Case Study: Running an Everhot cooker in conjunction with Photovoltaic Cells

Background

The Everhot is the most economical heat storage cooker on the market but, being on all the time, it does consume more power than a 'conventional' cooker.

It was with this in mind that, on the 1st March 2017, my array of PV panels was commissioned at my property in Weardale, Co. Durham.

My purpose in investing in these was twofold; to offset some of my carbon footprint and to save some money on my annual electricity bill. I was aware that the government incentives for installing panels have been eroded over the years, but the principle driver was to cover the cost of running the Everhot cooker as I near retirement.

My property lies in a remote part of NE England and sits at an elevation of around 1000 feet – winters are harsh and the area is often shrouded in mist, or covered in snow!

It is not an ideal area for PV generation and further south in the country there will be an improvement on the figures I produced but I was lucky to have an unobstructed, south facing roof that could accommodate 18 panels (4.59 KW).

My recommendation in choosing an installation company would be to speak to an expert, rather than someone who fits panels as part of their other business activities. I used the very capable NZ Eco who are based in Weardale; they assured me that despite regularly experiencing winds in excess of 60mph the panels would be well anchored, providing the roof stayed on, so would the panels!

Feed-in tariff

The feed-in tariff is a Government run initiative which aims to promote the use of sustainable energy systems such as PV, hydroelectric and wind turbines.

The feed-in tariff with regard to small scale PV installations is varied on a quarterly basis, depending on installation date, but for installations in March 2017, for every kWh generated, there is a payment of 4.5p/kWh and for power consequently fed back to the grid an additional amount of 4.91p/kWh is payable (these figures have now reduced slightly for new installations).

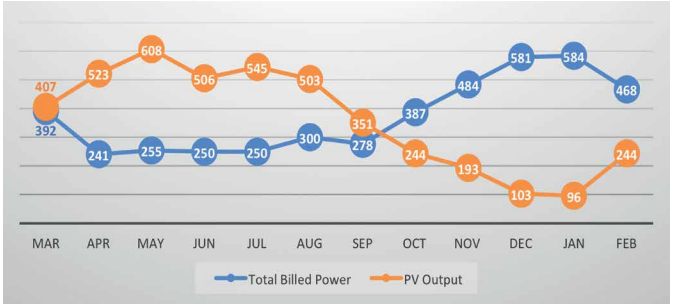
In contrast, my electricity provider charges 13.81p/kWh and hence it is immediately apparent that it is advantageous to use the power generated, rather than export it.

With this in mind, I installed a device (iBoost) that automatically diverts power to the immersion heater to top up the hot water tank and only when this has reached its set temperature, does power start to be exported.

During the summer months, my oil boiler was not required as hot water was being provided from the PV panels – a significant saving in oil over the year.

The Everhot cooker will call for power whenever it needs it in order to maintain the temperatures that have been set for it; it does not have a constant requirement for power, but is ideally suited to be used in conjunction with any sort of sustainable energy system – it was originally developed with small scale hydroelectric systems in mind.

Energy Graph (kWh)



On the first anniversary of the installation the finances worked out as follows:

Energy Generated (A) 4320 kWh

Energy Exported (B) 1884 kWh

Energy generated but consumed in house (C) = (A) – (B) = 2436 kWh

Feed-in tariff payments (4320(A) x .045) + (1884 (B) x .0491) = £286.90

Cost savings on energy consumed in house from panels (C) x .1381 = £366.41

Total savings associated with PV panels (ignoring oil for water heating) = £623

The estimated cost of running the Everhot 100 is
85 kWh x 52 weeks x .1381 = £610

Conclusion

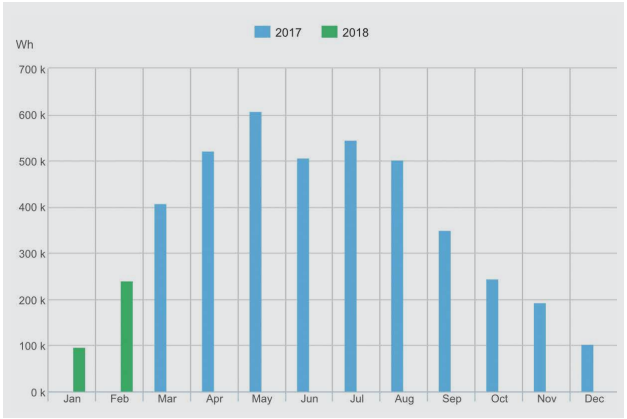
This one year study concludes that the cost of running an Everhot cooker can be entirely offset by the installation of 18 solar PV panels with a peak power of 4.59 kW.


Everhot 120i in Graphite

The obvious drawbacks are that in all PV installations, when the sun goes in, the power drops away and additionally the winter months yield nothing like the summer period – this will always be the case, but ongoing research into 'house batteries' which will allow unused power to be stored and called upon when needed is improving all the time.

The prices of these home battery systems are now tumbling and they will soon become a very attractive proposition.

The initial cost of the installation was around £7000 and the return in the first year was around 9% - it is by no means a 'get rich quick' scheme, but with the initial premise of covering the cost of running the cooker, I consider it very successful.



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To find out more, visit **www.everhot.co.uk**