DOCKETED	
Docket Number:	19-BSTD-12
Project Title:	Town of Truckee Petition to Solar PV Requirement
TN #:	234387
Document Title:	Truckee Response to 04-06-20 CEC letter (6-3-20)
Description:	N/A
Filer:	Cheng Moua
Organization:	California Energy Commission
Submitter Role:	Public Agency
Submission Date:	8/20/2020 9:10:30 AM
Docketed Date:	8/20/2020

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June 1, 2020

California Energy Commission
1516 9th Street
Sacramento, CA 95814

Petition P-02-20-BSC, 2019 California Energy Code Solar PV Requirements

Dear Mr. Bohan,

Thank you for consideration of our petition requesting an exemption of solar photovoltaic (PV) requirements in the 2019 California Energy Code for high snow load areas. We have addressed each of your comments below, with our response in italics:

- The 2019 California Energy Code requirements for PV systems and the PV system structural requirements in California Building Code 1510.7.2.1 and California Residential Code R324.4.1 should be simultaneously met in as many newly constructed, low-rise residential buildings as is feasible and attainable.
  Agreed and we would add: …and the local municipal code...
- PV systems should be designed to meet the snow load requirements in Chapter 7 of the American Society of Civil Engineers Standard 7-16 (ASCE 7-16).
  Agreed and we would add: …and the local municipal code. We would emphasize that the entire system should be designed to meet the snow load requirements, including the PV panels, rails/racks, mounting devices and connectors.
- PV panels that are robustly designed and installed to address roof snow load conditions should be used to determine the feasibility of complying with the CEC PV requirements in high snow load areas of the state.
  Agreed; unfortunately, we know of only one PV panel that has been rated for a 3-rail system (REC N-Peak: 188 psf maximum load/125 psf design load). Much of our mountain community has roof snow loads higher than this.
- PV panels should be expected to be installed with three rail support and mounting systems in high snow load areas.
  Agreed, where necessary. We would like the option to use a 2-rail system if it meets the required capacity.
- In some circumstances, PV panels might appropriately be considered as slippery surfaces that more readily shed snow, if there are otherwise no obstructions on roofs.
  Agreed. This should be determined by the Registered Design Professional and will depend on many factors, including gaps between the panels, non-slippery roof surfaces

adjacent to the panels, valleys in the vicinity of the panels, height of the roof eave above the ground, etc.

- Roof pitches greater than 7 on 12 are often installed on newly constructed homes in high snow load areas of the state.
  We see roof pitches across the spectrum, from low to steep, on newly constructed low-rise residential buildings.
- Determination of whether or not ASCE 7-16 Chapter 7 requirements can be met should be based on an analysis of the circumstances for each building.
  Agreed; this is standard practice. The Registered Design Professional would determine the roof design snow load, per ASCE 7-16 and the local municipal code, at the roof area where the panels are to be installed.

The table below lists all of the high snow load capacity PV panels we are currently aware of. We would appreciate assistance identifying additional PV panel manufacturers with test ratings for 3-rail systems.

PV Panel	**Max Down Test Load (psf)**	**Design Snow Load (psf) ***
REC N-Peak with 3 rails	188	125
SUNPOWER E and X-Series 72 cell (Generation 5 frame)	167	111
REC N-Peak	146	97.5
LG NeON R and LG NeON 2	112	75
Canadian Solar HiDM/HiKu/KuMax	112	75

* For installations complying with UL 1703, a safety factor of 1.5 should be applied for calculating the equivalent maximum authorized design loads.

We recommend the roof snow load exemption value be based on a table such as the one above, which can be updated as additional PV panels with high snow load capacity become available.

The intent is that the exemption would be in effect until cost effective alternative options such as a community shared solar electric generation system, other renewable electric generation systems, or a community shared battery storage system (per Exception to Section 150.1(b)1) become available.

Please don't hesitate to contact us with any questions.

Sincerely,

Dan West
Town of Truckee Building Division Supervisor and local Building Working Group

On behalf of:
Craig Griesbach, Nevada County Director of Building
Timothy Wegner, Placer County Deputy Director of Building Services
Tim Beals, Sierra County Director of Planning & Building Official
Tom Perry, Town of Mammoth Lakes Building Official and Mono County Building Official