



Case Study

Ceredigion
County Council



Action for Warm Homes



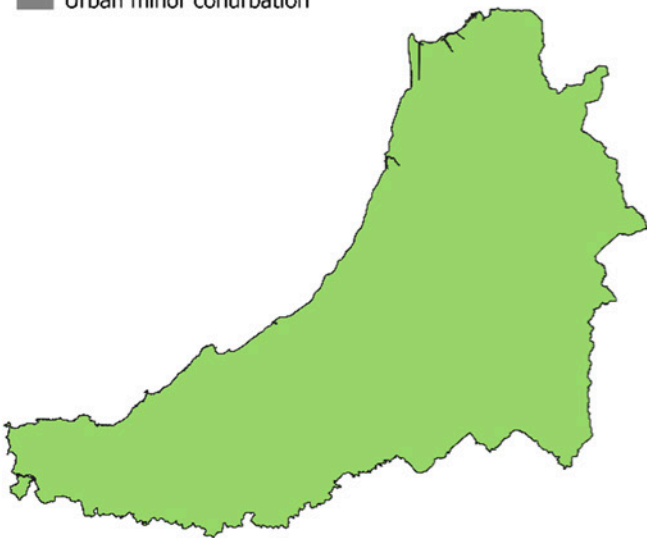
Introduction

Ceredigion is a large county on the west side of Wales. It has three main population centres: Aberystwyth, Cardigan, and Lampeter. However, it is otherwise a predominantly rural and mountainous county, with an economic history dominated by farming, especially dairy and stock-rearing. The map below shows the rural/urban classification of the county, showing how much of it is designated as rural and dispersed in a sparse setting.



Rural Urban Classification 2016

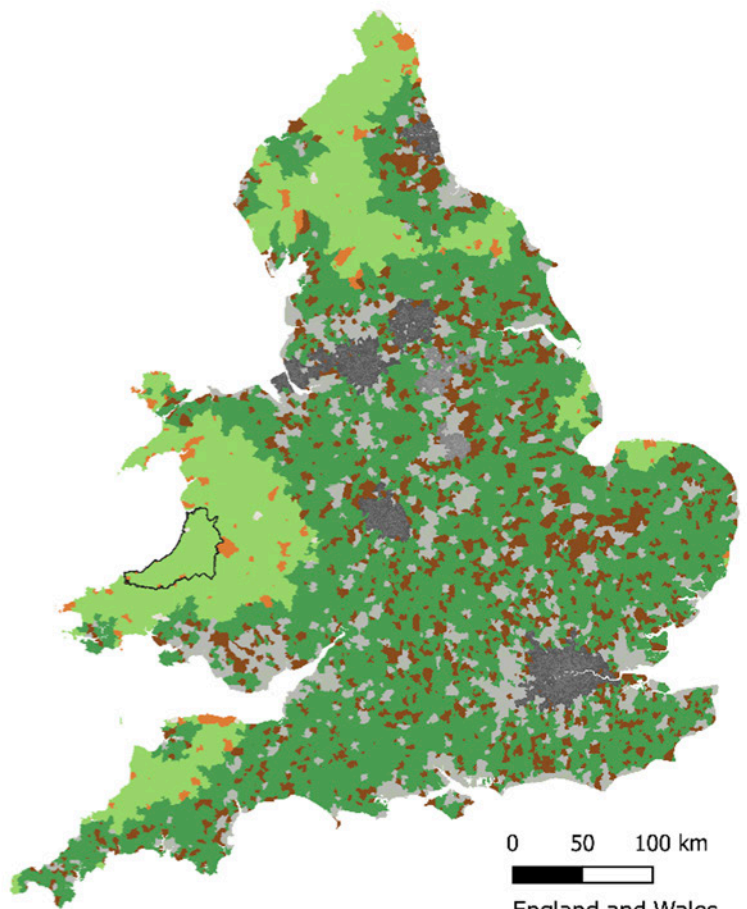
- Rural town and fringe in a sparse setting
- Rural village and dispersed
- Rural village and dispersed in a sparse setting
- Urban city and town
- Urban city and town in a sparse setting
- Urban major conurbation
- Urban minor conurbation



0 10 20 km



Ceredigion Local Authority



0 50 100 km



England and Wales

Ceredigion faces many of the challenges associated with rural and remote fuel poverty, such as an old, energy-inefficient housing stock, geographically dispersed essential service provision (e.g. banking), and – away from the main population centres – a very limited gas grid. Hence, 82.4% of properties in rural Ceredigion are not serviced by mains gas, and a key characteristic of the county's homes is

over-reliance on carbon-intensive oil, LPG, solid fuel, and inefficient electric heating. Homes also tend to be energy-inefficient and hard to heat, with little or no insulation – over 6,000 properties in Ceredigion are known to have an EPC rating of F and G. It was these homes that Ceredigion County Council sought to address with an air source heat pump installation project, funded through the WHF.

What were the aims and objectives?

The aim of Ceredigion's WHF project was to deliver a number of first-time central heating systems to energy-inefficient properties, occupied by people in fuel poverty and those on a low income who were vulnerable to the effects of living in a cold home. The wider objective of the project was to improve the comfort levels for these households while lowering their fuel costs. To achieve this, Ceredigion County Council and its partners conducted surveys on individual properties to identify the most cost-effective and suitable measures for each home; importantly, this included an assessment of the householder's needs and the likely running costs of the home once improvements were made. For example, this involved assessments of the existing insulation standard of each home, with improvements and top-ups undertaken where necessary. This ensured that more of the heat generated by the new system was used to heat the home, instead of leaking out of the property.

Although the evaluation only engaged with the Category 2 arm of Ceredigion's WHF projects, it was set up from the beginning as a linked Category 2 and Category 3 project. Ceredigion's Category 3 funding, which supported its advice and support services, was intended to cover all of the county, while the Category 2 funding was focused on delivering air source heat pumps to rural parts of Ceredigion. The Category 2 project was delivered in three phases, and the Category 3 funding was spread across four years – a long-term investment that will be returned to, as it had previously been funded through the Welsh Government's Arbed scheme. In contrast, the Category 2 project was rooted in the county council's previous delivery of Disabled Facilities Grants. Through this work, it had identified numerous properties with inefficient storage heaters or expensive immersion heaters, and also many residents who were struggling to access coal, wood, and other solid fuels. The council could see the positive impact the DFGs were having, and wanted to expand it.

The linkage between the Category 2 and Category 3 projects was explicit. It was intended to bundle heating measures, insulation, boiler replacements, income maximisation, and other energy advice services, into one streamlined intervention for households.

Who did it involve?

Together, Ceredigion's WHF projects included a multitude of partners. On the Category 2 side, the county council worked closely with referral partners to identify owner-occupier and private rented households that required upgrading and which would be eligible for the scheme. The Category 3 project drew in a wide variety of referral partners across the county, including the local Citizens Advice Bureau, health and social care practitioners, as well as internal teams within the council, such as housing standards and the private rental sector team.

Ceredigion's delivery managers strongly emphasised the benefits of such a wide range of established partnerships. As they explained, more partners meant more contact points between the project and vulnerable households, especially through health and social care services (e.g. GPs, hospital discharge). Furthermore, the project also boosted the effectiveness of some of these referral partners – especially the local Citizens Advice Bureau, which delivered energy efficiency advice, as well as providing core income and financial-related support to eligible households.

How was it funded?

For Category 2 installations, match funding through ECO was described as important, especially for insulation measures. However, Ceredigion's delivery managers emphasised the importance of WHF offering long-term funding that was consistent over a number of years. They described previously working on projects with much shorter time windows, which sometimes caused challenges for their contractors, who needed certainty and consistency. In contrast, WHF funding was offered for longer: Ceredigion's Category 3 funding lasted an initial three years, which received a year extension, and Category 2 was for an initial two years, with subsequent phases confirmed promptly. For contractors, this was described as offering the kind of certainty and confidence they needed to go 'all in' on the project: for example, by enabling them to work at scale and allowing them to build a list of potentially eligible Category 2 properties that they knew they could work through in each phase. It also supported smooth and simple procurement processes, and was generally perceived to have significantly benefitted the delivery of the projects.

What were the impacts on households?

Findings from the evaluation show that:

- Before their installation, 87% of questionnaire respondents couldn't easily keep their whole homes warm. Afterwards, 81% of respondents said they now could.
- 88% of questionnaire respondents from Ceredigion said the temperature in their home is now more comfortable than it was before, and 76% said their house now keeps the heat in better.
- Before their intervention, 65% of questionnaire respondents said they couldn't keep warm at home, and it affected their physical health. Post-intervention, 62% of respondents said their physical health is now better than it was before.
- The average SAP score of Ceredigion beneficiary homes improved from 23 (a low EPC band F) to 57, an EPC band D.
- Before their installation, energy modelling data shows that 56% of Ceredigion beneficiary households were likely to be living in fuel poverty. Afterwards, this likelihood fell to 47%, and the average fuel poverty gap for households, defined as living in fuel poverty, fell from an average of £2,670 to £420.
- CO2 emissions dropped from an average of 3,826 kg/yr per household to an average of 2,636 kg/yr.

Who did it help?

Ceredigion's WHF project helped people such as Simon and Hayden. Simon and Hayden were both living in semi-detached rural homes that were impossible to keep warm prior to their intervention. The energy modelling data shows that their homes were both EPC band F, with SAP ratings in the low 30s. As a result, their modelled household running costs were astronomical; just over £2,800 for Simon, and almost £3,400 for Hayden. Both were technically defined as living in fuel poverty, and this was reflected in their experiences of day-to-day life in their homes. Simon and his wife are retired, but Hayden had experienced several redundancies during the Covid-19 pandemic, and was receiving Universal Credit, struggling to find further work.

Simon used to have an oil boiler, which stopped working and was taken out the year before his intervention. He was therefore relying on storage heaters, which he described as *"flipping expensive."* Because the home had *"no wall insulation and less loft insulation [...] once the heating went loff], you started getting cold. Particularly the bedrooms were very cold."* Hayden described his mixture of storage heaters upstairs and a multifuel burner downstairs slightly differently. Living in rural Wales, he would often forage for firewood in the local area, and was buying two bags of coal per week at a cost of about £3.50 a bag. But *"it was hard work with keeping the fire going"*, and as soon as it wasn't on, *"the house was cold."* This was especially the case for the upstairs bedrooms, which were sometimes cold for the children. As Hayden said, *"they used to complain they were cold. I used to put the heaters on. I was worried about fires and all that sort of stuff because they chuck their stuff everywhere in their rooms."*

Their interventions have had a startling impact on their homes. They both received an air source heat pump, and Simon also received loft and external wall insulation, match funded through Ceredigion's WHF project. As Hayden said, *"It's definitely, definitely made a really big difference [...] most of the house is really well heated now, and we're not ramming it up, we're keeping it on 18°C, or we might put it up to 20°C occasionally on the evenings if it's cold. But the house is much warmer."* Simon agreed, stating that *"it is a lovely background heat, and it's a lot cheaper to run."* Both commented on how easy their new systems were to control, and Hayden described having efficient radiators and heating upstairs as a relief for him and his children. *"It's nice to have them all warm, and before I was feeling a bit guilty [...] but now, it's like they're really comfortable in their bedrooms."* Their experiences are reflected in the energy modelling data: both homes are now an EPC band C, and Simon and Hayden have therefore both been lifted out of fuel poverty. Both of their household running costs have been cut in half, with Hayden – who had a modelled running cost of £3,400 before his intervention – now looking at just over £1,600.

Simon was impressed with the air source heat pump, but also credited the insulation measures he had fitted with substantially improving his thermal comfort at home. *"I don't think – If they hadn't done the insulation, it wouldn't have been the same, I think the two have got to go together [...] if you just had the heating without the insulation, it would never have*

reached the desired temperature. The heat wouldn't have been retained in the house, it would have just perforated out through the walls, so it would have been a lot more expensive to run." The energy modelling data agrees; without the insulation, Simon would have been left in fuel poverty, with an EPC band D home that was more expensive to run.

While complimentary about every aspect of his installation and experience, Hayden found himself struggling with the price of electricity. As he acknowledged, this was partly because much of his previous heating had been free, fuelled by wood that he foraged from nearby locations. But he shrewdly observed that transitioning to green heating only made sense if there was a financial incentive to do so. He said, *"It's like a brilliant green energy, but it's just costing such a lot of money to run. I think there's got to be some sort of incitement for people, how green their heating is to have cheaper electric."* His experience, especially during the energy crisis, potentially points to the need for cheaper electricity costs, especially if fuel-poor households are to benefit from the transition to clean heating at home.

For both beneficiaries, however, Simon's final words are an apt summary. *"I think it's an excellent system," he said, "I only wish I'd been able to afford it myself years ago."*

What were the main enablers of success?

In addition to the themes discussed already – strong partnership-working, long-term funding certainty, and linking Category 2 and Category 3 together – Ceredigion's delivery managers explained three further reasons for the success of the scheme:

- The inclusion of ECO Flex in the WHF eligibility criteria had supported their delivery of both categories. Most specifically, they explained that ECO Flex allowed them to target and bring in households that were on low incomes, living in energy inefficient properties, but not in receipt of Affordable Warmth Benefits.
- The qualities of individual staff members were also described as fundamental, especially attributes of dedication and devotion to addressing fuel poverty.

- Including a broken boiler replacement fund as part of Category 3 was viewed as extremely useful. It enabled those who had pre-existing but broken central heating, which made them ineligible for first-time central heating, to receive an installation and be offered further support if they required it.

What are the lessons we can learn?

- For homes without insulation, installing air source heat pumps with loft, cavity, and/or external wall insulation as appropriate is vital for lifting households out of fuel poverty and helping them to access affordable warmth.
- Electricity costs are sometimes a challenge for fuel-poor households who have had heat pumps installed, and action to reduce the cost of electricity for these households might be required if they are to fully benefit from the transition to decarbonised heating.

Furthermore, Ceredigion's delivery managers reflected on a number of challenges they had encountered, which prompted the following learnings:

- When installing air source heat pumps, education and instruction is key – households need to be helped to learn about, use and operate their new heating systems in a tailored, person-centred way. This includes helping them to switch to a suitable tariff that will offer them the lowest possible electricity costs.
- Including revenue funding, and funding for advice and support services, within fuel poverty and energy efficiency schemes is important, and helps to address issues relating to staff capacity and resources.
- Projects installing new heating systems, and especially heat pumps, need to have a clear approach to warranty, servicing and maintenance, and should communicate this properly and clearly to beneficiary households.
- Reporting processes need to be as smooth and as simplified as possible for projects, especially complex projects involving multiple delivery partners.

What is the project doing next?

Ceredigion is pursuing further work to improve the energy efficiency and heating systems of homes across the county, for which it has now been recognised in national awards. Beyond this, it is exploring what the future holds for energy and fuel poverty. The council is convinced of the continuing importance of advice within fuel poverty and energy efficiency programmes, and exploring the possible role of maturing and future technologies such as hydrogen in getting the county to Net Zero while eliminating fuel poverty. Most immediately, Ceredigion has recently signed up to the ECO4 Flexible Eligibility scheme, and will be facilitating a Pan-Wales Warm Homes Fund scheme, to be delivered by City Energy, which will see the installation of 300 air source heat pumps into Ceredigion's homes, with half of those also receiving solar photovoltaic panels.