

Tesla Powerwall Monitoring Guide

V1 - November 2024

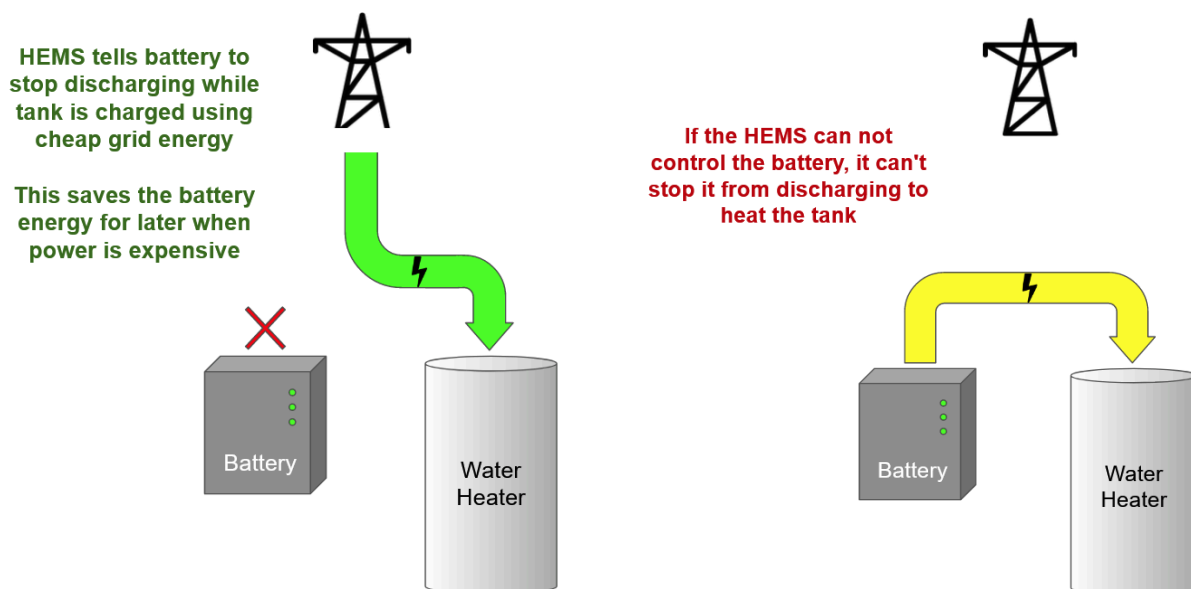
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Important - Limited HEMS Integration

The Combined Energy HEMS optimises all connected appliances to minimise the total cost, and the best outcome for the customer sometimes means reserving battery energy for when the price of power is high.

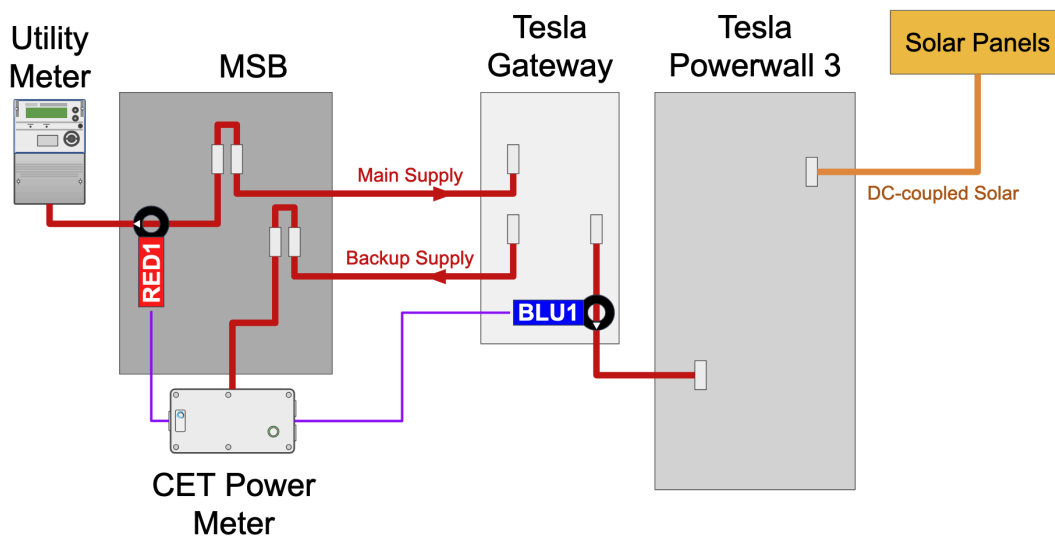
Unfortunately Tesla does not provide an option for local control of Powerwall batteries by the HEMS.

Batteries that are uncontrolled will discharge at inappropriate times, like when the HEMS is trying to pre-charge the water heater using cheap grid energy. This means that the HEMS has to operate conservatively to "work around" the presence of a Powerwall battery, and may not be able to fully optimise the customer's system.



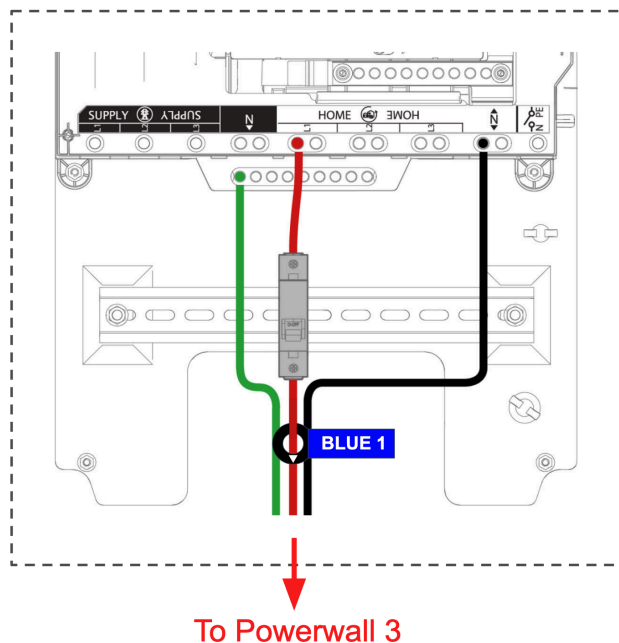
Monitoring Requirements

The HEMS monitors Powerwall batteries using a CT (current transformer). The monitoring CT needs to be connected to the AC supply active line **between the Tesla Gateway and the Powerwall battery**:



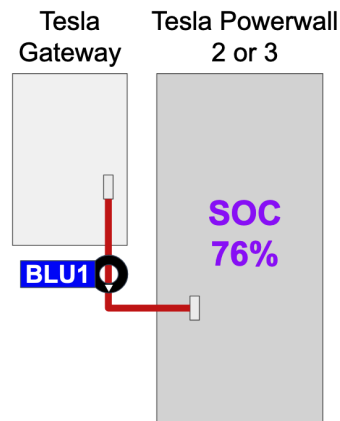
The CET Power Meter should be powered from the backup supply. The grid supply to the site must be monitored by the HEMS per the standard installation requirements.

Ensure the CT arrow is pointing towards the Tesla Powerwall:



No Battery SOC Estimate with DC-coupled Solar

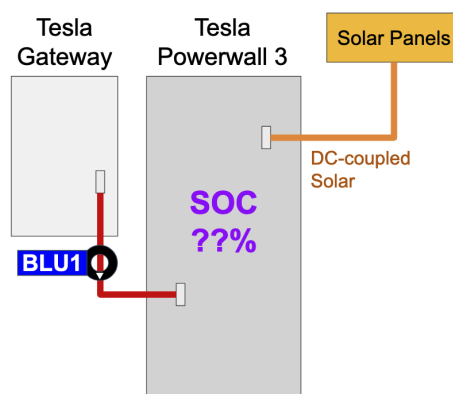
If the Powerwall is installed as a simple AC-coupled battery, the HEMS tracks the State of Charge (SOC) of the battery by monitoring the flow of power to and from the battery using the CT:



Battery Only

HEMS can estimate SOC % by monitoring power flow between Gateway and Powerwall 3

Powerwall 3 introduced the ability to connect solar panel DC strings to the Powerwall 3 directly. There is no way for the HEMS to monitor the flow of DC power from the solar panels to the Powerwall, so for Powerwall systems with DC-coupled solar **the HEMS will not show a charge state estimate** in the *atHome* web app:



Battery with DC-coupled Solar

HEMS can not see power going to battery from panels, unknown SOC %

Contact CET Support to test the Powerwall monitoring

When the monitoring is ready to test, contact CET by logging in to the *onSite* web app at <http://onsite.combined.energy/> and using the **Request Support** button in the menu.