



## SWELL<sup>1</sup>

Shrivenham and Watchfield Energy Local with Longcot

### Summary from SWELL workshops

Thanks for your enthusiasm and for taking the time to complete the questionnaires and attend our small group workshops. Here is a summary of what was discussed, the installation process and the next steps.

#### Questionnaire

We wanted to understand the mix of different types and sizes of household among potential participants.

We wanted to know how big your house is and what it is made of as larger and/or stone houses sometimes pose problems for wireless communication. Some of you reported problems with your Wi-Fi and so boosters or use of Ethernet will be needed. This is useful for us to know so we can plan the equipment we need for the trial.

The questions about storage heaters were to get a feel for how you use them.

#### Loads

The reason we were asking about the different appliances in your home was to work out:

- How high the 'base load' is – eg fridges and freezers that are running all the time.
- How many 'spikey loads' there are – kettles, toasters etc. This is useful to know about for the energy management system. We are not proposing controlling or scheduling these.
- Loads controlled automatically or that could be scheduled:
  - Loads that are not digitally controlled– i.e. switch that on and off at the plug socket can be controlled by automatically switching the plug socket.
  - Some dishwashers, washing machines tumble dryers. If you have an old machine we can automatically switch it off and on at the plug socket, unfortunately newer machines can lose their settings if you do this. If you have a digital machine, try starting a wash and then switching the machine off and back on at the plug socket – some machines will continue the wash and if so we will be able to control it from the socket.
  - If you already have a time delay on your machine, you can program it to switch on during cheap times – you will know in advance from the display when a good time will be.

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<sup>1</sup> Thanks to Nan Pratt for this acronym

- If you are in the house you can just switch the machine on at a suitable time.
- Laptops or anything else that has a battery can be used on battery during times of high price. Charging can then be scheduled for times of low price (eg overnight).
- Other loads that could be scheduled are small electric heaters for green houses or airing cupboards

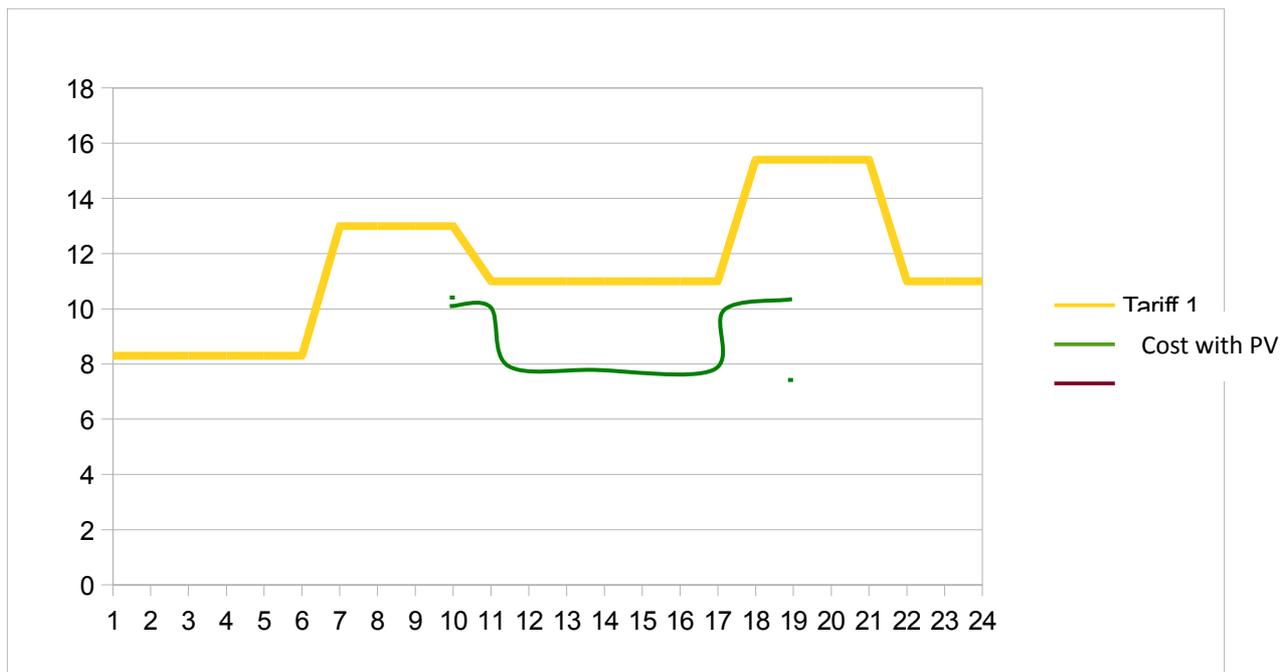
It is good practice to have a smoke alarm especially if you are using machines when you are not in the house (or during the night).

- You could change when you do chores (vacuuming, ironing, mowing the lawn) to cheap times of the day.

We discussed the fact that some of you already have equipment that ‘dumps’ PV generation from your solar panels that is not being used into your water heater. We will need to think more about the best way of using this equipment in the trial.

### Time of Use Tariffs

Prices may look something like this. The yellow line shows the price that might be available from a supplier but does not take into account the benefit of using ‘surplus’ electricity generated from those households in the trial which have solar panels. The price in the middle of the day would vary with the amount of local PV generation. The green line shows how much this might help reduce the price.



We noted the suggestion to provide a noise eg a bleep when power gets more or less expensive.

REMEMBER – we will not change your current tariff, we will simply compare what your payments would have been if you were on the ‘Energy Local’ tariff and pay you your share of any savings in Midcounties Co-op vouchers.

### Installation (late August – September 2015)

We would like to discuss in more detail what would need to go into your house and will need to visit your house at some point in the next couple of months with our electrician to assess things.

We are trying to be as flexible as possible and adapt things as we go.

### **If you have an electric water heater**

(This work will be done by a trained electrician)

- We will attach 2 wireless sensors to the outside of the pipes that go into and out of the hot water tank.
- We will convert the immersion outlet to a double plug socket to control the water heater and to provide the small amount of power needed by the temperature sensors.
- These plugs must not be used for anything else - we will label (or otherwise identify) them to make sure that this is clear.
- In order to do this work, the electrician would need to switch off the electricity supply to the water for an hour or so.

### **If you have storage heaters**

(This work will be done by a trained electrician)

- We will find a suitable place to put a room temperature sensor. This is likely to be wireless and a bit bigger than a matchbox.
- We will add a switch for all the heaters by the fuse box. If this cannot be done we will put a wireless controlled plug socket on each heater. This would be labelled and no additional appliances must be plugged into this socket.
- In order to do this work, the electrician would need to switch off the heating for an hour or so.

### **Broadband router**

We will add a connection to the internet, using your internet broadband router.

- The network signals will be sent over the mains wiring in your house. If you have a spare mains socket near to your broadband router, we will use this. Otherwise, we can use a socket doubler to share the router's power socket.
- It may be possible for us to use a Wi-Fi connection to your router instead.
- If you do not have broadband, we will provide this and find a suitable place near your phone socket for the connection.

### **At the fuse box**

(This work will be done by a trained electrician)

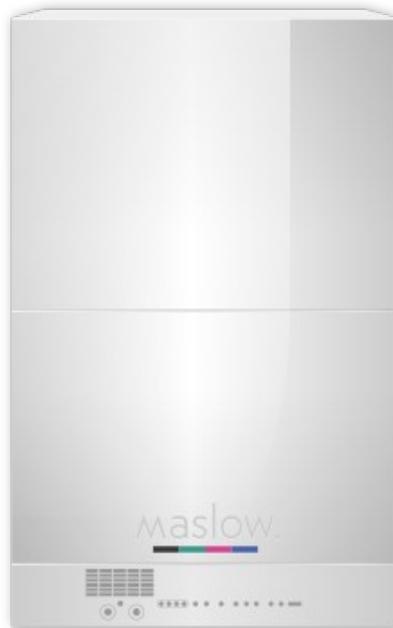
- A current clamp will be connected.
- If you have PV panels, a second current clamp will be installed to measure the output from these panels.
- The current clamp(s) will be wired to the control box.
- We will find a suitable place nearby for the control box. This box uses a small amount of mains power and, if required, we will add a power socket for this.

### **Electricity storage (battery) – for selected households**

(This will be installed by a trained electrician)

- The storage is contained in a neat box, measuring about 50cm high x 30cm wide x 10cm deep (2 feet x 1 foot x 4 inches).
- It will be installed near the consumer unit, mounted onto the wall (so involves drilling a few holes)
- Connection requires a spare fuse way on your consumer unit.

- Installation requires a brief (2 hour) interruption to your electricity supply.
- We will change your lightbulbs and fit efficient LED lights– we will need to do a survey of your light fittings (and ensure this will not interfere with any smoke or burglar alarms).



**Photo of the battery**

### **Controllable plug socket**

This can be plugged in anywhere inside the house as suits the appliance that you want to control. Via the display (see below), you will be able to set a deadline by which time the appliance must have finished/the battery must be charged.

### **Display**

We will help you set up the display on your smartphone, laptop or tablet. We will provide a tablet display if you don't already have one.

### **Next Steps**

#### **Load monitoring**

The next step is some sample load monitoring. We showed you an example of the graph that the monitors from ECI provide. If you have solar panels you can also see your generation profile and when you were exporting power. One query was whether the monitor measured voltage – it does not, it measures current and assumes a 240V supply.

#### **Electrical survey**

We will then survey your house to check that installation of the equipment is possible. We will make a note of any energy efficiency tips for you at the same time.

#### **Other information**

We will compile a document which gives you an idea of the cost of running different appliances and therefore how much you could save under the 'Energy Local' tariff by switching the time you use that appliance.