



Powerwall Application Note: Multiple Backup Gateway units on a Single Site

Overview..... 2

Revision History..... 10



OVERVIEW

This document summarizes the use of more than one Backup Gateway to accommodate larger sites, adding design flexibility and larger load capacity, backup loads may be divided into 100A increments to stay within the rating of Backup Gateway.

Attention must be given to ensuring all home loads, both backup and non-backup, are isolated according to the desired use case and assigned to the monitoring functions of an individual Backup Gateway. Additionally, careful placement of monitoring CTs is critical for systems paired with PV production.

A few key design considerations:

- No part of the electrical system should be monitored by more than one Backup Gateway.
- No Backup Gateway should be monitoring loads backed up by another Backup Gateway.
- No loads should be backed up by more than one Backup Gateway.
- A solar system connected to the backup circuit of a Backup Gateway must be monitored by that same Backup Gateway. It cannot be monitored by a different Backup Gateway.
- Backup Gateway configured for backup must only provide backup power to one phase.
- Ensure the loads and connected Powerwalls comply with the current rating of Backup Gateway (100A for single phase and 80A per phase for three phase).
- For three phase sites, no three phase distribution boards can be installed downstream of the Backup Gateway. All three phase loads and generation must be installed upstream of the Backup Gateway.

The maximum number of Powerwalls that can be connected to a single Gateway depends on which Powerwall model is installed:

- Up to (10) Powerwall 2 units can be installed with Backup Gateway 2
- Up to (4) Powerwall 3 units can be installed with Backup Gateway 2



NOTE: It is not possible to provide backup power for loads larger than 100A on a single phase. Consider the following advise:

- For Powerwall 2 systems exceeding the 100A per-phase rating of Backup Gateway, such as a system with four (4) or more Powerwall units installed per phase, they must be installed in parallel with Backup Gateway.
- For Powerwall 3 systems exceeding the 100A per-phase rating of Backup Gateway, they can be installed in a non-backup configuration with Tesla Remote Meter rather than installing in parallel with Backup Gateway. See the Powerwall 3 Non-Backup Installation Guide available on partners.tesla.com for installing Powerwall 3 in a non-backup configuration.

The total number of Powerwall units on a specific site is limited by the impedance values of that site. See the [Multi-Powerwall Sizing Application Note](#) for any design with more than (4) Powerwalls.



OVERVIEW

For additional guidance on systems requiring more than (1) Backup Gateway or large services, please email to the address provided below for your region along with the details requested. Prior to the installation, you will need to obtain written approval for the design from Tesla Support / Engineering.

- Email address per region:
 - United Kingdom: QualityAssuranceUK@tesla.com
 - Italy: QualityAssuranceIT@tesla.com
 - Germany: QualityAssuranceDE@tesla.com
 - Spain: Powerwall-Spain@tesla.com
 - Other regions in Europe, Middle East, and Africa: QualityAssuranceEMEA@tesla.com or EnergySupportEMEA@tesla.com
- Details required:
 - Backup Gateway 2 Tesla part numbers (P/N) and serial numbers (S/N)
 - Powerwall Tesla part numbers (P/N) and serial numbers (S/N)
 - Site address
 - Customer email address (ensure this is same as the email address used during commissioning)

If wired or wireless meters (Tesla Remote Meter, Neurio, or Acuvim) are used instead of internal meters on the Backup Gateway, ensure there is one site and one solar meter installed to each Backup Gateway.

Designs employing more than one Backup Gateway will also display as separate systems in the customer's mobile app. Displaying each Backup Gateway simultaneously is not supported at this time. An important consideration to remember is that each Backup Gateway will behave as a distinct system during grid outages and Self-Consumption or Time-Based Control modes. All loads should therefore be selected and distributed accordingly,

Applicable building and electrical codes should be followed when labeling the Backup Gateway units and associated distribution equipment and branch circuits. This will also aid in future service and troubleshooting.



NOTE: Each Backup Gateway 2 must not see >10 kA fault current. Utility grids typically do not limit fault current below 10 kA on services larger than 100A, so measures must be taken to prevent each Backup Gateway 2 from seeing >10 kA fault current.



NOTE: Each Backup Gateway is a separate system, and both must be commissioned and registered as such.

Metering Examples

Specific design and application details will vary. The following diagrams illustrate examples of correct and incorrect metering configurations.



OVERVIEW

Figure 1. Correct - all Backup Gateway units are monitoring the loads that they back up

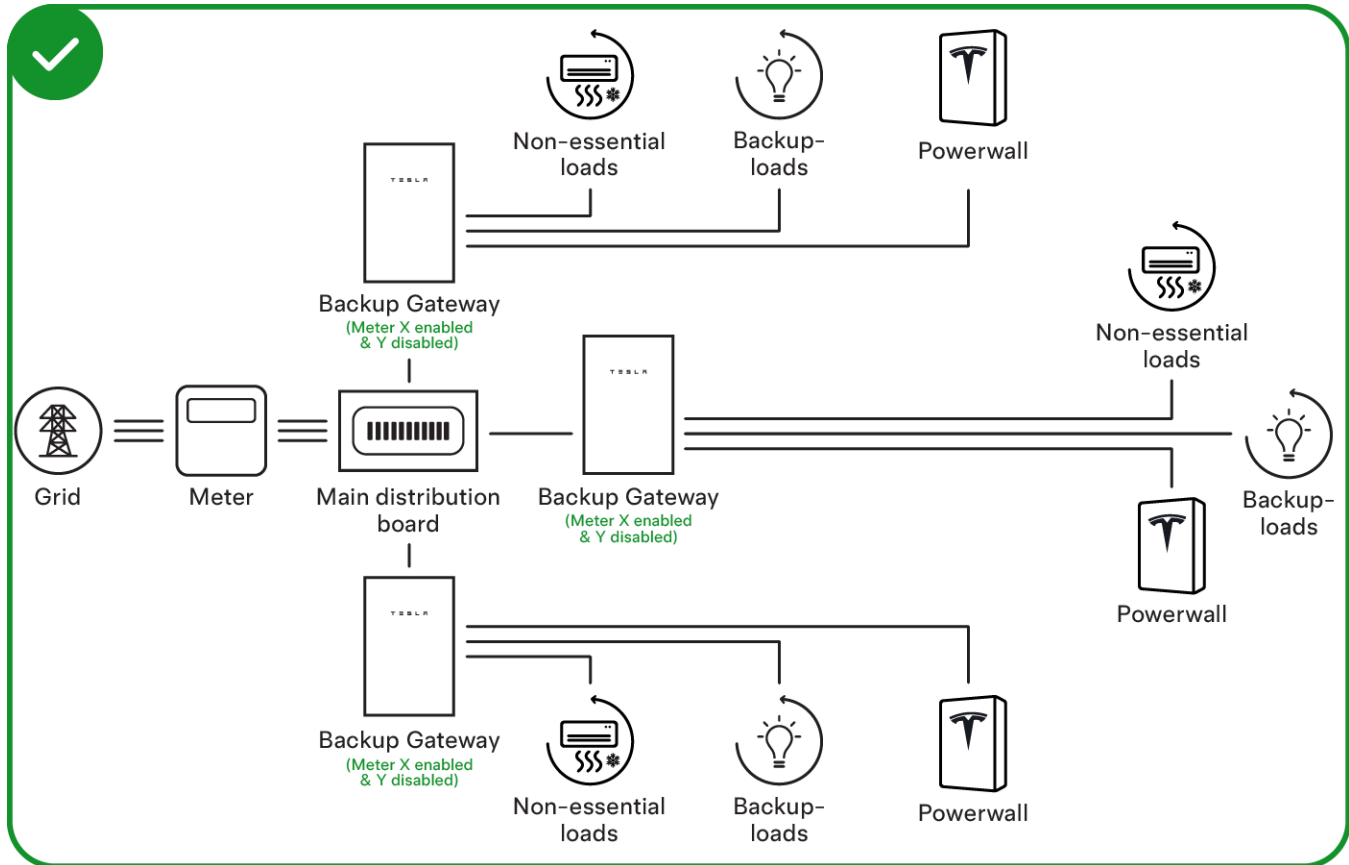
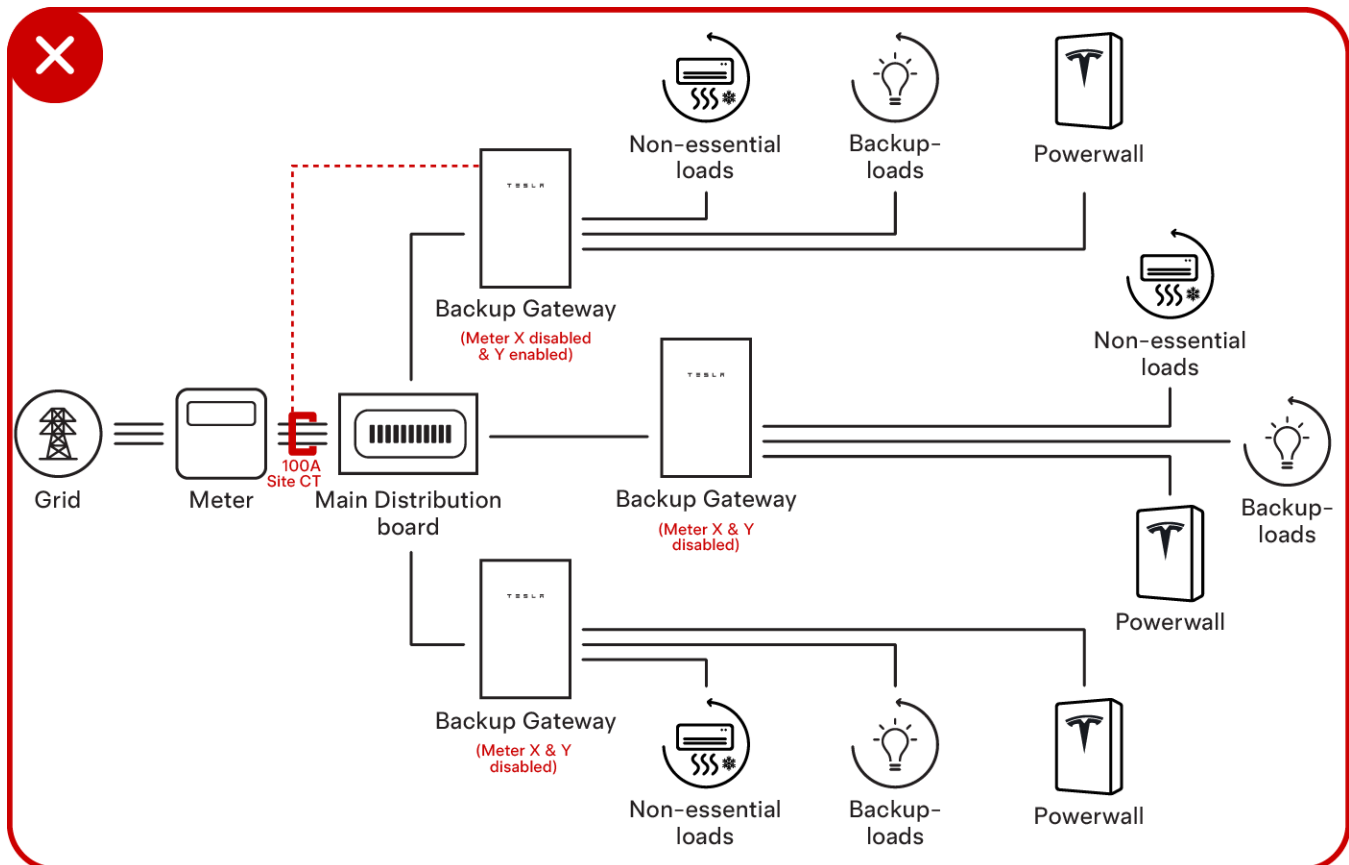


Figure 2. Incorrect - one Backup Gateway is monitoring loads backed up by other Backup Gateway units





OVERVIEW

Figure 3. Correct - all Backup Gateway units are monitoring the loads that they back up

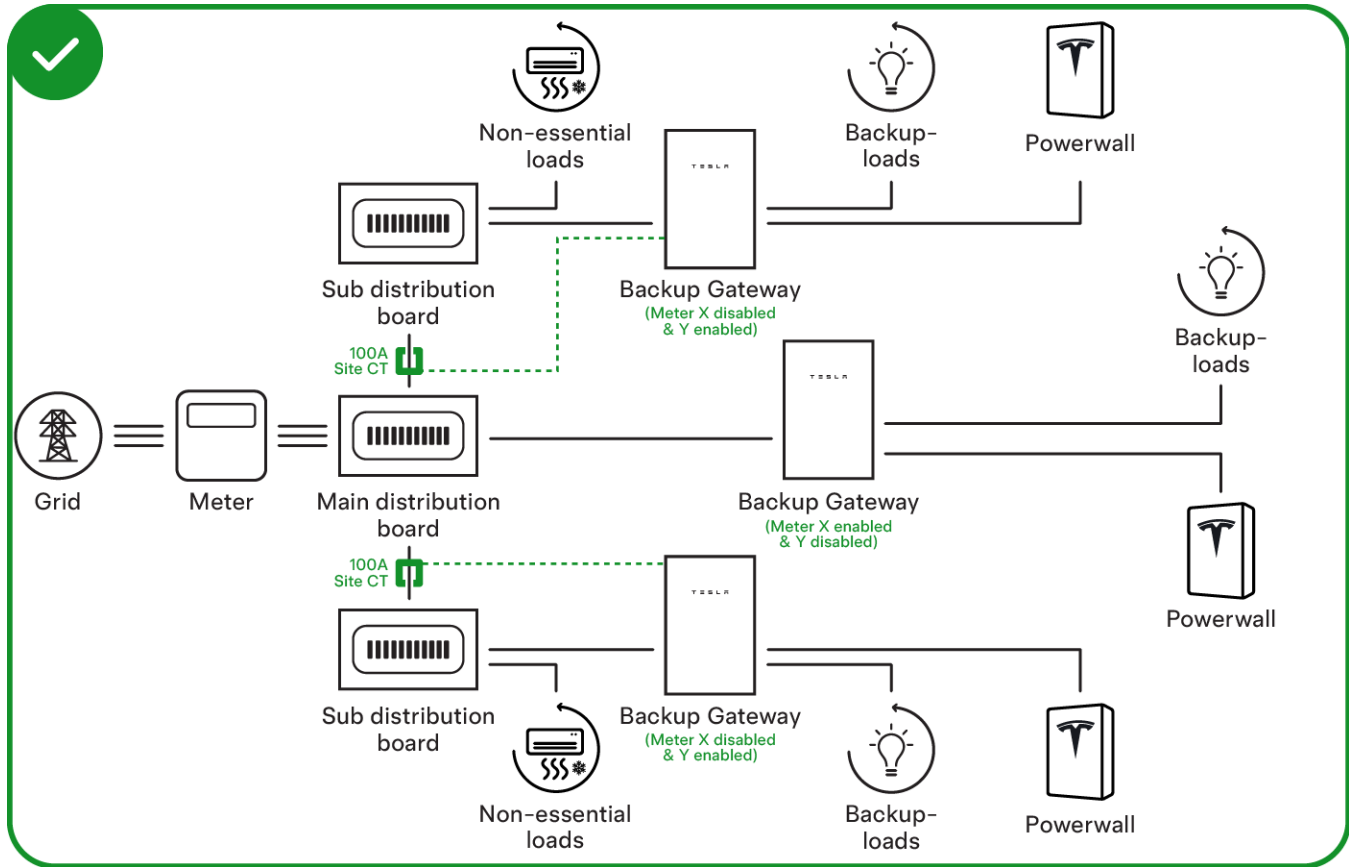
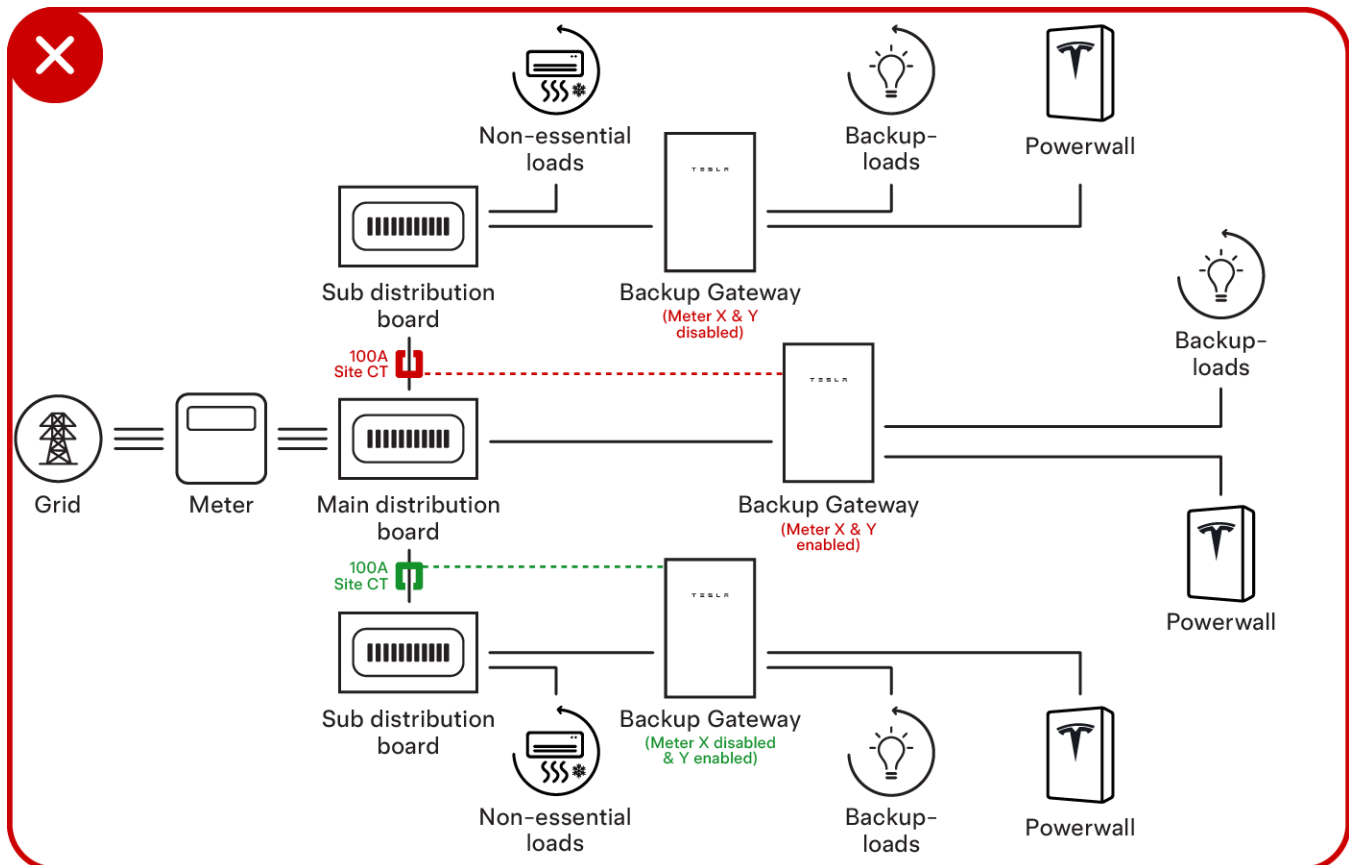


Figure 4. Incorrect - one Backup Gateway is monitoring loads backed up by another Backup Gateway





OVERVIEW

Figure 5. Correct - solar connected to a Backup Gateway is monitored by that same Backup Gateway

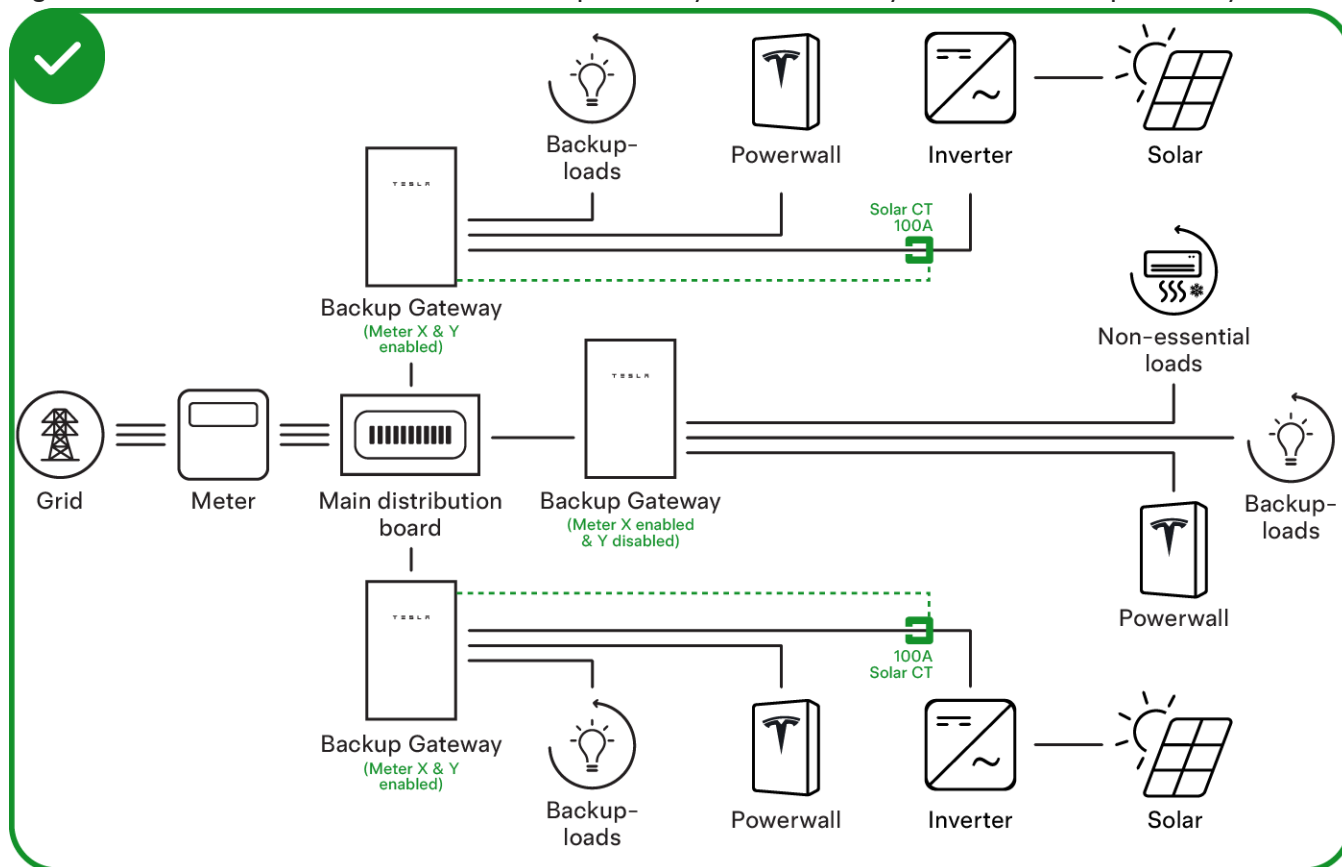
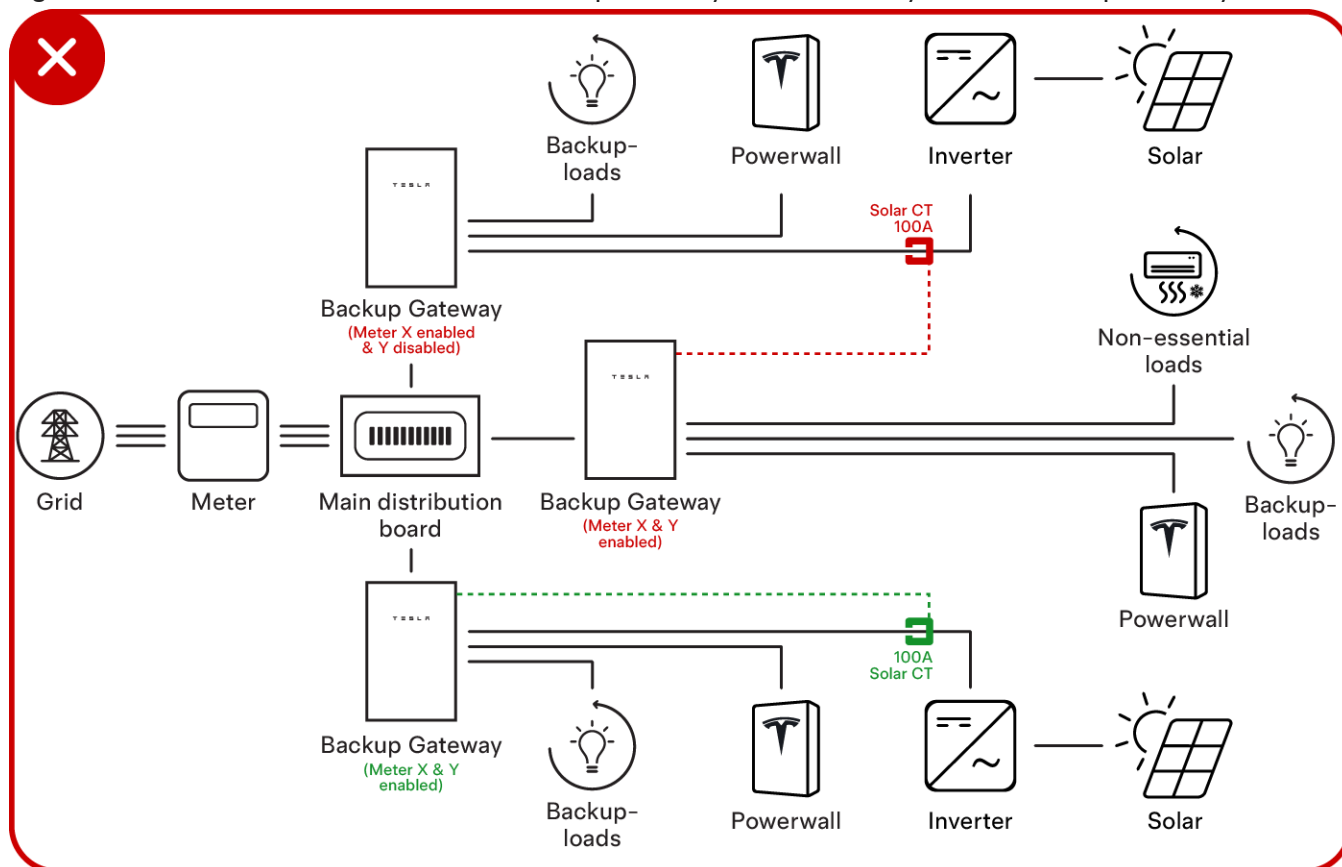


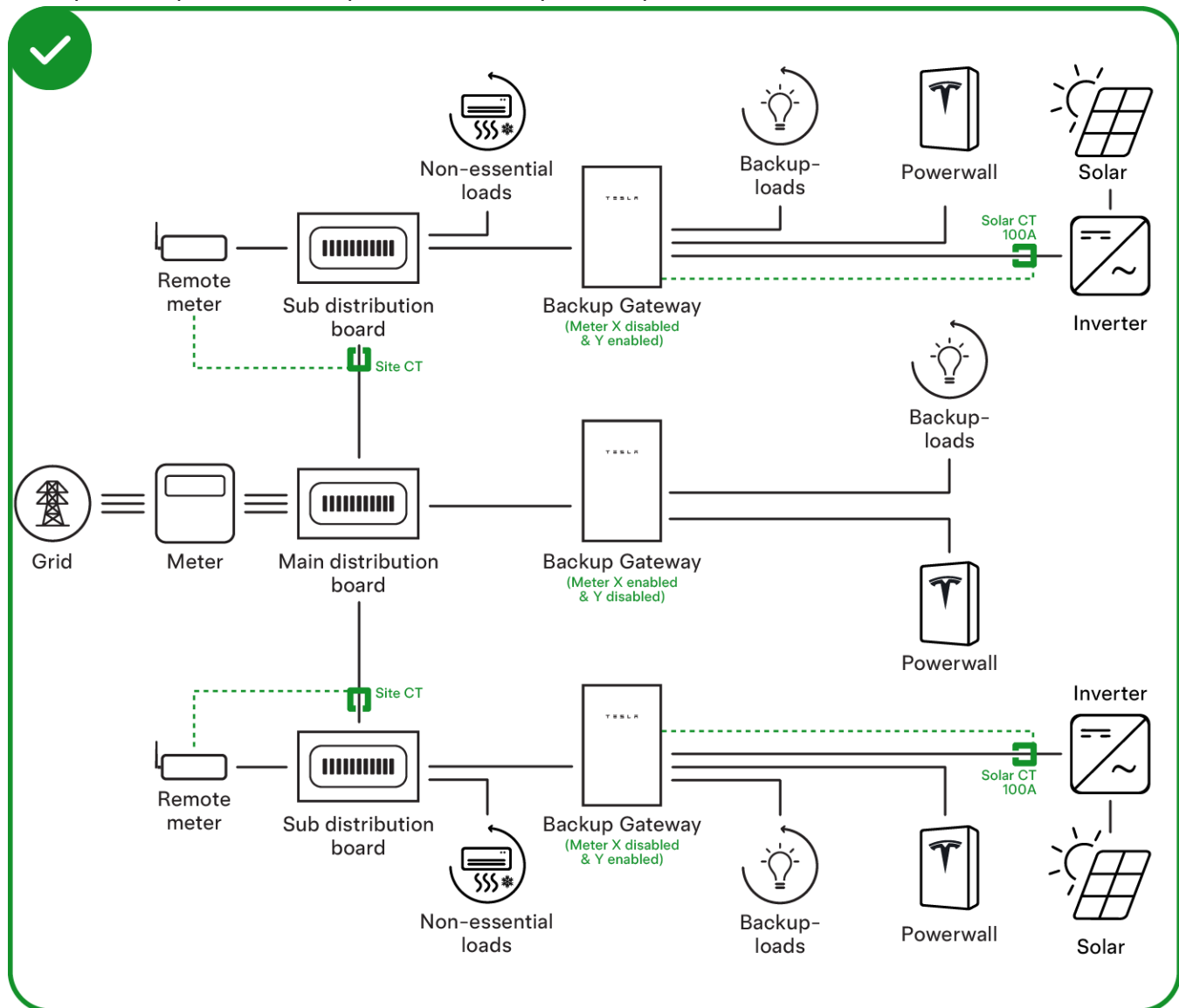
Figure 6. Incorrect - solar connected to a Backup Gateway is monitored by another Backup Gateway





OVERVIEW

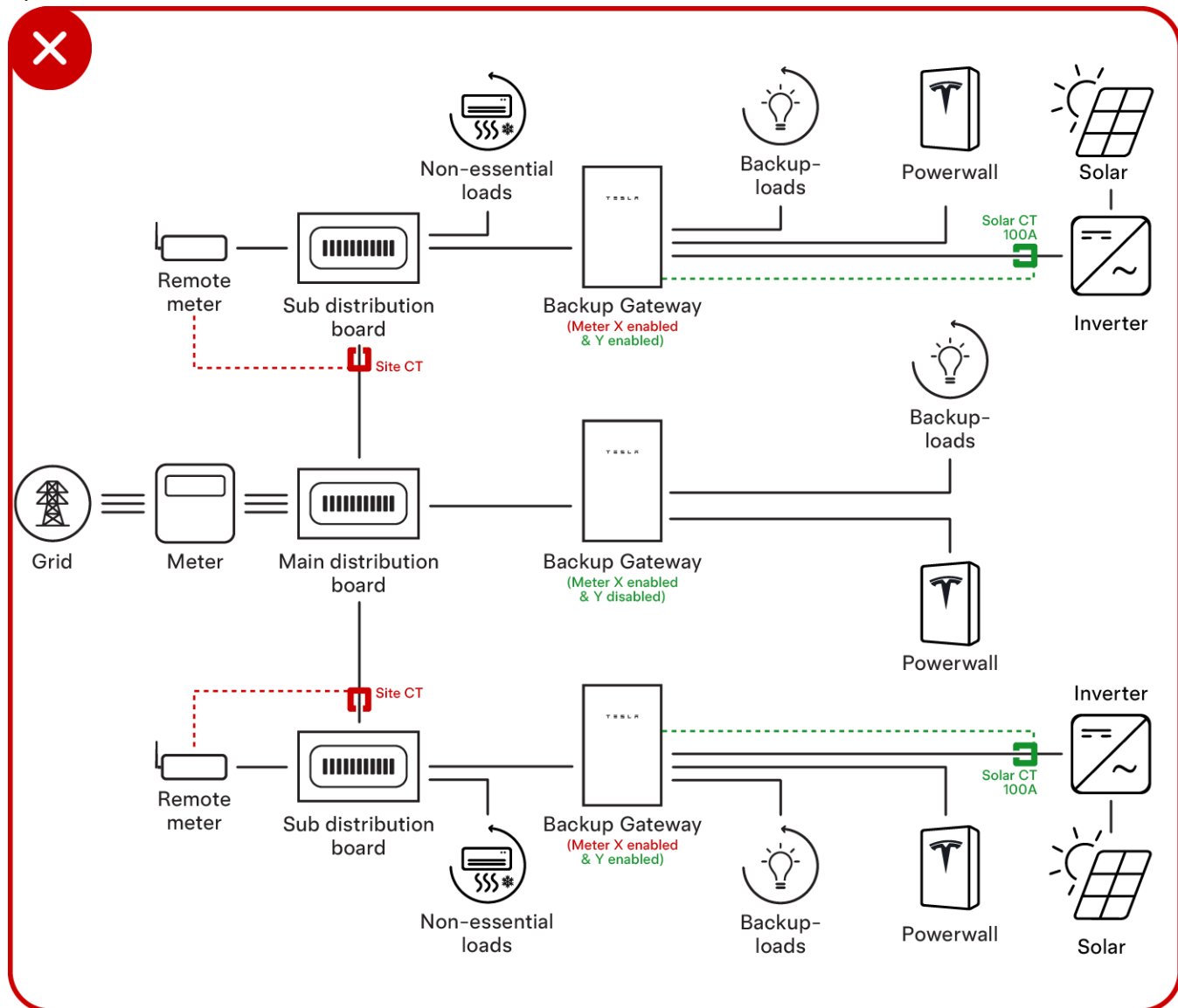
Figure 7. Correct - all Backup Gateway units are monitoring the loads that they back up and solar connected to a Backup Gateway is monitored by that same Backup Gateway





OVERVIEW

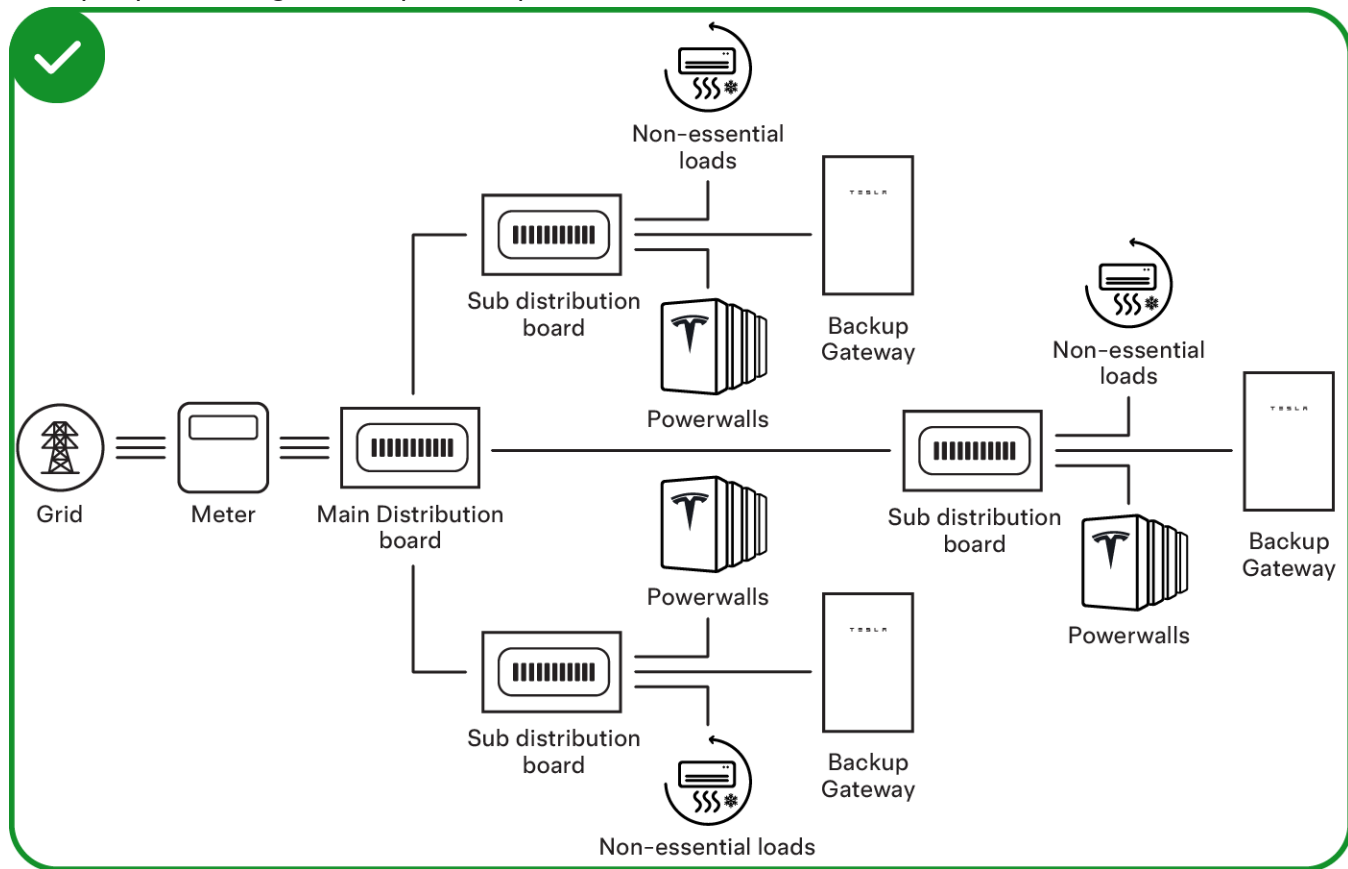
Figure 8. Incorrect - loads backed up by a Backup Gateway are monitored by that same Backup Gateway, as well as by an external remote meter





OVERVIEW

Figure 9. Correct - (4) Powerwalls installed in parallel with Backup Gateway, ensuring the system does not exceed the 100A per-phase rating of Backup Gateway



 **NOTE:** For Powerwall 3 systems exceeding the 100A per-phase rating of Backup Gateway, they can be installed in a non-backup configuration with Tesla Remote Meter rather than installing in parallel with Backup Gateway. See the Powerwall 3 Non-Backup Installation Guide available on partners.tesla.com for installing Powerwall 3 in a non-backup configuration.



REVISION HISTORY

Revision	Date	Description
4.0	07-11-2025	Updated to include Powerwall 3