Harlees Fish & Chips

Low Carbon DORSET

Grant awarded: £20,786

Project cost
£79,210

Estimated Savings
11 tonnes of CO_2e / £2,095 (£675 /yr solar, £1,420 /yr fryer)

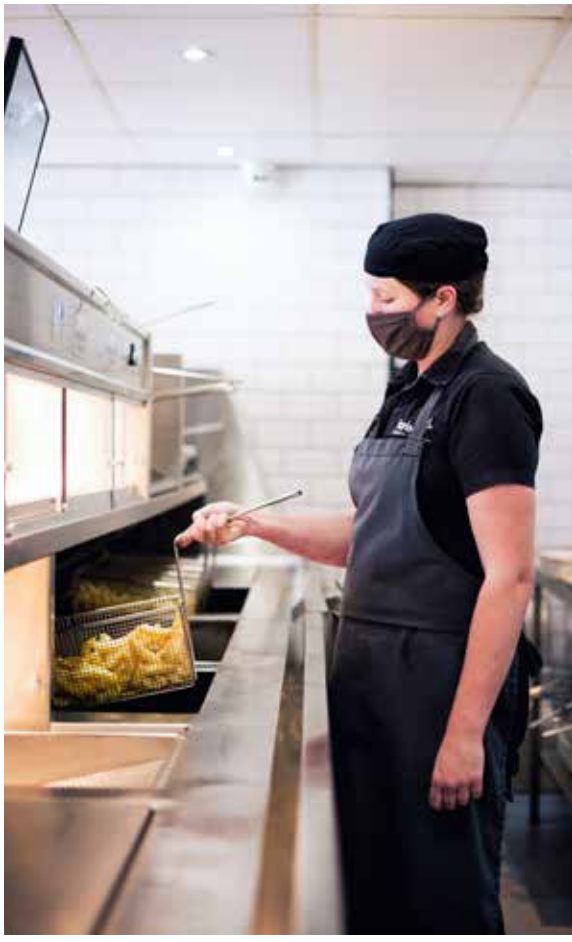
Equipment / Installer
6kWp solar PV array (Empower) / Kiremko High Efficiency Frying Range (KFE)

Estimated Annual Savings: 11 tonnes of CO_2e* / £2.1K

The Project

Harlees is a family run fish and chips business with seven locations across Dorset and Wiltshire. When a fryer needed replacing at their Verwood shop, Harlees decided to use this opportunity to reduce their carbon footprint. Instead of replacing like-for-like, Harlees invested in a high efficiency replacement fryer – this upgrade will reduce their gas consumption by an estimated 30%.

And they didn't stop there, they also installed as much solar PV as their roof space would allow (6kWp) to help tackle the emissions from their lighting and refrigeration. Combined, these measures are expected to save around 11 tonnes of CO_2e, and over £2K in energy bills, each year.



Getting started

When it became apparent in 2019 that one of Harlees' fryers needed replacing, the Dorset based firm decided to reach out to Low Carbon Dorset to explore whether they could use this opportunity to reduce their carbon emissions.

A full energy review of Harlees' Verwood shop by Low Carbon Dorset's technical officer Erik highlighted the key areas Harlees would need to focus on to reduce their emissions. By identifying the shop's three biggest energy demands, their frying range, refrigeration and lighting, Erik was then able to recommend steps that could be taken to reduce these.

*CO_2e, or carbon dioxide equivalent, is a term used to describe different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO_2e signifies the amount of CO_2 which would have the equivalent global warming impact. And allows us to express a carbon footprint consisting of lots of different greenhouse gases as a single number.

Fryer

It was quickly evident that the main energy demand of the business was their fish and chip fryer, consuming over 130,000 kWh of gas each year. At 16 years old, the fryer had already outlived its expected life span of 15 years. And since being installed in 2006 the efficiency of frying ranges has significantly improved.

A grant from Low Carbon Dorset covering 25% of the costs of replacing the fryer allowed Harlees to invest in a more advanced high efficiency fryer which would have previously been beyond their budget. The new Kiremko fryer is expected to be 25% more efficient than the fryer it has replaced and will use around 30% less gas. It will also be more efficient than cheaper modern fryers on the market. By making this switch, rather than either continuing with their old fryer or buying a less expensive new one, Harlees will be saving an estimated eight tonnes of CO_2e every year and can expect around £1.4K off their annual gas bill.

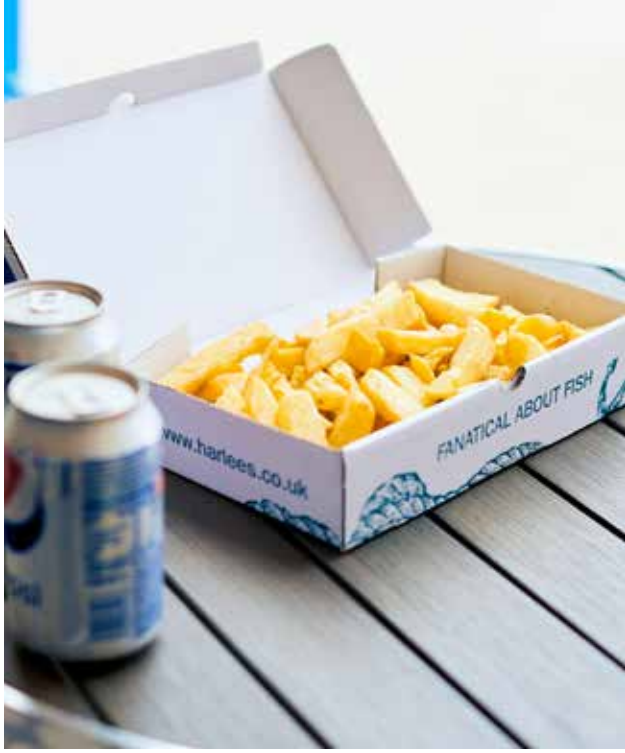
Solar PV

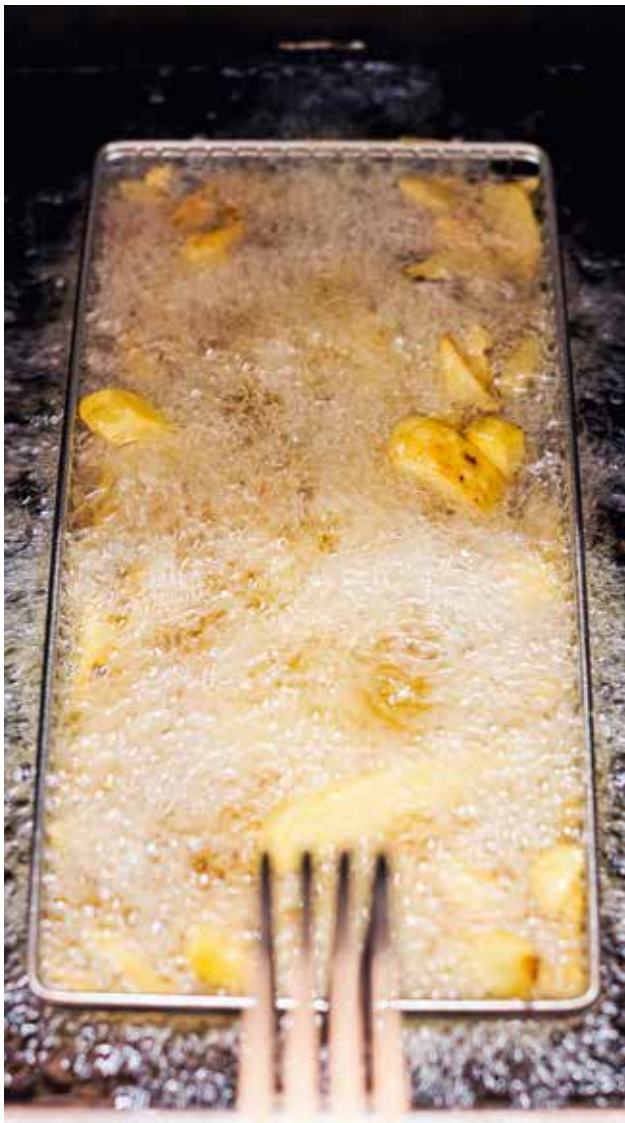
In order to tackle emissions from their lights and refrigeration units, Harlees decided to invest in a 6kWp solar PV array for their shop roof. This was the maximum number of panels they could put on the shop's available roof space and will save the business just under three tonnes of CO_2e a year.

It is expected that Harlees will be able to use around 80% of the electricity they generate, as much of their demand is during daylight hours with increased traffic in the summer months. The remaining 20% will be exported to the grid, and thanks to the Smart Export Guarantee scheme (SEGs) will generate them a small amount of income. Factoring in both the savings they will make on their electricity bills and the money they will receive for exporting, it is expected that the solar PV will save the business around £675 a year.

With the help of a 25% grant from Low Carbon Dorset, it is anticipated that the solar panels will take around seven years to pay for themselves.

After the success of installing PV at their Verwood shop, Harlees are now considering installing arrays at all their locations.





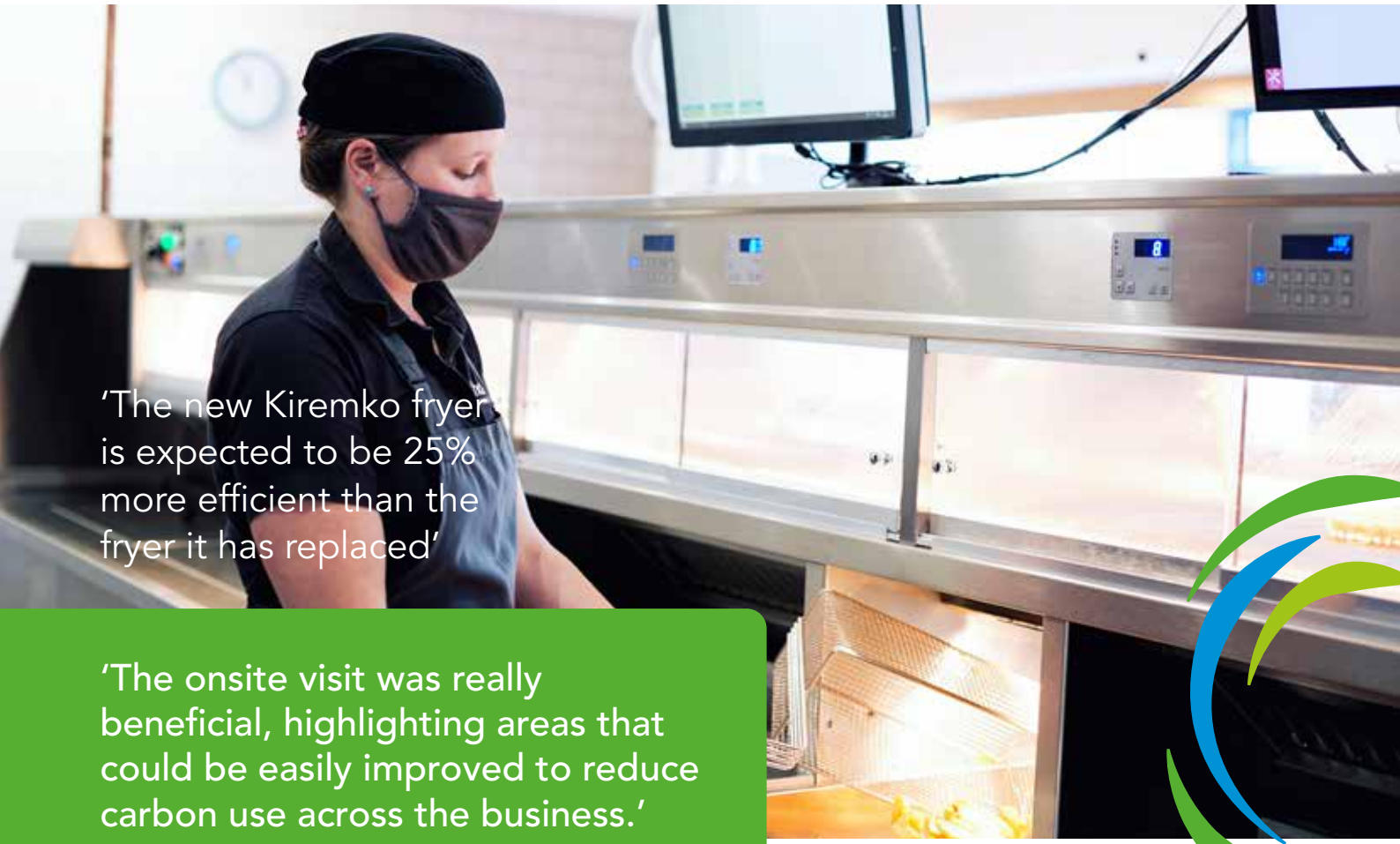
'It is expected that Harlees will be able to use around 80% of the electricity they generate'

Other recommended measures:

During the site visit of Harlees' shop, Low Carbon Dorset were also able to recommend some basic, relatively low-cost, measures that could help improve the energy efficiency of the shop. One recommendation was to fit a seven-day timer switch on the shop's drink display fridges. The items in these fridges do not need to be kept cold all the time they just need to be chilled during shop opening hours. However, to make sure they had cold drinks available, Harlees were running these fridges around the clock. By fitting a timer switch they were able to set the fridges to come on one hour before the shop opens and turn off half an hour before closing. This way chilled drinks were always available to customers, but they weren't powering fridges unnecessarily. Harlees have since rolled out timers at all their locations.

For the walk-in fridges that are required to run 24 hours a day, it was recommended that Harlees install endocube type devices. These are simple devices that consist of a plastic casing containing a blob of wax that clamps around the temperature probe and stops it reacting to the small inrush of warm air that occurs when fridge doors are opened. As a result, the fridge will work more efficiently and save energy.

Another simple step recommended to Harlees to reduce energy use was to insulate their hot water pipes. This relatively cheap measure can lead to savings, minimise heat loss, and reduce the heat in the kitchen during summer months when the boiler is running to provide hot water.



'The new Kiremko fryer is expected to be 25% more efficient than the fryer it has replaced'

'The onsite visit was really beneficial, highlighting areas that could be easily improved to reduce carbon use across the business.'

Dr Kaylee Herbert,
Director – Harlees Fish & Chips

European Union
European Regional Development Fund