

West Oxford Model

Worked Example: benefits of the model in terms of carbon abatement costs

We use the £17,000 income from a 50kWp solar PV roof costing £225,000 to work in depth with 36 households per annum to reduce their carbon emissions. The income is made up of FITs and selling the electricity at the current retail price to the building owner. Our pilot group of households saved an average of 3.8 tonnes each over a year.

A 50kWp roof will generate around 1 million kWh of electricity in its 25 year guaranteed life. At a conversion factor of 0.54 this would mean 560 tonnes of carbon dioxide saved over the life of the installation. The cost per tonne of carbon saved would be just over £400.

If the roof were 100% grant-funded, the income from the roof would allow the community to help 900 households over 25 years. Assuming that every household achieves the average 3.8 tonne saving over the first year and that 30% of that saving persists from then on for the rest of the 25 year period, there is an overall carbon saving over the life of the PVs of 12,825 tonnes. Adding this to the 560 savings from the PVs themselves, gives a total of 13,385 tonnes saved. The cost per tonne of carbon saved therefore goes down to £16.80.

The formula is: number of households x average annual saving x 25 year life of PVs x 0.3 persistence factor /2 to get the middle year of the time period. For this example therefore the calculation is: $900 \times 3.8 \times 25 \times 0.3 / 2 = 12,825$