



ENERGY STORAGE SYSTEM (ESS) SUBMITTAL

SCOPE: RESIDENTIAL

CODES ENFORCED: 2016 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and RMC
The 2017 NEC is used as a guidance document.

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

This handout contains the recommended minimum submittal requirements for new Energy Storage Systems (ESS) with or without a solar photovoltaic (PV) system. This list is not intended for integration with bipolar or hybrid PV systems. Systems must be in compliance with current California Building Standards Codes and local amendments. Plans should be clear and legible. This handout is designed for the typical submittal. Each project is individual and additional submittal requirements and/or information might be necessary based on the actual system design.

GENERAL REQUIREMENTS

- A separate application and building permit is required for Energy Storage Systems.
- Minimum plan size is 11"x17" with a minimum font size of 10.
 - Please include 2 full sets of plans and 2 sets of supporting documents. Provide manufacture's specifications and installation instructions for all new equipment.
- If a photovoltaic system is being applied for at the same time, please refer to the City of Rocklin PV checklist for the submittal requirements.
- Include the applicable codes on the cover sheet for the project.
- Include a complete scope of work (SOW) on the cover sheet for the project. Identify if the system is to be used as a partial home backup or a whole home backup.
- The City of Rocklin strongly encourages ESS power storage units to be installed inside the garage. If power storage units must be mounted on the exterior of the structure, they shall be located such that they are not visible from a public or private street. A physical screening structure such as but not limited to a fence or natural vegetation may be required.

- When mounted in the garage, they shall be mounted on the interior sidewall of garages rather than the end wall. An area 18 feet x 16 feet wide clear of obstructions must be maintained for a standard 2 car garage (18 feet x 8 feet for a single car garage). This can be demonstrated by providing a dimensioned plan of the garage and a cross section illustrating the energy storage systems mounted a minimum 36 inches above the finished floor to keep clear of most hoods, trunks, vehicle door swings, etc.

ELECTRICAL REQUIREMENTS

- Provide an accurate site and floor plan showing the following:
 - A legend or key for the site and floor plan.
 - The location of the structure and the location where the system is to be installed.
 - All equipment that is to be interconnected with the ESS (e.g., utility service, subpanel, PV system, etc.) shall be identified as new or existing equipment.
 - Show required (indoor/outdoor) working clearances for existing/new electrical equipment.
 - Show conduit/cable routing of the ESS, PV, and related circuits.
- Provide an elevation drawing of the system equipment.
- Show method and location of required ventilation equipment (if required) for indoor installations. (CEC 110.13(B), 2017 NEC 706.10)
- Show trench or overhead runs, as applicable, and denote whether conductors are routed indoors or outdoors.
- Show location and/or method of rapid shutdown initiation of the ESS, when integrated with a PV system (CEC 690.12) and the point of interconnection between the ESS and other power production sources (2017 NEC 706.8(E)).
- Provide documentation from a National Recognized Testing Laboratory (NRTL) showing that the ESS is listed as a multi-mode inverter per UL 1741. (CEC 705.4, 2017 NEC 706.8(B))
- Add a note that plug-in type back-fed circuit breakers connected to an interconnected supply shall be secured in accordance with 408.36(D). (2017 NEC 710.15(E))
 - Please note that CEC 690.10 cannot be used for ESSs; Article 710 (2017 NEC) must be used.
- Provide a permanent plaque or directory denoting all electric power sources on or in the premises, which shall be installed at the main service panel and at all locations of all electric power production sources capable of being interconnected. (CEC 705.10, 2017 NEC 706.11)
- Disconnecting means shall be provided for the ESS per 2017 NEC 706.7(E). Disconnects are required within 5' of main service panel or if structural conditions exist may be within 10' of main service panel and within in sight. Permanent plaque or directory denoting location is required.

- Please demonstrate unobstructed access on the plans to all required disconnects or as determined by the City of Rocklin Fire Department.
- Specifically for Tesla Powerwalls, clearly show how the Tesla Powerwall and the Backup Gateway communicate and how the load management functions (e.g., the low voltage cable must be shown in the single-line diagram)
- Provide a complete single-line diagram for the system. Include information for:
 - All new circuits, including, conductor/conduit size/type, and number of conductors.
 - Grounding and bonding
 - Method of interconnection
 - Overcurrent protection method and rating
 - All disconnecting means
 - Ratings (voltage, ampacity, environmental, etc.) for new and existing service equipment
- Calculations shall be part of the submittal and should include the following:
 - Sizing of new conductors
 - Overcurrent protection ratings
 - For Tesla Powerwalls, provide a label at the subpanel (Generation panel) that reads: NO BRANCH CIRCUIT LOADS LARGER THAN XX AMPS TO BE INSTALLED IN THIS SUBPANEL. (Note: XX is corresponds to 30 amps if one Tesla Powerwall, 60 amps if two, 90 amps if three, etc.)

STRUCTURAL REQUIREMENTS

- Identify if the ESS will be wall- or floor-mounted.
- If the ESS is wall-mounted and its weight is 200 lbs. (or more), you must provide structural details in the drawings and calculations as a separate document. (CBC 1603.1.8)
- If several ESSs are floor-mounted and their weight is equivalent to 400 lbs. (or more), you must provide structural details in the drawings and calculations as a separate document. (CBC 1616.10.15)
- ESSs mounted in a vehicular pathway must be protected from physical damage.

CR ELECTRICAL REQUIREMENTS

- An AC disconnect is required for the ESS within 5 feet and within sight of the main service panel.
- Line side taps are limited to 5 feet in length and required to be in Rigid Metal Conduit. (RMC)
- For services in excess of 200 amps, the available fault current must be larger than 10,000 amps. Provide short-circuit fault calculations.