



Calculating actual home energy usage including onsite PV generation (non-battery)

Unless you have a 3rd party energy monitoring system that can measure your home energy consumption and solar PV production, it is difficult to see how much electricity your home is *actually* using when you have a solar PV system. This is because your monthly electric bill only shows how much energy was delivered (DEL) to you and how much excess energy may have been received (REC) back by the utility. This is due to the fact that the utility meter can only measure power going in and out in kilowatt hours (kWh). But what about the solar PV energy that was used directly in the home, but not measured by the utility meter?

USAGE PROFILE				
ELECTRIC USAGE PROF				
DATE	NET	DEL	REC	
01/03/19	380	849	469	
12/04/18	400	931	531	
11/01/18	261	789	528	
10/02/18	182	812	630	
09/01/18	233	861	628	
07/31/18	5	694	689	
07/02/18	-120	619	739	
06/04/18	-134	648	782	
05/02/18	-280	428	708	
04/04/18	-229	504	733	
03/02/18	-105	500	605	
01/31/18	-183	454	637	
01/02/18	-6	604	610	

849 kWh's of energy generation delivered (DEL) from the utility to the home.

469 kWh's of PV generation received (REC) by the the utility.

849 - 469 = 380 kWh's NET usage of the home.

NOTE: This does not account for the additional PV energy generated and used in the home.

To calculate the actual energy usage of your home for a given month, we would also need to include a column that has the total solar PV production for the month. Remember, the utility electric meter can only measure the amount of *excess* PV power that goes back to the electric grid, not the total amount of PV power generated for the month.

USAGE PROFILE				
ELECTRIC USAGE PROF				
DATE	NET	DEL	REC	PV
01/03/19	380	849	469	600
12/04/18	400	931	531	580
11/01/18	261	789	528	592
10/02/18	182	812	630	602
09/01/18	233	861	628	620
07/31/18	5	694	689	627
07/02/18	-120	619	739	638
06/04/18	-134	648	782	.
05/02/18	-280	428	708	.
04/04/18	-229	504	733	.
03/02/18	-105	500	605	.
01/31/18	-183	454	637	.
01/02/18	-6	604	610	.

849 kWh's of energy generation delivered (DEL) from the utility to the home + 600 kWh's of additional solar PV production equals 1,449 kWh's of total generation.

469 kWh's of PV generation received (REC) by the the utility.

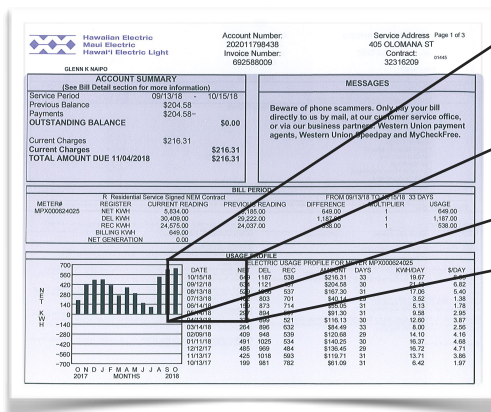
1,449 - 469 = 980 kWh's of actual energy usage. This is equal to the actual amount of energy used in the home.

Missing information necessary to perform an actual usage calculation from your electric bill.

NOTE: Confirm that the PV monitor is connected to the internet and reporting data.

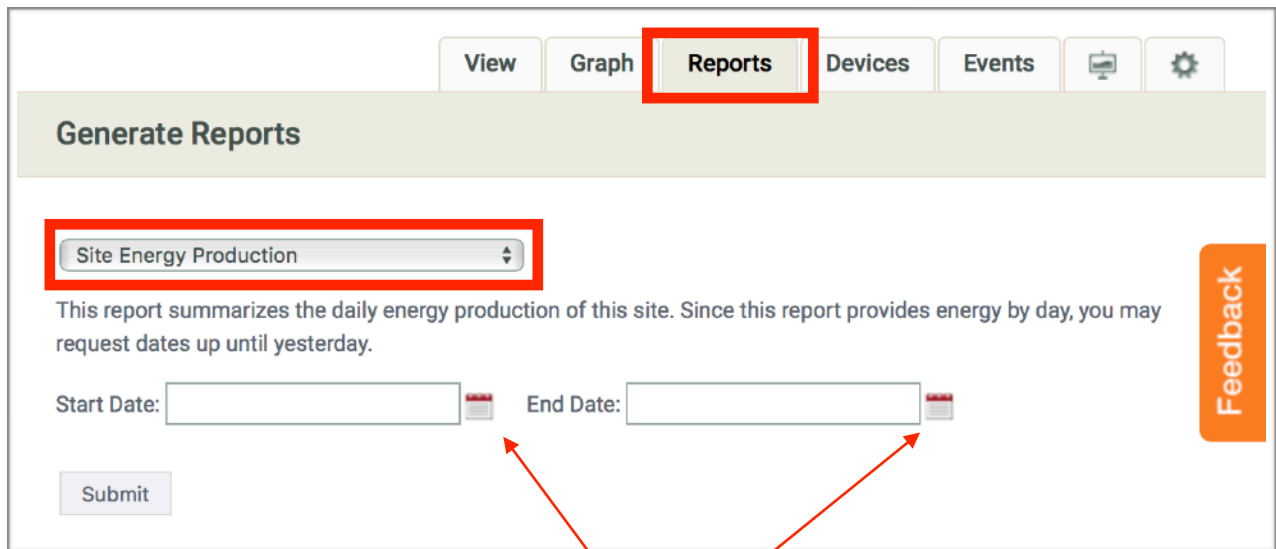
It is a requirement for the PV monitor to be reporting for the purposes of gathering production data from the PV panels. Please visit <http://www.hawaiienergyconnection.com/residential/support.html> for assistance on getting your monitor back online.

Step 1) Run a solar Production Report using the same billing dates from your current electric bill to see how much energy was created by your PV system during the same utility billing period.



DATE	NE
10/15/18	64
09/12/18	63
08/13/18	52
07/13/18	10
06/14/18	15
05/14/18	29

Top date is **End Date**
Next date down is **Start Date**



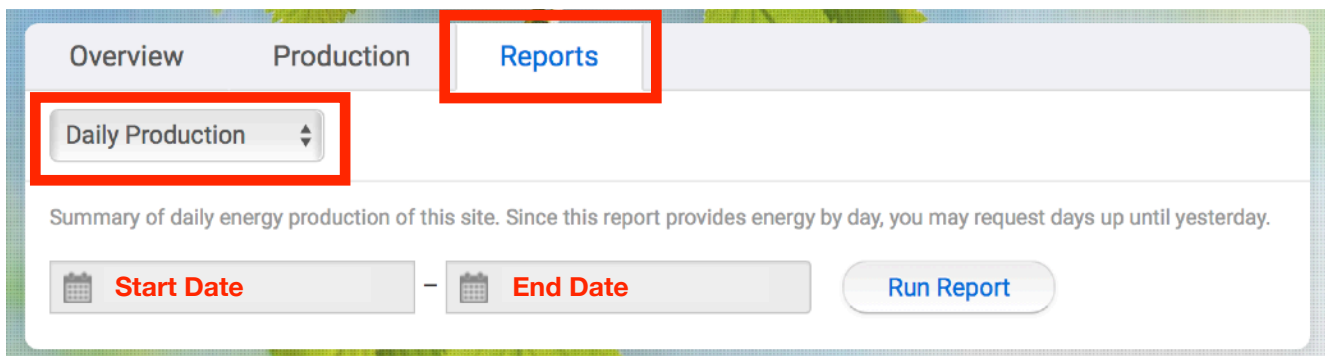
Use calendar feature to enter **Start** and **End** dates from utility bill. If your screen looks different, you may be using the MyEnlighten version of the monitor (see below). The data is entered the same way.

Click on the Submit or Run Report button to show solar PV production for the intended date period. The **Total** production will be at the bottom of the report.

11/03/2018	33.93
11/04/2018	31.74
11/05/2018	28.30
Total	986.81

**Total solar PV production for same utility billing period.
(Example only)**

NOTE: If you are using the MyEnlighten version, then the report window may look a bit different, but it achieves the same results.



MyEnlighten version of the report window

Step 2) Find the NET electric usage number from your latest electric bill.

USAGE PROFILE			
ELECTRIC USAGE			
DATE	NET	DEL	REC
10/15/18	649	1187	538
09/12/18	884	1121	487
08/13/18	529	1066	537
07/13/18	102	803	701
06/14/18	159	873	714
05/14/18	297	894	597
04/13/18	378	899	521

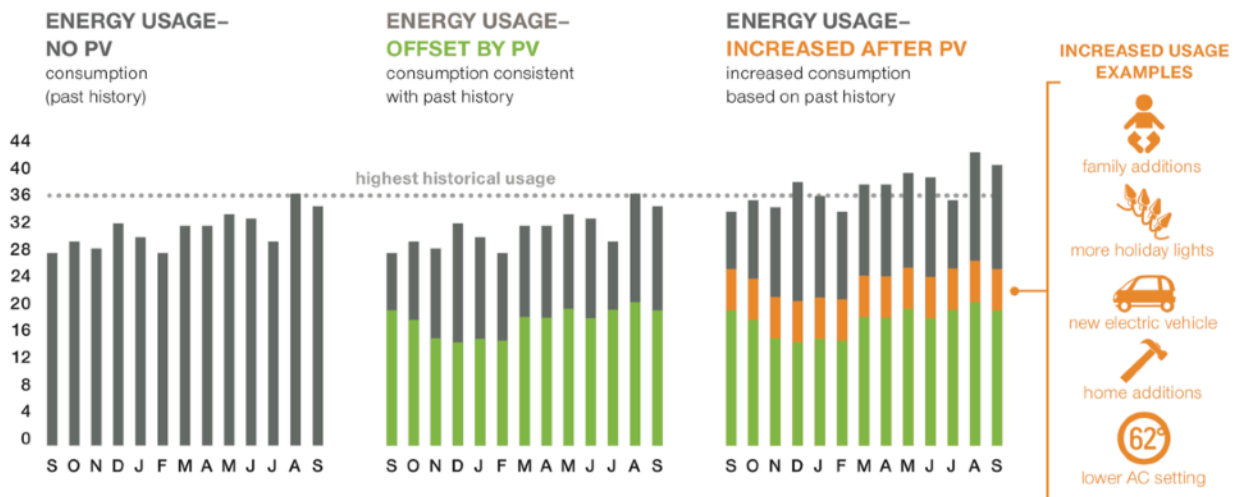
**NET utility usage for same billing period.
(Example only)**

Step 3) Add the results of Step 1 and Step 2 (Total PV production + NET utility usage) together to calculate the homes actual energy usage for that specified billing period.

Here are the results using the above examples:

986.81 (Step 1) + 649 (Step 2) = 1,635.81 kWh actual home usage for the specified billing period.

Now that we have the total kWh usage for the specified period, you can do some further analysis and comparisons to see if your home is using more or less energy than before by comparing this number against the same billing month from a past electric bill prior to installing solar PV.



Your PV system has been designed to offset your household's electrical usage based on your past history of use. Any change to your normal habits can cause an increase in your home consumption. Some common causes are adding a member to your family or entertaining guests, increased cooking or laundry, stringing extra holiday lights, a new electric vehicle, additions to your house, changing habits, and chilling out with a lower AC setting.

Home Consumption