



ENERGY STORAGE SYSTEM (ESS) SUBMITTAL

SCOPE: RESIDENTIAL

CODES ENFORCED: 2022 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and RMC

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

- All ESS systems shall be designed by a California Licensed Electrical Engineer. The plans and supporting documents shall be stamped and signed by the Engineer.
- 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. Please do not reference the NEC as this code is not applicable in California, we enforce the Ca. Electrical Code.
- Include a complete scope of work 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. Identify the amount of batteries to be installed.
- 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.

- A plan review and separate inspection by the Fire Department is also required for new ESS projects.

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.
 - Energy storage systems shall be listed and labeled in accordance with UL 9540.
 - 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. (C.R.C. 328.9)
- 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 (C.E.C. 690.12) and the point of interconnection between the ESS and other power production sources.
- Provide documentation from a National Recognized Testing Laboratory (NRTL) showing that the ESS is listed as a multi-mode inverter per UL 1741. (C.R.C. 328.6)
- Add a note that plug-in type back-fed circuit breakers connected to an interconnected supply shall be secured in accordance with the C.E.C. 408.36(D).
- Provide a permanent plaque or directory shall be installed at each service equipment location denoting the location of each power source disconnecting means for the building or structure and be grouped with other plaques or directories for other on-site sources. (CEC 705.10)
- Disconnecting means shall be provided for the ESS. 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.
- ESS systems shall be installed only in the following areas: (C.R.C. R328.4)
 - Detached garages and detached accessory structures.
 - Attached garages separated from the dwelling unit living space in accordance with the Ca. Residential code R302.6.
 - Outdoors on the exterior side of exterior walls located not less than 3' from doors and windows

directly entering the dwelling unit.

- Enclosed utility closets, basements, storage or utility spaces within dwelling units with finished or noncombustible walls and ceilings. Walls and ceilings of un-finished wood-framed construction shall be provided with not less than 5/8" Type X gypsum wallboard.
- Individual units shall be separated from each other by not less than 3'. (C.R.C. 328.3.1.).
- Rooms and areas within dwelling units, and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with the C.R.C. R314.
- A listed heat alarm **interconnected** to the smoke alarms shall be installed in locations within dwelling units, sleeping units and attached garages where smoke alarms cannot be installed based on their listing. (C.R.C. R328.7).
- ESS installed in a location subject to vehicle damage shall be protected by approved barriers. Appliances in garages shall also be installed in accordance with section 304.3 of the Ca. Mechanical code.
- 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
- City of Rocklin Electrical Load Calculation form shall be part of the submittal and should include the following:
 - Sizing of new conductors
 - Overcurrent protection ratings

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.
- 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.

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). Line side taps shall terminate into a fused disconnect.
- For services in excess of 200 amps, the available fault current must be larger than 10,000 amps. Provide short-circuit fault calculations.

Electric Load Worksheet for the City of Rocklin

Address: _____ Date: _____

Phone: _____ Gas Furnace (Y/N) _____ Building -Sq. Ft.: _____

Rating of:	Watts*	x %	=	Total (a)	Enter the
largest Electric Furnace	NPR (Name Plate Rating)	x .65	=	_____	value (watts)
**Air Conditioning	NPR	x 1.00	=	_____	from Total (a)
Heat Pump	NPR	x 1.00	=	_____	
Heater Rating (Less than 4 rooms)		x .65	=	_____	
Heater Rating (More than 4 rooms)		x 1.00	=	_____	

**Air Conditioning Example: Compressor = 16.0 amps
 Fan = 2.0 amps
 25% of the largest motor = 4.0 amps
 Total = 22.0 amps x 240 Volts = 5,060 Watts

Add this value to calculations below

<u>Quantity</u>	<u>Item</u>	<u>Watts*</u>	=	_____
_____	Sq. Ft. x 3 watts per sq. ft.		=	_____
_____	20 Amp appliance circuits @ 1500 watts ea.		=	_____
_____	Ranges NPR		=	_____
_____	Ovens NPR		=	_____
_____	Cooking units NPR		=	_____
_____	Water Heater NPR		=	_____
_____	Dishwasher NPR		=	_____
_____	Garbage Disposal NPR		=	_____
_____	Washer NPR		=	_____
_____	Dryer NPR		=	_____
_____	Motor Loads NPR		=	_____
_____	Other Loads		=	_____
	Sub panel Total (from below)		=	_____
	Subtotal		=	_____
	Less -	10,000		+ _____

***Watts = Volts X Amps** Total = _____ x .40 = + _____

Grand Total (watts) = _____

Grand Total (watts) _____ / 240 Volts = _____ **Service Load (Amps.)**

Service Size: _____ Amp.

Are sub-panels to be installed? _____ How Many? _____
 Amp Rating? _____ Wire Size? _____

_____	Motor loads	NPR	=	_____
_____	Other loads		=	_____
_____	Other loads		=	_____
	Sub panel Total		=	_____

 (Print name) - Electrical Contractor / Owner - Builder

 State License Number

 (Signature) - Electrical Contractor / Owner - Builder