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Submittal Requirements for Storage Battery Systems in One- and Two-Family Dwelling with Solar Photovoltaic System (2019 CEC, based on 2017 NEC)

This Plan Checklist contains the recommended minimum submittal requirements for electrical plan review of new interactive battery storage systems for one- and two-family dwellings with a solar photovoltaic system. The system must interconnect to a single-phase ac service panel of nominal 120/240Vac with a bus bar rating of 225A or less. 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 of the authority having jurisdiction (AHJ). Plans should be clear and legible.

General Information

- Include scope of work statement.
- Denote whether battery storage system is ac-coupled or dc-coupled.
 - If system is dc-coupled, show that the rapid shutdown functionality for controlled conductors of a roof-mounted PV system remains unaffected by dc-coupled storage battery circuit(s).
- Show all markings and labels required for newly installed equipment.

Site Plan and Floor Plan

- Include a legend or key for site/floor plan equipment symbols.
- Show locations of the following:
 - New equipment for the battery storage system
 - Existing equipment for interconnection (service equipment, distribution equipment, existing PV inverter(s) if connected, and other equipment providing power or receiving power to or from the battery storage system)
 - Storage battery system disconnecting means
- Show required (indoor/outdoor) working clearances for new electrical equipment on floor plan.
- Show whether equipment is to be installed indoors or outdoors.
- Show method and location of required ventilation equipment (if required) for indoor installations.
- Show physical clearances from combustibles on floor plan.
- Show method of protection from physical damage for battery storage system.
- Show means of access to battery storage system.
- Show conduit/cable routing of battery storage system, PV, and related circuits.
- Show trench details if applicable
- Show overhead runs if applicable
- Denote whether conductors are routed indoors or outdoors.

Line Diagram

- Show grounding and bonding for battery storage system, including the ground return path.
- Show method of interconnection of battery storage system.
- Show overcurrent protection method and rating when required.
- Include detailed wiring information for all new circuits, including:
 - Conductor size/type
 - Number of conductors
 - Conduit size
 - Conduit type
- Show all disconnecting means.
- Show ratings (voltage, ampacity, environmental, etc.) for new and existing service equipment.

Calculations

- Show calculations for sizing of new conductors.
- Show calculations for overcurrent protection ratings.
- Show short circuit current calculations.
- Show open circuit voltage calculations.
- Show calculation for point of connection to service.
- Provide load calculations for new panelboards with loads (according to Article 220).

Equipment Information

- All energy storage system equipment shall be *listed* by a Nationally Recognized Testing Laboratory either individually or as a complete, self-contained system according to a recognized standard. Refer to FAQ for more detail. Provide supporting documentation that verifies certification of the equipment.
- Provide specification sheets and installation instructions for the following equipment:
 - Inverter
 - Transformer or autotransformer
 - Transfer switch(es)
 - Battery
 - Battery support or racking
 - Converters
 - Combiner
 - Interconnecting cables and connectors
 - Recombiner
 - Charge controller