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Photovoltaic (PV) Quick Reference Guide

1. Key Eligibility Checks

- One- and two-family dwellings and townhomes not exceeding 3 stories and their accessory structures, with one electric meter per dwelling.
- Roof-top mounted PV on a structurally-sound roof without signs of alterations or deterioration.
- Only one racking system is installed for the entire PV system.
- PV System weight less than or equal to 4 pounds per square foot.
- All equipment is properly marked with an NRTL mark.
- The full eligibility checklist is provided at: <https://solarapp.nrel.gov/eligibility/PV.pdf>

2. Typical Ineligible Systems

- Mobile homes and multi-family units.
- Existing solar, storage or other energy system is onsite (e.g., generator).
- Trench work.
- Townhome systems where there are penetrations within 4 feet of fire-rated property line on the roof.
- Wood shake or wooden shingle roofing is not allowed. In areas with high snow load (>15 pounds per square foot), metal roofs or low-slope roofs are not allowed.

3. Fire Bulletin

- Disconnecting means is readily accessible, within sight and within 10 feet of connected equipment.
- Rapid shutdown switch is labeled and readily accessible.

- Roof access locations allow unobstructed access.
- Minimum 3 feet wide pathways for emergency escape and rescue openings.

4. Electrical and Structural Design

- All wire sizes shown are the minimum size required;
 - Installer may upsize at their discretion (e.g., AWG 8 instead of AWG 10).
- The overcurrent protection device (OCPD) rating must match the inspection checklist.
- Load calculations for main panel service work will be available at inspection.
- Point of interconnection (POI) is the location where the generation sources meet the wiring system of the house, at either a subpanel feeder, service feeder or busbar containing loads.
- All generation sources must have a single point of interconnection.
- Inspector must verify conduit fill at time of inspection.
- Multiple inverter outputs may be combined in a dedicated PV only combiner panel with no loads. Only three current carrying conductors are allowed in the raceway for the output of the inverter combiner panel.
- Only 2 DC series strings can be connected in parallel.
- A maximum of 2 PV string inverters, and maximum of one microinverter per module.
- Verify that attachment spacing matches the installation instructions.
- Minimum 30-inch wide by 36-inch deep workspace.

Energy Storage System (ESS) Quick Reference Guide

1. Eligible

- DC interconnected, UL 1973 listed, batteries as part of a UL 9540 listed ESS or AC Interconnected UL 9540 listed ESS.
- Equipment is properly marked with an NRTL certification mark.
- The full PV + Storage eligibility checklist is provided at: <https://solarapp.nrel.gov/eligibility/PV+ST.pdf>

2. Not Eligible

- Trench work.
- ESS installed within the habitable space of the dwelling unit.

3. Fire Bulletin

- Disconnecting means is readily accessible, within sight and within 10 feet of connected equipment.
- ESS mounted outdoors on exterior walls cannot be located within 3 feet of windows or doors directly entering the dwelling unit.
- The total storage capacity shall not exceed:
 - 40 kWh within utility closets, basements and storage or utility spaces.
 - 80 kWh in attached or detached garages and detached accessory structures.
 - 80 kWh on exterior walls.
 - 80 kWh outdoors of the ground.
- Approved barriers for ESS installed in a location subject to vehicle damage (ref. R328.8 in 2024 International Residential Code).
- Listed interconnected smoke/heat alarm for ESS installed indoors.
- Disconnect for ESS conductors that pass through a wall or partition.
- ESS installed indoors, shall have walls and ceilings with fire resistant construction, i.e., at least 5/8" type X gypsum wallboard or equivalent.

4. Structural Design

- ESS installed in seismic design category (SDC) D, E and F,
 - Must be less than 400 lbs.
 - Center of mass shall be located less than 4 feet from the floor.
- Mounted per the manufacturer's instructions using appropriate fasteners.

5. Electrical Design

- **Point of interconnection (POI) tie-in method:**
 - Sum of breakers rule (most common): the sum of load and supply breakers excluding the main overcurrent protection, must be equal to or less than the busbar rating of the panel.
 - 120% rule: sum of the main circuit breaker rating and 125% of the inverter output cannot exceed 120% of the busbar rating.
 - 100% rule: sum of the main circuit breaker rating and 125% of the inverter output cannot exceed the busbar rating. The breakers can be anywhere on the busbar.
 - Breaker sandwich: power source interconnection to feeder where both load side and line side of the connection are protected by overcurrent protection devices rated not greater than ampacity of the feeder.
 - Power control systems (PCS): control output of one or more power sources (ESS and other equipment), limiting current and loading on busbars and conductors supplied by PCS.
- **Eligible backup initiation devices:** can be internal devices (integrated within the PV or ESS inverter), external devices (separate equipment external to PV inverter or ESS unit), or meter mount:
 - Microgrid initiation devices (MID).
 - Automatic transfer switches (ATS).
- **New Subpanel:** a new subpanel can be installed for backup or non-backup loads, or to combine the generation sources.