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Recommended Suggested Changes to the Renewables Program Guidebook 02-REN-1038

To whom it may concern,

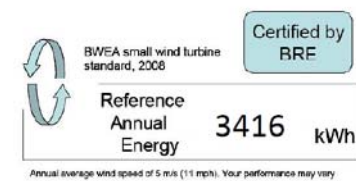
On April 14, I attended the CEC meeting regarding proposed changes to the Renewables Program Guidebook. Below are my recommendations. Should you have any questions, please feel free to contact me at any time.

Recommendations to Incentive Structure:

Solar modules regardless of the design or technology produce relatively the same amount of energy from competitor to competitor. The greatest difference in performance between solar module types (thin film or mono crystalline) would be performance efficiency. This only varies from 4-10%.

Wind turbines are quite different. Two wind generators with a 3KW can have a significant difference in output in terms of energy. This has to do with the overall “wind to wire” efficiency (overall efficiency of each main component) and the swept area of the rotor. Assuming everything else is the same, a 3KW wind generator with a rotor diameter of 17’ will produce twice the energy of a 3KW wind generator with a 12’ rotor.

The SWCC and the BWEA have a label that indicates the amount of energy (kWh) a wind generator will produce at a given average wind speed. An example of this label is below:



Using the example above, if the two 3-KW wind generators were compared side by side, the “Reference Annual Energy” number would be significantly different. This is important because what matters most is energy. The more energy a wind generator produces, the lower the overall energy costs of the system are and thusly the more the consumer and product should be rewarded.

I recommend that the incentive program use a hybrid approach of both energy rating and projected energy production.

Incentive: Rated energy (Rated is 25 MPH) - \$1.90 per watt
 Estimated Energy production at 11 MPH - \$1.00/kWh (first year estimated EPO)

This would establish an incentive that favors wind turbine designs that focus on producing maximum energy production rather than maximum power.

I do not recommend putting a cap on the program. This will be naturally capped by requiring a flat rated output of 25 MPH for all wind turbines.

Recommendations for Wind Resource Analysis

Wind generators installed in places where there is no wind or the winds are too turbulent do not give a good name to the industry or to the California Energy Commission. It is essential that some sort of preliminary assessment of the wind resource is done prior to the installation. The applicant should not be required to conduct an anemometer assessment on the property. There are sufficient tools that exist to determine if a specific location has sufficient wind resources such as the high resolution wind resource map.

Using the 30 meter map:

http://www.energy.ca.gov/maps/renewable/wind/WIND_SPEED_30M.jpg

The applicant must be able to demonstrate that the proposed site has a minimum of a 4 m/s wind resource. Suggested Text as part of an addendum to the application:

“A preliminary assessment of the wind resource is essential to estimate the performance of a wind generator. Using the wind resource map, the applicant must demonstrate that the proposed site has at least a 4 m/s wind at the proposed hub height.”

Recommendations for Eligible Equipment Listing

Certification is fast becoming a critical component to the small/distributed scale wind generators. Certified wind generators help protect consumer interests by a process of independently verifying their performance and safety. The industry has been working globally on an affordable certification standard.

My recommendations are as follows:

The small wind turbines on the current CEC list of approved machines should be purged. To get onto the list the manufacturer or importer must have the product certified or at least be on a pending list of the following:

- a. SWCC list of approved or pending small wind turbines*
- b. MCS (British) list of approved or pending small wind turbines*
- c. Be certified to IEC 61400-2 by an internationally recognized testing laboratory

*Note: If the wind turbine is on the pending list, the applicant must submit to KEMA a minimum of three months of performance data as well as a preliminary safety design review.

I want to thank you for the opportunity for participating in this review of the handbook. My contact information is below:

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