

## Small scale solar PV cost data

### Introduction

Cost data for Solar Photovoltaic (PV) has been recorded on the Microgeneration Certification Scheme (MCS) Database<sup>1</sup> since February 2013. This article describes the initial quality assurance carried out on these data and the preliminary findings for the period up to the end of July 2013. It is planned that the analysis will be repeated in April 2014 when data for the full 2013/14 financial year will be available and the average cost per month will be analysed.

Each record contains one cost figure for the installation which is defined as follows:

“Cost of solar photovoltaic generation equipment, plus direct costs of fixing panels to roof/ground mount, any performance displays and connecting to electricity supply, including VAT but excluding (a) the cost of any extended warranty; and (b) the cost of any other materials, works or other items whatsoever (such as, but not limited to, any cost of general rewiring at a property or tracker systems).”

It should be noted that the data are therefore wholesale costs and do not represent the cost that the householder has paid for the installation.

As each installation is a different size the total cost is divided by the installed capacity to get a cost per kW.

### Data Coverage and quality

Table 1 gives an indication of how complete the cost field is on the MCS. For the first two months of data collection under one-fifth of the records entered onto the database had cost data. This has increased to around half from April 2013 onwards.

**Table 1: Number of records with cost data entered on MCS**

Month	Cost data entered (number of installations)			% cost data available
	No	Yes	Total	
February	5,594	1,034	6,628	16%
March	6,722	1,624	8,346	19%
April	4,383	3,999	8,382	48%
May	4,189	4,485	8,674	52%
June	5,874	7,790	13,664	57%
July	2,786	2,441	5,227	47%

Table 2 shows that there are a number of extreme values in the data set which would skew any analysis. Therefore, it was decided that any records where the cost per KW installed was less than £500 and greater than £5,000 would be excluded. This process excludes 501 records (2.3% of the original observations).

<sup>1</sup> To be eligible for the Feed-in tariff Scheme (FITs) small scale installations must be certified via MCS. This applies to solar PV and wind installations with a declared net capacity of up to and including 50kW and micro CHP up to and including 2kW. The MCS database is administered by Gemserve on behalf of DECC

**Table 2: Cost per kW installed (£)**

Month	0-4kW			4-10kW			10-50kW		
	Count	Max	Min	Count	Max	Min	Count	Max	Min
February	982	1,470,784	0.0	31	2,500	376.1	21	2,678	372.0
March	1,471	1,261,292	0.3	51	10,417	385.0	102	2,230	61.3
April	3,665	1,545,455	0.3	139	10,417	600.0	195	3,459	41.7
May	4,152	1,020,408	0.0	145	10,417	0.2	188	12,111	100.0
June	6,944	1,659,664	0.0	343	7,007	0.1	503	14,566	0.1
July	2,299	29,091	0.0	76	21,111	489.2	66	3,824	45.5

The regional distribution of the data was examined to check that the data are representative of all installations, it is possible that cost may vary by region so if some regions have a much higher percentage of completed cost records than others this may skew the results. All regions have a good proportion of completed cost data, Scotland has more complete data, whereas the northern areas of England are slightly under-represented as their data are less complete.

**Table 3: Cost data available (Percentage of records with cost data by region)**

Region	%
East Midlands	46%
East of England	48%
London	54%
North East	41%
North West	41%
South East	56%
South West	58%
West Midlands	51%
Yorkshire and the Humber	41%
Scotland	72%
Wales	50%

### Preliminary cost data results

Table 4 shows the average ‘wholesale’ cost per kW installed (all costs have been rounded to the nearest 10 pounds). For installations sized between 0-4kW the mean cost per kW was £2,020, the median cost was £1,850 suggesting that the data have a positive skew. As the size of the installations increases the cost per kW decreases, for installations sized 4-10kW the mean cost per kW is £1,660 and for installations sized 10-50kW it is £1,330.

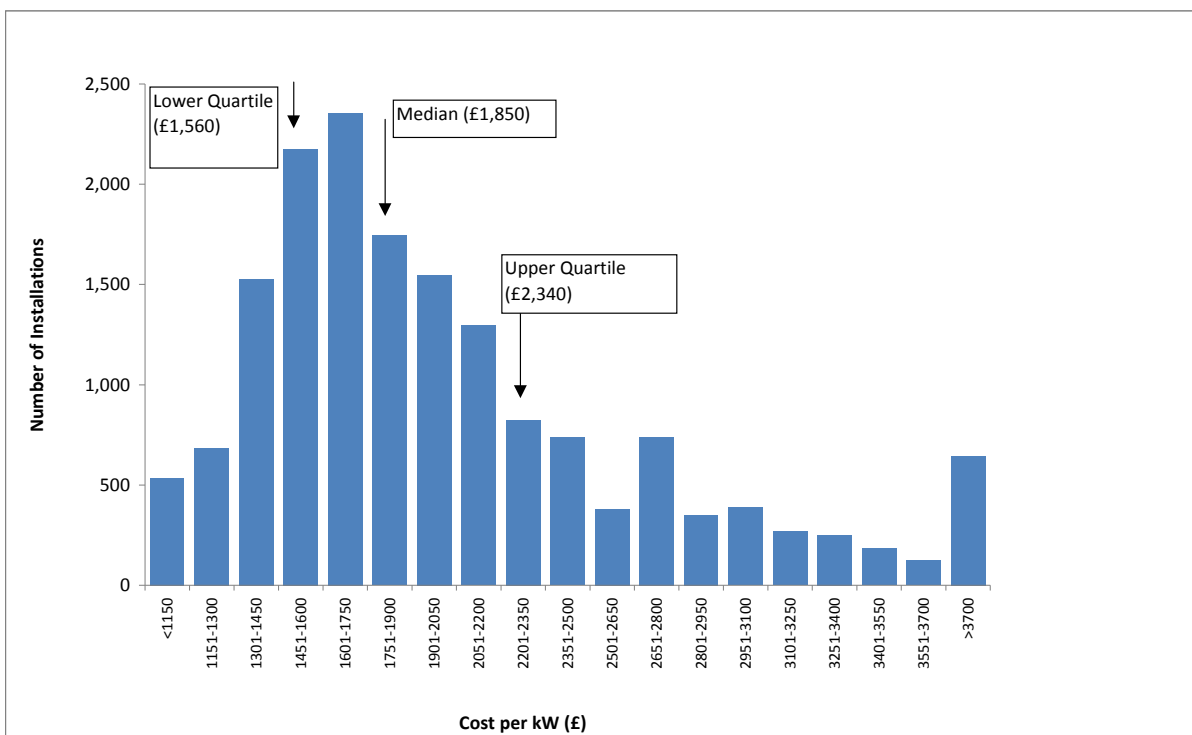
As not all records have cost data, the data analysed are a sample of records, putting a confidence interval around the average cost value gives an indication of how much the mean value might vary if a different sample was selected. As there are a large number of installations in the 0-4kW category the 95% confidence intervals for installations of this size are relatively small, ranging from £2,010 to £2,030. The smaller numbers in the other size categories lead to slightly larger confidence intervals.

**Table 4: Cost per kW installed (£)**

	Count	Median	Mean	Lower CI	Upper CI
0-4kW	19,065	1,850	2,020	2,010	2,030
4-10kW	766	1,570	1,660	1,620	1,690
10-50kW	1,041	1,330	1,390	1,360	1,410

Chart 1 shows the distribution of cost data for schemes sized 0-4kW, the positive skew in the data can be seen. As the data are skewed the median cost per kW would be the best measure of the average to use as it won't be influenced by the more extreme high values that are contained in the final category. The chart also gives an indication of the inter-quartile range (the cost range in which 50 percent of the schemes sit). This shows that half of the schemes with cost data have a cost per kW of between £1,560 and £2,340. Data for the other tariff bands are shown in table 5.

**Chart 1: Distribution of costs (for schemes sized 0-4kW)**



**Table 5: Median and inter quartile range by installation size band (£)**

	Median	Lower quartile	Upper quartile
0-4kW	1,850	1,560	2,340
4-10kW	1,570	1,360	1,890
10-50kW	1,330	1,130	1,550

**Alison Judd**  
 Energy Statistics  
 Tel: 0300 068 2846  
 E-mail: [Alison.Judd@decc.gsi.gov.uk](mailto:Alison.Judd@decc.gsi.gov.uk)

**Mita Kerai**  
 Energy Statistics  
 Tel: 0300 068 5044  
 E-mail: [Mita.Kerai@decc.gsi.gov.uk](mailto:Mita.Kerai@decc.gsi.gov.uk)