

Home Energy Performance Monitoring - Information sheet for participants

Many thanks for your interest in this performance monitoring project being co-ordinated by [Parity Projects](#), and in collaboration with:

- RetrofitWorks
- London Southbank University
- Cambridge Energy
- ICAX Ltd

Background to the research

To support individual homeowners, the UK Government needs to ensure that everyone can access attractive finance, grants and loans that help them retrofit their homes and adopt low carbon heating.

The [Heat Pump Ready Programme](#) forms part of BEIS' £1 billion Net Zero Innovation Portfolio (NZIP). Significant barriers need to be overcome at a household level to accelerate adoption of Heat Pumps technology and to meet the target of 600,000 system installations per year by 2028. ([For more details read the original BEIS Guidance Document of December 2021](#)).

There are 3 streams of research under the Programme

- Stream 1: Solutions for High-Density Heat Pump Deployment
- Heat Pump Ready - Stream 2: Developing Tools & Technology
- Heat Pump Ready - Stream 3: Trial Support and Learning

Parity Projects comes under [Stream 2](#) - "Developing Tools and Technology" with Parity focussing on performance in the home over an 18 month period, to capture the difference seasons, especially the colder months.

What is the process?

Every home is different. We will have a phone conversation with you prior to our visit to plan the installation kit, including meters and sensors for your home. We anticipate 2 days to install the monitoring kit. As for ease of installing and removing the sensors at the end of the project, we are using [Command strips](#) which are the standard for quality when it comes to attaching objects to paint, wall paper or internal wood securely but without causing damage upon removal.

We shouldn't need access to your home again re the monitoring, unless you have a problem, or a component of the monitoring needs servicing. Please rest assured that of all our work is fully insured.

If you are happy for us to do so, then we might contact you occasionally if we spot irregularities in the data that we think you would be able to help explain.

We will also conduct an energy survey of your home which will allow us to get to the heart of your home's energy performance over the course of the project.

Pre-requisites for your participation

The criteria we have for your participation are -

- Yours is a detached or semi-detached property (allows to separate the data from your neighbours)
- Your home has a gas boiler (we can include a couple of oil boilers) or a heat pump which you use on a regular basis as your primary form of heating and hot water
- An internet connection to transmit the data
- You have a smart meter (SMET2 to access the data remotely), or sufficient space around your existing gas meter to install a sensor
- There is a sufficient space around your boiler/heat pump to install heat meters

Energy survey

The Energy Survey consists of:

- Domestic energy performance survey to collect building information about the home (e.g. age of building, wall construction, amount of loft insulation, size of radiators, etc)
- Photographs will be taken around the home and may be used by our analysts to back up survey data. These will be of key features relating to energy use, such as the fabric structure of your home, windows and radiators

Monitoring kit

Here's a list of the sensors and their role in the research.

- Internal temperature will be measured in each room using small black battery powered sensors (about the size of a 9V battery). The sensors can easily be concealed in bookcases or behind picture frames
- CO2 concentration will be measured in a central location and will be used as a proxy for occupancy. Higher levels of CO2 generally indicate more people in the house. The sensor is a battery powered black box about the size of a mobile phone
- Window sensors will be placed on 1 or 2 windows that are most frequently used. The sensors are very small and will not affect the opening/closing
- Gas usage * will be measured by accessing your smart meter data. If you do not have a smart meter, we will connect a sensor to your gas meter. This option will be installed by our Gas Safe qualified engineer and does require a little space around the meter.
- Electricity usage will be measured by accessing your smart meter data. If you do not have a smart meter we will consider the practicality of fitting a small sensor to your existing electricity meter.
- Boiler or heat pump efficiency * will be measured using a combination of heat meters installed on the flow and return pipes of your boiler or heat pump. These will be installed by our engineer (on the basis of his survey) and will not affect the performance of your boiler/heat pump. In addition, we will place temperature probes on the hottest and coldest radiators on the central heating circuit.

- External weather will be measured with a small weather station placed in a suitable location. The data we collect from this includes temperature, wind speed and solar radiation.
- Data collection hub will be connected directly to your router with an ethernet cable. The hub will transmit all the data back to us and should be kept plugged in.

* We will seek to work with an installer of the heating system to add these items as they are on site to minimise disruption if this is possible.

What does the monitoring kit look like in your home?

Here's also a selection of close-up and wide shot photographs of the sensors and heat meters in position in a typical home. You will see that the sensors are discreet in where we place them – rest assured we will always consult you beforehand.

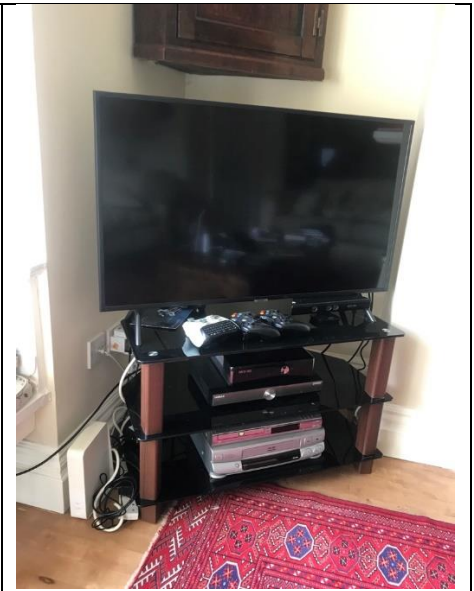
		
<p>Bathroom window (close-up)</p>	<p>Bathroom window (wide shot)</p>	<p>1st bedroom (behind curtain)</p>
		
<p>1st bedroom sensor (curtain moved)</p>	<p>2nd bedroom (close-up)</p>	<p>2nd bedroom (wide shot)</p>



Landing (close-up)



Landing (wide shot)



Ethernet gateway on top of existing router



Pipework - pre meter install



Pipework - post meter install




Weather station positioned in garden

Keeping your data private and secure

Collecting the data is of the utmost importance to us. The data we collect will be stored securely and will only be used by project partners. The use of personal data (such as your name, or any other identifying factors) will not be used unless we have asked for your express permission.

If there is any information that we collect that you do not want us to have, let us know and we will remove and destroy it immediately.

Incentives to get involved

 A white weather station with a black rain gauge, a wind speed sensor, and a temperature sensor. Next to it is a black tablet displaying a weather forecast with a circular gauge, temperature, humidity, and other weather-related data.	<ul style="list-style-type: none">• Each home will be provided with a free <u>Besser wifi Weather Centre</u> worth £199, which provides a 4 day weather forecast, plus with its 7-in-1 wireless sensor, details of the temperature, humidity, wind speed, wind direction, rainfall, UV level and light intensity.• £50 of shopping vouchers when we install the monitoring <u>AND another £50</u> at the end of the programme.• And most exciting of all - As part of the project, Parity Projects are designing an online portal to view the data and provide invaluable insights into how the home is performing. <p>Participants will be given login details and have free access once it has been built.</p>
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How do I sign up?

Contact us first by email, we will follow-up by email and phone

To sign up as a participant email David O'Neill: david.oneill@retrofitworks.co.uk (Customer Service and Administration).

It would be great to have you join our research – it will make a difference