 05: Social media (e.g.: twitter, Facebook, LinkedIn)
- 06: Local council
- 07: Local councillor
- 08: Other – please specify
- 09: Don't know (**DO NOT READ OUT**)

Q2.2. Did you attend a local engagement event about Arbed scheme?

- 01: Yes – **IF YES, CONTINUE TO ASK Q2.3**
- 02: No – **IF NO, SKIP TO Q2.4**

Q2.3 How useful was the local engagement event you attended?

READ OUT

01: Very useful

02: Fairly useful

03: Not very useful

04: Not useful at all

05: Don't know/ don't remember (DO NOT READ OUT)

ONLY ASK Q2.4 IF SELECTED '05: SOCIAL MEDIA (E.G.: TWITTER, FACEBOOK, LINKEDIN)' AT Q2.1. OTHERWISE SKIP TO Q2.5

Q2.4 How would you rate the information on social media about the Arbed scheme?

READ OUT

01: Excellent

02: Good

03: Average

04: Poor

05: Very poor

06: Don't know (DO NOT READ OUT)

Q2.5 How useful was the written information you first received about the programme, i.e.: the "agreement to survey" letter?

READ OUT

01: Very useful

02: Fairly useful

03: Not very useful

04: Not useful at all

05: Don't know/ don't remember (DO NOT READ OUT)

Q2.6. Do you recall having an energy performance assessment of your property before any work was carried out? The survey would have involved a domestic energy assessor visiting your home for up for an hour to take some measurements and potentially ask you some questions.

01: Yes – IF YES, CONTINUE TO Q2.7

02: No – IF NO, SKIP TO Q3.1

Q2.7. Thinking about the energy performance assessment, how would you rate the following

READ OUT EACH IN TURN

- The information provided before the assessment
- The scheduling of the assessment appointment
- Explanation of what was going to happen next

READ OUT

01: Excellent

02: Good

03: Average

04: Poor

05: Very poor

06: Don't know (DO NOT READ OUT)

Q2.8. As part of the energy performance assessment, do you recall receiving any specific advice on energy efficiency in your home, either verbally from the assessor or in a report afterwards?

01: Yes – IF YES, CONTINUE TO Q2.9

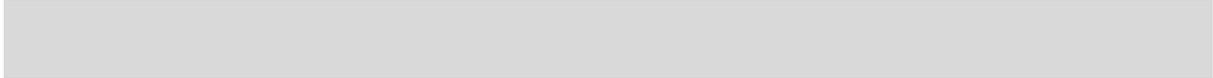
02: No – IF NO, SKIP TO Q3.1

Q2.9. Can you remember what this advice included?

OPEN ENDED – WRITE IN VERBATIM

Q2.10 How if at all, have you used this information?

OPEN ENDED – WRITE IN VERBATIM



3. Experience of the Intervention Process

I'd now like you to think about the work that was carried out in your home.

3.1. How satisfied or dissatisfied were you with the work carried out by the Arbed contractors in terms of the following....

READ OUT EACH IN TURN (RANDOMISE ORDER)

- Time between the energy performance survey and the installation appointment
- Communication about the measures to be installed
- Communication about how long the installation would take
- Flexibility around timings for the installation to suit you
- Timekeeping of the installer
- Accommodation of your needs / space during the installation
- Overall efficiency and cleanliness of the installation
- Instructions on how to use the installation (if relevant)
- Energy efficiency advice provided by the installer
- The aftercare provided (i.e. support after the installation) (if relevant)
- The amount of paperwork you needed to fill in
- The follow-up inspection appointment after the installation
- Energy efficiency advice provided by the person who carried out the follow-up inspection
- Your overall experience of the process

READ OUT

01: Very satisfied

02: Fairly satisfied

03: Neither satisfied nor dissatisfied

04: Fairly dissatisfied

05: Very dissatisfied

06: Don't know (DO NOT READ OUT)

Q3.2. Is there anything else you would like to say, positive or negative, about the work that was carried out in your home?

OPEN ENDED – WRITE IN VERBATIM



4. Outcomes and behaviour change

Q4.1. Before you had work undertaken under the Arbed scheme, did you typically spend more than 10 per cent of your household income on energy bill, i.e.: gas, electricity and/or oil etc? (For example, if your household income is £200 per week this would mean spending more than £20 a week on hot water and heating your home).

01: Yes – IF YES, ASK Q4.2

02: No – IF NO, SKIP TO Q4.3

02: Don't know (DO NOT READ OUT) – IF DON'T KNOW, SKIP TO Q.4.3

Q4.2 Before you had work undertaken under the Arbed scheme, did you typically spend more than **20** per cent of your household income on energy bill, i.e.: gas, electricity and/or oil etc? (For example, if your household income is £200 per week this would mean spending more than £40 a week on hot water and heating your home).

01: Yes

02: No

02: Don't know (DO NOT READ OUT)

Q4.3 And now thinking about the time since you have had the work done under the Arbed scheme, roughly what proportion of your household income would you say you now spend on energy bill, i.e.: gas, electricity and/or oil etc?

INTERVIEWER: ENCOURAGE ESTIMATE

READ OUT

01: Less than 10%

02: Between 10% and 20%

03: More than 20%

04: Don't know (DO NOT READ OUT)

Q4.4 Since the measures were installed, are you better able to heat your home?

READ OUT

01: Yes, a lot

02: Yes, a little

03: No, made no difference

04: No, made things worse

05: Don't know (DO NOT READ OUT)

Q4.5 Since the measures were installed do you feel that you are.....

READ OUT

01: More worried about heating / using hot water in your home

02: Less worried about heating / using hot water in your home

03: Feel no different about heating / using hot water in your home

04: Don't know (DO NOT READ OUT)

Q4.6 I'm now going to read out some statements and I'd like you to tell me the extent to which you agree or disagree with each one. There are no right or wrong answers, it's just your personal opinion we're interested in.

As a result of the Arbed work that was carried out in your home, to what extent do you agree or disagree with each of the following statements?

READ OUT EACH IN TURN (ORDER TO BE RANDOMISED)

- I'm now generally more conscious about the environment and green issues
- I'm more aware of my energy use and the need to reduce carbon emissions
- I've noticed improvements in my/ members of my household's health, e.g.: reduced respiratory problems (e.g.: breathing, wheezing...), colds and flu

- I and/or members of my household tend to visit the GP less frequently for visits for respiratory problems (e.g.: breathing, wheezing...) or colds and flu
- My energy bills have been reduced
- I am able to heat and use more rooms in my home
- My home feels warmer and more comfortable
- I'm more likely to invite guests / my children's friends around because my home is warmer / more comfortable

READ OUT

01: Agree strongly

02: Tend to agree

03: Neither agree nor disagree

04: Tend to disagree

05: Disagree strongly

06: Don't know (**DO NOT READ OUT**)

Q7. How, if at all, has the Arbed work that was carried out in your home affected you and members of my household in any other ways?

OPEN ENDED – WRITE IN VERBATIM



5. Counterfactual

Q5.1 If you had not received the support from Arbed, how likely do you think you would have been to make the changes to your home?

READ OUT

01: I would have made all the changes anyway

02: I would have made some of the changes but not others

03: I wouldn't have made any of the changes

04: Don't know (**DO NOT READ OUT**)

(if 01: I WOULD HAVE MADE ALL OF THE CHANGES ANYWAY, skip to Q5.4

(if 02: I WOULD HAVE MADE SOME OF THE CHANGES BUT NOT OTHERS, ask Q5.2)

(if 03: I WOULDN'T HAVE MADE ANY OF THE CHANGES, ask Q5.3)

ASK Q5.2a AND Q5.2b IF WOULD HAVE MADE SOME OF THE CHANGES BUT NOT OTHERS

Q5.2a Which changes would you NOT have made?

OPEN ENDED – WRITE IN VERBATIM

Q5.2b Which of these describes why you would have not made these changes?

READ OUT – CODE ALL THAT APPLY

- 01: Cost of the installation
- 02: Time involved in finding an installer and making arrangements for the installation
- 03: Just wouldn't have thought about it
- 04: Wouldn't have known where to start / how to find or contact an installer
- 05: Wouldn't have trusted anyone to do the work
- 06: Something else, please specify _____
- 07: Don't know (**DO NOT READ OUT**)

ASK Q5.3 IF WOULDN'T HAVE MADE ANY OF THE CHANGES

Which of these describes why you wouldn't have made any of these changes?

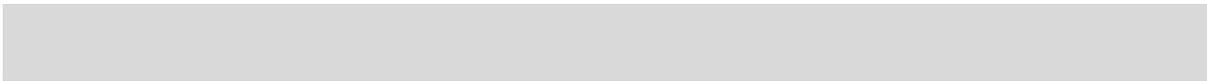
READ OUT – CODE ALL THAT APPLY

- 01: Cost of the installation
- 02: Time involved in finding an installer and making arrangements for the installation
- 03: Just wouldn't have thought about it
- 04: Wouldn't have known where to start / how to find or contact an installer
- 05: Wouldn't have trusted anyone to do the work
- 06: Something else, please specify _____

07: Don't know (DO NOT READ OUT)

Q5.4 Do you have any other comments to make about the Arbed scheme or the installation in general?

OPEN ENDED – WRITE IN VERBATIM



6. Classification questions

Q6.1 What is your annual household income?

01: Less than £200 a week / less than £870 a month / less than £10,400 a year

02: £200 to £399 a week / £870 to £1,729 a month / £10,400 to £20,799 a year

03: £400 to £599 a week / £1,730 to £2,599 a month / £20,800 to £31,099 a year

04: £600 to £799 a week / £2,600 to £3,459 a month / £31,100 to £41,499 a year

05: £800 or more a week / £3,460 or more a month / £41,500 or more a year

06: Prefer Not to Say (DO NOT READ OUT)

Q6.2. Including you, how many of each of the following age groups live permanently in your household?

01: Adults aged 16-64: ENTER NUMBER

02: Children under 16: ENTER NUMBER

03: Adults aged 65+: ENTER NUMBER

04: Prefer Not to Say (DO NOT READ OUT)

Q6.3. Which of the following best describes your working status?

01: Full time employee (over 30 hrs per week)

02: Part time employee (30 hrs or less per week)

03: Zero hours contract

04: Self-employed – with employees

- 05: Self-employed – without employees
- 06: Unemployed \ seeking work
- 07: Full time student
- 08: Retired
- 09: Other permanently not working

(ASK Q6.4 IN RELATION TO ALL ADULTS AGED 16+ CITED AT Q6.2, EXCLUDING RESPONDENT, WHO IS COVERED IN Q6.3)

Q6.4. Which of the following best describes the working status of [ADULT X]?

- 01: Full time employee (over 30 hrs per week)
- 02: Part time employee (30 hrs or less per week)
- 03: Zero hours contract
- 04: Self-employed – with employees
- 05: Self-employed – without employees
- 06: Unemployed \ seeking work
- 07: Full time student
- 08: Retired
- 09: Other permanently not working

Q5.5 As part of the evaluation of the Welsh Government Warm Homes Arbed scheme, we are also carrying out more in-depth interviews with a small number of people who have received measures in their home through the scheme.

All information provided in these interviews would be completely confidential and participants would not be identified in any way.

By saying now that you are willing to participate in these interviews, you are free to change your mind at any time. You will not necessarily be contacted.

Would you be willing to be contacted in the next few months to take part in a more detailed interview?

- 01: Yes – IF YES, CONTINUE TO Q5.6
- 02: No – IF NO, THEN PLEASE THANK THEM FOR THEIR TIME AND END THE INTERVIEW.

Q5.6 How would you prefer to be contacted about arranging an interview?

READ OUT – CODE ALL THAT APPLY

01: By telephone

02: By email, please specify email address _____

03: Either telephone or email

THANK YOU FOR YOUR TIME

