

## Gavin Tenold/Gregory Johnson suggested modification to 24-RE-035

### 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.
- 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."*

### Proposed code language:

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
6. RENEWABLE ELECTRIC ENERGY OPTION			
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 <del>4.5</del> 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 – <del>4.5</del>	0.5 – <del>4.5</del>
<u>6.2</u>	<p><u>When installed in conjunction with the 6.1 Renewable Energy Electric Energy option, 0.5 credit shall be allowed for each 4.0 kWh of Energy Storage System (ESS) capacity per housing unit, up to 1.5 credits. The number of credits obtained via this option shall not exceed 75% of the credits obtained via 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.</u></p>	<u>0.5 – 1.5</u>	<u>0.5 – 1.5</u>