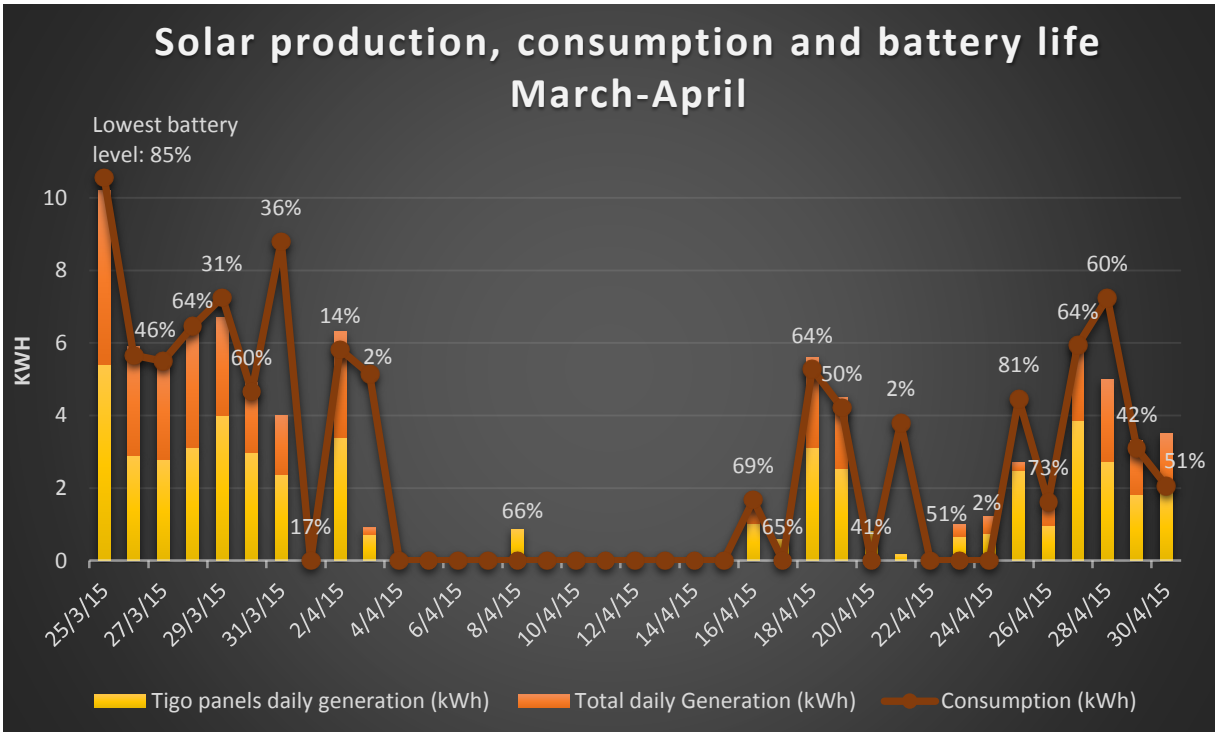
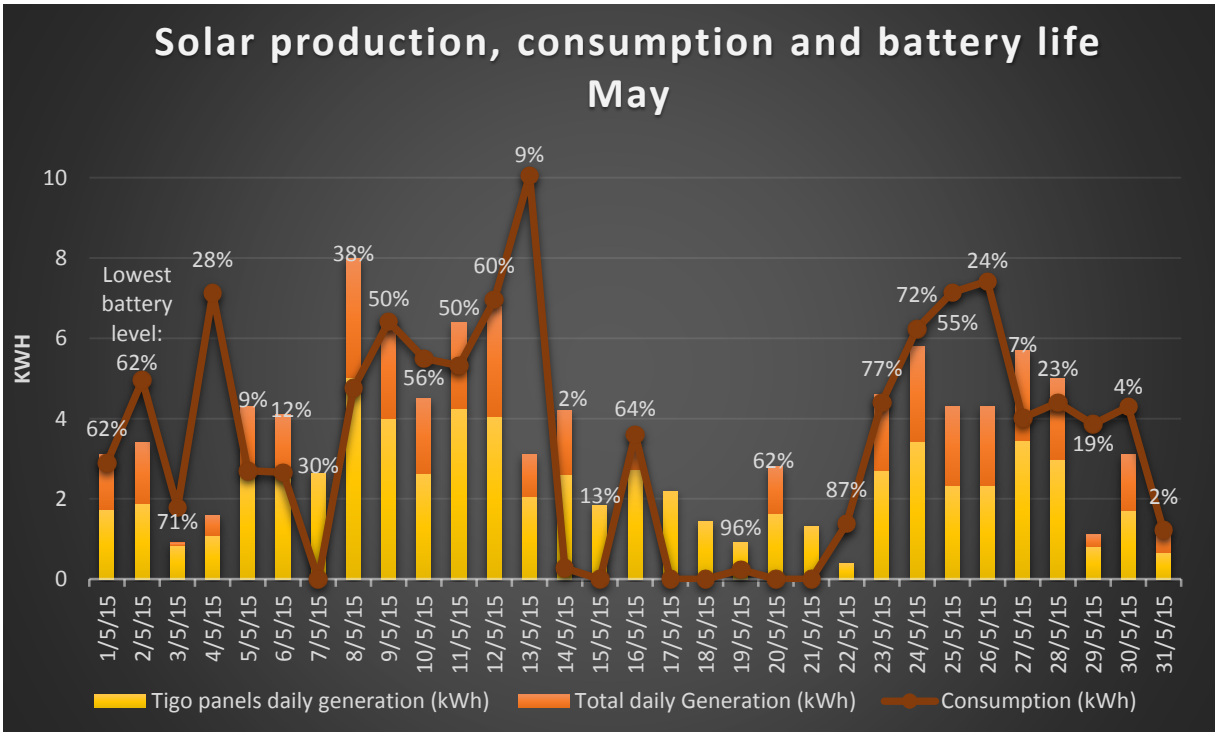
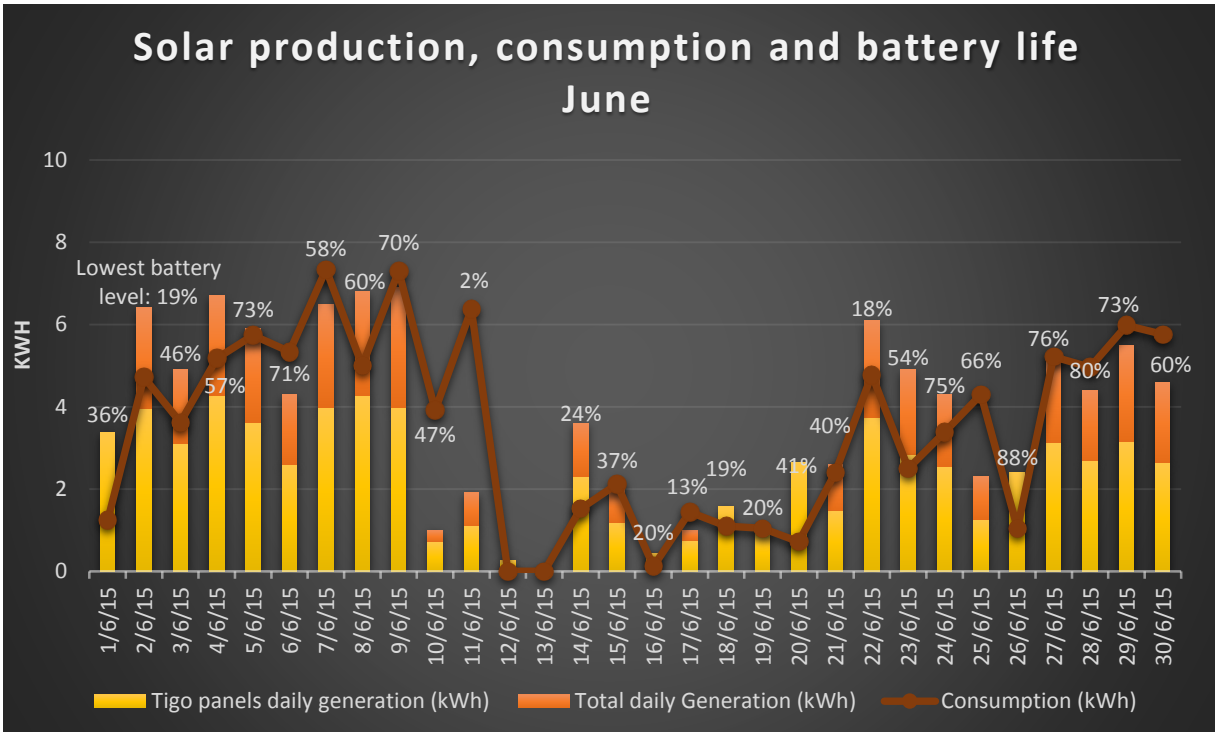
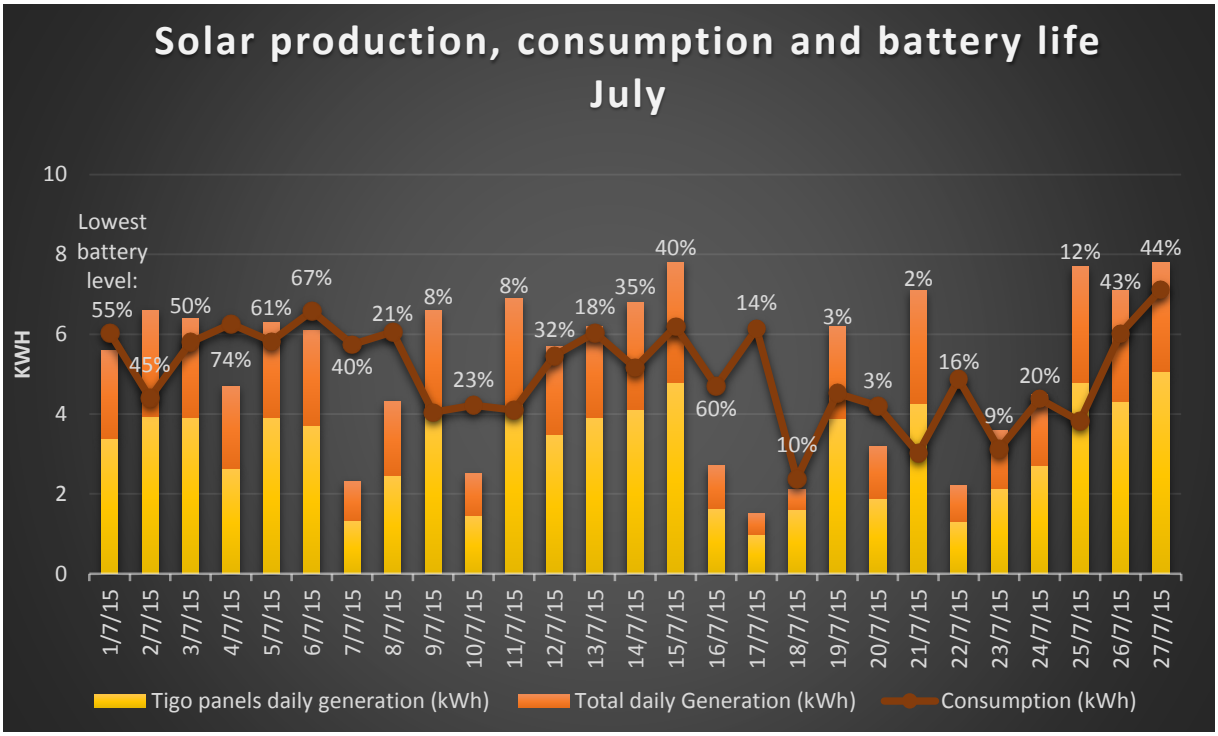
Graphs comparing the Sustainable House's daily solar production, energy consumption and battery life.

The Alpha ESS reporting software was used to create these graphs. Although some days experienced outages and reported values that are possibly unreliable, it is the best system we currently have for reporting solar production, usage and battery life.






Solar production, consumption and battery life
June
KWH
Lowest battery level: 19%
36%
46%
57%
73%
71%
58%
60%
70%
47%
2%
24%
37%
20%
13%
19%
20%
41%
40%
18%
54%
75%
66%
88%
76%
80%
73%
60%
1/6/15
2/6/15
3/6/15
4/6/15
5/6/15
6/6/15
7/6/15
8/6/15
9/6/15
10/6/15
11/6/15
12/6/15
13/6/15
14/6/15
15/6/15
16/6/15
17/6/15
18/6/15
19/6/15
20/6/15
21/6/15
22/6/15
23/6/15
24/6/15
25/6/15
26/6/15
27/6/15
28/6/15
29/6/15
30/6/15
Tigo panels daily generation (kWh)
Total daily Generation (kWh)
Consumption (kWh)

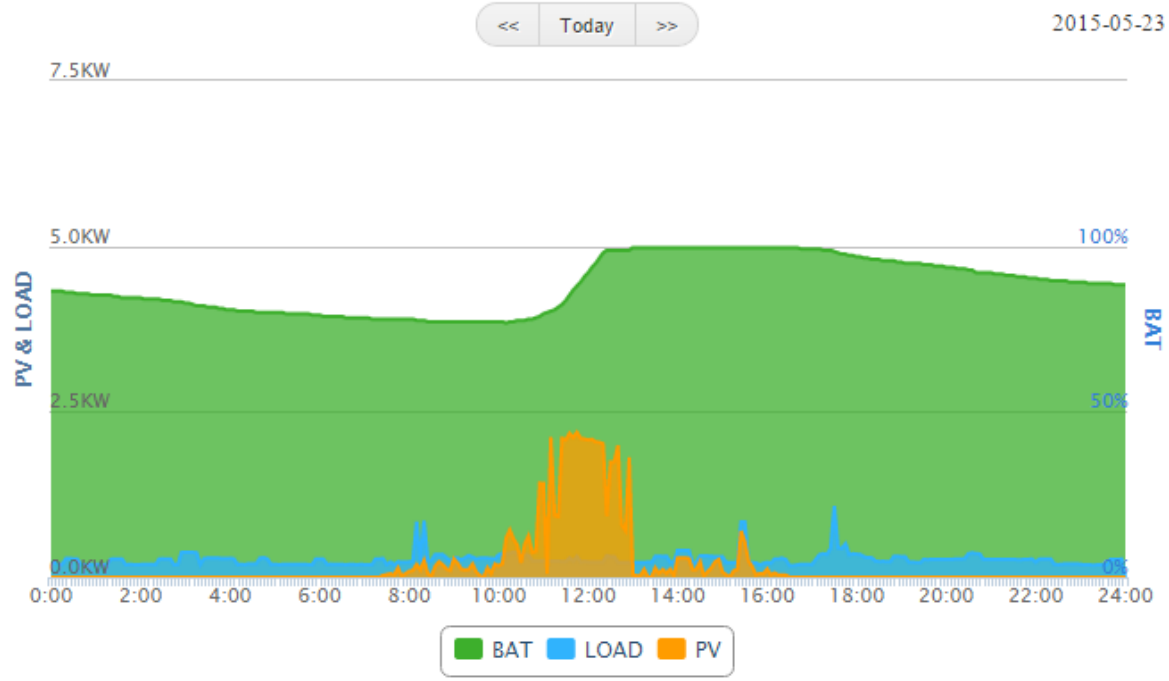

Solar production, consumption and battery life
July
KWH
Lowest battery level:
55%
45%
50%
74%
61%
67%
40%
21%
8%
23%
8%
32%
18%
35%
40%
60%
14%
10%
3%
3%
2%
16%
9%
20%
12%
43%
44%
1/7/15
2/7/15
3/7/15
4/7/15
5/7/15
6/7/15
7/7/15
8/7/15
9/7/15
10/7/15
11/7/15
12/7/15
13/7/15
14/7/15
15/7/15
16/7/15
17/7/15
18/7/15
19/7/15
20/7/15
21/7/15
22/7/15
23/7/15
24/7/15
25/7/15
26/7/15
27/7/15
Tigo panels daily generation (kWh)
Total daily Generation (kWh)
Consumption (kWh)

Examples of Alpha ESS reporting: comparing good reporting days with days where we had outages

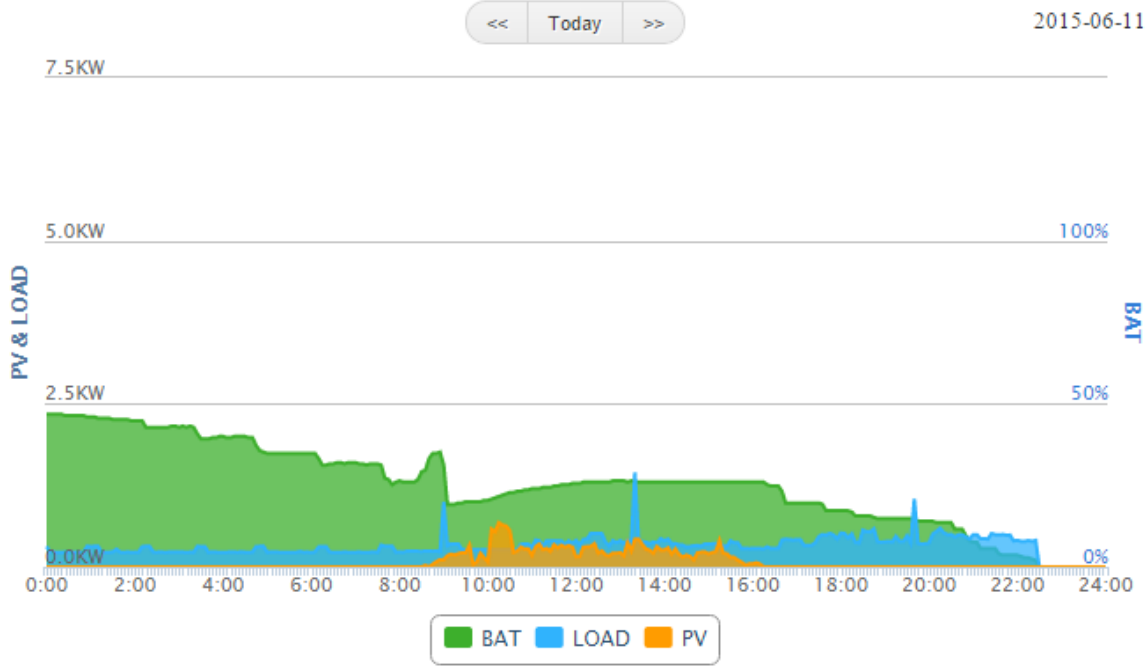
For transparency, we have included three examples of the Alpha ESS reporting system showing a day when:

- Reporting was accurate and continuous throughout the day
- Reporting stopped toward the end of the day when battery life ran out which led to a system outage
- Outages occurred throughout the day and the data reported is very unreliable.

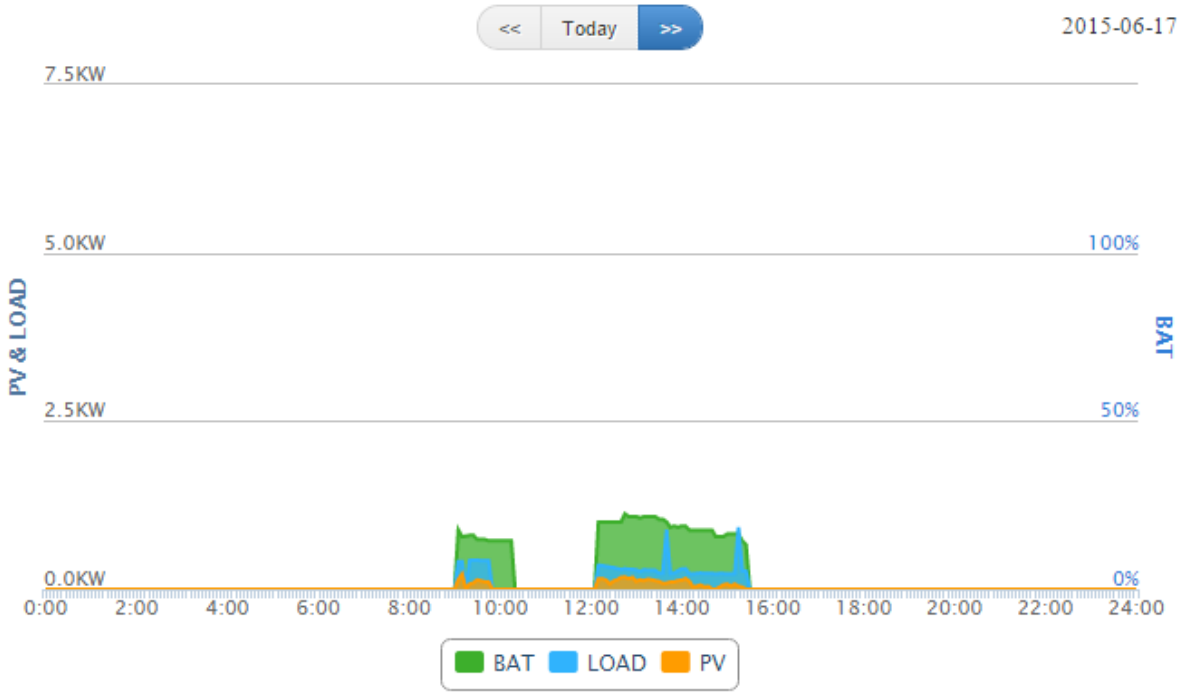
Example of a day with sufficient battery life and accurate data reporting (23 May).



Example of a day with insufficient battery life causing a system outage and incorrect reporting (11 June). System outage occurred at 22:30.



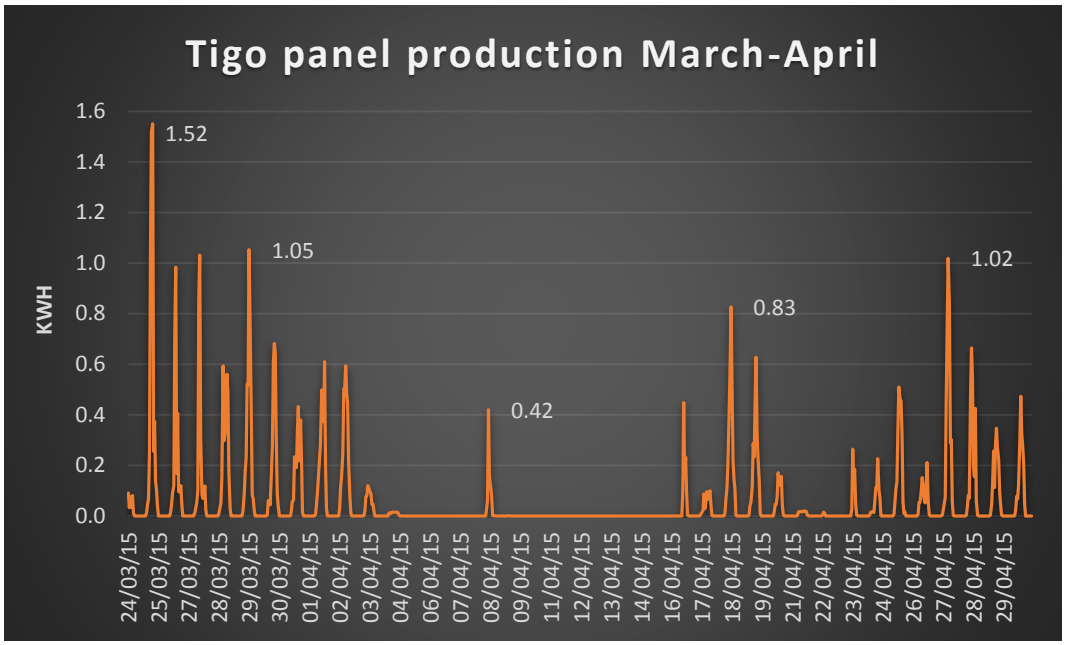
Example of a day with barely any data reported giving us very inaccurate production and consumption values (17 June).

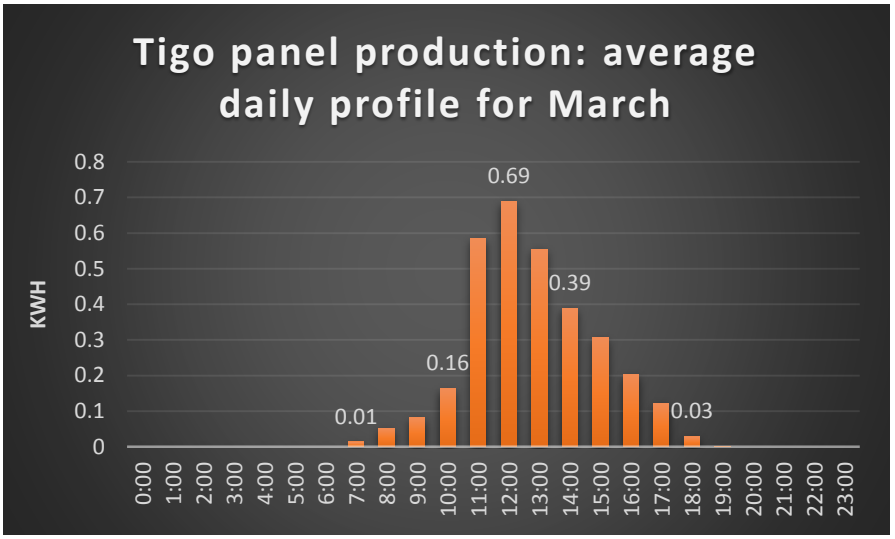


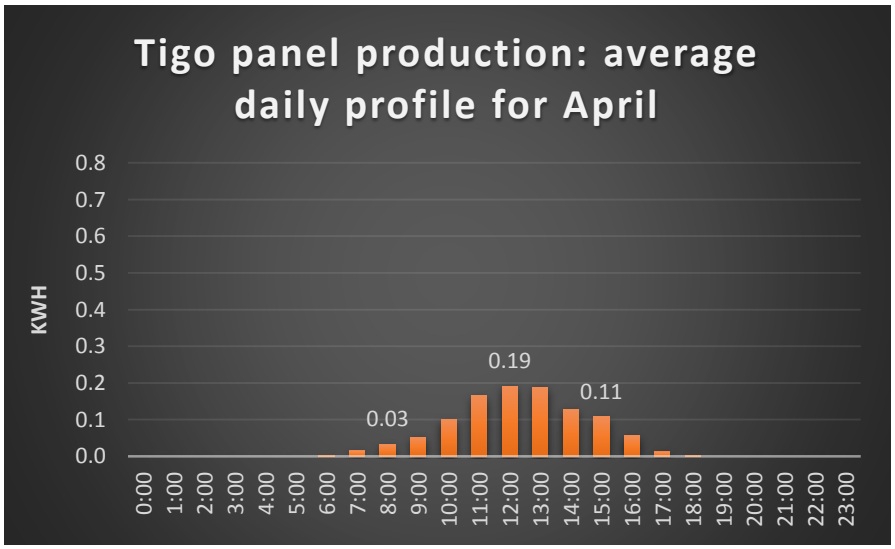
Tigo panel production

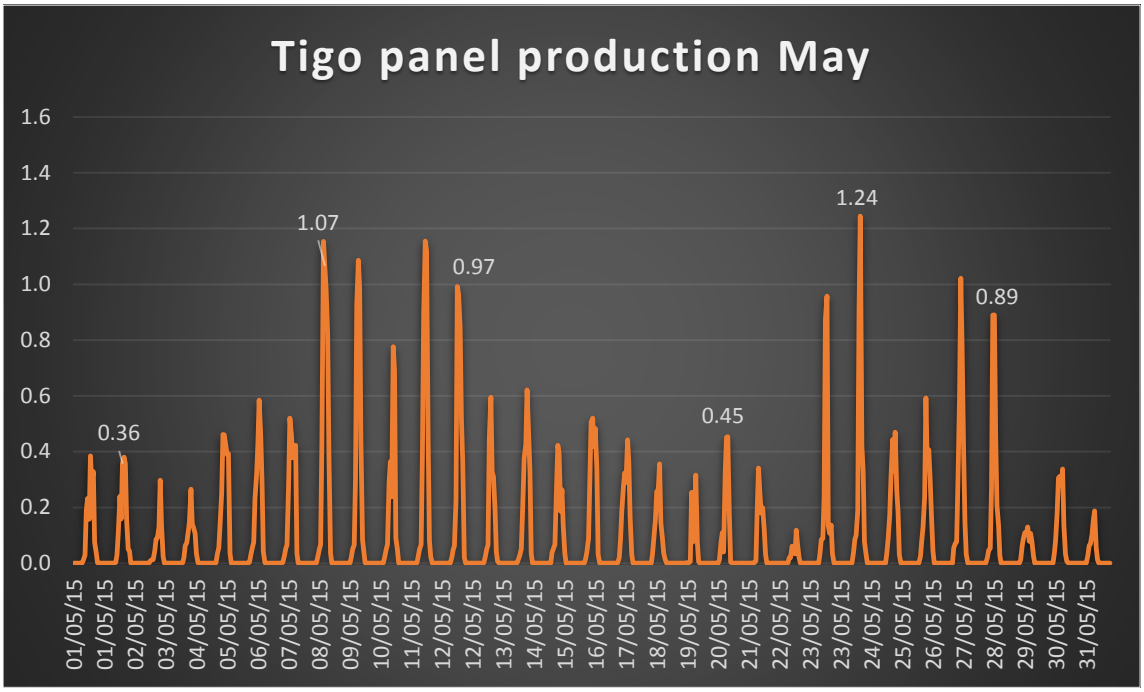
The Sustainable House currently has six Tigo panels installed. These panels are newer and work at maximum efficiency despite some being shaded. They are responsible for roughly 60% of the total solar production at the Sustainable House.

TIGO PANEL PRODUCTION: HOURLY GRAPHS








Tigo panel production May
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.36
1.07
0.97
0.45
1.24
0.89
01/05/15
01/05/15
02/05/15
03/05/15
04/05/15
05/05/15
06/05/15
07/05/15
08/05/15
09/05/15
10/05/15
11/05/15
12/05/15
12/05/15
13/05/15
14/05/15
15/05/15
16/05/15
17/05/15
18/05/15
19/05/15
20/05/15
21/05/15
22/05/15
23/05/15
23/05/15
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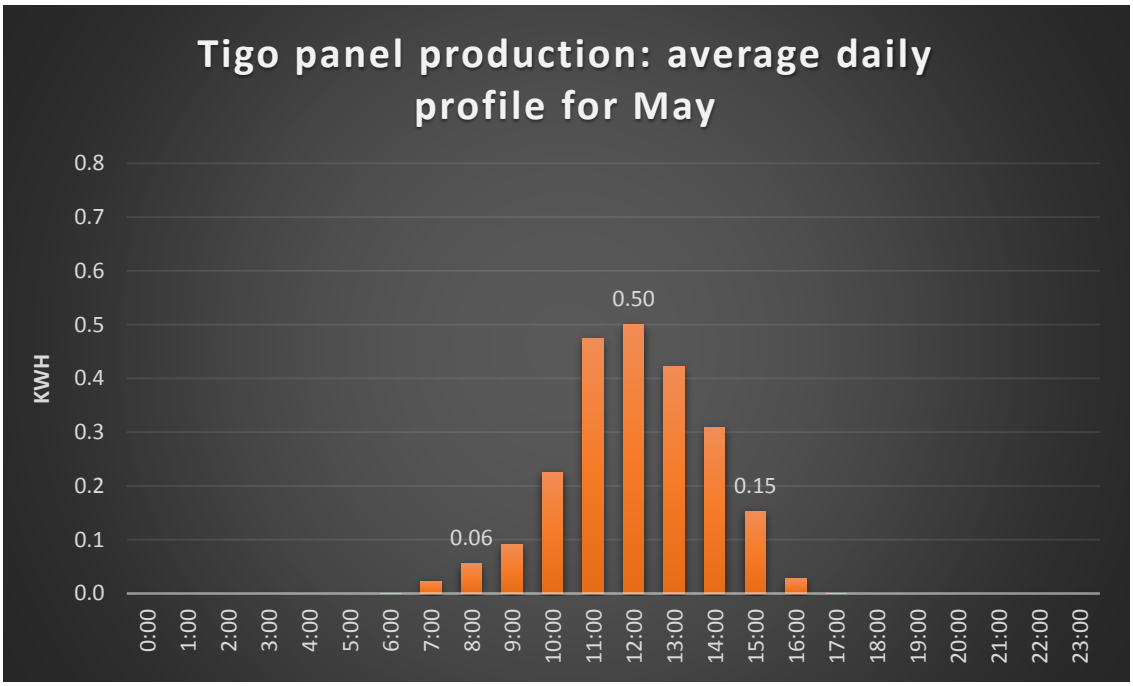
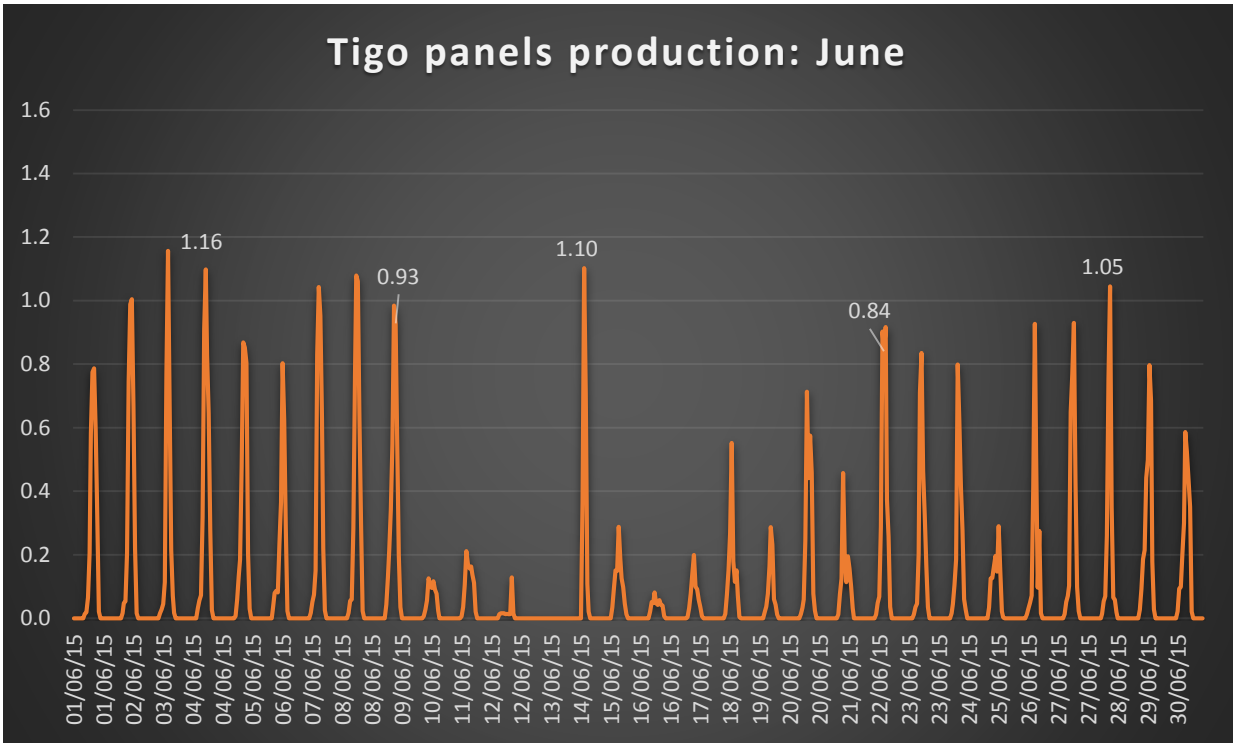
25/05/15
26/05/15
27/05/15
28/05/15
29/05/15
30/05/15
31/05/15


Tigo panel production: average daily profile for May
KWH
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.50
0.15
0.06
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00


Tigo panels production: June
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1.16
0.93
1.10
0.84
1.05
01/06/15
01/06/15
02/06/15
03/06/15
04/06/15
04/06/15
05/06/15
06/06/15
07/06/15
08/06/15
08/06/15
09/06/15
10/06/15
11/06/15
12/06/15
12/06/15
13/06/15
14/06/15
15/06/15
16/06/15
16/06/15
17/06/15
18/06/15
19/06/15
20/06/15
20/06/15
21/06/15
22/06/15
23/06/15
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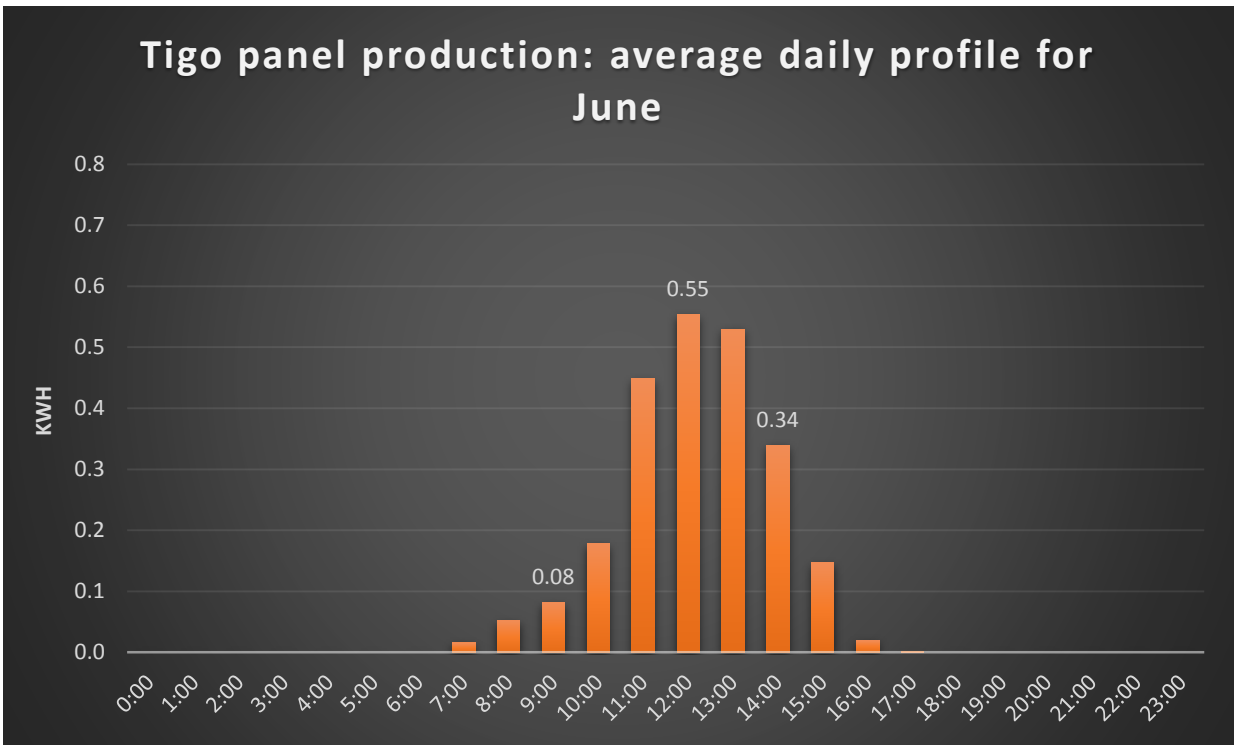
27/06/15
28/06/15
29/06/15
30/06/15


Tigo panel production: average daily profile for June
KWH
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.55
0.34
0.08
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
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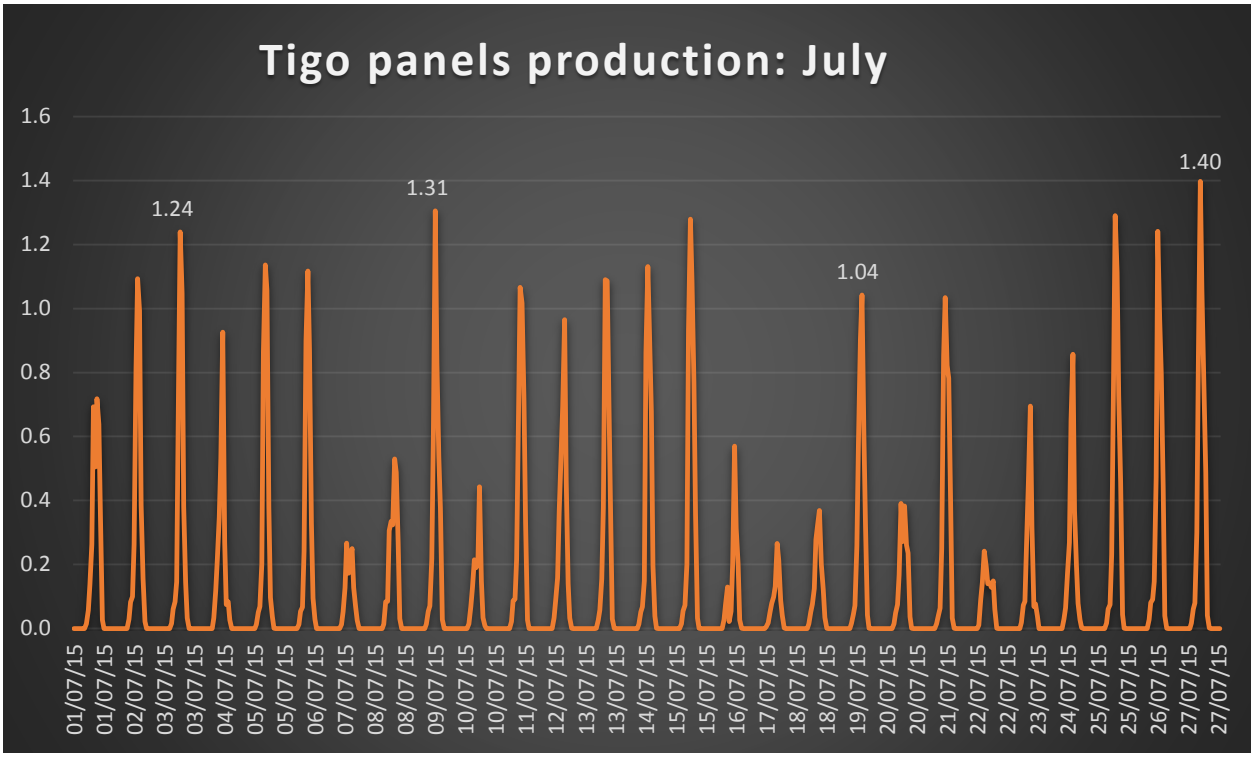
18:00
19:00
20:00
21:00
22:00
23:00


Tigo panels production: July
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1.24
1.31
1.04
1.40
01/07/15
01/07/15
02/07/15
03/07/15
03/07/15
04/07/15
05/07/15
05/07/15
06/07/15
07/07/15
08/07/15
08/07/15
09/07/15
10/07/15
10/07/15
11/07/15
12/07/15
13/07/15
13/07/15
14/07/15
15/07/15
15/07/15
16/07/15
17/07/15
18/07/15
18/07/15
19/07/15
20/07/15
20/07/15
21/07/15
22/07/15
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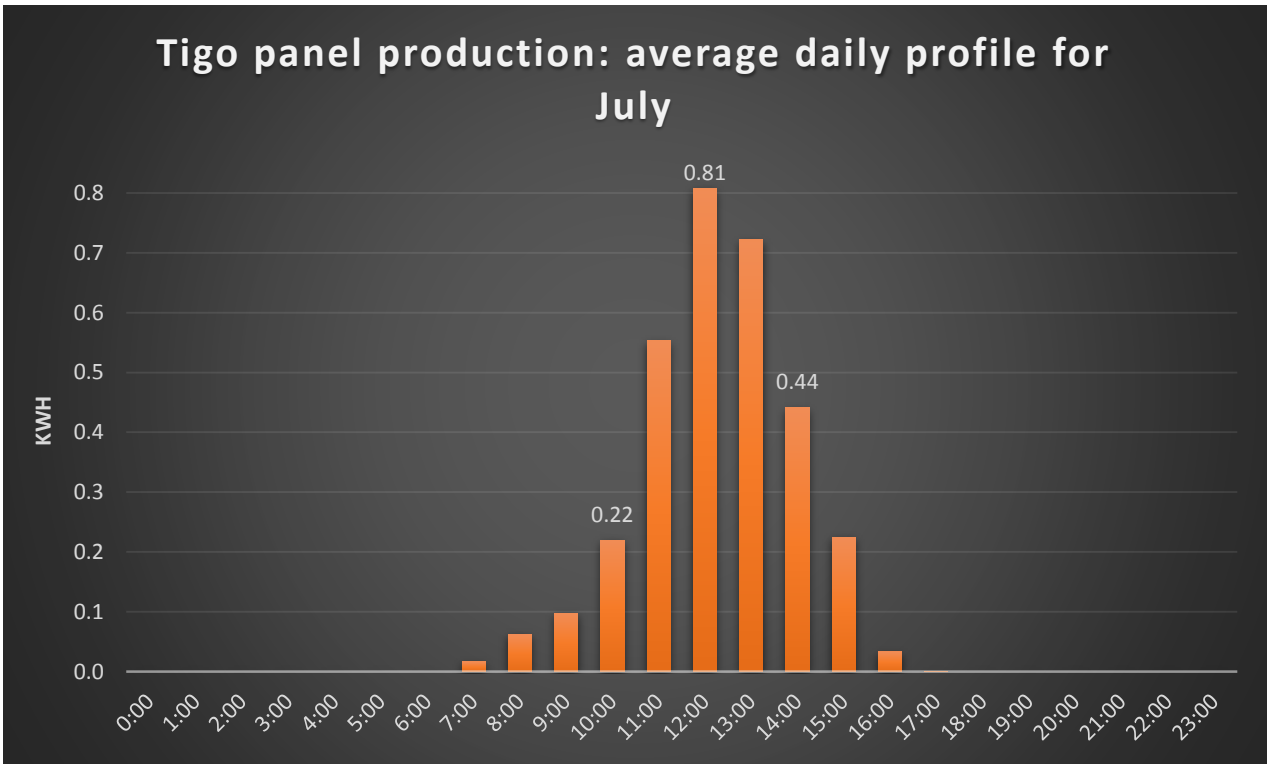
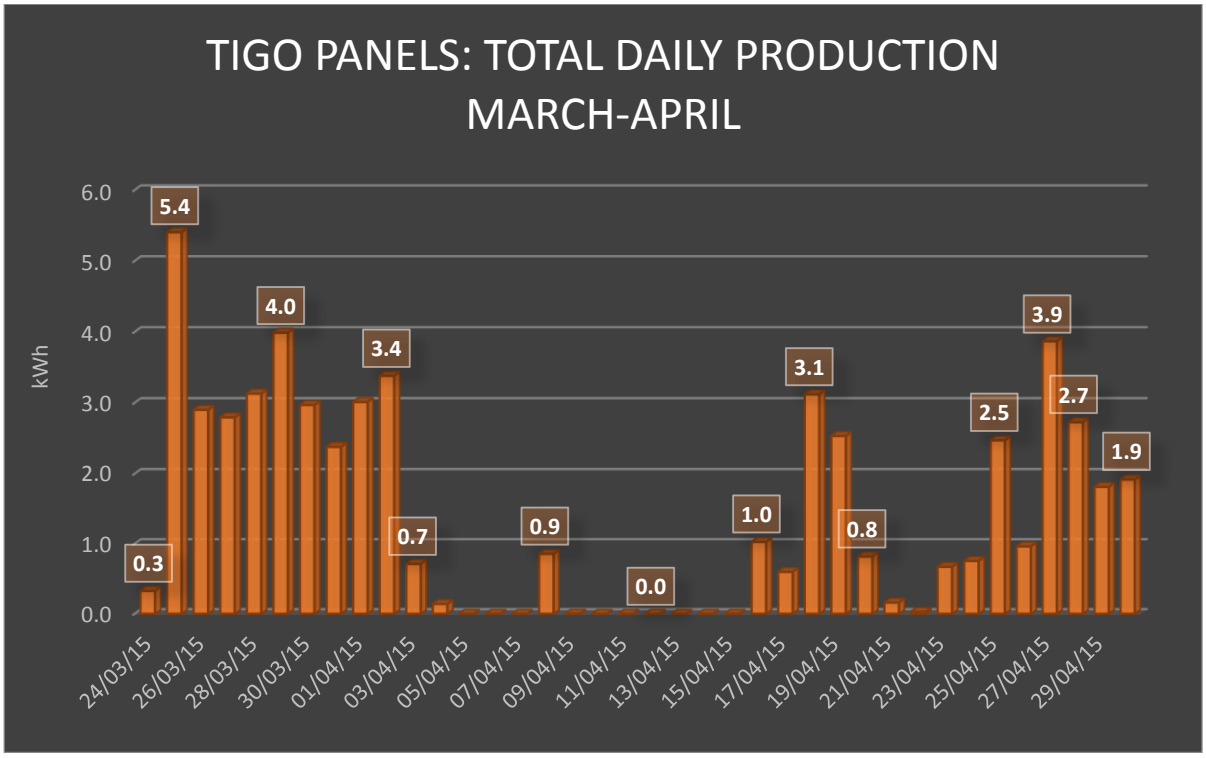
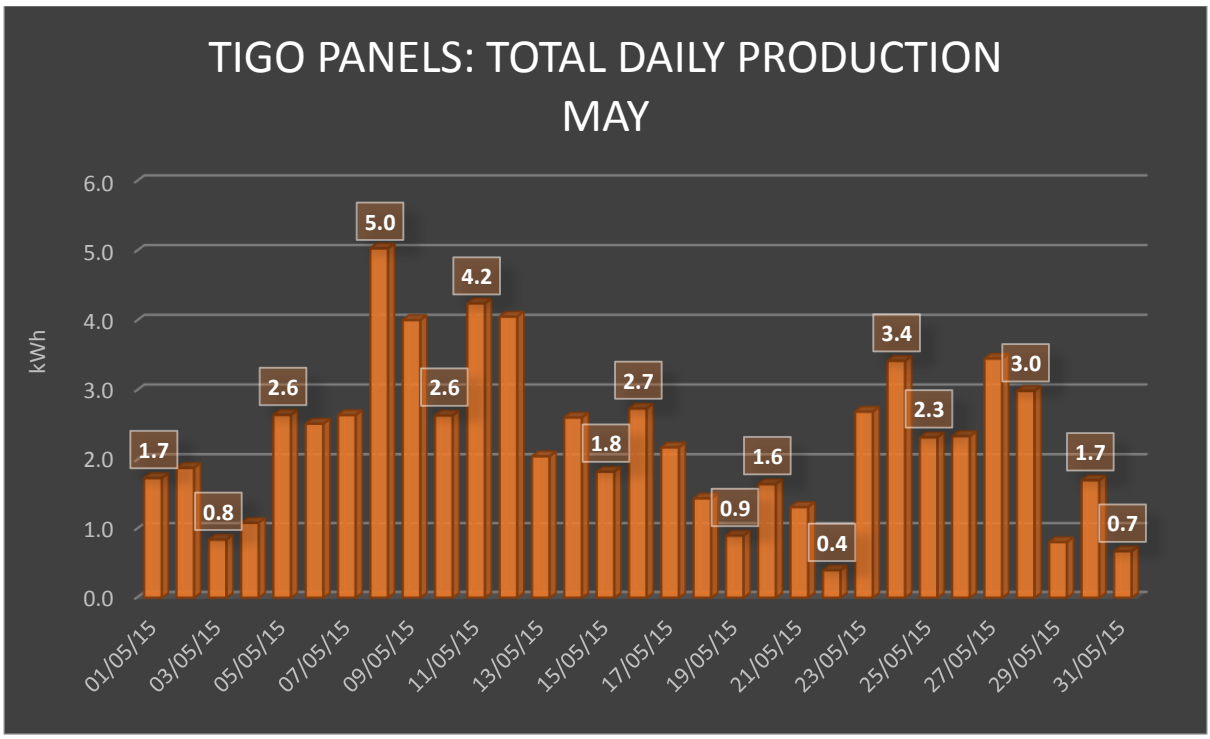
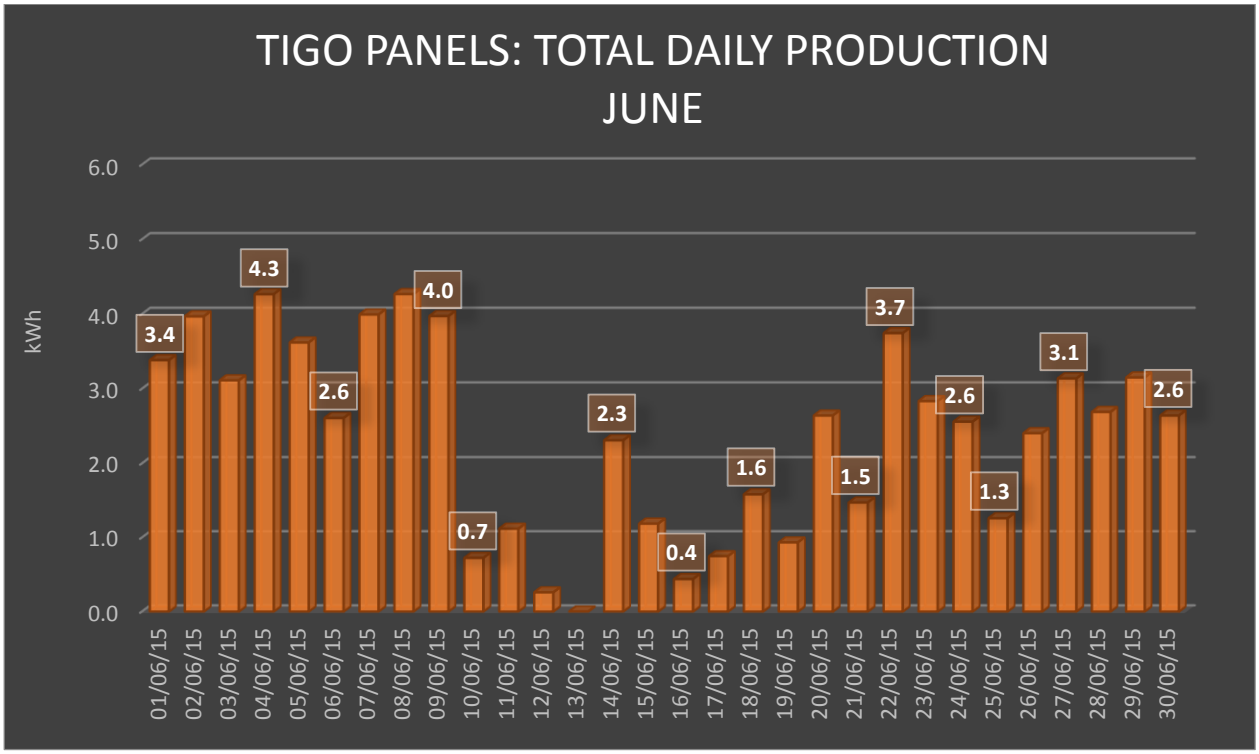
25/07/15
26/07/15
27/07/15
27/07/15


Tigo panel production: average daily profile for July
KWH
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.22
0.81
0.44
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00

TIGO PANEL PRODUCTION: DAILY GRAPHS






TIGO PANELS: TOTAL DAILY PRODUCTION
JUNE
kWh
6.0
5.0
4.0
3.0
2.0
1.0
0.0
3.4
4.3
2.6
4.0
0.7
2.3
0.4
1.6
1.5
3.7
2.6
1.3
3.1
2.6
01/06/15
02/06/15
03/06/15
04/06/15
05/06/15
06/06/15
07/06/15
08/06/15
09/06/15
10/06/15
11/06/15
12/06/15
13/06/15
14/06/15
15/06/15
16/06/15
17/06/15
18/06/15
19/06/15
20/06/15
21/06/15
22/06/15
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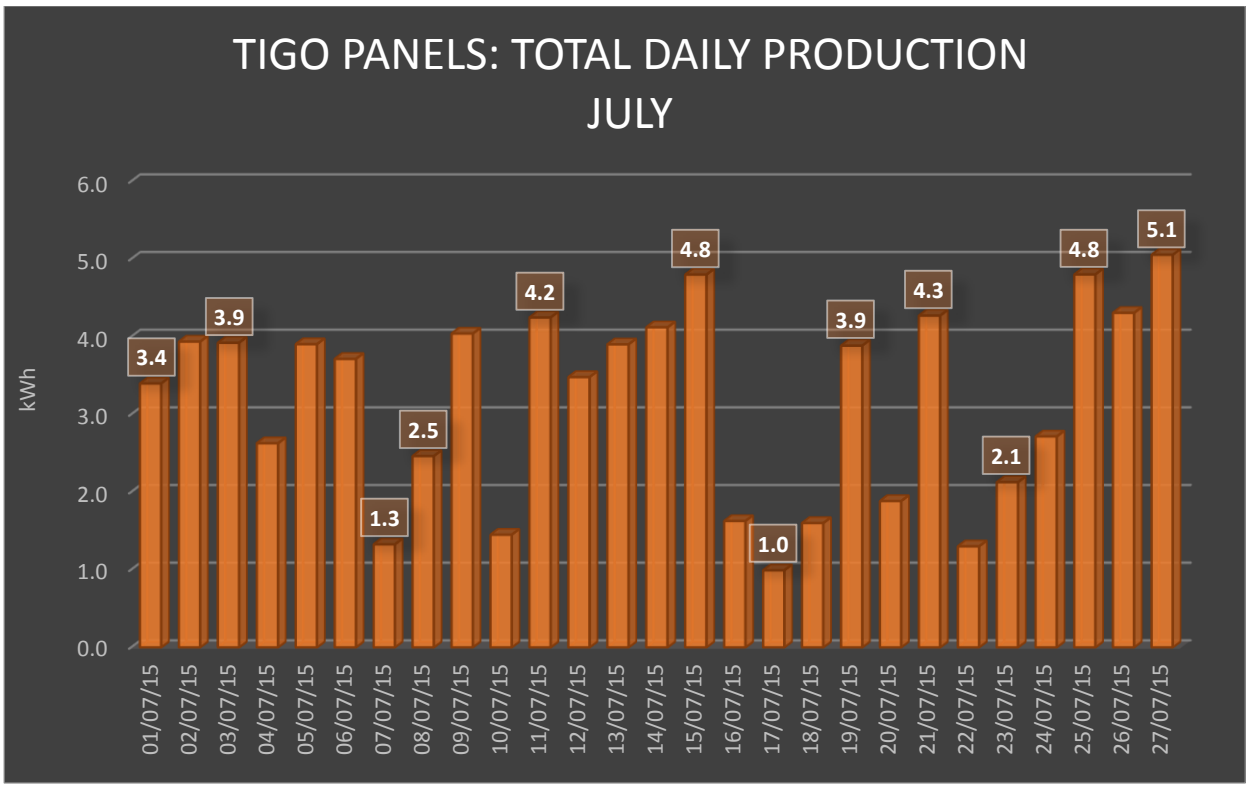
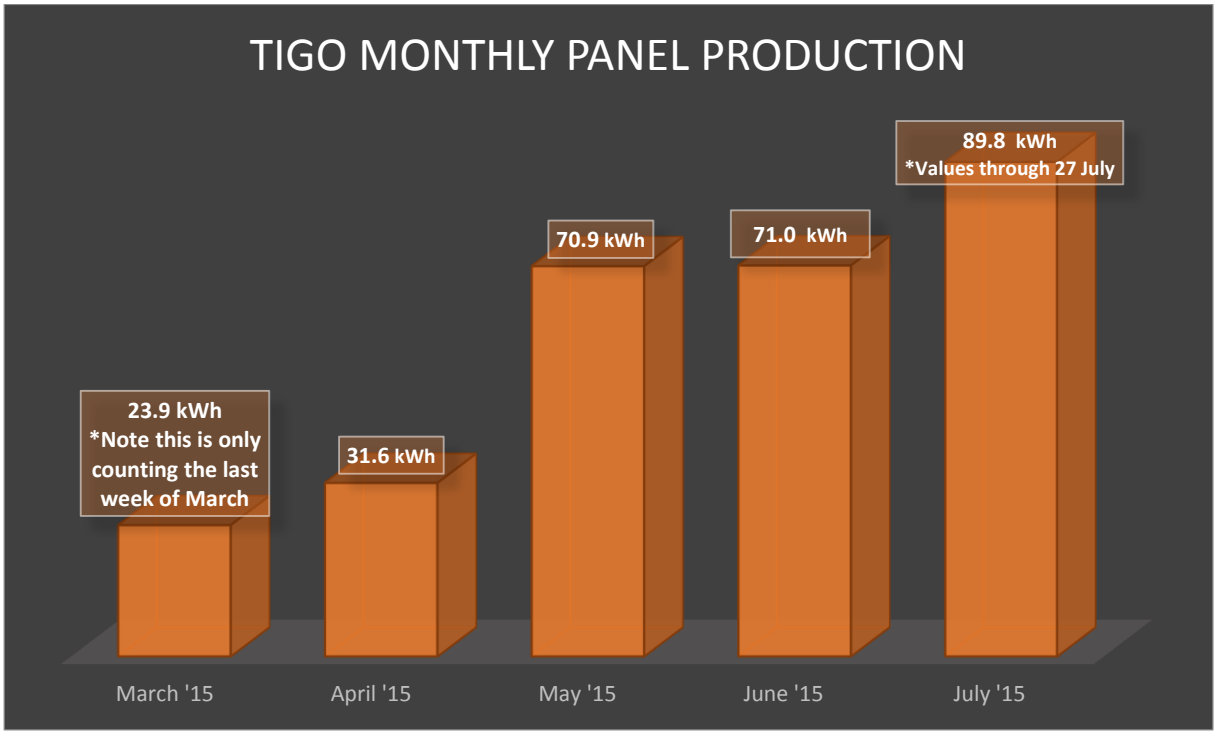
27/06/15
28/06/15
29/06/15
30/06/15


TIGO PANELS: TOTAL DAILY PRODUCTION
JULY
kWh
6.0
5.0
4.0
3.0
2.0
1.0
0.0
3.4
3.9
1.3
2.5
4.2
4.8
1.0
3.9
4.3
2.1
4.8
5.1
01/07/15
02/07/15
03/07/15
04/07/15
05/07/15
06/07/15
07/07/15
08/07/15
09/07/15
10/07/15
11/07/15
12/07/15
13/07/15
14/07/15
15/07/15
16/07/15
17/07/15
18/07/15
19/07/15
20/07/15
21/07/15
22/07/15
23/07/15
24/07/15
25/07/15
26/07/15
27/07/15

TIGO PANEL PRODUCTION: MONTHLY GRAPHS



Engage Efergy data

Energy consumption at the house is also being monitored by Engage Efergy's wireless home monitoring system. When compare to the Alpha ESS numbers, we noticed that Efergy's daily values are consistently lower than Alpha ESS values, and we therefore believe Efergy to be underreporting usage. Only Alpha ESS and Tigo values were used to create the graphs in this document.

Here's an example comparing Efergy to Alpha ESS values. On average, Efergy values were 2.6 kWh per day lower than Alpha ESS values.

	Consumption ALPHA (kWh)	Consumption EFERGY (kWh)	Efergy vs Alpha values (kWh/day)
27/6/15	5.22	2.31	-2.91
28/6/15	4.96	2.87	-2.09
29/6/15	5.98	3.47	-2.51
30/6/15	5.76	2.54	-3.22
1/7/15	6.04	3.05	-2.99
2/7/15	4.40	3.4	-1.00
3/7/15	5.80	2.98	-2.82
4/7/15	6.26	3.25	-3.01
5/7/15	5.82	3.14	-2.68
6/7/15	6.58	3.51	-3.07
7/7/15	5.74	4.08	-1.66
8/7/15	6.06	3.43	-2.63
9/7/15	4.04	2.02	-2.02
10/7/15	4.22	2.09	-2.13
11/7/15	4.10	2.27	-1.83
12/7/15	5.46	3.17	-2.29
13/7/15	6.04	2.56	-3.48
14/7/15	5.16	2.78	-2.38
15/7/15	6.20	2.2	-4.00
16/7/15	4.70	1.99	-2.71
17/7/15	6.14	3.12	-3.02