



# Community Energy for Energy Solidarity: Evaluation of the CEES pilot projects

## Home Monitoring for Well-being

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[www.energysolidarity.eu](http://www.energysolidarity.eu)



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# Introduction

## The CEES project and the CEES evaluation

In the Community Energy for Energy Solidarity (CEES)<sup>1</sup> project, six energy communities implemented six pilot projects to alleviate energy poverty, including projects to diversify sources of funding for this work. Knowledge exchange and mutual support between the energy communities was a key component of the six pilots. Within CEES, such projects are referred to as a form of energy solidarity. Led by the University of Birmingham, the CEES team implemented a comprehensive evaluation of the six pilot projects.

## Evaluation materials

The following evaluation materials are available at [www.energysolidarity.eu/evaluation](http://www.energysolidarity.eu/evaluation):

- A short summary of the evaluation findings
- The Full evaluation report (232pp)
- The Executive summary (15pp)
- Individual documents of each of the evaluations of the six CEES pilot projects, plus an additional project that was evaluated through CEES.
- The full Evaluation framework (60pp)

## About this document

This document contains the evaluation of the Home Monitoring for Well-being project that was implemented by Repowering London, UK. In the Full evaluation report, this is Chapter 11 and begins on p186.

## Key terms in this document

### Energy poverty

*The situation in which households are unable to access affordable energy services (such as adequate warmth, cooling, lighting, and energy to power appliances), which underpin elements of human flourishing (such as health and wellbeing, relationships, social inclusion, employment, recreation and education). (Day et al.,2016)<sup>2</sup>.*

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<sup>1</sup> The CEES project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101026972. The project commenced in June 2021 and ran to the end of August 2024.

<sup>2</sup> Day, R. et al (2016) Conceptualising energy use and energy poverty using a capabilities framework, Energy Policy, 93: 255–264.



## Energy communities

*Local collectives of individuals that tend to share values and ambitions relating to: supporting equitable, democratic and fair transitions towards more local, sustainable and efficient energy systems; establishing renewable and decentralised energy systems; assisting local community members with energy efficiency, demand reduction and energy poverty; or economic activity on energy for social and community benefit. These organisations are diverse in structure, size and scope.*

## Energy solidarity

*Actors willingly working in ways that align, on a shared goal of overcoming energy-related adversity that is experienced by one or more of the parties. Energy solidarity is inspired by empathy and / or a sense of justice, and may, but does not have to, involve reciprocal obligation. Stronger solidarity involves a more sustained commitment, and / or a willingness to incur a higher personal cost in pursuit of the shared goal. (Day and Burchell, 2023)<sup>3</sup>*

## Fund mechanism

Fund mechanisms are employed to raise funds or income to fund work on energy poverty alleviation.

## Identify mechanism

Identify mechanisms aim to seek out and identify households in energy poverty, recruit them to projects and assess their eligibility for projects.

## Alleviate ('soft' and 'hard') mechanism

Alleviate mechanisms aim to alleviate energy poverty. 'Soft' alleviation mechanisms do this through household engagement, provision of advice about energy poverty, energy efficiency measures, the provision of energy kits consisting of a variety of small energy efficiency measures (such as window insulation material) and support applying for financial support. 'Hard' alleviation mechanisms alleviate energy poverty through building renovation, retrofitting and refurbishment. In CEES, hard alleviation was undertaken in one pilot project. Several of the CEES pilot projects include recruitment and training for energy advisers. These activities have been included as part of the Alleviate mechanisms.

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<sup>3</sup> Day, R. and K. Burchell (2023) Energy solidarity in Energy Communities: alleviating energy poverty and supporting just energy transitions through solidarity approaches. European Sociological Association RN12 mid-term and Energy and Society Network 6th international joint conference, 'Energy, Environment and Societies in Crises', 6-8 September 2023, Trento, Italy.



# Repowering London: Home Monitoring for Well-being



## 1. Introduction (EO1)

### Background

In the early stages of its CEES pilot project, Repowering London was focused on its work on funding, and it was not clear if Repowering London would be able to implement an Alleviate mechanism as part of its CEES pilot. In addition, the evaluators were keen to use the evaluation materials to evaluate as many approaches as possible. For these reasons, Repowering London and the evaluators agreed that it would be productive to use the CEES evaluation methods and materials to evaluate another of its projects, called Home Monitoring for Well-being, which had objectives relating to energy poverty alleviation and improving indoor air quality. The Home Monitoring for Well-being project was funded by Impact on Urban Health (part of Guy's and St Thomas' NHS Foundation Trust). The technical aspects of the project were delivered in collaboration with researchers at London South Bank University. This project and its evaluation have yielded valuable learning for the CEES project. The evaluators are grateful to the Repowering London team for supporting this extra evaluation work.

The Home Monitoring for Well-being project was framed by Repowering London and the funders as an 'innovation' project, in which objectives of both learning and impact were foregrounded. The project set out to recruit up to 20 households from two inner London social housing estates, and to install sensors in the homes to monitor a range of indicators of energy poverty, (such as electricity and gas consumption, indoor temperature and humidity) as well as indoor air quality (carbon dioxide, fine particulate matter (PM2.5), and total volatile organic compounds (TVOC)). Tailored advice was then to be provided on the basis of the monitoring data, as well as products or appliances up the value of €1,150 per household, to alleviate energy poverty or poor indoor air quality. This could include, for



example, various cooking appliances, or anti-allergy bedding. This would all be underpinned by in-depth and ongoing household engagement.

## Mechanisms

The evaluation report addresses the following mechanisms:

1. **Identify:** Recruiting up to 20 households from two urban social housing estates to join the project.
2. **Alleviate:** Via ongoing household engagement, households were provided with: feedback about energy consumption, internal temperature, internal humidity and other variables that affect health and well-being; tailored advice on the basis of the feedback; and up to €1,150 worth of measures.

## Evaluation summary

### Identify

Recruitment of households from the two housing estates was carried out through door-to-door leafleting, and through referrals of people who might be on low incomes or are vulnerable in other ways, from the Resident Management Organisations<sup>4</sup> (RMOs) on both estates. Repowering London noted that recruitment was more challenging than had been expected, perhaps due to householder concerns about the commitment that was required to participate in the project, or about allowing people into their homes, which might be in a poor state. Repowering London also noted that recruitment was more straightforward on one of the estates in which the team observed higher levels of 'social capital' (in terms of relationships between the RMO and the residents and between the residents themselves). The team also reported that the low-rise nature of the buildings on this estate supported this social capital.

Although eligibility criteria were developed, Repowering London reported that the challenges with recruitment meant that it was not appropriate to rigorously apply these. Initial contact and assessments were undertaken with 33 households. However, some participants withdrew for various reasons and at various stages of the scheme, and 16 households remained engaged to the end of the project.

### Alleviate

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<sup>4</sup> In the UK, a Resident Management Organisation (or Tenant Management Organisation) is a collective endeavour where social housing tenants, leaseholders, and freeholders set up a legal entity and take responsibility for managing their estate and homes. RMOs are funded by, and work in partnership with, social landlords.



The Home Monitoring for Well-being project had 16 participants. Although Repowering London had a generous budget to cover these activities, it is important to note that the monitoring kits, the in-depth engagement and the €1,150 of products per household were relatively costly to implement. All of these activities were time-consuming and setting up the monitoring kits was delayed due to technical problems. However, Repowering London reported that the monitoring approach enabled the provision of very tailored recommendations for energy saving and improving indoor air quality. Further, Repowering London observed that the in-depth engagement was important for several reasons: it built high levels of trust in most cases; it kept householders engaged during delays with project delivery; it allowed building up in-depth knowledge of the householders’ properties and circumstances; and it was highly valued by some participants who were socially isolated.

The evaluation data shows that participating households’ experiences of the Home Monitoring for Well-being were largely positive, although some participants did become less engaged at some points in the project. There is evidence that participation in the project had a positive impact on households’ ability to pay their energy bills and on a variety of aspects of energy know-how and understanding.

**Legacy**

On the basis of the learning that took place in the Home Monitoring for Well-being project, Repowering London is now planning more ambitious innovation projects in which retrofit of the homes of people in energy poverty is informed by monitoring and feedback, supported through in-depth engagement. It is developing revised recruitment strategies for future projects and is considering approaches such as attending clubs, schemes and nurseries, and partnering with community care and nursing services, in the study area.

**Timings**

The timings of the Home Monitoring for Well-being project are shown in Table 10.1.

	2022			2023				2024	
	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2
<b>Identify: recruiting households</b>									
<b>Alleviate: implementation of monitoring, feedback, measures and engagement</b>									

Table 10.1. Timescales for the Repowering London pilot project.



## Organisational structure

The Home Monitoring for Well-being project was managed and delivered by a Project Manager in Repowering London, with support from the Programme Manager who worked on the CEES pilot project. Both of these managers changed during the Home Monitoring for Well-being project and this is likely to have impacted on project delivery.

## 2. Identify (EO3)

### Process

Repowering London's objective was to recruit 20 households to the Home Monitoring for Well-being project. Recruitment began on an estate (which we will call Estate 1) in inner city south London in early 2022. Estate 1 was selected because Repowering London had a pre-existing relationship with the Resident Management Organisation (RMO) for the estate. However, recruitment was challenging, for reasons that are discussed below. Therefore, in the summer of 2022, Repowering London decided to begin recruitment in a second estate (Estate 2) in the same area; again, Repowering London had a pre-existing relationship with the RMO on the estate.

In both areas, recruitment was carried out in a variety of ways. Some were universal, for instance leaflet drops were undertaken across the estates. Other approaches were more selective, for instance the RMOs recommended households that might benefit from the project. In addition, the leaflets mentioned a focus on households with people aged under 16 or over 65. However, these were not strict eligibility criteria and all households on the estates that applied were considered for the project.

### Challenges

Repowering London noted that recruitment was more straightforward in Estate 2 than it had been in Estate 1. Three possible interlinked reasons for this were considered. Firstly, the team noted greater 'social capital' in Estate 2 than in Estate 1, reflected in stronger relationships between residents themselves and between residents and the RMO. The RMO in Estate 2 was also much more active than in Estate 1. Additionally, Estate 2 is more modern and low-rise, while Estate 1 is older and high-rise. Repowering London commented:

*'When you walk through Estate 1 you don't necessarily bump into people in the way that you would at Estate 2. It was just a very different experience'.*

Across both estates, Repowering London noted the following challenges with recruitment:

1. Some residents may have been put off joining the project due to shame or stigma relating to the poor conditions (e.g damp and mould) in which they were living. This is concerning because it suggests that the people who most need support might be less likely to access it.






2. It also appears likely that some households were put off joining the project due to the level of commitment that was required to have the monitoring equipment installed and the longevity of the commitment. This was particularly the case for those with health conditions and other vulnerabilities. This again raises the concern that those most in need might be less likely to receive support.
3. Some householders were concerned about sharing personal information with the Repowering London team.
4. Finally, some residents had security concerns and were unwilling to allow people into their homes. In two of these cases, the security concerns were raised by the adult children of the prospective participants.

## Take part in the Home Monitoring for Wellbeing research project to

- Save money on your energy bills.
- Reduce air pollution in your home.
- Receive money for your time.



Creating Local Energy

**Register your interest THIS WEEK – places going fast**

If you live on Roupell Park Estate and at least one person living in your home is:

- Under 13 years old OR Over 65 years old
- OR if any person has an existing heart or lung health condition (e.g. asthma)\*

you could benefit from:

- A free monitoring and advice service for air quality and energy use to help improve your health and reduce your energy bills;
- Up to £1000 budget per household for Repowering to install helpful equipment to improve air quality and increase energy efficiency in your home;
- £100 for participating in the project and £40 per (optional) feedback session


### How to register your interest

Whatsapp, Text or Call Irma on 07513 808963  
 Email: [irma.allen@repowering.org.uk](mailto:irma.allen@repowering.org.uk)  
 OR fill out the online form here: <https://tinyurl.com/4k3exjxt>  
 Website: [www.repowering.org.uk/home-monitoring-for-wellbeing](http://www.repowering.org.uk/home-monitoring-for-wellbeing)

We will contact you with more information and to see if you can take part.

\*If you do not meet this criteria but are interested, get in touch to find out if you could still be involved.

Supported by



The Home Monitoring for Wellbeing project is run by Repowering London, a not-for-profit organisation based in Brixton. It is funded by Impact on Urban Health: part of Guy's and St Thomas' NHS Foundation Trust.

Home Monitoring for Well-being recruitment leaflet.



CEES has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101026972.



**cees**  
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 ENERGY SOLIDARITY



## Outcomes

Recruitment continued through the latter half of 2022. By the end of this period, 33 households had been recruited and had had an initial assessment carried out. However, in the first few months of 2023, half of these households either withdrew from the project or were not considered suitable on the basis of the assessment, leaving a total of 16 participating households (11 in Estate 1 and 5 in Estate 2). Reasons for withdrawal included some of those noted above. In addition, some working households found it difficult to set up the appointments to install the monitoring equipment due to work commitments.

Given that all households on the estates were eligible to join the Home Monitoring for Well-being project, it is important to examine whether this approach generated participation by people in energy poverty. Table 10.2 shows that of the 14 households that completed the baseline household survey, 65% (9) confirmed that they had difficulty paying their energy bills, with a further 14% (2) respondents giving a neutral answer. It is important to note that affording energy bills is just one indicator of energy poverty. In addition, participants might have been reluctant to reveal the extent of their struggles. Nonetheless, this suggests that the approach to recruitment that was employed by Repowering London was quite successful in targeting people who are likely to be in energy poverty. Of course, this could also be a reflection of relatively high levels of energy poverty across the two estates.

	Number (%)
<b>1 - No difficulty</b>	1 (7%)
<b>2</b>	2 (14%)
<b>3</b>	2 (14%)
<b>4</b>	4 (29%)
<b>5 - Great difficulty</b>	5 (36%)

Table 10.2. Baseline responses to the question, 'Thinking about the past year, how much difficulty have you had with affording your energy bills?' (n = 14).

The demographic characteristics of the participants in the Home Monitoring for Well-being project are shown in Table 10.3.



	<b>Number of households (%)</b>
<b>Number of people in household</b>	
1	7 (50%)
4	5 (36%)
5	2 (14%)
<b>Number of children (aged 17 or less) in household</b>	
0	7 (50%)
1 to 2	2 (14%)
3	5 (36%)
<b>Number of older people (aged 65 and above) in household</b>	
0	10 (71%)
1	4 (29%)
<b>One or more person with a disability or long-term illness</b>	
Yes	11 (79%)
No	3 (21%)
<b>One or more person in paid employment</b>	
Yes	3 (21%)
No	11 (79%)
<b>One or more adult male in the household</b>	
Yes	5 (56%)
No	9 (64%)
<b>Type of property</b>	
Purpose built flat or apartment	14 (100%)
<b>Tenure</b>	
Owner occupier	1 (7%)
Social tenant	13 (93%)

Table 10.3. Demographic characteristics of households that completed the 'baseline' survey in the Home Monitoring for Well-being programme (n = 14).



## 3. Alleviate (EO4)

### Introduction

The Alleviate mechanism within the Home Monitoring for Well-being project had three key stages:

1. Installation of monitoring devices and data transmission systems.
2. Monitoring data collection and the provision of tailored feedback and advice to the householders.
3. Selection and provision of appliances and measures to the value of €1,150.

All of these stages were underpinned and supported by ongoing in-depth engagement with the participating households. This consisted of numerous and often lengthy home visits with each participating household and was a far more extensive form of engagement than was implemented in the other CEES pilot projects. The processes, challenges and outcomes in the three stages and in the in-depth engagement are described in the sections below.

### Installation of the monitoring devices

#### Process

This stage in the process involved the team from London South Bank University installing two or more different monitoring devices (including devices to capture energy consumption, indoor temperature, and measures of indoor air quality (carbon dioxide, fine particulate matter (PM2.5) and total volatile organic compounds (TVOC) and data transmission systems (including 4G internet routers) in each property and setting up systems to receive and store data remotely. In addition to the Repowering London technical installers, the Project Manager also attended the installations at the participants' properties.

#### Challenges

- Since it was in the Home Monitoring for Well-being budget, the cost of the technology was not a challenge. However, the cost of the technology in the project was significant and it would therefore be very challenging to replicate this in the absence of dedicated funding.
- Sourcing of the monitoring devices and setting up of the monitoring devices/data transmission systems in participants' home and at London South Bank University took a lot longer than had been expected and took up a lot of time for both the university technical team and the Repowering London team.
- Installation visits to households were challenging to set up because they lasted several hours and needed to be attended by the Repowering London technical team and Project Manager, and the householder.



## Outcomes

The technology installation, testing and troubleshooting aspects of the Home Monitoring for Well-being project were successfully completed by May 2023 for the 16 households. As discussed above, this was later than had been planned.

## Monitoring and tailored feedback and advice

### Process

This involved liaison between the London South Bank University and Repowering London teams to represent a lot of complicated data and technical information in a report format that would be accessible, understood and useful for the householders. This process was supported by a co-design workshop in which options were shared with a group of participating householders and the householders described what would be helpful for them. The reports were designed and prepared to a high quality as a statement of Repowering London's commitment to the participants. The reports were printed due to the challenges of digital communications with some of the participants. Once the reports had been produced, this involved further engagement by Repowering London with each individual household to go through the report face-to-face. The reports themselves contained charts showing the monitoring data and tailored advice in the form of so-called 'easy wins'. This tailored advice was produced on the basis of the monitoring data and other knowledge about the household. Four rounds of reports were prepared and discussed with householders in June 2023, October 2023, February 2024 and June 2024.

### Challenges

Delays with the early stages of the project meant that, in advance of winter 2022, Repowering London needed to provide advice that was not based on monitoring data. This meant that this initial advice was not as tailored as had been hoped. Despite the value of the co-design workshop, developing and finalising the format of the various data in the feedback reports was challenging and time-consuming. Further, with respect to some of the variables that were being monitored, there were challenges for the London South Bank University team in terms of understanding and converting certain units of measurement and in deciding which guidelines to use to identify areas of concern<sup>5</sup>. Finally, the round of

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<sup>5</sup> As an example of the complexity of guidelines, the [British Gas website](#) contains the following advice with respect to ideal internal temperatures in winter, 'The Energy Saving Trust recommends heating your home to between 18 to 21 degrees celsius during winter. And The World Health Organisation (WHO) suggests 18 degrees is the ideal temperature for healthy and well-dressed people. Both agree this is also the ideal temperature for sleeping. In practice, you should be heating your home based on the age and health of your



home visits to go through the report with the participants was very time-consuming. This was in part because the level of already-existing knowledge among the participants was typically relatively low (particularly with respect to the indoor air quality aspects of the project).

## Outcomes

This phase of the Home Monitoring for Well-being project was completed in early 2024. With respect to levels of engagement with the reports, Repowering London commented that this was mixed:

*'I think some of the participants have read the report and I think it has improved their understanding of air quality and energy poverty. Some of them have emailed with questions and I've had some really nice comments about it. I'm pretty sure some of them have not read it, though it still served its purpose as an engagement tool and a connection tool, which is important.'*

## Selection and provision of appliances and measures

### Process

As noted earlier, each participating household was allocated a budget of €1,150 to spend on appliances and products. This phase of the Home Monitoring for Well-being project involved the following steps:

1. With the support of the London South Bank University team, Repowering London produced a well-designed<sup>6</sup> and comprehensive 36-page catalogue of potential appliances and products available to household (see front cover below). The 22 categories of products and appliances, from various types of cooking appliance to anti-allergen bedding, focused on improving indoor air quality and some of them were also energy efficient.
2. Repowering London shared and reviewed this with households and assisted households to make purchasing decisions, some at a workshop and some in home visits. This took place from November 2023. In practice, the appliances and products selected tended to focus more on improving indoor air quality than energy poverty.
3. Repowering London ordered the appliances and products (using Amazon for Business). Items were ordered over the winter of 2023-2024.

### Challenges

A key challenge in this phase of the project was that preparing the catalogue of products, reviewing the catalogue and making purchasing decisions with all of the participants were all very time-consuming.

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household. The WHO suggests 20 degrees as the ideal temperature for the old, young or unwell. For healthy adults, you should heat your home to a room temperature that feels comfortable.'

<sup>6</sup> Designing the catalogue to a high standard was seen as important in terms of demonstrating to participants how much they were valued by Repowering London.



Indeed, Repowering London noted that this was the element of the project that required the most work with participants, including multiple engagements.

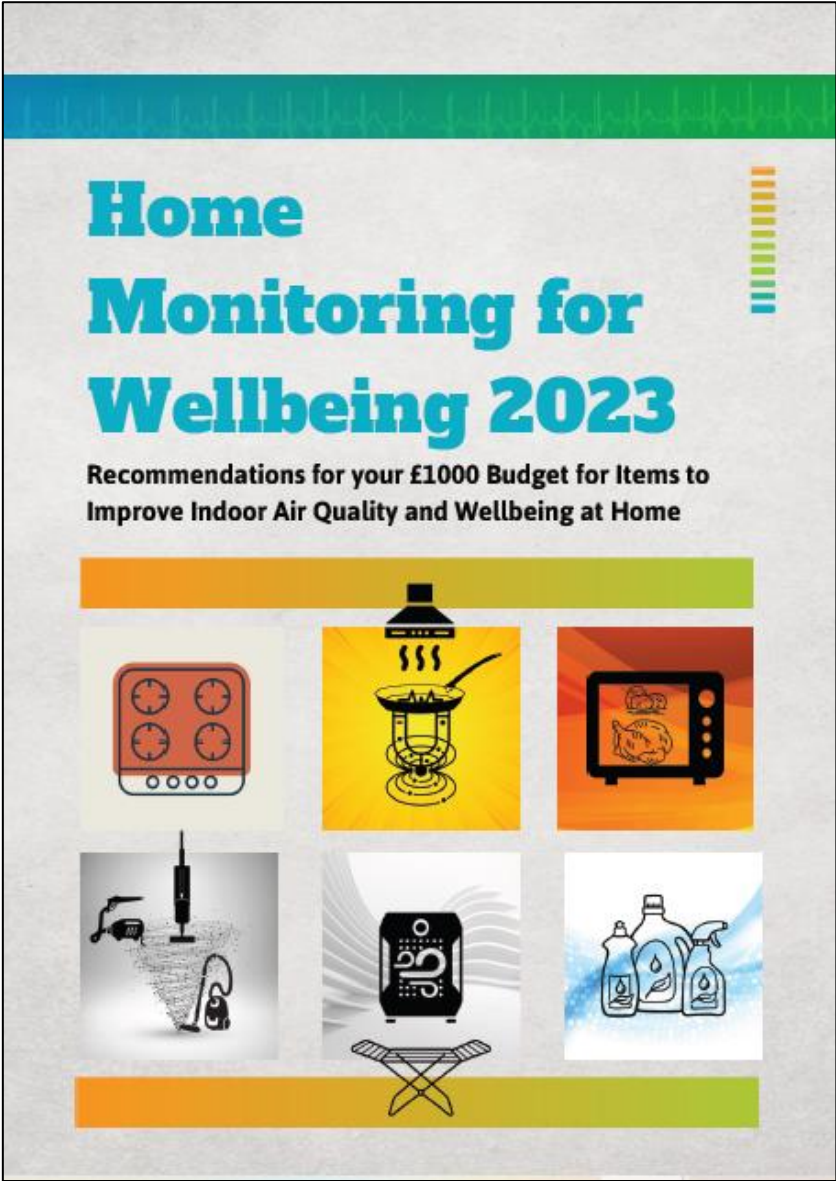
Another challenge was that some of the preferred interventions required work within residents' properties. For instance, in several properties, the monitoring systems determined that old and inefficient gas cookers were a source of potentially higher energy costs and of damaging indoor pollutants. In response to this, these households wished to replace their old gas cookers with new and efficient electric ovens with induction hobs. This required new electrical wiring and some work to kitchen units.

It was also often challenging to ensure that the householder would be available at home to receive the delivery from Amazon for Business. In addition, due to the financial approvals needed, the ordering process needed a project team member and a Repowering London director to be both present, which was sometimes difficult to arrange.



CEES has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101026972.





The front cover of the 36-page catalogue of appliances and products.



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## Outcomes

By April 2024, items had been ordered and delivered to almost all of the participants. Repowering London provided several examples of the positive impacts of this work. The extent to which the appropriate solutions are dependent on the specific context within the household is notable:

*'Two participants, who receive hot water and heating via a communal system, have terminated their gas supply, which they used for cooking only. Instead, they have had new electric induction hobs installed and, in one case, an electric oven, the other participant already had an electric oven. This involved both participants switching to Octopus Energy as this supplier will cap a gas supply used for cooking only and remove the gas meter free of charge. Also Octopus generally provides significantly better customer service than other suppliers. These participants will now be permanently relieved of having to pay a daily standing charge for gas and have removed a significant source of indoor air pollution i.e. gas cooking appliances. In practical terms, these participants had to factor the costs of electrical installation and some modifications of their kitchen space into the budget.'*

*'One participant who resides on the estate which is not supplied by a communal heat network (which leaves no option to terminate the retail gas supply) has elected to switch his aged freestanding electric cooker for an induction hob and built-in oven. This should reduce running costs in line with the superior efficiency ratings of the new items. Two other participants who were both using freestanding electrical cooking appliances have purchased large oven-style air fryers which can pretty much be used in place of conventional ovens and, again, this will reduce running costs.'*

*'Two participants with larger families, who were using conventional tumble dryers, will reduce their electricity costs having chosen air pump tumble dryers. Using tumble dryers rather than having laundry drying indoors for days on end is also recommended for better air quality.'*

Repowering London highlighted the replacement of appliances as an approach to energy efficiency that can be a productive and less costly alternative to installing new heating systems:

*'Cooking appliances and other appliances is a relatively underserved area of focus for retrofit and energy efficiency projects, but it's a much less costly and complex intervention than installing low carbon alternatives to gas-fired central heating.'*

## Ongoing and in-depth household engagement

### Process

The in-depth engagement focused on regular time spent in the participants' homes to implement one or more aspect of the processes described above, backed up by emails and telephone calls (as needed), and participation in the co-creation and catalogue workshops in some cases. The home visits lasted for



up to two hours and often involved discussion of things that were not strictly related to the Home Monitoring for Well-being project.

## Challenges

The cost of the ongoing and in-depth engagement was considerable in terms of human resources. This was not a direct challenge for Repowering London, in the Home Monitoring for Well-being project, because the time was included in the grant-funded budget. However, thinking more generally, Repowering London commented on the ambiguous role of this level of engagement: noting that this is not always an efficient use of time, that it was too much for some of the participants, but also that the in-depth engagement is important because it builds relationships with householders. This ambiguity is shown in the following comments by Repowering London:

*'I've definitely done home visits that haven't been efficient, I've probably been there for an hour and a half or something, 'cos you end up chatting to someone about their kids, but it's important because it builds up those long-term connections'.*

*One woman was 'At one stage very disengaged, the project was just an unwelcome intrusion into her life. She made that clear. However, this participant's engagement totally turned around in the last few months of the project'.*

Repowering London also commented on the psychological burden that the delivery team experienced in the course of working in-depth with people who are sometimes in desperate circumstances:

*'I think another learning about doing this sort of level of intensive engagement in the context we're working in, especially with statutory services being overburdened, is that I don't think it is work where you can have one project manager working in isolation. I think in terms of resourcing, that it is essential that there be some kind of team infrastructure to support that.'*

## Outcomes

As discussed above, in-depth engagement does not work for everyone. Repowering London summed it up in this way:

*'I think on the whole most of them felt well disposed towards us, but I also felt that there was some degree of fatigue with everything'.*

That said, Repowering London was very confident of the benefits of in-depth engagement for the Home Monitoring for Well-being project. The benefits took a number of forms.

- The Repowering London team often returned to the importance of in-depth engagement for building trust with householders, commenting, *'The engagement is what works building trust.'*



- They also noted that in-depth and ongoing engagement leads to greater knowledge about the household and the property. This is significant because it means that more appropriate and impactful support can be provided. This issue has two elements. First, Repowering London commented that, as engagement deepened and trust was built, several participants were willing to reveal more about their situations (see the quote below). Second, in-depth engagement enabled the delivery team to learn more about the household through observation:

*'It's only through a number of months of being in contact with some of the participants that it's transpired that they are facing quite serious issues with their energy provider. At first our conversations might have been quite light touch, or more about just cost of energy in general, then after a few conversations or more it transpires that they're struggling with a massive bill and there's a bailiff coming. These kinds of things are much harder to talk about perhaps up front. There's another participant, for example, who hasn't had any heating or hot water for three years, and he's an elderly and vulnerable person, and that didn't become clear for quite a few months. He said that everything's alright and he was fine, but as it turns out he's not. Obviously he doesn't struggle with his bills, he doesn't have any heating or hot water!! So that's stuff that we have been working with some of the participants to resolve.'*

- Repowering London also reported that the relationships that had been built through engagement were especially valuable when the project encountered challenges, such as the issues and delays with the installation of the monitoring systems that were discussed earlier. The team described how these positive relationships kept people engaged with the project despite the challenges:

*'We've had all these technical challenges, as you'd expect on an innovation project. But the project manager on the project has been offering one-to-one energy advice to some of the participants for quite a while and has been really successful in keeping people engaged with revisits that we've had to do to get some of the equipment up and running, and sometimes repeated revisits for what probably seems like the same set of actions, and other things that could really lead to people being disengaged. But she's done a really good job of keeping them engaged because she's built-up relationships over time.'*

- Finally, Repowering London was keen to emphasise the ways in which their in-depth engagement with households provided social contact for some of the more isolated participants. As illustrated in the comment below, the delivery team provided this social contact themselves and facilitated social contact between participants:

*'She's so happy to have company. She cries when I leave, you know. She's really lonely. And then her downstairs neighbour, I kind of introduced them, and they have some contact. The downstairs neighbour is also recently bereaved.'*



# 4. Alleviate: short term household experiences and impacts (EO4.2)

## Short term household experiences

Short term household experiences were examined through three questions in the ‘engagement’ survey. In the Home Monitoring for Well-being project, this data was collected at the end of one of the home visits at which the feedback and advice was provided to householders. The ‘engagement’ survey was completed by nine of the sixteen participating households. As shown in Table 10.4, with agreement levels with the positive statement at 89%-100%, the responses indicate that household satisfaction was very high.

	Agree	Neither	Disagree
<b>The home visit was well-run</b>	9 (100%)	0 (0%)	0 (0%)
<b>The home visit suited my needs</b>	8 (89%)	0 (0%)	1 (11%)
<b>The home visit was conducted in a respectful way</b>	9 (100%)	0 (0%)	0 (0%)

Table 10.4. Household experiences of the Home Monitoring for Well-being programme events (n = 9).

Turning to the qualitative data that was collected in the ‘engagement’ survey, several participants commented on the value and clarity of the documents that Repowering London produced (although one respondent was more ambivalent about this and suggested that a workshop environment might have been more productive for discussion of the feedback). In addition, several respondents identified one or more pieces of advice as being particularly helpful.

## Short term impacts for households

Short term impacts for households were examined through three further questions in the same ‘engagement’ survey. Table 10.5 shows that satisfaction levels relating to learning, confidence and intent were also high at 78%.



	Agree	Neither	Disagree
<b>Learned practical information and skills to help reduce my energy consumption and costs.</b>	7 (78%)	0 (0%)	2 (22%)
<b>Feel more confident than before that can reduce energy consumption and costs.</b>	7 (78%)	0 (0%)	2 (22%)
<b>Intend to take action to reduce my energy consumption and costs.</b>	7 (78%)	1 (11%)	1 (11%)

Table 10.5. Immediate impacts on households in the Home Monitoring for Well-being programme (n = 9).

## 5. Longer term impacts on households (EO4.2)

### Longer term experiences

The Home Monitoring for Well-being ‘follow-up’ survey contained four retrospective questions about longer term experiences of the programme. This was completed by 14 participating households in March 2024, shortly after the third round of feedback and the provision of the products and appliances. The findings from this survey are shown in Table 10.6. These results provide further evidence that the Home Monitoring for Well-being programme was successful in terms of its process. One year after the beginning of their participation, households in the programme clearly feel that the programme was well-run (86%), that the energy advisors listened and were respectful (86%) and that the programme was adaptable to suit their needs (79%). Finally, 86% of participants agreed that they would recommend the programme to others.

	Agree	Neither	Disagree
<b>The programme was well run.</b>	12 (86%)	2 (14%)	0 (0%)
<b>I felt listened to and respected by the people who were delivering the programme.</b>	12 (86%)	2 (14%)	0 (0%)
<b>The programme was adaptable to suit my needs.</b>	11 (79%)	2 (14%)	1 (7%)
<b>I would recommend the programme to other people who struggle to pay their energy bills.</b>	12 (86%)	2 (14%)	0 (0%)

Table 10.6. Longer-term household experiences of the Home Monitoring for Well-being programme (n = 14).



A number of qualitative comments were added to participants' 'follow up' survey responses and reported directly to Repowering London by participants. These comments were all positive and are shown below:

*'Thank you for allowing me to participate. Overall, my experiences has been positive.'*

*'I am proud to be involved and I let everyone know this'*

*'Being part of the project has made me less worried about energy costs.'*

*'Wonderful people involved in the project, their care for us is admirable.'*

*'It's been a nice experience meeting the team and working with them. I've enjoyed getting to know [name of project manager]. She's very helpful in sharing tips.'*

*'Thank you for being respectful, generous and considerate throughout.'*

*'I feel blessed to come across Repowering, always welcome to my home, lovely people.'*

## Longer term changes: comparing the 'baseline' and 'follow up' surveys

### Introduction

Longer term impacts of the pilot projects were examined by comparing each household's responses to a 'baseline' survey to their responses to an identical 'follow-up' survey. In the Home Monitoring for Well-being project, the 'baseline' survey was conducted in a home visit shortly after recruitment in December 2022/January 2023 and the 'follow-up' survey was conducted in a home visit shortly after the third round of feedback and the provision of the products and appliances (March 2024). Once the data had been cleaned and integrated, 12 matched pairs of households were available for analysis (from the 16 participating households). Differences between the baseline survey data and the follow-up survey data were examined using the Related-samples Wilcoxon signed-rank test, with a confidence level of 90% required to establish significant changes. As discussed earlier, 90% was used due to the relatively low sample size.

The results of this analysis are examined in the tables below. These tables show means of all of the items from the baseline and follow-up surveys that relate to energy poverty. Items where a statistically significant change was identified, with a 90% level of confidence, are highlighted in green. It should be noted that 12 participants is a very small sample, and this reduces the likelihood of finding any statistically significant change.

### Paying energy bills

As indicated in Table 10.7, the Home Monitoring for Well-being analysis shows a statistically significant (at 90%) *decrease* in the mean for difficulty affording energy bills between the baseline survey and the follow-up survey. Even though changes cannot confidently be fully attributed to the programme, this is a positive result that indicates that households reported *less difficulty* paying their energy bills one year after the beginning of their engagements with the programme than they did at that earlier stage.



Survey items	Baseline survey mean	Follow-up survey mean	Difference between means	Description of change
<b>Difficulty affording energy bills. 1: No difficulty; 5 = Great difficulty (n = 12).</b>	3.50	2.25	-1.25	Less difficulty
<b>Self-restriction of access to energy services in order to be able to afford energy bills. 1: Not restricted at all; 5: Restricted to a great extent.</b>				
Heating (n = 8)	3.11	2.73	-0.38	-
Cooking (n = 12)	2.25	2.00	-0.25	-
Refrigeration (switching off fridge or freezer) (n = 12)	1.00	1.50	0.50	-
Cooling your home (n = 11)	2.09	2.09	0.00	-
Doing laundry (n = 12)	2.50	2.25	-0.25	-
Heating hot water (n = 9)	2.27	2.89	0.62	-
Lighting (n = 12)	2.67	1.75	-0.92	-
Running electronic devices (for example, TVs, computers and phones) (n = 12)	2.17	2.17	0.00	-

Table 10.7. Household responses to the 'baseline survey' and 'follow up' survey in the Home Monitoring for Well-being programme (paying bills and self-restriction of access to energy services). The green shading indicates variables where statistically significant findings were observed at 90% confidence.



### **Self-restriction of energy services**

Table 10.7 also shows the results with respect to the self-restriction of access to energy services by householders. Across these items, the analysis shows no statistically significant change at 90% confidence between the baseline survey and follow-up responses.

### **Negative impacts of energy struggles**

Table 10.8 shows the findings with respect to the negative impacts of challenges with paying for energy. The findings suggest that, despite the positive change with respect to the ability to pay energy bills described above, the Home Monitoring for Well-being programme did not produce any statistically significant change (at 90%) to householders' experiences of the negative impacts of difficulties paying for energy.

### **Energy literacy and know how**

Table 10.9 shows the findings with respect to the energy literacy and know-how of the householders. The analysis shows a statistically significant difference (at 90%) between the 'baseline' and 'follow-up' survey with respect to householders knowing that they were on the best energy tariff. These findings are a further reflection of the positive impacts of the Home Monitoring for Well-being project.

Survey items	Baseline survey mean	Follow-up survey mean	Difference between means	Description of change
<b>Negative impacts on household of challenges paying for energy: 1: No impact at all; 5: A lot of impact</b>				
Physical health or well-being (n = 10)	2.25	2.50	0.25	-
Mental health (n = 11)	3.17	2.45	-0.72	-
Ability to study at home (n = 7)	2.00	2.20	0.20	-
Ability to work at home (n = 3)	1.50	2.29	0.79	-
Ability to have visitors in the home (n = 11)	1.64	1.67	0.03	-
Feeling of pride in the home (n = 12)	1.50	2.00	0.50	-
Feeling comfortable in the home (n = 11)	2.00	2.27	0.27	-
Feeling safe and secure in the home (n = 12)	1.67	1.83	0.16	-
Ability to access online/digital communication services ... (n = 12)	1.42	1.67	0.25	-
Ability to enjoy recreational activities in the home (n = 12)	1.75	1.75	0.00	-

Table 10.8. Household responses to the 'baseline survey' and 'follow up' survey in the Home Monitoring for Well-being programme (negative impacts of problems affording energy).

Survey items	Baseline survey mean	Follow-up survey mean	Difference between means	Description of change
<b>Extent of agreement with statements: 1 = 'I don't agree at all' and 5 = 'I strongly agree'.</b>				
I know my approximate monthly energy consumption or costs (n = 11)	4.08	3.55	-0.53	
I understand my energy bills (n = 11)	3.33	4.00	0.67	-
<b>I know that I am on the best energy tariff for me (n = 10)</b>	<b>2.27</b>	<b>3.00</b>	<b>0.73</b>	<b>Greater confidence</b>
I know how to manage my energy bills online (n = 11)	3.58	3.91	0.33	-
I know how to contact my energy supplier (n = 11)	4.42	4.36	-0.06	-
I know how to save energy in my home (n = 12)	4.33	4.08	-0.25	-
I know if my home is well insulated or not (n = 8)	3.33	3.38	0.05	-
I am confident that I am receiving all benefits/welfare payments that I am entitled to (n = 12)	3.08	3.75	0.67	-
I think that my local community is supportive of people who struggle to pay their energy bills (n = 5)	3.17	3.36	0.19	-
I feel a sense of stigma or shame because of my struggles with energy bills (n = 10)	2.18	2.00	-0.18	-

Table 10.9. Household responses to the 'baseline survey' and 'follow up' survey in the Home Monitoring for Well-being programme (energy literacy and know how). The green shading indicates variables where statistically significant findings were observed at 90% confidence.

## Longer term impacts: the follow-up survey

The Home Monitoring for Well-being ‘follow-up’ survey contained six questions that retrospectively asked households about changes during the period since their participation in the project. The results are shown in Table 10.10. The findings from these questions are mixed. While the Home Monitoring for Well-being programme appears to have led to change with respect to learning about using less energy (71%), saving on energy (79%) and lowering energy bills (86%), this has not fed through into widespread change with respect to physical health (36%) and mental health (36%).

	Agree	Neither	Disagree
<b>I have learned more about how to use less energy through participation in the project.</b>	10 (71%)	4 (29%)	0 (0%)
<b>I have learned more about how to save on the cost of energy through participation in the project.</b>	11 (79%)	3 (21%)	0 (0%)
<b>I think my energy bills will be lower through participation in the project.</b>	12 (86%)	2 (14%)	0 (0%)
<b>Participating in the project has improved the physical health of my household.</b>	5 (36%)	7 (50%)	2 (14%)
<b>Participating in the project has improved the mental health of my household.</b>	5 (36%)	7 (50%)	2 (14%)
<b>I met new people through participation in the project</b>	10 (72%)	2 (14%)	2 (14%)

Table 10.10. Longer-term household impacts of the Affordable Warmth programme (n = 14).

## 6. Legacy and impacts for Repowering London (EO6)

The work that is evaluated in this report has the following impacts and legacies for Repowering London.

### Identify

1. Following the recruitment challenges that were experienced in the Home Monitoring for Well-being project, Repowering London has developed further approaches to recruitment for similar future projects. These include attending more local organisations (such as nurseries) and local events and starting to seek referrals from local community health and social care workers (inspired by ALLenergy).



## Alleviate

1. The Repowering London team has confirmed that they have learned a lot about implementing monitoring and feedback projects and that this will make it more straightforward to implement such projects in the future.
2. Repowering London now has more ambitious objectives for such projects. For instance, they are now planning projects that employ monitoring to underpin both bespoke advice and retrofit: *'In the Home Monitoring for Well-being project we've been learning as we go, it's an innovation project. Now we're putting in funding applications for projects that involve retrofit on the basis of bespoke monitoring, and the ability to offer targeted advice to people in the early stages of considering retrofit projects.'*

## 7. Key learning from the Home Monitoring for Well-being project

### Identify

1. The project highlights the value of working with local partners, in this case Resident Management Organisations, to identify and recruit households in energy poverty.
2. At the same time, the project highlights the way in which the same approach can work differently in different places depending on other factors, in this case the level of 'social capital' that was present in the two estates.
3. The Home Monitoring for Well-being project shows that lack of trust, security concerns and concerns about the level of commitment required can restrict recruitment to projects.

### Alleviate

1. The Home Monitoring for Well-being project shows that projects with sizeable costs for monitoring kits and for in-depth and ongoing household engagement are possible when these costs can be fully budgeted. Grant funding, funding from energy suppliers and network operators, and partnerships with municipalities might offer funding options.
2. The project emphasises that setting up monitoring systems, designing and delivering comprehensive feedback and supporting households with budgets for the purchase of appliances and products are all time-consuming activities.

3. Nonetheless, the project highlights the potential value of monitoring and feedback in supporting the provision of bespoke solutions for householders. It offers examples of this with respect to effective ways in which to spend funds for appliances and products.
4. The project highlights the positive potential of the replacement of major appliances, such as inefficient cooking appliances, as important energy efficiency measures.
5. The project shows that in-depth and ongoing household engagement can be very beneficial in some contexts, for building trust, keeping households engaged and facilitating tailored advice, as well as providing social contact for people who are isolated. However, it can also be off-putting for some households.

