

The Sheffield Solar Farm

Micro-Generation Database

December 2012, Report 18



How to use the site...

If you think any part of the site is hard to use, [email us](#) and we will include an article here.

Editing your system

You can now edit your installation and array details, so if you get more accurate measurements for your orientation or slope, for example, you can update your details. Be aware that if you change the type of your panels, the site does not at present 'auto fill' your details, so you will have to enter these manually.

We are, as ever, on hand if you would prefer to email details in.

Defining performance measures

There are various performance measures used on the site and we get many requests to explain them. They are explained on the website if you click on the 'More information about this report' link on the maps web page (shown highlighted in the image below).

The most useful measures used are:

Generation per unit of peak generation (kWh / kWp). This is the generation divided by the size of the system. Use this to directly compare your generation with that of others, regardless of system size.

Efficiency (%). The amount of sunlight which gets converted by your system to electricity. Usually around 10 – 15%.

Performance ratio (%). Your system's efficiency for the month divided by the rated panel efficiency.

Other measures which may be of interest:

Generation (kWh). This is the 'virtual generation' of each system for the month. Of little use as large systems dwarf most others.

Horizontal solar irradiance (kWh/m²). Probably the most pretty of maps. Shows who gets the most sunshine!

Solar irradiance received by the panels (kWh/m²). Shows who's panels get the most sunlight. Takes the orientation of the system into account.

Generation per unit area (kWh/m²). Who generates the most from each square metre of their system.

Use of open document format for the report tables

The report tables published on the website have all been converted back to the open document format. This is due to a severe security issue with Microsoft's Excel program. We want to provide you with as much data as possible, but we also wish to be able to control which data we publish.

For those of you who complained the last time we used this format for the reports, I must apologise, but we cannot find any other way around the issue.

You can download the LibreOffice suite which will enable you to view the files here. Note you will need to save the files before you can enter values.

Did your installer follow the correct procedure when installing on your roof?

One of our members (Rick M) is unsure whether their installation complies, so they are looking for a surveyor to identify any faults. There are guidelines for roofing contractors on carrying out installations while ensuring that the structure of the roof is not compromised, as well as the waterproofing element. These guidelines are provided by the [National House Building Council](#) (NHBC) and can be found [here](#).

It is important that tiles are correctly notched and can still interlock with their neighbours after the install. Poorly interlocking tiles may lose their waterproofing ability. In addition the strength of rafters may be compromised by the fixing screws. These rafters may then experience greater stresses due to wind loading on the panels.

Hampshirelad posted some pictures of how his installer had used 'sistering' to strengthen the rafters on to which the panel frames were fitted, one of which is shown below.

[Read the full thread here.](#)



SAP data request

Following our request for your SAP data in December we have received this from nearly 150 of you now. Many thanks to those who have contributed this data, we are now working with it to improve the site.

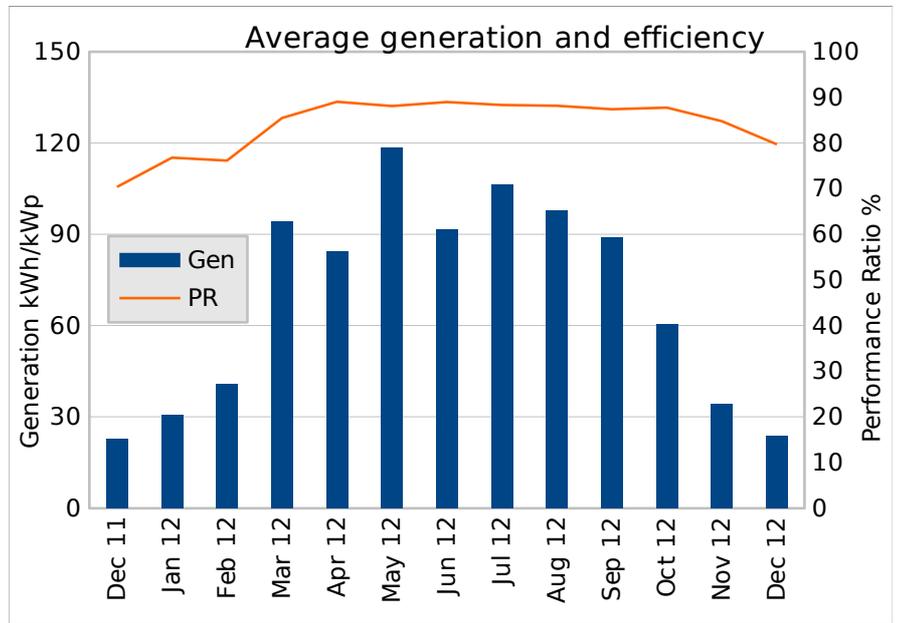
But what is 'SAP data'? Before you signed a contract to have your system installed your installer will have given you an estimate of how much your system would generate, based on its size, orientation and shading. This estimate is calculated using the SAP or 'Standard Assessment Procedure', and it is a government requirement that these are given.

We think that it will be useful for you to see how well your system performs in comparison with the SAP estimate, so we are considering how we can integrate this into the site.

An example of how this may look is given in the graph below. The SAP prediction is a single figure for a year, so appears as a straight line on the graph.

After the first year of donating data you will see how your generation compares with that which was predicted by SAP. It is likely that your system's generation will fluctuate around the SAP line, dropping below in winter, and rising above in summer.

Once we have implemented this, we plan to do the same with another generation predictor called PVGIS. This gives a more precise prediction than SAP and will allow for a comparison on a monthly, rather than annual basis.



Calculating your monthly generation

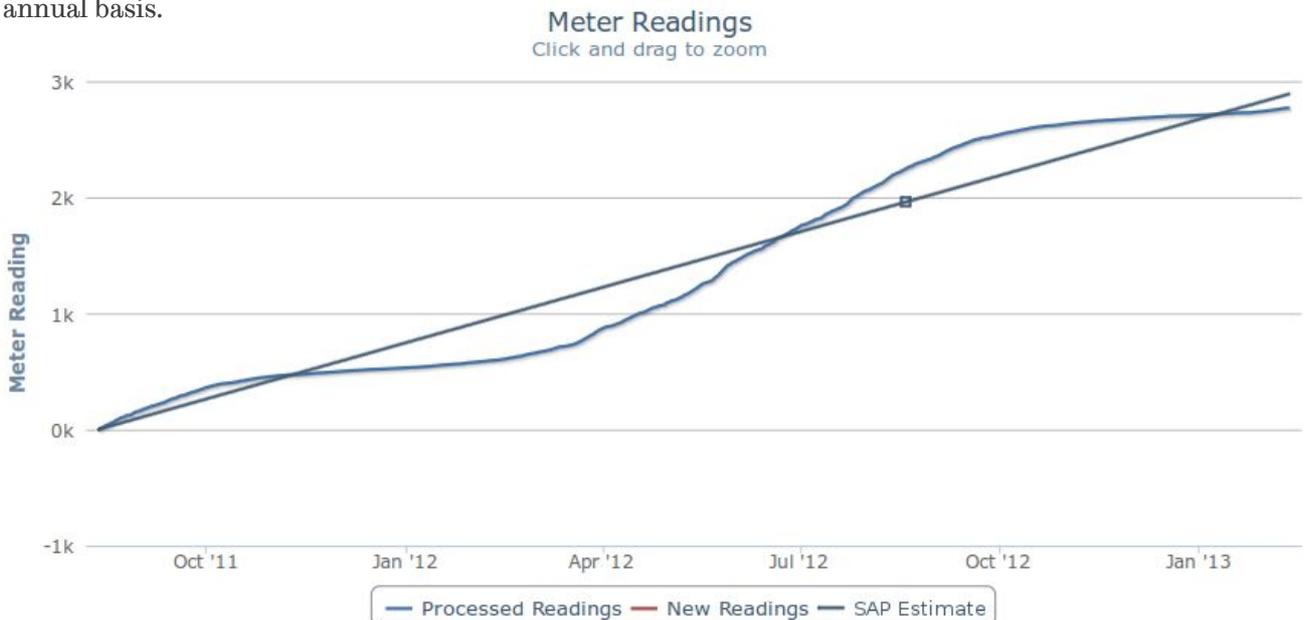
Some of you have noticed inaccurate generation figures for your systems in the reports. This is manifest where the reported generation for the latest month is very different from the entered meter readings. For example your reported generation for the month may be 90% of the readings which you gave us.

This only happens for the final month of the report, and when the month end reading which you give us falls during the following month.

We have to calculate what the reading would have been on midnight at the end of the month and normally we use weather data to assess how much generation to subtract.

The problem is that on the month after the last reported, we do not have weather data yet, so we estimate your generation on the basis of previous generation. This can lead to errors at certain times of the year and under certain weather conditions. We are reviewing our method for making these calculations to reduce these reporting problems.

This problem does not occur if you take your readings late in the month, or before sun-up of the first day of the next month.



Visit our micro-generation website at: www.microgen-database.org.uk
and our testing operations site at: www.sheffieldsolarfarm.group.shef.ac.uk