

## **Woodpecker Cottage Solar update. 6<sup>th</sup> December 2023**

It's nearly 18 months ago that the Solar PV panels and associated technical widgets were installed. The Webmaster has asked for an update so here goes. The update should really cover three different phases:

1. Using the basic system, plus adding insulation in the main sitting room.
2. Adding an Electric Car to the set up.
3. Adding additional Solar panels.

### **Using the Basic System**

The system first went live in July 2022 so there was plenty of sunlight which meant that the built in battery (10kWh capacity) would usually be fully charged shortly after lunchtime. Consequently, I quickly became a little cheased off with EDF for taking nearly 2 months before they agreed to pay for the electricity I was supplying to the grid. In hindsight, EDF were a bad choice- chosen partly as I naively thought that I should sell to the same people I bought from. They were slow, often incompetent and paid a low rate.

Subsequently, after quite a bit of research I moved both selling and buying my electricity to Octopus; so far that has proved to be a sensible decision. I paid nothing at all for electricity for several months as my household requirements could all be satisfied by the system, with the battery covering the night-time use with plenty to spare. Obviously, this changed as the days shortened but even in December 2022 the system provided me with 32kWh. Nothing like enough for my needs but making a useful dent in the bill I would have paid. During November 2022 I had the insulation in my sitting room upgraded too. I no longer have a radiator in that room, so it is not heated with the oil-fired system like the rest of the house. Even in the colder periods only about 750watts are needed to heat this room.

It is fascinating to see how certain parts of my behaviour have been influenced by the system, timing certain activities in the lighter months to maximise the use of my own electricity. Even after the move the Octopus, it is cheaper to use my own electricity than theirs and selling it to them is less profitable than using it myself. I have moved from a cooker hob using LPG to an induction hop, totally removing a fire hazard and having a safer, cleaner and cheaper cooking source.

### **Adding an EV to the set up**

In January I took delivery of my Toyota Bz4x, an electric car. I was warned that this would increase my electricity bills and so it does in the winter months. However, most of my driving is fairly local, and anyway the car has a total range of well over 300 miles such that for about 8 months of the year I drive for free- powered by sunlight. Now this works for me because of my lifestyle - most of my driving is evenings. The car is available for charging at home during the day and there is a setting on my charger that allows me to charge the car only when there is "surplus" such that the house system does not need it. This year (2023) I have driven over 5000 miles on sunlight, and it could so easily have been much more.

Driving an EV is an acquired taste. There is a lot of power and torque available- but that is used heavily at the expense of range. Developing a balanced smooth driving style takes a bit of time. Using the air conditioning also reduces the range. It probably affected the fuel economy of my previous vehicles, but I did not notice.

So far, I have not used commercial charging facilities at all - it's cheaper, if a bit slower, to charge at home.

**Additional panels**

In June this year (2023) I added 4 more panels to the system - this time on the flat roof rear extension of the cottage. I now capture sunlight from sunrise on these new panels, the earlier installation did not really benefit until 10:00 in the morning. I found this got me irritated on sunny mornings - seeing all that sunlight going to waste! The maximum power of the system has not really altered but its generating window is now wider with each month showing a significant increase in generated energy.

**Some numbers etc.**

In the second half of 2022 I generated 1.22MWh and consumed 1.11MWh  
In 2023 (Jan - Nov) I generated 3.45MWh and consumed 3.86MWh- obviously now powering an electric car out of this.

The money generated from selling the energy back to the grid is derisory; a far greater benefit is to be had using it yourself to reduce your purchasing from the grid.

I have reduced my oil purchases too because I can use the energy in my battery for short term heating when I need it. I shall be moving to immersion heated water next.

I hope that this is useful information and I am happy to answer any questions where I can.

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