



Home Energy Case Study

Retrofitting a detached home with insulation, heat pump & solar panels

About the home

A detached house built in 1942 and extended in the 90's.



What measures were installed?

Cavity wall insulation where it was missing, increased loft insulation, room-in-the-roof insulation for the dormers, replaced the windows with double-glazing throughout. Under-floor heating installed downstairs and skirting radiators upstairs.

28 solar panels and battery, 11kW total.

2 Air Source Heat Pumps, 10kW each.

What impact has the retrofit made?

We have no comparison with before the measures were taken, as we moved in after they were made. An average 5-bed home costs about £2,500 per year for energy use, and an inefficient one can cost more than £3,000, based on 2025/26 data. We pay about £1,700.

More importantly for us, we aren't burning any fossil fuels, and with the electric car as well, we are less affected by increases in oil prices globally.

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Visit: www.ecoberko.uk/energy

What motivated the retrofit?

We wanted to stop burning fossil fuels and get off gas. We were moving into a new home and wanted to take the opportunity for all the disruption to happen while we weren't yet living on site.

Solar panels

We took a short-cut to find a supplier, by contacting Sustain Homes, the people who had been the partner with Dacorum Borough Council for their Solar Together scheme. Their rep Jim was very helpful and gave a lot of confidence, and even though the scheme was over, they offered the same price, which they eventually discounted due to the size of the installation.

We have an excellent app that allows us to fill the battery at night and just before peak hours, to add to our savings.

Heat Pump

We were worried beforehand that the heat pumps would be very noisy, especially reading the paperwork. The neighbour was concerned as well, understandably. We didn't need to get planning permission for them, but we wanted to make sure they were happy.



In the end, we needn't have worried. They were so quiet, we thought they weren't working! We have a video showing that they are quieter than the neighbours' gas boiler.

We were concerned that they are maybe over-specified, which might be partly because we found a MCS spreadsheet online to do the assessment ourselves as to how much energy we needed, and it was this spreadsheet that was used to size the heat pumps. Not sure we would recommend that for others – best to get an expert to do it...

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