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Cornwall Local Energy Market

Understanding your Sonnen app and meter readings – guidance for Cornwall LEM residential participants

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N-SIDE
OPTIMIZING YOUR DECISIONS

The Cornwall Local Energy Market is part-funded by the European Regional Development Fund under the European Structural and Investment Funds Programme 2014-2020.

Introduction

The following guidance explains how to interpret the Sonnen app and website to obtain information about the performance of your battery and solar PV systems. It also explains how to interpret the different meters in your home and see how your system compares to getting 100% of your electricity from the grid.

There are 2 sections to the guidance.

Section 1 relates to homes that had a new solar PV system installed alongside their battery.

Section 2 relates to homes that already had PV installed and ONLY received a battery from the LEM project.

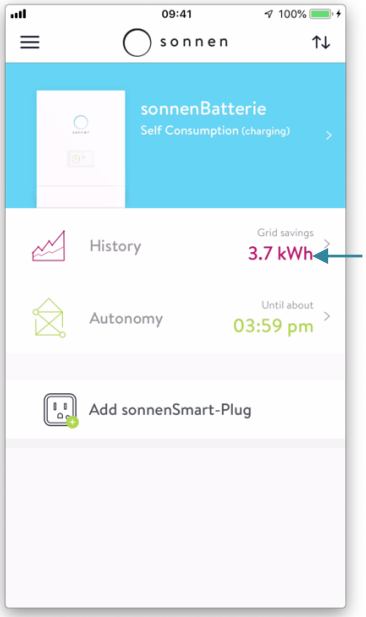
Please refer to the section that is relevant to your home.

Section 1: Homes that received both solar PV and a battery from the LEM project

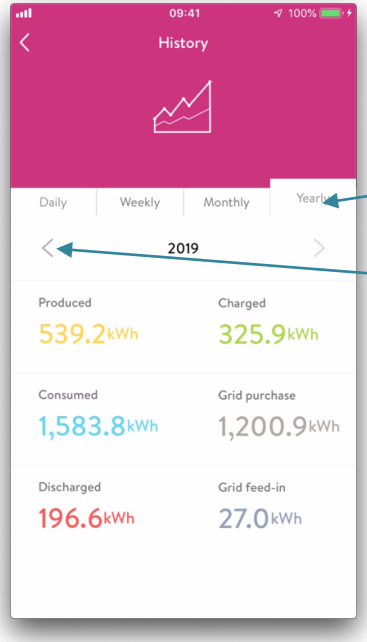
Accessing the historic data on your app

Step 1: Launch the app → Step 2: View history from this year → Step 3: View history from previous years

Launch the **Sonnen** smartphone app, and register with your Sonnen **serial number** (5 or 6 digits)



Click Here to view History for **This Year**



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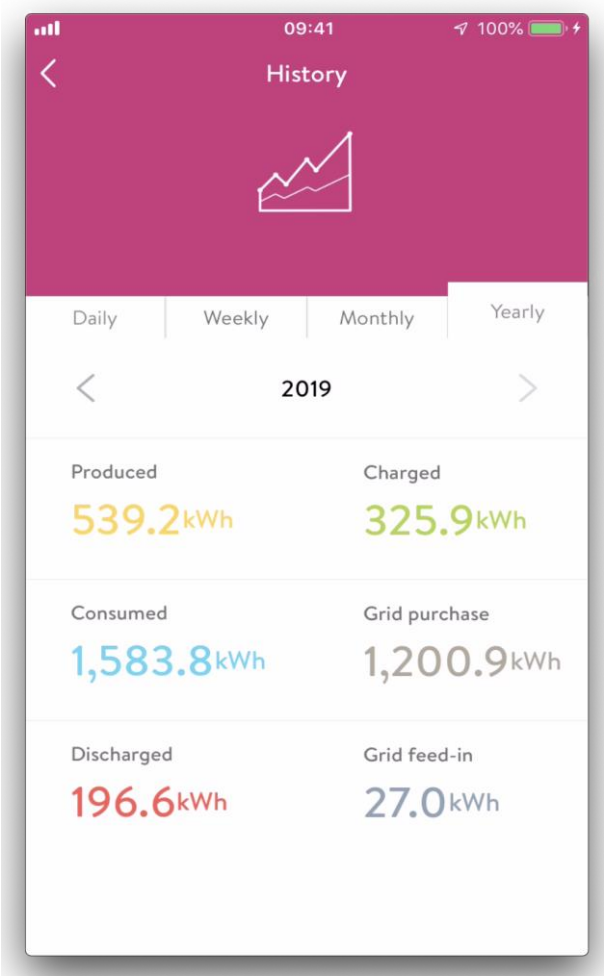
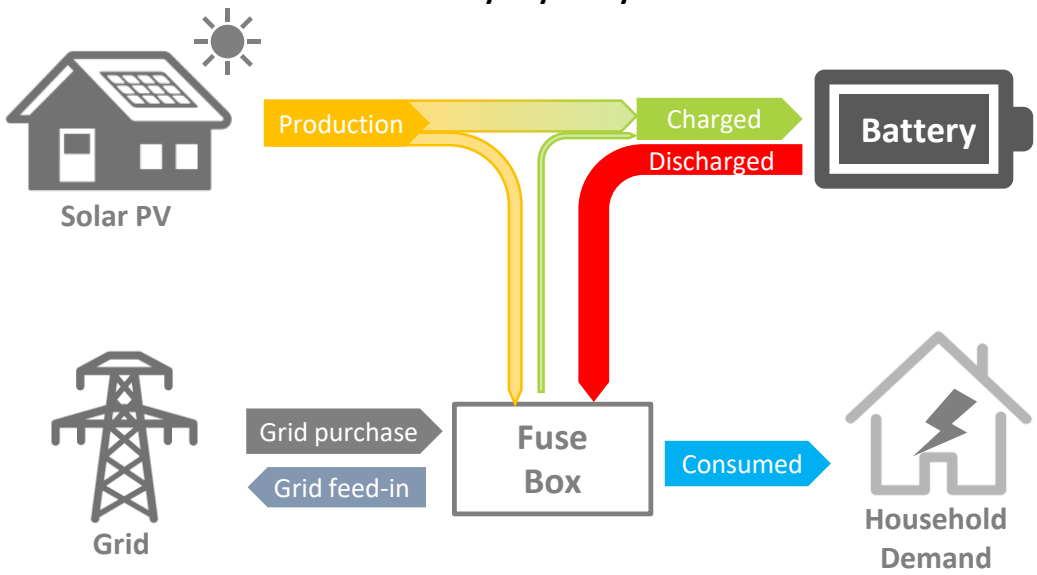
…and **here** to view values for **Last Year**

Understanding the readings and your system performance



The graphic below shows how the readings given in the app relate to the flow of electricity in your system



Calculating your system cost savings

Actual Saving of Solar PV + Battery (vs. buying all from Grid) **[£]** = (Consumed – Grid Purchase)$^{[kWh]}$ x Tariff* $^{[p/kWh]}$ / 100

Electricity Cost without Solar PV + Battery (i.e. buying from the grid) **[£]** = Consumed$^{[kWh]}$ x Tariff* $^{[p/kWh]}$ / 100

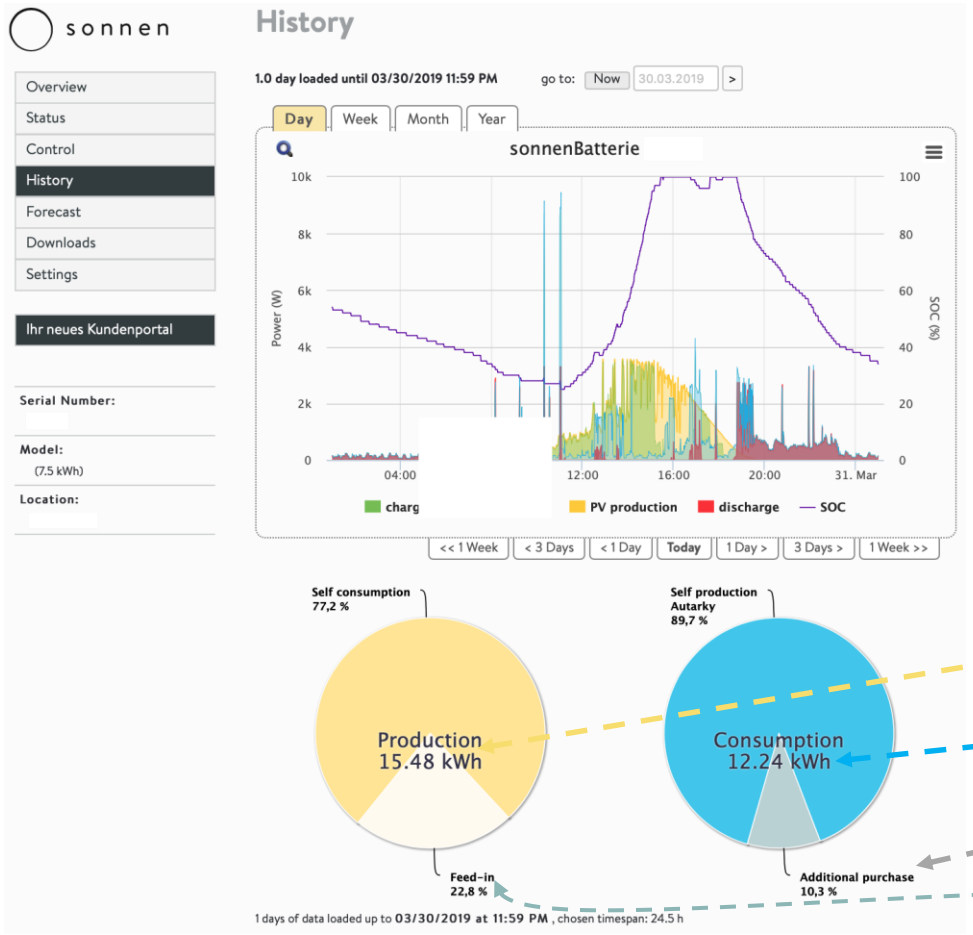
**Please refer to your latest electricity bill for your tariff detail*

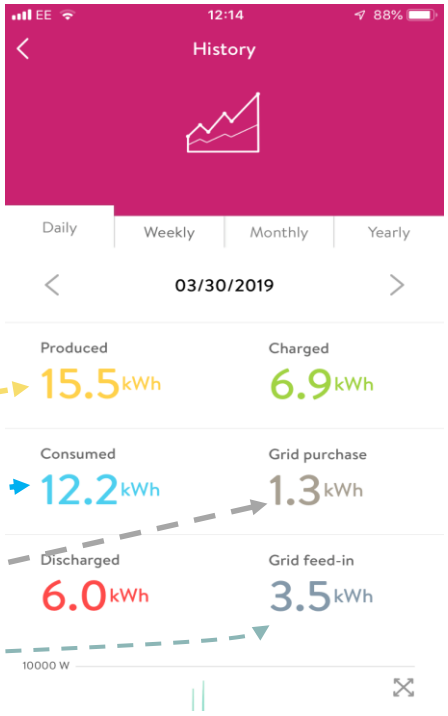
Comparing the app with the web portal

How much electricity am I drawing from the grid?
Consumption[kWh] x Additional Purchase[%] = Grid Purchase [kWh]

How much electricity am I exporting to the grid?
Production[kWh] x Feed-in[%] = Grid feed-in[kWh]

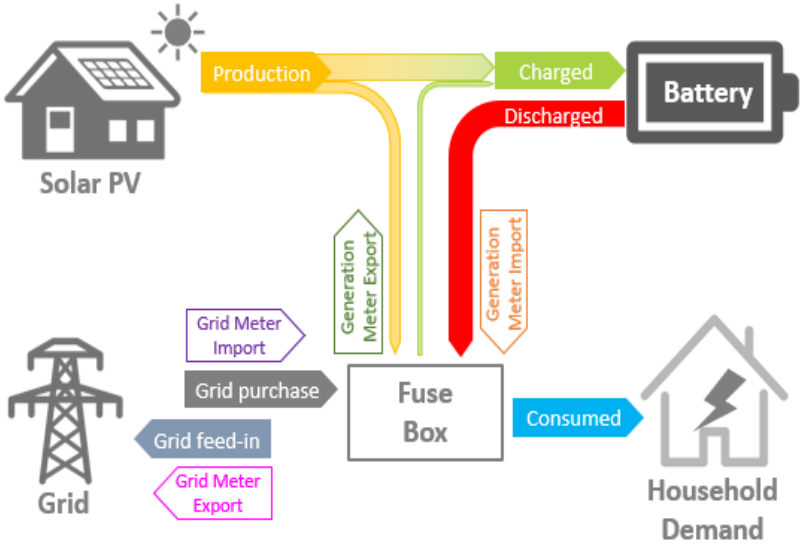
How much of my electricity is being supplied by my solar PV system?
Consumption[kWh] x Self production Autarky[%]





Understanding your meters

How your meters relate to your system?



What do the meters look like?

Which Meter am I looking at?	What do the meter readings mean?
Grid Meter *Used for billing purposes by your supplier*	**Import:** Electricity bought from grid "Grid Purchase" **Export:** Electricity sent to the grid "Grid feed-In"
Generation Meter *Used to measure PV output*	**Import:** Output from Battery + PV System "**Discharged**" + the fraction of "**Production**" not charged to Battery **Export:** **Grid Charge** to Battery "**Charged**"

Understanding your meters

Can I check my electricity savings with these meters?

Yes – it's really simple to calculate the reduction in electricity purchased from the grid:

Actual Saving$^{[kWh]}$ = Generation Meter Import $^{[kWh]}$ – Generation Meter Export$^{[kWh]}$

This is the total output from the Battery + Solar PV, minus any Grid Charges.

Grid charges supply overnight trickle charges (if Battery charge level is low), for Time-of-Use tariff operation (if you are on Economy 7), or to support the grid services (during limited testing of the Cornwall Local Energy Market platform).

What if I don't see a marked reduction in my electricity bill?

There are several things to check:

1. Whether your electricity meter is running backwards, or reading as import + export.

Note: The former will cause inaccurately low meter readings, which your supplier can retrospectively charge you for. The latter will cause inaccurately high meter readings, which you need to challenge with your supplier. In either case, contact your supplier immediately to arrange a new Grid Meter.

1. Changes in your electricity tariff, Standing Charges, or discounts (such as dual fuel, or monthly Direct Debit).

2. Seasonal differences, as electricity consumed can be higher in winter than summer, due to heating, lighting and time spent indoors, and PV generation will be lower

Section 2: Homes that already had PV installed and ONLY received a battery from the LEM project

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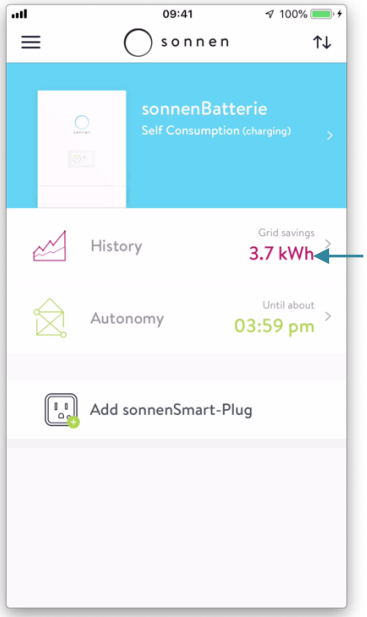

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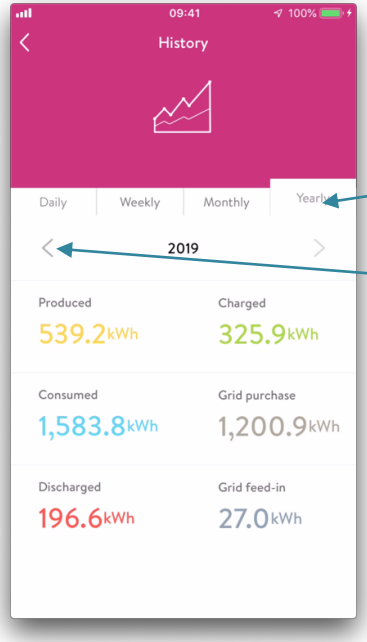

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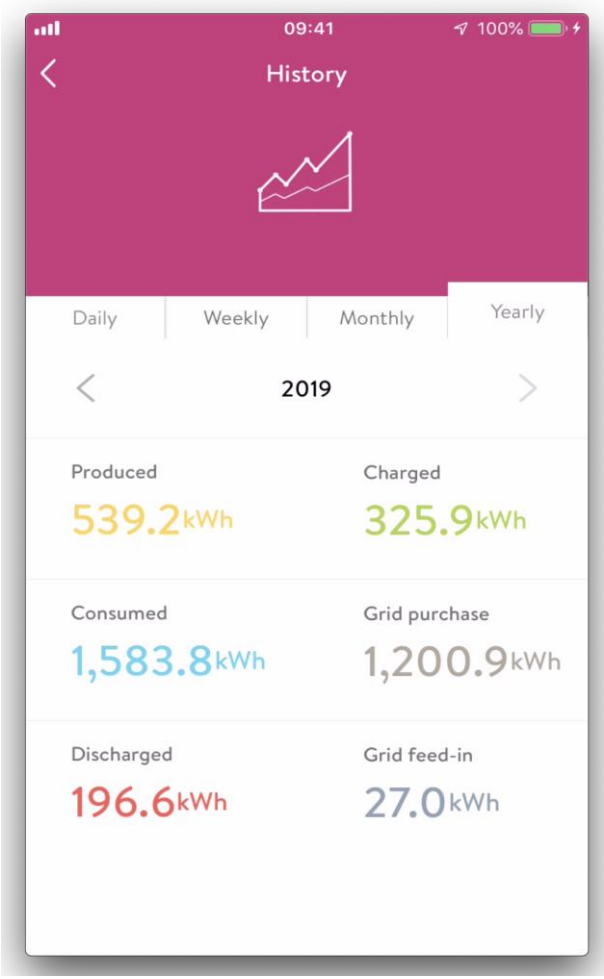

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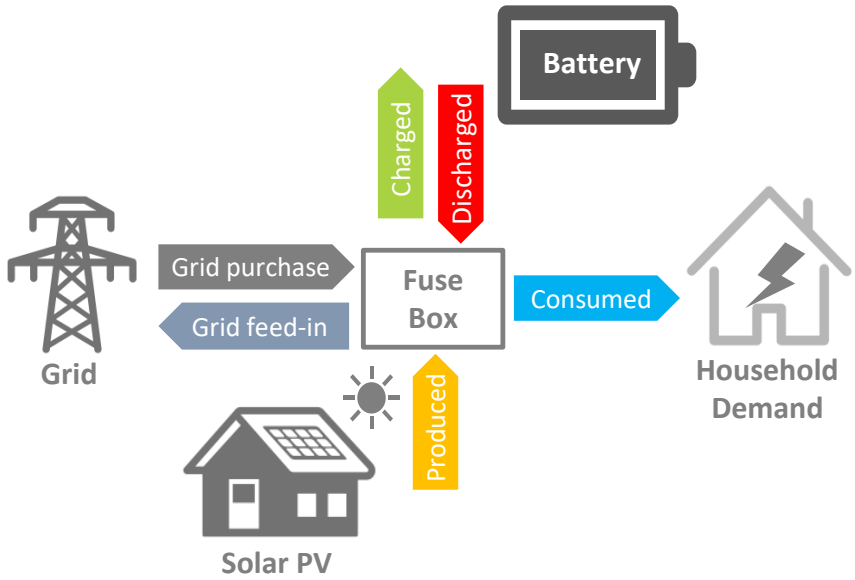

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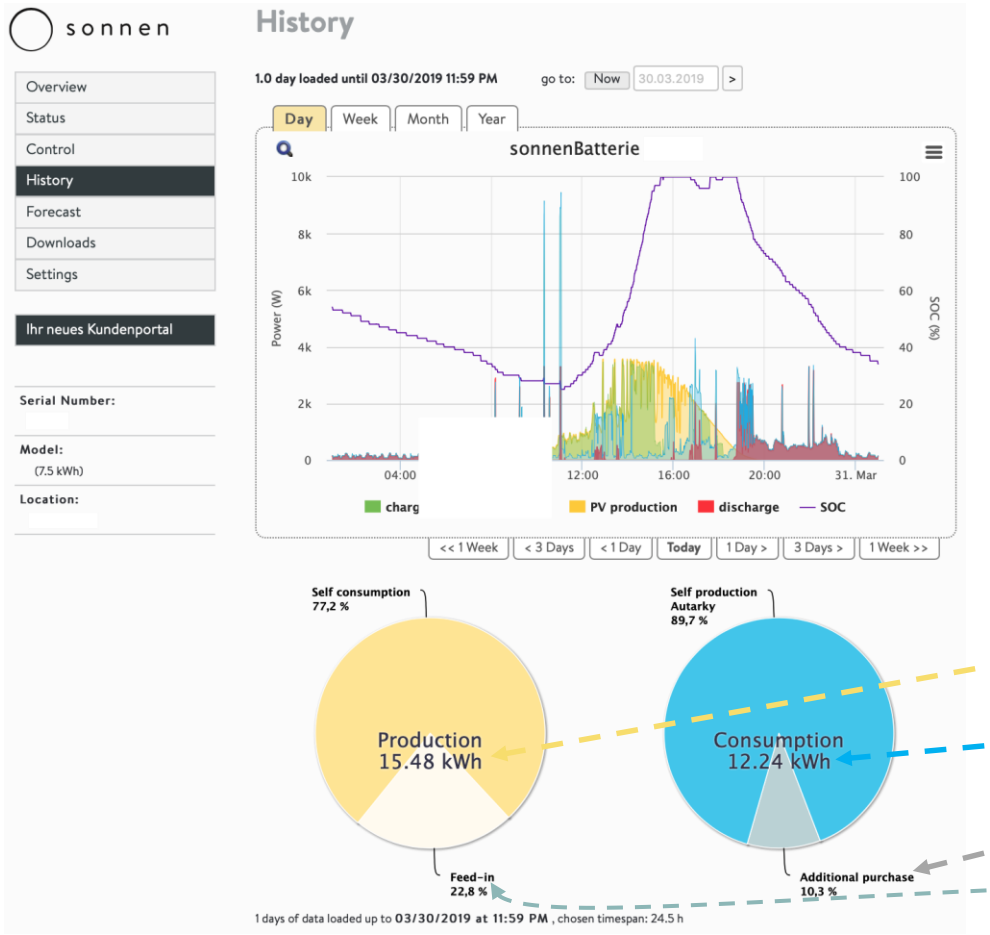

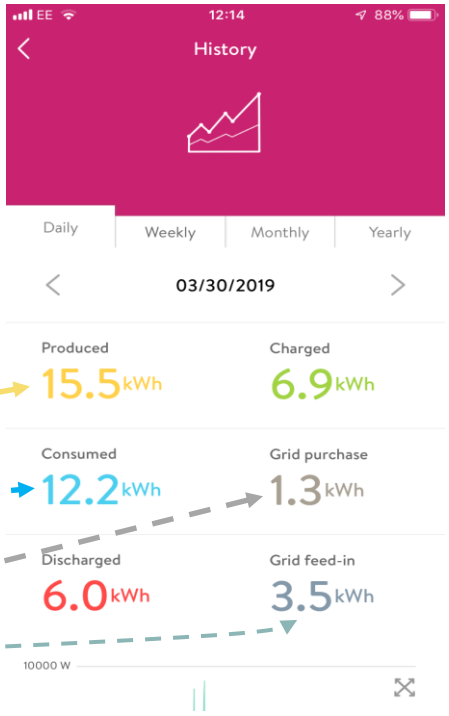

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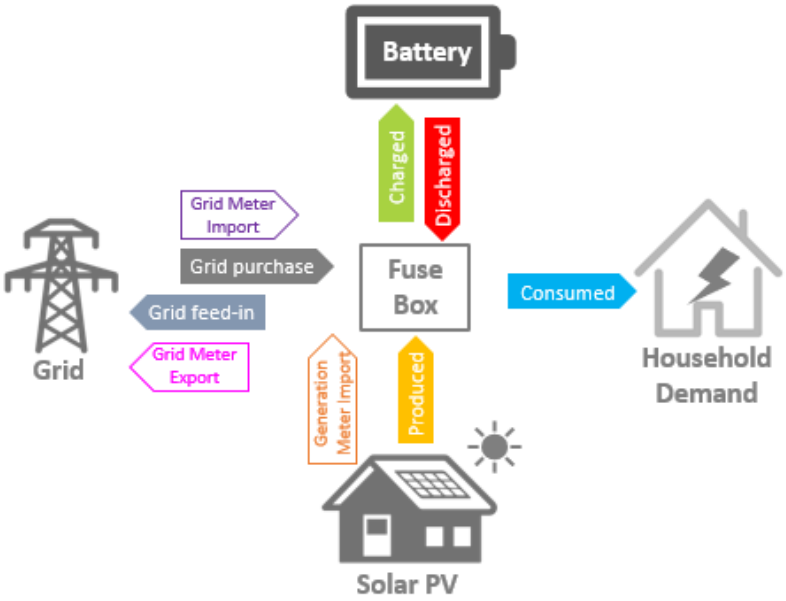

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Generation Meter *Used to measure PV output*	**Import:** Output from Solar PV System "Produced"

Understanding your meters

Can I check my electricity savings with these meters?

Not directly, but you can cross check the readings on your Sonnen app and you can calculate your savings using the minute-by-minute data from the Sonnen Web CSV Download (see Appendix).

High-resolution data is required in order to consider when the battery is charged from the grid, instead of from your Solar PV system.

Grid charges supply overnight trickle charges (if Battery charge level is low), for Time-of-Use tariff operation (if you are on Economy 7), or to support the grid services (during limited testing of the Cornwall Local Energy Market platform).

This Grid Charge value will be small compared with the electricity from your Solar PV system that was previously fed into the grid when you couldn't use it in your home.

What if I don't see a marked reduction in my electricity bill?

Whilst you can't confirm your saving directly, you can check the following:

1. The Sonnen battery is accurately measuring the energy produced by your Solar PV system

Note: sometimes, the battery measures the energy from a sub fuse board, such as in your garage, which may have additional loads such as freezers, lights, etc – this would cause a mismatch in the values from Generation Meter and Sonnen App.

1. Whether your electricity meter is running backwards, or reading as import + export

Note: The former will cause inaccurately low meter readings, which your supplier can retrospectively charge you for. The latter will cause inaccurately high meter readings, which you need to challenge with your supplier. In either case, contact your supplier immediately to arrange a new Grid Meter.

Checking electricity savings using CSV data

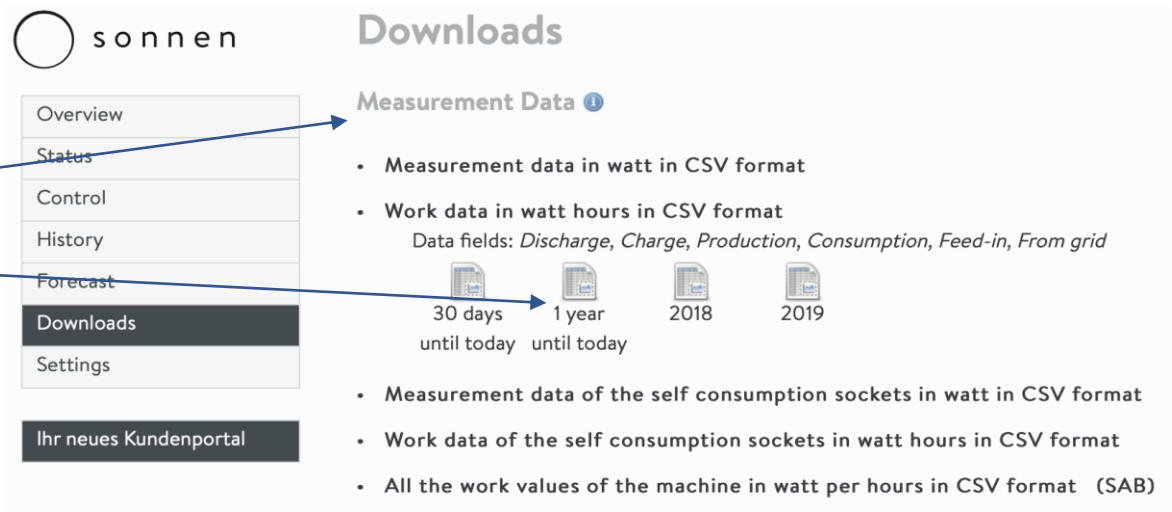
1. Logon to the website (my.sonnenbatterie.co.uk)

2. Click on ***Downloads***

3. Click on ***Measurement Data***

4. Click on ***1 year until today***

5. Wait for a file to download, with the filename:
Work values-$$$$$-07.04.2018-07.04.2019.csv
*(where **$$$$$** is replaced with your battery's 5 or 6 digital Serial Number)*



6. Open the file, and expand the columns until you see the column headings in the image below
*Where **$$$$$** is replaced with your battery's 5 or 6 digital Serial Number*

### Machine: $$$$$ - Export: 2019.04.07 22:41:36	from: 2018.04.07 20:41:36	to: 2019.04.07 20:41:36						
### UNIX-Timestamp	Date/Time	Discharge(Wh)	Charge(Wh)	Production(Wh)	Consumption(Wh)	Feed-in(Wh)	From grid(Wh)	State of Charge(%)
1548167880	22.01.2019 15:38:00	0	34.98	0	103.93	0	138.91	53
1548167940	22.01.2019 15:39:00	0	35.02	0	105.65	0	140.67	53
1548168000	22.01.2019 15:40:00	0	35.02	0	104.42	0	139.44	54
1548168060	22.01.2019 15:41:00	0	34.98	0	102.27	0	137.25	54

7. Delete any rows with Date/Time values that occur **before** your Battery's installation date
These older records are from Factory Acceptance Tests, undertaken at Sonnen's factory, and do not affect your Savings

8. Paste the data into the yellow cells of the spreadsheet provided separately. This will give you a summary of the savings accrued by your system.