

**The State of California
California Energy Commission**

**Comments on Improving the CEC ERP Small Wind
Program**

**Staff Workshop on Proposed Changes to the Emerging
Renewables Program**

Energy Commission Docket No. 02-REN-1038

Submitted by:

Mike Bergey
President, Bergey Windpower Co.
President, Distributed Wind Energy Association (DWEA)

Representing DWEA

April 21, 2011

Honorable Commissioners and CEC Renewable Energy Program Staff:

Thank you for providing this opportunity to offer input on the proposed changes to the Emerging Renewables Program (ERP) program.

The Distributed Wind Energy Association (DWEA) is a relatively new national trade association comprised of manufacturers, distributors, project developers, dealers, installers, and advocates, whose primary mission is to promote and foster all aspects of the distributed wind energy industry. We define distributed wind as being behind-the-meter generation, whether it's with a 5 kW residential turbine or a 1.5 MW turbine at a water treatment facility.

The fundamental goals of DWEA are to:

- Develop a federal, state and local policy environment that supports the responsible expansion of distributed wind energy
- Reduce or eliminate unwarranted barriers to the use of distributed wind energy
- Provide a unified voice for all members and sectors of the distributed wind industry
- Develop and promote industry “best practices” policies and standards that will foster the safe and effective installation and operation of distributed wind systems
- Participate in public and consumer education

California is a priority state for DWEA because it is a leading market for distributed wind systems and because of the policy leadership the state has demonstrated for more than a decade. That leadership continues. Governor Brown’s goal of developing 12,000 MW of distributed renewables in support of the State’s AB 32 clean energy target is both exciting and challenging.

DWEA and the small wind turbine manufacturers and retailers are appreciative of the market stimulation provided by the rebate program. Small wind technology has faced significant permitting barriers in California (as outlined in the 2009 KEMA report and the 2010 UC Davis report) and, as a result, has not enjoyed the explosive sales growth seen for solar under the rebate program. Nevertheless, progress has been made and the potential remains large.

For consumers, small wind can be a more affordable option than solar in areas with good wind resources. The potential for small wind in California is significant. A 2003 study funded by the CEC¹ showed that 24% of California has sufficient resources for small wind (as opposed to a much smaller percentage with wind sufficient for large wind systems) and 1.8 million acres are prime for small wind. The study identified a 500+ MW potential in just a portion of the suitable properties.

California was the first State to offer rebates for small wind (1999) and was for several years the largest State market for small wind. In 2001, for example, California accounted for an estimated 35% of U.S. grid-intertied small wind system sales. The ERP program has also helped create the highest volume small wind dealership in the nation, Guasti Construction near Hesperia in San Bernardino County.

But that momentum was allowed to fade as rebates were reduced and permitting barriers were inadequately addressed. From 2006 to 2009, only ~ 30 small wind turbines on average were installed with ERP support each year. This is one-quarter of the peak annual rate from 2001 and the rate of installations had been declining at ~ 20% per year over those years. Equally problematic, the small wind dealer and installer network has shrunk by ~ 75% over that time.

This trend was in the wrong direction to meet the program goals stemming from the original legislation (SB 1038). Quoting from Page 1 of the ERP Guidebook:

¹ “Permitting Small Wind Turbines: A Handbook”, Peter Asmus, et al, September 2003, funded by the CEC, see <http://www.bergey.com/School/Cal.Permitting.Handbook.pdf>

“The ERP was created to help develop a self-sustaining market for renewable energy systems that supply on-site electricity needs across California. Through this program, the Energy Commission provides funding to offset the cost of purchasing and installing new renewable energy systems using emerging renewable technologies.

The goal of the ERP is to reduce the net cost of on-site renewable energy systems to end-use consumers, and thereby stimulate demand and increased sales of such systems. Increased sales are expected to encourage manufacturers, sellers, and installers to expand operations, improve distribution, and reduce system costs.”

The current 10th edition of the ERP Guidebook, updated in April 2010, responded to concerns raised by the small wind industry and it completed the transition from a solar-dominated program to one tailored to the specific needs of small wind and fuel cells. Specifically, the temporarily increased rebate, the longer reservation period, and the elimination of inappropriate (relating to solar modules and inverters) tests and deratings made small wind more competitive in the marketplace and have spurred sales.

The changes have been effective. Sales by the leading supplier to the California small wind market have increased 290% in the last year. A number of additional products from the leading legitimate small wind companies (such as Xzeres, Aerostar, Cascade, Endurance, Gaia, Evance/Iskra, and Proven) are now being sold in California. Lowe’s and Home Depot are now offering small wind systems. And, perhaps most importantly, the number of small wind dealers and installers is up dramatically.

The CEC ERP is a good program and the industry appreciates its basic structure and its efficient and responsive administration. But some unaddressed weaknesses in program have undermined its integrity and in recent months have allowed unscrupulous companies to perpetrate a significant fraud that threatens the entire program. DWEA specifically cites the following problems:

1. Insufficient technical expertise to provide proper due diligence in approving and rating the “Eligible Small Wind Turbines”
 - ❖ DyoCore (1.6 kW at 18 mph) added with an efficiency of 275% ... 2.7 times the total kinetic energy in the wind, 4.6 times the theoretical maximum possible efficiency, and 9 times efficiency of the leading small turbines on the market ... which is totally impossible!
 - ❖ 5 years ago there were 14 approved turbines. Today there are 181 and 116 of these are of Chinese origin (notoriously unreliable equipment with poor warranty support)
2. The program has no procedure for removing turbines and/or suppliers with poor field reliability and inadequate warranty coverage from program eligibility
 - ❖ Example: ReDriven / Yangzhou-Shenzhou Wind-driven Generator Co.

DWEA first alerted CEC staff to the erroneous / fraudulent DyoCore rating in November 2010 and sent a formal letter to the Commissioners on February 15, 2011. A copy is appended.

DWEA fully supported the suspension of the ERP program in March. DyoCore systems were being offered for \$1 and causing tremendous turmoil in the marketplace. This was only possible because the DyoCore product retails for ~\$1,800, but qualified for a \$4,800 CEC rebate. DWEA estimates that an honest rating for the DyoCore unit would be ~ 0.25 kW, resulting in a \$750 rebate. Had this been done correctly there would not have been the huge run-up in rebate applications because customers would not be getting “something for nothing”.

The DyoCore unit has been portrayed by its supporters as a technological breakthrough that radically reduces costs and will allow wind power to be used on thousands of homes where conventional wind turbines would not work. Nothing could be farther from the truth. DyoCore combines off-the-shelf generators from Ginlong in China with crude sheet aluminum blades, an assembly for mounting the turbine a few feet above a roof, and off-the-shelf inverters. The legitimate industry, following over 30 years of real world experience, does not recommend the use of aluminum blades (for safety reasons) or roof mounting (for vibration, safety, and performance reasons). A roof is a terrible place to put a wind turbine and extensive studies in the UK (see www.warwickwindtrials.org.uk) have shown that these installations average only 10-15% of projected performance due to sheltering of the wind.

DyoCore has all the markings of a scam and it is giving the small wind industry and the CEC a significant black eye. We believe strong action is called for to remedy these problems, end the threats to this valuable program, and continue the market momentum regained in the last year.

DWEA recommends the following actions:

1. Improve the requirements for product eligibility
2.
 - ❖ Scrub existing product list
 - ❖ Require Small Wind Certification Council (SWCC) certification to AWEA 9.1-2009 after either Jan. 1 or July 1, 2012
 - ❖ Allow “Provisional Eligibility” in the interim if:
 - ❖ Turbine is UK MCS or IEC 61400-2 certified, or
 - ❖ Turbine is under contract with SWCC, under field test with accredited or SWCC-audited (specific to turbine set-up) organization, and has an SWCC-approved power curve
3. Set the turbine rating for the rebate calculation at the AWEA Rated Power (at 25 mph), per the SWCC approved power curve
4. Increase the rebates to \$3.50/W up to 10 kW and \$1.75 for 10.1kW – 30 kW (necessary because 25 mph is more conservative than most current rated wind

speeds)

5. Hold those levels for two years, then drop them 10% per year (DWEA supports sensible planned reductions in incentives, which have worked well in the solar field)
6. Enter into a technical support contract with the Small Wind Certification Council for approvals, reviews, advice, etc. (necessary because KEMA has failed to provide proper due diligence)
7. Strengthen Section II – K, Audits and Inspections, of the Guidebook to allow reviews of operational performance and warranty support and removal of eligibility for cause
8. CEC should not pay the erroneously / fraudulently reserved rebates for DyoCore customers and should pursue recapture of the unearned portion (~ \$4,000) of rebates paid to date.

These changes would make for a better program, would continue the market momentum, and allow small wind to significantly contribute to California's new 33% renewables target.

In closing, we want to thank the CEC for the assistance that the Emerging Renewables Program has provided the small wind turbine industry over the last eleven years. As an industry, we sincerely hope that the Commission will respond positively to our recommendations.

My slides from the testimony I delivered at the workshop are appended.

Respectfully submitted,



Michael L.S. Bergey
Bergey Windpower Co.
Representing the Distributed Wind Energy Association

April 21, 2011

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Mike Bergey

Bergey Windpower Co.
Distributed Wind Energy Association

April 14, 2011



Californians Want Small Wind



Oak Hills, CA

Small Wind's Potential in California is Significant

- ❖ 24% of California has sufficient resources for small wind*
- ❖ 1.8 M acres are prime for small wind*
- ❖ Top 200 ZIP Codes have ~ 52,000 suitable properties*
... ~ 500 MW potential (plus farms, commercial, etc)
- ❖ CA has the nation's largest small wind dealer
- ❖ Small wind can contribute to California's 33% RPS & Governors' 12,000 MW goal for distributed renewables



*Source: CEC Small Wind Permitting Guide

The April 2010 Fixes are Working

- ❖ The problems were severe:
 - ❖ From 2006-2009 ERP sales averaged 30 units/yr, ~ ¼ of the 2001 peak, and they were declining at ~ 20%/yr
 - ❖ From 2003-2009 the retailer/installer infrastructure had shrunk by 80%
- ❖ But the fixes are working:
 - ❖ Unit sales are much stronger (e.g., 2010 Bergey California sales were up 290% over 2009)
 - ❖ New legitimate product entrants (Xzeres, Aerostar, Cascade, Endurance, Gaia, Iskra, & Proven)
 - ❖ Many new dealers
 - ❖ New market clusters emerging in Solano and Los Angeles counties





Keep the Momentum Up!



Emerging Renewables Program

Goal is to accelerate cost reduction and market acceptance through high volume production of emerging renewable technologies

- Provides rebates for purchasing & installing distributed generation renewable energy systems
- Reduces the up-front costs for customers
- Eligible technologies: solar photovoltaic and thermal electric, small wind, fuel cells

DWEA expects the CEC Renewable Energy Program will be extended beyond the 2011 sunset



Loopholes Need Fixing

The ERP is a very good program that works well, but has a few significant weaknesses:

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- ❖ DyoCore (1.6 kW at 18 mph) added with an efficiency of 275% ... 2.7 times the total kinetic energy in the wind, 4.6 times the theoretical maximum possible efficiency, and 9 times efficiency of the leading small turbines on the market ... **which is totally impossible!**
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DWEA Letter on Feb. 14. 2010



Loopholes Need Fixing

2. The program has no procedure for removing turbines and/or suppliers with poor field reliability and inadequate warranty coverage from program eligibility

- ❖ Example: ReDriven / Yangzhou-Shenzhou Wind-driven Generator Co.



DWEA's Recommendations

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DWEA's Recommendations

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DWEA's Recommendations

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DWEA
Appreciates and
Thanks the CEC



February 14, 2011

our Wind our Power our Future

James D. Boyd, Presiding Commissioner
Robert B. Weisenmiller, Associate Commissioner
Renewables Committee
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814-5512

Dear Commissioners Boyd and Weisenmiller,

The Distributed Wind Energy Association (DWEA) is a relatively new national trade association comprised of manufacturers, distributors, project developers, dealers, installers, and advocates, whose primary mission is to promote and foster all aspects of the distributed wind energy industry. We define distributed wind as being behind-the-meter generation, whether it's with a 5 kW residential turbine or a 1.5 MW turbine at a water treatment facility.

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We are writing to ask for the Commission's assistance in maintaining the newfound momentum of the Emerging Renewables Program for small wind and closing a product eligibility loophole that is giving the program a black eye. The programmatic recommendations we offer will require slight changes the ERP Guidebook and we would like to see this completed by mid-April.

First, we would ask that the current rebate structure be extended for two years. The increased rebates in April 2010 have served to reverse the downward trend of small wind installations and we are seeing growth

once again is the sales and installation infrastructure in California. But the depth of the recession in California has also served to limit sales growth, and permitting is still a significant barrier.

We believe it would be a mistake to allow the higher rebates to ratchet down in April as scheduled. It will blunt the current market momentum and hinder small wind's ability to contribute to the Governor's distributed generation goal. The current rebates are robust, but as is they are less robust than the rebates available in Oregon, New York, or New Jersey. Our two year request exceeds the lifespan of the current funding mechanism, but DWEA hopes to work with the California legislature to promote extension of the CTC funding underpinning the ERP.

Second, we would like to see the product eligibility criteria tightened up for small wind by embracing the new national certification standards and by giving CEC staff the ability to delist products with poor operational track records. We believe the current listing criteria have been exploited by unscrupulous companies. One currently eligible product, for example, has a CEC rating that is over 2.5 times the total kinetic energy in the wind and approximately 8 times the efficiency of the best reputable small wind products on the market. Also, we believe that it is counterproductive for staff to have no ability to delist products that are failing in the field. Another brand, out of China, for example, has a nearly 100% failure rate but cannot be removed from the eligible products list. These products reflect poorly on our industry and we believe they have no place in the ERP program.

Our recommendation is that product eligibility be tied to certification to AWEA 9.1-2009 by either the Small Wind Certification Council (SWCC) or other Nationally Recognized Test Laboratory (NRTL). Since the standard is new and compliance requires an approximately nine month field test there would need to be a transition period where products in process with SWCC would have provisional eligibility until Dec. 31, 2011. This follows an approach successfully implemented in the UK for their feed-in-tariff scheme and one that a number of other U.S. states are planning to implement. DWEA would be happy to provide specific wording for the ERP Guidebook for the staff's consideration.

The CEC ERP program, which was the first state system benefit charge (CTC in California) funded solar and wind rebate program in the nation, has created the largest single small wind dealership in America and has the potential to create hundreds of new jobs in California over the next few years. We look forward to working with you and your staff to extend the good work of this pioneering program.

Please do not hesitate to contact me at (928) 380-6012 or jjenkins@distributedwind.org or our advocate in Sacramento, Justin Malan with Ecoconsult at (916) 448-1015 or justin@ecoconsult.biz with any questions.

Sincerely,



Jennifer Jenkins

Executive Director