

Explanation of proposed changes:

- The TAG increased the cap on Renewable Electric Energy Credit Option 6.1 from 4.5 to 5.0 as part of proposal [24-RE-035](#)
- Multiple TAG members testified that encouraging battery storage is needed because peak solar generation does not align with peak building load. However, the TAG did not have language readily available to vote upon so no immediate action could be taken.
- It was noted that the Residential Energy Code may be able to steal language from the Commercial Energy approved proposal [24-GP1-202](#); however, upon further review this is not possible because the Commercial and Residential Energy codes each use a different basis for assigning renewable energy credits:
 - The Commercial Energy Code assigns credits based upon the installed nameplate rating of the solar panels (kW) regardless of how much energy (kWh) is outputted each year.
 - The Residential Energy Code assigns credits based upon the estimated total annual energy output (kWh) regardless the capacity (kW) of the solar panels.
- TAG members Gavin Tenold (Solar/Energy Storage Installer) and Gregory Johnson (Electrical Engineer) co-collaborated to propose the following new credit 6.2.
- Proposed values were set based upon looking at both what batteries are readily available, expected output energy output of solar arrays installed on various homes using PVWatts, and personal experience. It isn't an exact value but rather a range of reasonable values. The final updated value was later adjusted based upon industry feedback to keep the option open for as many manufacturers as possible without unnecessarily penalizing or favoring anyone.
- While not a defined term in the Energy codes, we're using the term "Energy Storage System (ESS)" (not battery) to match the language used in both NFPA 70: National Electrical Code (NEC) Article 706 Energy Storage Systems and NFPA 855 Standard for the Installation of Stationary Energy Storage Systems.
- The NEC defines ESS as: *"One or more devices installed as a system capable of storing energy and providing electrical energy into the premises wiring system or an electrical power production and distribution network."*
- Further feedback resulted in the addition of a gradient of Option 6 credits based upon conditioned floor area (SF).

Proposed code language:

OPTION	DESCRIPTION	CREDIT(S)									
		All Other	Group R-2 ^b								
6. RENEWABLE ELECTRIC ENERGY OPTION											
<u>Options 6.1 and 6.2 may be selected together. The total credits obtained from 6.1 and 6.2 shall not exceed the following quantity based upon total conditioned floor area:</u>											
	<table><tr><th><u>Conditioned Floor Area (SF)</u></th><th><u>Max Available Option 6 Credits</u></th></tr><tr><td><u>Smaller than 2,250</u></td><td><u>5.0</u></td></tr><tr><td><u>2,500 to 3,249</u></td><td><u>5.5</u></td></tr><tr><td><u>3,250 or larger</u></td><td><u>6.0</u></td></tr></table>	<u>Conditioned Floor Area (SF)</u>	<u>Max Available Option 6 Credits</u>	<u>Smaller than 2,250</u>	<u>5.0</u>	<u>2,500 to 3,249</u>	<u>5.5</u>	<u>3,250 or larger</u>	<u>6.0</u>		
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6.1	<p>For each 600 kWh of electrical generation per housing unit provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 4.5 credits. Generation shall be calculated as follows:</p> <p>For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTs or alternative approved by the code official. Documentation noting solar access shall be included on the plans.</p> <p>For wind generation projects designs shall document annual power generation based on the following factors:</p> <p>The wind turbine power curve; average annual wind speed at the site; frequency distribution of the wind speed at the site and height of the tower.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the photovoltaic or wind turbine equipment type, provide documentation of solar and wind access, and include a calculation of the minimum annual energy power production.</p>	0.5 – 4.5	0.5 – 4.5								
<u>6.2</u>	<p><u>For each 4.6 kWh of Energy Storage System (ESS) capacity per housing unit (averaged across the project) a 0.5 credit shall be allowed. This credit must be taken in conjunction with 6.1 and the number of credits achieved for an ESS shall not exceed the lower of either 1.5 or half the number of credits achieved for electrical generation in option 6.1.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the Energy Storage System (ESS) equipment capacity, physical size, and location on the plans. Requirements noted in option 6.1 must also be shown on the plans.</u></p>	<u>0.5 – 1.5</u>	<u>0.5 – 1.5</u>								