ALLSAVE ENERGY

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California Energy Commission
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02-REN-1038
DATE April 20 2011
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RE: Docket #: 02-REN-1038

Staff Workshop on Proposed Changes to the Emerging Renewables Program Guidebook

As a small, wind energy project developer, ALL SAVE ENERGY is encouraged by the recent discussions and debate surrounding the Emerging Renewables Program (ERP). It is this debate that allows the Commission to review the program objectives against current performance and integrate the necessary adjustments for continued the adoption of small wind energy in California.

As I meet with prospective customers, they consistently have three(3) questions:

- Your telling me this will produce energy at a given rate for 20+ years, how can I verify this?
- I'm not sure I have enough wind where I live, how do you verify this?
- This is expensive, what incentives are available and how will they be paid?

A wind turbine, to be eligible for state incentives, must submit to independent 3rd party verification. There must not be provisions for self-certification potentially leading to untested claims. Of course this adds cost to the products offered which is passed on to the consumer. You wouldn't buy a car that wasn't subject to safety testing, we shouldn't offer incentives for turbines that haven't been tested. We must prevent a buyer-beware mentality. ALL SAVE ENERGY recommends adopting a national testing standard and referring to other quality programs such as the New York State Energy Research and Development Authority (NYSERDA).

Predictive wind resource applications exist for a low cost and should be used to verify each project. It is not costly, nor time consuming. Although localized wind energy is not measurable by utilizing these tools, they do provide an initial step to demonstrate viability. In the case where wind energy is not readily quantifiable and the client wishes to proceed, it is not unreasonable to require a short duration of wind resource testing to demonstrate viability.

For the small wind industry, certainty provides the foundation for market expansion. Up front incentives must be preserved and we encourage the commission to explore extending the incentive program. If the incentives do not continue, the program risks losing the Dealer base that supports the warranty and discourages the future of the program. Small Wind Turbine Dealers need the same opportunity as the Solar program utilizing progressive incentives. The ERP has recognized a certain amount of success and created the momentum needed to see a significant increase in quality installations.

ALL SAVE ENERGY urges the commission to:

- take quick, decisive action to modify the ERP to include only wind turbines subjected to independently verified energy production
- require the use of predictive wind maps ensuring a minimal level of available resources
- require estimated annual energy production based on the independently verified power curve
- seek to extend the incentives program providing long-term certainty to customers and the industry
- continue to provide the incentive as an initial payment to reduce up front costs

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Poor quality, unproven claims, and additional delays in lifting the suspension will effectively cripple an industry that has just begun to gain momentum. It would be a mistake to dilute the available incentive pool by effectively accepting any product, any install in the name of job creation and wind energy adoption statistics. That may demonstrate short term gains as seen by the recent rush of incentive submissions, while severely damaging the future prospects of a sustainable industry.

Contained in the handbook, Section K. Audits and Inspections, provides the framework for resolving recent concerns. I quote, "In the event that a contractor, equipment seller, or purchases provides information in a reservation application or payment request that appears questionable, the Energy Commission may take the following steps to clarify the questionable information."

1. Stop review of the application containing the questionable information to investigate further.
2. Require additional documentation from the contractor, equipment seller, and/or purchaser to verify the accuracy of the questionable information.

I suggest the significant increase in applications related to specific equipment triggers the use of Section K allowing the program to resume immediately. This action prevents near term damage to the industry and allows the commission to carefully consider and construct a robust program going forward.

A swift, decisive response is required allowing reputable businesses such as ALL SAVE ENERGY to continue supporting local consumers and state renewable energy objectives. Implementing these recommendations will expand the adoption of small scale wind energy.

We are very committed to this effort and believe it is essential to increasing behind the meter distributed wind energy generation in California. We offer our continued support and look forward to working with all interested parties to adopt change.

ALL SAVE ENERGY is a small company aggressively pursuing quality job growth and adoption of wind energy in Central California. If you would like any additional information on our organization please visit our website at www.allsaveinc.com. Also, please feel free to call me at (916) 776-2727.

Sincerely,

Larry Hamilton, President/CEO

included:
Wind Resource Maps
Energy Production Comparisons

Wind Resource Mapping

There are many resources available to predict the available wind energy at a location, two popular options are AWS Truepower[1] and 3Tier[2]. These firms offer low-cost, easy to use predictive wind resource models providing reasonable insight into a projects viability. ALL SAVE ENERGY has always used these tools, and recommends the Commission require an estimate of available wind energy for each submission.

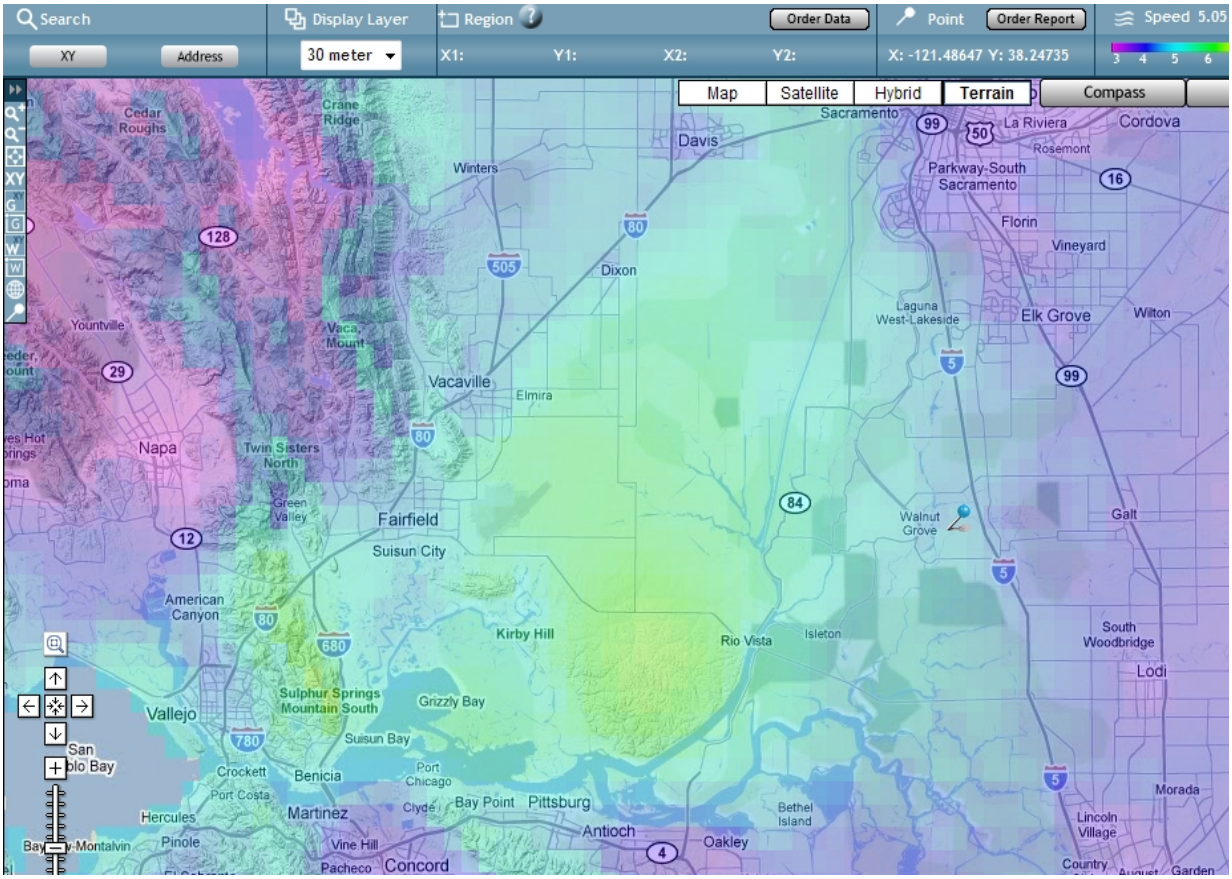


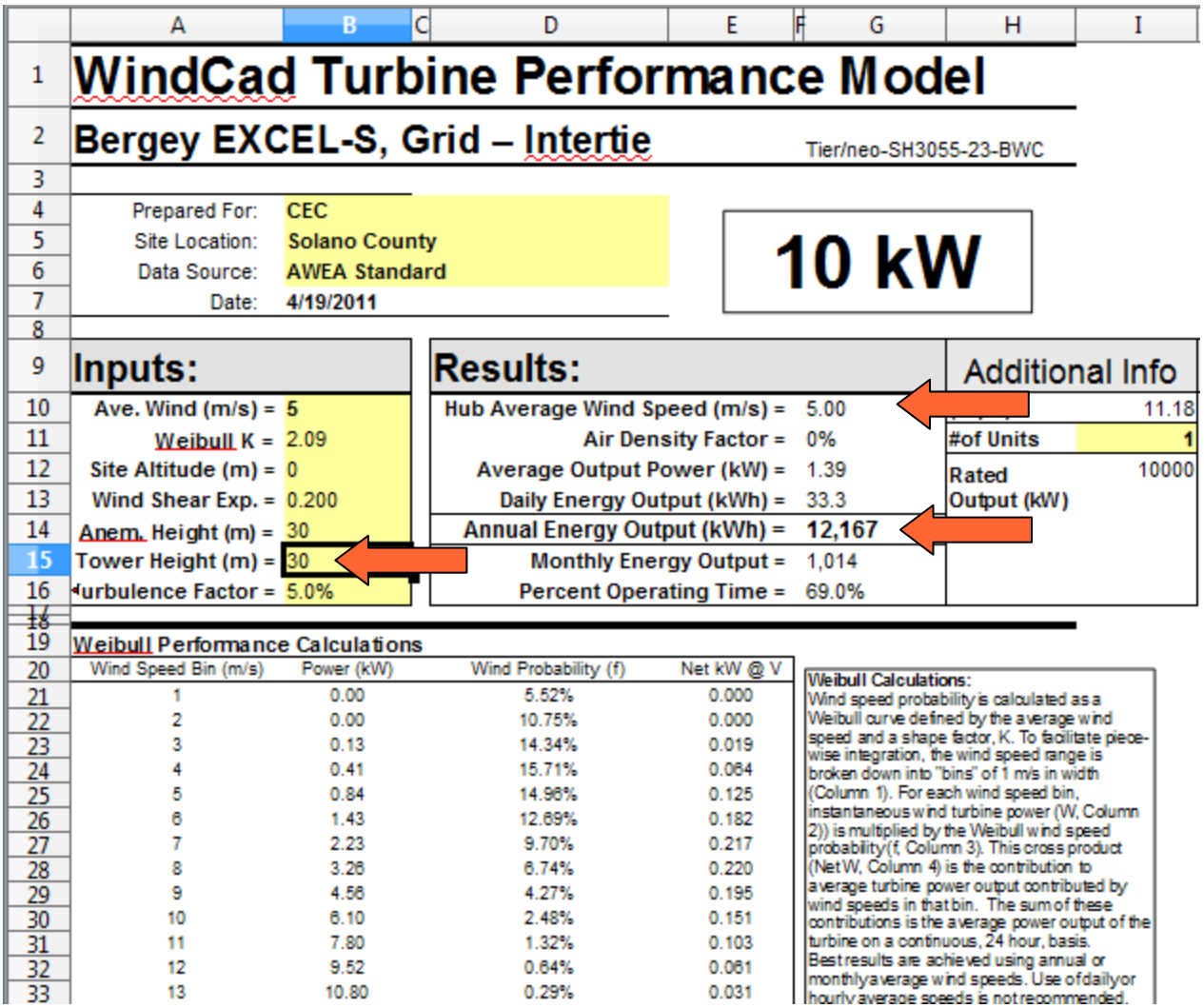
Illustration 1: WindNavigator : SiteAssessment Tool

[1] WindNavigator https://www.windnavigator.com/
[2] 3TIER http://www.3tier.com/en/

Energy Production Comparison

Energy Production estimates are crucial to understanding project fiscal returns. It is unlikely a potential client would not evaluate the predicted energy output before purchasing, unless the incentive reduces the cost to nearly zero.

For illustrative purposes only, the Bergey WindCAD[3] model clearly demonstrates the energy production differences are intentionally exaggerated with a comparison of a short 15' and the proper 100' tower. The exaggeration clearly indicates the second installation is not viable and should not qualify for incentives solely to promote wind energy use in California.



WindCad Turbine Performance Model

Bergey EXCEL-S, Grid – Intertie Tier/neo-SH3055-23-BWC

Prepared For:	CEC
Site Location:	Solano County
Data Source:	AWEA Standard
Date:	4/19/2011

10 kW

Inputs:	
Ave. Wind (m/s) =	5
Weibull K =	2.09
Site Altitude (m) =	0
Wind Shear Exp. =	0.200
Anem. Height (m) =	30
Tower Height (m) =	30
Turbulence Factor =	5.0%

Results:	
Hub Average Wind Speed (m/s) =	5.00
Air Density Factor =	0%
Average Output Power (kW) =	1.39
Daily Energy Output (kWh) =	33.3
Annual Energy Output (kWh) =	12,167
Monthly Energy Output =	1,014
Percent Operating Time =	69.0%

Additional Info	
	11.18
#of Units	1
Rated Output (kW)	10000

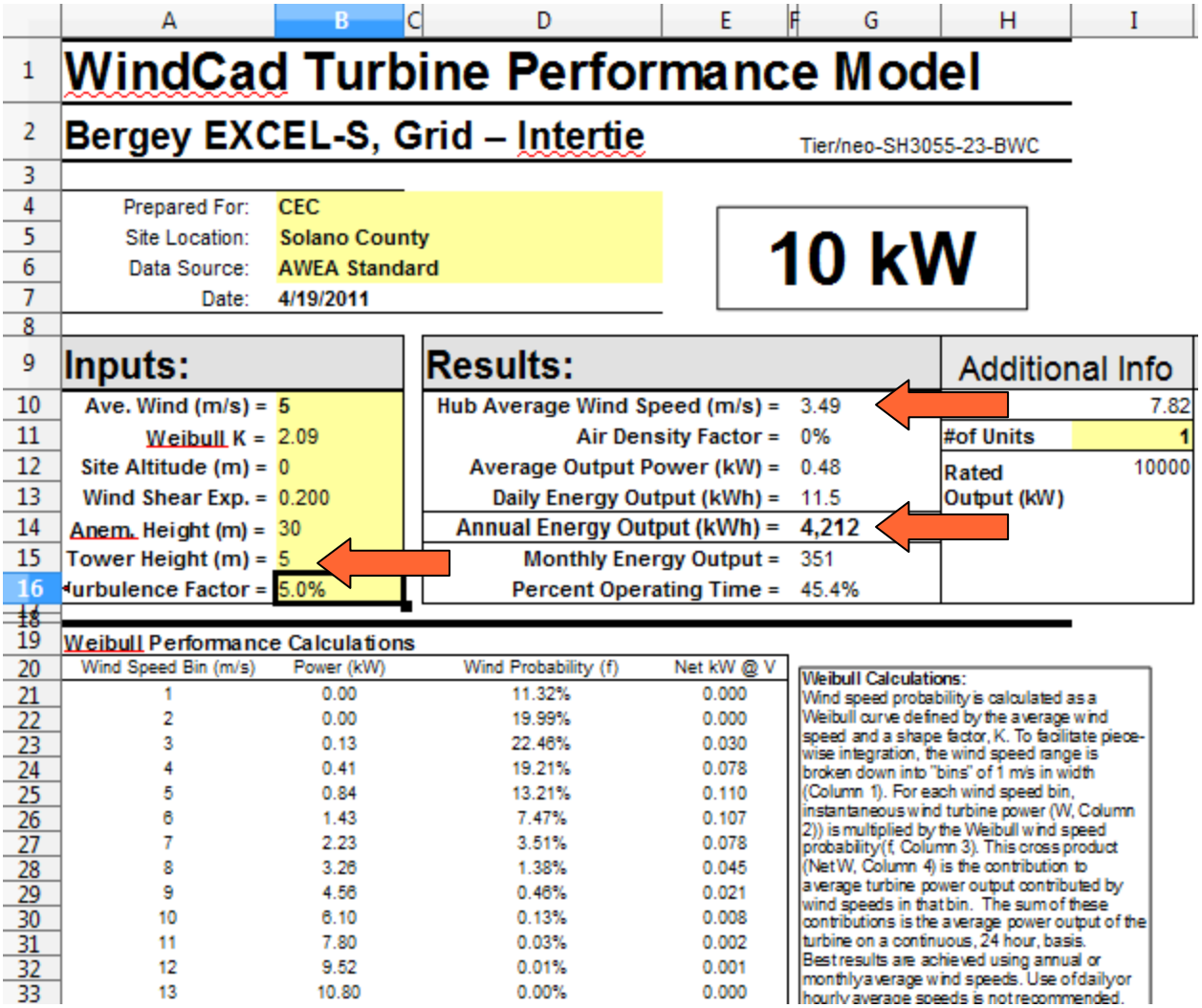
Weibull Performance Calculations

Wind Speed Bin (m/s)	Power (kW)	Wind Probability (f)	Net kW @ V
1	0.00	5.52%	0.000
2	0.00	10.75%	0.000
3	0.13	14.34%	0.019
4	0.41	15.71%	0.064
5	0.84	14.96%	0.125
6	1.43	12.69%	0.182
7	2.23	9.70%	0.217
8	3.26	6.74%	0.220
9	4.56	4.27%	0.195
10	6.10	2.48%	0.151
11	7.80	1.32%	0.103
12	9.52	0.64%	0.061
13	10.80	0.29%	0.031

Weibull Calculations:
Wind speed probability is calculated as a Weibull curve defined by the average wind speed and a shape factor, K. To facilitate piece-wise integration, the wind speed range is broken down into "bins" of 1 m/s in width (Column 1). For each wind speed bin, instantaneous wind turbine power (W, Column 2)) is multiplied by the Weibull wind speed probability(f, Column 3). This cross product (Net W, Column 4) is the contribution to average turbine power output contributed by wind speeds in that bin. The sum of these contributions is the average power output of the turbine on a continuous, 24 hour, basis. Best results are achieved using annual or monthly average wind speeds. Use of daily or hourly average speeds is not recommended.

[3] CAD Performance Models: 10 kW Excel-S (Grid-intertie) July 2009
http://www.bergey.com/pages/technical

Energy Production Comparison



WindCad Turbine Performance Model

Bergey EXCEL-S, Grid – Intertie

Tier/neo-SH3055-23-BWC

Prepared For:	CEC
Site Location:	Solano County
Data Source:	AWEA Standard
Date:	4/19/2011

10 kW

Inputs:	
Ave. Wind (m/s) =	5
Weibull K =	2.09
Site Altitude (m) =	0
Wind Shear Exp. =	0.200
Anem. Height (m) =	30
Tower Height (m) =	5
Turbulence Factor =	5.0%

Results:	
Hub Average Wind Speed (m/s) =	3.49
Air Density Factor =	0%
Average Output Power (kW) =	0.48
Daily Energy Output (kWh) =	11.5
Annual Energy Output (kWh) =	4,212
Monthly Energy Output =	351
Percent Operating Time =	45.4%

Additional Info	
	7.82
#of Units	1
Rated Output (kW)	10000

Weibull Performance Calculations

Wind Speed Bin (m/s)	Power (kW)	Wind Probability (f)	Net kW @ V
1	0.00	11.32%	0.000
2	0.00	19.99%	0.000
3	0.13	22.46%	0.030
4	0.41	19.21%	0.078
5	0.84	13.21%	0.110
6	1.43	7.47%	0.107
7	2.23	3.51%	0.078
8	3.26	1.38%	0.045
9	4.56	0.46%	0.021
10	6.10	0.13%	0.008
11	7.80	0.03%	0.002
12	9.52	0.01%	0.001
13	10.80	0.00%	0.000

Weibull Calculations:
Wind speed probability is calculated as a Weibull curve defined by the average wind speed and a shape factor, K. To facilitate piece-wise integration, the wind speed range is broken down into "bins" of 1 m/s in width (Column 1). For each wind speed bin, instantaneous wind turbine power (W, Column 2)) is multiplied by the Weibull wind speed probability (f, Column 3). This cross product (Net W, Column 4) is the contribution to average turbine power output contributed by wind speeds in that bin. The sum of these contributions is the average power output of the turbine on a continuous, 24 hour, basis. Best results are achieved using annual or monthly average wind speeds. Use of daily or hourly average speeds is not recommended.

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