CALIFORNIA ENERGY COMMISSION
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July 26, 2011

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11-CA1-03
DATE JUL 26 2011
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Mr. Michael J. Levy
Office of Chief Counsel
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Complaint against DyoCore, Inc.

Dear Mr. Levy:

Enclosed is a complaint against DyoCore, Inc. ("DyoCore") filed pursuant to title 20, Section 1231 of the California Code of Regulations, which provides that "[a]ny person, including . . . commission staff . . . may file a complaint alleging a violation of a statute, regulation, order, *program*, or decision adopted, administered, or enforced by the commission."[1] As the Executive Director of the California Energy Commission ("Energy Commission" or "Commission"), I am filing this complaint to allege that DyoCore violated the intent of the Emerging Renewables Program ("ERP"), and, in particular, Appendix 3, Section (A)(2) of the Emerging Renewables Program Final Guidebook ("ERP Guidebook"),[2] by submitting grossly overstated information regarding the performance characteristics of the DyoCore SolAir wind turbine ("DyoCore turbine")[3] in order to have the DyoCore turbine listed by the Commission as eligible for use under the ERP.

For the reasons set forth in more detail below, I request that the DyoCore turbine be immediately removed from the Energy Commission's "List of Eligible Small Wind Turbines" on the ERP website, and that the Energy Commission provide guidance

[1] 20 CCR § 1231 (emphasis added). References to section numbers are to those in title 20 of the California Code of Regulations unless otherwise noted.

[2] Emerging Renewables Program Final Guidebook, Tenth Edition, California Energy Commission, April 2010, p. 49, *available at* http://www.energy.ca.gov/2010publications/CEC-300-2010-003/CEC-300-2010-003-F.PDF (referred to below as "ERP Guidebook").

[3] List of Eligible Small Wind Turbines on the ERP website, California Energy Commission, *available at* http://www.consumerenergycenter.org/cgi-bin/eligible_smallwind.cgi (the List of Eligible Small Wind Turbines on the ERP website identifies the DyoCore turbine as the "SolAir 1600W hybrid wind/solar generator," and provides the following model number, "S80015dc"). However, the DyoCore turbine is also referred to on DyoCore's website as the "DyoCore SolAir I 800 Hybrid Wind Solar Generator," and the "SolAir I 800." *See* DyoCore's website, *available at* http://www.dyocore.com/ (referring to the DyoCore turbine as the "DyoCore SolAir I 800 Hybrid Wind Solar Generator"); *id.*, *available at* http://www.dyocore.com/solair.html (referring to the "SolAir I 800"). In addition, applications for rebate reservations under the ERP have also referred to the DyoCore turbine as the "DyoCore SolAir I 800W." Nonetheless, Commission staff understand that DyoCore only manufacturers one turbine which is referred to in this complaint as the "DyoCore turbine."

regarding the resolution of applications for rebate reservations and payment requests under the ERP for small wind systems that use DyoCore turbines, and take such action as may be necessary to recover ERP funds that were paid as rebates for such systems. In addition, I request that the Energy Commission refer this matter to the Attorney General for investigation and prosecution, as appropriate.

I. Identification of Complainant (§ 1231(b)(1))

Robert P. Oglesby
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814
(916) 654-4996

II. Identification of Respondent (§ 1231(b)(2))

Ralph Bettencourt, CEO
DyoCore, Inc.
3125 Tiger Run Court, #104
Carlsbad, CA 92010
(866) 404-2428

David Raine, CTO
DyoCore, Inc.
3125 Tiger Run Court, #104
Carlsbad, CA 92010
(760) 580-4271

III. Statement of Program and Regulation Upon Which the Complaint is Based (§ 1231(b)(4))

A. The Purpose of the ERP

The ERP was established in 1998 to help develop self-sustaining markets for renewable energy systems, *i.e.*, solar and small wind, by providing rebates and production incentives to end-use consumers who purchase and install such systems for on-site generation in California. However, after the Energy Commission established the New Solar Homes Partnership ("NSHP") in 2006, the ERP no longer provided funding for solar energy systems and expanded the program to include fuel cells. Thus, payments under the ERP are currently intended to stimulate increased sales of small wind systems that have a generating capacity up to 50 kilowatts ("kW") and fuel cells that have a generating capacity up to 30 kW, and thereby, encourage manufacturers, sellers, and installers to expand their operations, improve distribution, and reduce system costs associated with these renewable technologies.[4] Significantly, the ERP is not intended to cover the total purchase and installation costs of small wind systems or fuel cells for end-use consumers,[5] as such a complete subsidy is unsustainable and sends improper signals to the market by motivating increased sales of these renewable

[4] *Id.* at iii, 1.
[5] See *id.* at 11 (emphasis added) (explaining that rebates offered under the ERP "must be used to *reduce* the purchase or lease cost of the eligible system, or the cost of electricity produced by the eligible system

energy systems without concern for cost-effective siting and/or operation. Since 1998, the ERP has issued $8.7 million in rebates for 577 small wind systems, with a cumulative installed capacity of 3.6 megawatts.

B. Requirements and Process for Listing Small Wind Systems as Eligible for Use in the ERP

The rules adopted by the Energy Commission to govern the administration of the ERP are contained in the ERP Guidebook, and the Renewable Energy Program Overall Program Guidebook ("Overall Program Guidebook").[6] Further, additional procedures for listing specific equipment, *e.g.*, wind turbines, as eligible for use in the ERP are found on the ERP website.[7]

Pursuant to Appendix 3, Section (A)(2) of the ERP Guidebook, the Commission provides manufacturers with two options for having their small wind systems listed as eligible for use in the ERP:

1. Small wind turbines must be certified as meeting the requirements of a small wind turbine-specific safety and/or performance standard adopted by a national or international standards setting body, including, but not limited to International Electrical Code (IEC) 61400-2. The Energy Commission will monitor, review, and may participate in the Interstate Renewable Energy Council's efforts to create a national certification program.

OR

2. Manufacturers of small wind systems must provide monthly data of average energy produced (kWh) and average wind speed for one consecutive year for each model of system they wish to be considered eligible for this program to demonstrate reliable operation of that model of equipment at a site with average annual wind speeds of at least 12 mph.

Specific procedural requirements for having wind turbines listed as eligible for use in the ERP are contained in a form on the ERP website titled, "Wind Turbine Eligibility Listing

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for the on-site customer. . . . [u]nder no circumstances will the incentive from the ERP exceed the net purchase price of the system to the final customer (before ERP incentives).").

[6] *Id.* at 1. Pursuant to Public Resources Code Section 25747, subdivision (a) the Commission is required to adopt guidelines governing the funding programs under its Renewable Energy Program, including the ERP, and such guidelines are exempt from the requirements of the Administrative Procedures Act ("APA"), as codified at Government Code Section 11340, *et seq.*

[7] Consumer Energy Center, California Energy Commission, *see* heading "Adding Equipment," *available at* http://www.consumerenergycenter.org/erprebate/equipment.html.

Procedure," attached as Exhibit A. The form provides that if a manufacturer elects option two, as identified above, then it must submit the following information to the Commission's consultant, KEMA, Inc. ("KEMA"):

- **A year of operational data for the turbine** (including wind speeds and power output) – used to demonstrate the reliable and safe performance of the turbine;[8]
- **The power curve** for the turbine indicates the turbine's generating capacity, or how much power (in watts or kilowatts) the turbine will produce at any given wind speed, referred to in this complaint as the *rated output,* when used to describe the generating capacity of a single turbine, or the *system rated output,* when used to describe the generating capacity of multiple turbines the comprise a solar energy system;
- **The power curve data**, or data upon which the power curve is based; and,
- **A short product description for the ERP website** that includes the rated output at which the manufacturer seeks to list the turbine.

During the period in which DyoCore requested that the DyoCore turbine be included on the "List of Eligible Small Wind Turbines" on the ERP website, *i.e.*, prior to the suspension of the program, KEMA was tasked with performing a completeness and consistency check to confirm that manufacturers had submitted the requisite information to have equipment listed as eligible for use in the ERP but was not charged with substantively analyzing the data received.

C. Requirements for Securing a Reservation under the ERP

Applicants seeking rebates for small wind systems under the ERP must submit a completed Reservation Request Form, CEC-1038 R1 ("R1 Form") and supporting documentation to reserve a fixed amount of program funds.[9] Applicants must identify the "System Rated Output" on the R1 Form.[10] The system rated output, as provided by the applicant, is an essential part of the request for a reservation given that rebates offered through the ERP "are based on the generating capacity of the system."[11] Once the R1 Form is reviewed and approved, the Commission sends the applicant a Payment Claim Form, CEC-1038 R2 ("R2 Form") that identifies the amount of funds reserved and the date upon which the reservation expires.[12] The system rated output is also included on the R2 Form.[13] The R1 and R2 Forms require the end-use consumer and the

[8] Pursuant to option two referenced above, the Energy Commission requires manufacturers to provide one-year of operational data in order to demonstrate the reliable and safe performance of their turbine.
[9] ERP Guidebook, *supra* note 2, at 2
[10] *Id.* at 33.
[11] *Id.* at 11; see *id* at iv ("Incentives for small wind turbines . . . are calculated by multiplying the rated output by the incentive level [currently $3.00/watt for the first 10 kW]").
[12] *Id.* at 2.
[13] *Id.* at 39.

equipment seller to attest under penalty of perjury that the information provided in each form is "true and correct to the best of their knowledge."[14]

IV. Authority Under Which the Commission May Take Action (§ 1231(b)(6))

Pursuant to Section 2, subdivision (K) of the ERP Guidebook, titled "Audits and Inspections," the Commission "will conduct audits of the applications it receives to verify that the information provided in the applications is true and correct."[15] Subdivision (K) states that if information contained in an application or payment request "appears to be false or misrepresented" then the Commission will take one or more of eight identified measures, *e.g.*, rejection of the application or payment request, or notification of the proper authorities so appropriate enforcement action may be initiated.[16]

Further, Section 7, subdivision (B) of the Overall Program Guidebook, titled "Fraud and Misrepresentation," provides the Commission's Renewables Committee ("Committee") broad authority to investigate "any awardee who the Committee has reason to believe may have misstated, falsified, or misrepresented information in applying for . . . funding" under the Renewable Energy Program.[17] Subdivision (B) states that based upon the results of an investigation, "the Committee may take any action that it deems appropriate, including, but not limited to . . . cancellation of the funding award . . . recovery of any overpayment, and, with concurrence of the Energy Commission, recommending the Attorney General initiate an investigation and prosecution pursuant to Government Code Section 12650, *et seq.*, or other provisions of law."

V. Statement of Facts Upon Which the Complaint is Based (§ 1231(b)(3))

A. DyoCore and the DyoCore Turbine

DyoCore manufactures a small wind turbine that may be roof-top mounted or pole-mounted, *i.e.*, the DyoCore turbine, which it markets as potentially eligible for a one-hundred percent rebate under the ERP. *See* screenshot of DyoCore, Inc. website ("DyoCore website"), attached as Exhibit B. According to the DyoCore website, the DyoCore turbine appears to have a rated output of 1.6 kW at 18 mph and to cost approximately $2,000 to purchase. At the current rebate level of $3.00 per watt for systems with a total rated output of up to 10 kW,[18] purchasers of the DyoCore turbine

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[14] *Id.* at 33, 39.

[15] *Id.* at 9 (Notably, subdivision (K) further provides, "[t]he Energy Commission may also conduct field inspections to verify systems are operating properly and installed as specified in the reservation request and payment claim applications.").

[16] *Id.*

[17] Renewable Energy Program, Overall Program Guidebook, Third Edition, January 2011, p. 17, *available at* http://www.energy.ca.gov/2010publications/CEC-300-2010-008/CEC-300-2010-008-CMF.PDF (referred to below as "Overall Program Guidebook").

[18] ERP Guidebook, *supra* note 2, at 11 (stating that the current rebate level for the first 10 kW of a small wind system is $3.00 per watt). Prior to the suspension of the ERP, the incentive level was scheduled to decrease to $2.50 per watt on April 7, 2011. *Id.* However, the Notice of Temporary Suspension of the

are eligible for a $4,800 rebate for a single installed turbine under the ERP. The typical application, however, is comprised of six DyoCore turbines, representing 9.6 kW, and a corresponding rebate amount of $28,800.

DyoCore has directly applied to the ERP for rebates for small wind systems using DyoCore turbines as an equipment seller, but, more often, works with a network of certified distributors.[19]

B. The Listing of the DyoCore Turbine

DyoCore requested that the DyoCore turbine be listed as eligible for use in the ERP in February of 2010. DyoCore originally asserted that the rated output of the DyoCore turbine should be listed as .8 kW, or 800 watts, at 12 miles per hour ("mph") winds and provided the requisite operational data, power curve, and power curve data in support of that claim.[20] Based upon the information submitted by DyoCore regarding the performance characteristics of the DyoCore turbine, on March 2, 2010, KEMA included it on the "List of Eligible Small Wind Turbines" on the ERP website with a rated output of .8 kW at 12 mph winds.

However, DyoCore subsequently claimed that the rated output for the DyoCore turbine was actually 1.6 kW at 18 mph winds.[21] In light of the disparity, a KEMA representative questioned DyoCore's claim.[22] DyoCore, however, provided an explanation for the difference and furnished a revised power curve and new power

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Emerging Renewables Program, attached as Exhibit C, provided that "[t]o avoid affecting any pending negotiations or potential sales that are contingent on the higher rebate level of $3.00 per watt the Energy Commission intends to extend the $3.00 per watt rebate level for approximately 30 days after the suspension is lifted."

[19] Letter from Ralph Bettencourt, CEO, DyoCore to Energy Commission, April 20, 2011, Docket No. 02-REN-1038 ("Dyocore has a network of 12 California distributors who undergo training and adhere to diligent standards as they relate to locations of installations of the products. Those 12 certified distributors have submitted approximately 800 R-1 applications (65 per distributor) [under the ERP]."). Notably, DyoCore lists 13 certified distributors on its website, all of whom are identified as potentially affected parties in Section 8, subdivision (A) of this complaint.

[20] Email from David Raine, CTO, DyoCore to Pete Baumstark, PE, Energy Engineer, KEMA, February 16, 2010.

[21] Email from David Raine, CTO, DyoCore to Daria S. Mashnick, Energy Engineer, KEMA, April 9, 2010 (stating "[at] 18mph . . . our output is 1.6 kW. This should be the posted data or applied output."); email from Rick Berry, DyoCore, Inc. to Daria S. Mashnik, Energy Engineer, KEMA, April 22, 2010 ("our CEO Dave Raine sent you the info to upgrade our state listing on 4/14/2010 from [.8 kW] which was my mistake to the actual watts per the curve of [1.6 kW]. This is causing some problems with people purchasing the units. . . ."). Mr. Berry refers to an email that was supposedly sent by Mr. Raine to Ms. Mashnik on April 14, 2011 in which Mr. Raine allegedly asserts that the rated output for the DyoCore turbine is 1.6 kW. However, KEMA has no record of any such email. In fact, it appears that Mr. Berry intended to reference the email sent by Mr. Raine to Ms. Mashnik on April 9, 2011, which is cited above.

[22] Email from Daria S. Mashnik, Energy Engineer, KEMA, to David Raine, CTO, May 28, 2010 ("My question (and what needs to be verified by you) is as follows: I graphed the data that you sent me below to get the following Performance Curve for your product (same as the one you sent me below). You would like your product to be rated at [1.6 kW], however based on the curve the output only goes up to [.7 kW] which happens at ~ 26 mph. Please clarify.").

curve data in support of their assertion that the rated output for the DyoCore turbine should be 1.6 kW at 18 mph winds.[23] Notably, DyoCore did not provide new operational data in support of their assertion regarding the increased generating capacity of the DyoCore turbine. KEMA ultimately accepted DyoCore's explanation and the manufacturer's submission of the revised power curve and new power curve data as sufficient. Consequently, KEMA aggregated the turbines to be added to the List of Eligible Small Wind Turbines on the ERP website for the month of June, including the DyoCore turbine at a rated output of 1.6 kW at 18 mph winds, and forwarded the information to Commission staff who promptly updated the list on June 2, 2010.[24]

C. Temporary Suspension of the ERP

During the initial months of 2011, Energy Commission staff became aware of three issues with DyoCore turbines that necessitated the temporary suspension of the ERP. *See* Notice of Temporary Suspension of Emerging Renewables Program, attached as Exhibit C. First, Energy Commission staff learned that the ERP was essentially providing free DyoCore turbines to end-use consumers which, as noted, is problematic for two reasons: such a complete subsidy is unsustainable and sends improper signals to the market by motivating increased sales of renewable energy systems without concern for cost-effective operation. Second, staff received reservation applications for rebates for DyoCore turbines that were to be installed in locations with poor wind resources, increasing the concern that the incentives were driving increased sales at the expense of cost-effective siting and operation of small wind systems. Third, during this same period the number of reservation applications for rebates for DyoCore systems received by the Commission increased dramatically.

As of the filing of this complaint on July 26, 2011, approximately:

- 33 systems using DyoCore turbines have been installed and ERP rebates had been paid, totaling $515,385
- 249 reservation applications for rebates for systems using DyoCore turbines have been approved, totaling $6,393,544.
- 1069 applications have been received and are pending review, totaling $31,220,976.

As such, there are a grand total of 1351 applications or payment requests for small wind systems using DyoCore turbines under the ERP that have been paid, approved, or which are currently pending, totaling $38,129,905.

[23] Email from David Raine, CTO, DyoCore, to Daria S. Mashnick, Energy Engineer, KEMA, June 1, 2010.
[24] List of Eligible Small Wind Turbines on the ERP website, California Energy Commission, *available at* http://www.consumerenergycenter.org/cgi-bin/eligible_smallwind.cgi.

D. The KEMA Report

Following the suspension of the ERP, the Energy Commission obtained information which alleged that the rated output for the DyoCore turbine may have been misstated, and further, might be physically impossible.[25] In response to questions raised about the validity of DyoCore's performance claims, and in reliance upon the Audit and Inspection provisions in the ERP Guidebook and the Fraud and Misrepresentation provisions in the Overall Program Guidebook, the Energy Commission engaged KEMA to analyze the operational data, power curve, and power curve data submitted by DyoCore. *See* KEMA's report of July 25, 2011 ("KEMA Report"), attached as Exhibit D.

The KEMA Report analyzed the power curve data submitted by DyoCore and concluded:

> DyoCore's claim of 1600 watts power output at 18 miles per hour (8.1 m/s) is 7.5 times greater than the theoretical maximum power output at that wind speed and 9.0 times greater than an optimal state-of-the-art turbine rotor with the same diameter.[26]

KEMA's analysis of the power curve is based on the Betz Limit theory, which posits that a wind turbine can capture no more than 59.3 percent of the kinetic energy in wind, which is calculated in relation to the diameter of its rotor. The KEMA Report concludes that if the DyoCore turbine, which has a rotor that is 1.2 meters in diameter, had an actual rated output of 1.6 kW at 18 mph winds, it would represent a machine that could extract 7.5 times more energy from wind than is thought possible under the Betz Limit theory.

The KEMA Report reached a similar conclusion when analyzing the one year of operational data submitted by DyoCore. The one year of operational data submitted by DyoCore showed an annual average wind speed of 15.3 miles per hour and an annual energy production of 2,554 kWh.[27] The KEMA Report shows that this is inconsistent with the power curve data submitted by DyoCore. Using the power curve submitted by

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[25] *See e.g.,* Trabish, Have Small Wind Manufacturers Exploited Loopholes in California Rebates?, Greentech Media, March 15, 2001, *available at* http://www.greentechmedia.com/articles/read/have-small-wind-manufacturers-exploited-loopholes-in-california-rebates/ (The article quotes several prominent figures in the small wind industry, including DyoCore's competitors, who suggest that the system rated output listed on the ERP website for the DyoCore turbine of 1.6 kW at 18 mph is physically impossible based upon the diameter of the turbine's rotor.
Further, the article states that David Raine, CTO of DyoCore, asserts that the company's performance claims are backed up by laboratory and field performance tests, referencing the work of Chuck Skinner, a field evaluation engineer with TUV America. However, the article questions the accuracy of this assertion, stating, "[f]or his part, Skinner said that TUV America had done no testing that would confirm anything but the electrical safety of the DyoCore turbine.").

[26] KEMA Report, at 5, attached as Exhibit D.

[27] *Id.* at 7.

DyoCore and the same annual average wind speed of 15.3 miles per hour, the annual energy production was calculated to be 9,513 kWh, which far exceeds the annual production data submitted by DyoCore.[28] In addition, the KEMA Report concluded that DyoCore's claimed annual energy production of 2,554 kWh with annual average wind speed of 15.3 miles per hour "is not possible because the claimed power curve exceeds the performance of a state-of-the-art wind turbine rotor by 9.0 times."[29]

The analysis in the KEMA Report demonstrates that DyoCore's submissions to KEMA for the purpose of listing the DyoCore turbine as eligible for use under the ERP fail to support the asserted rated output of 1.6 kW at 18 mph winds. More specifically, the power curve data grossly overstates the amount of energy that a turbine with a 1.2 diameter rotor can extract from the wind, and the one year of operational data does not support a rating of 1.6 kW at 18 mph winds.

After KEMA had been engaged to analyze DyoCore's operational data, power curve, and power curve data, the Commission learned that DyoCore had posted yet another power curve for the DyoCore turbine on its website. *See* Revised Power Curve, attached as Exhibit E. David Raine, DyoCore's CTO, posted the revised power curve on the company's blog on April 11, 2011, stating:

> This is the most accurate reference to estimated power production based on wind conditions. Though this does not account for gusts or rapid changes it can provide a basis for your production expectations at specific constant wind speeds:

Significantly, the revised power curve more closely corresponds to KEMA's analysis, and in particular, reflects a rated output of approximately .25 kW at 18 mph winds.

As of the filing of this complaint on July 26, 2011, DyoCore had not disclosed any new information regarding the rated output of the DyoCore turbine to KEMA or the Commission, and further, continues to state on its website that the DyoCore turbine is "CEC Listed: 1.6kW at 18mph." *See* DyoCore website, attached as Exhibit B.

VI. Argument

A. DyoCore's Actions Contravene the Purpose of the ERP

As explained above, the current purpose of the ERP is to incentivize increased sales of small wind systems and fuels cells for on-site generation in California and thereby encourage manufacturers, sellers, and installers to expand their operations, improve distribution, and reduce system costs for the end-use consumer.[30] The underlying rationale of any such incentive program is to encourage legitimate

[28] *Id.*
[29] *Id.*
[30] ERP Guidebook, *supra* note 2, at iii, 1.

competition with the ultimate goal of inspiring and rewarding innovation. DyoCore claims that the DyoCore turbine reflects "New Innovative Technology," and further, that the manufacturer "has demonstrated significant success in accomplishing ERP objectives," by offering "lower cost margin products" which, in turn, "opens the door for greater deployment." *See* Letter from David Raine, CTO, DyoCore to Energy Commission, April 18, 2011, Docket No. 02-REN-1038, p. 1, 3-4, attached as Exhibit F, ("Raine Letter").

However, any such purported "success" is premised upon the DyoCore turbine performing as advertised, *i.e.*, approximately generating 1.6 kW at 18 mph winds. The Commission relied upon the accuracy of the information that DyoCore submitted for the purpose of having the DyoCore turbine listed as eligible for use under the ERP, *i.e.*, one-year of operational data, power curve, and corresponding power curve data. Yet the KEMA report demonstrates that the information submitted by DyoCore to the Commission grossly overstates the performance characteristics of the DyoCore turbine. KEMA Report, p. 5-6. Moreover, the manufacturer's statements regarding the rated output of the DyoCore turbine on its own website are inconsistent and irreconcilable, *e.g.*, DyoCore's website states that the DyoCore turbine is "CEC Listed: 1.6kW at 18mph" yet also provides a newly revised power curve that indicates a rated output of less than .3 kW at 18 mph winds. *See* DyoCore website, attached as Exhibit B. Similarly, DyoCore inconsistently represented the rated output of the DyoCore turbine to the Commission itself, via the Commission's agent, KEMA, by initially advocating for a rating of .8 kW watts at 12 mph winds and then asserting that the rating should be 1.6 kW at 18 mph winds.

DyoCore's actions have negatively impacted legitimate competition under the ERP insofar as other providers of small wind systems are unable to compete with DyoCore's "low cost margin products," which are, in turn, based on a false premise, *i.e.*, the manufacturer's grossly overstated performance claims of the DyoCore turbine. Further, DyoCore appears to have directly harmed end-use consumers who presumably relied, at least in part, upon the manufacturer's advertising regarding the performance characteristics of the DyoCore turbine in making their purchasing decision. These end-use consumers may ultimately be subject to revocation or withholding of rebate payments under the ERP based upon false or misrepresented statements regarding the rated output of their systems in their submitted R1 and R2 Forms. Moreover, DyoCore's actions necessitated the temporary suspension of the ERP and the corresponding diversion of program resources, *i.e.*, Commission staff time.

B. DyoCore Violated Appendix 3, Section (A)(2) of the ERP Guidebook by Submitting Operational Data That Does Not Support the Asserted Performance Claims of the DyoCore Turbine

DyoCore's submission of inaccurate and invalid operational data should serve as an independent basis for immediately removing the DyoCore turbine from the "List of Eligible Small Wind Turbines" on the ERP website. As noted, the KEMA Report concluded that the one-year of operational data originally submitted by DyoCore in

order to have the DyoCore turbine listed on the ERP website, initially with a rated output of .8 kW at 12 mph winds, and then, 1.6 kW at 18 mph, was inconsistent with the submitted power curve, and failed to substantiate the manufacturer's claim of increased generating capacity as it is "not possible because the claimed power curve exceeds the performance of a state-of-the-art wind turbine rotor by 9.0 times."[31] Under the ERP Guidebook, the identification of the DyoCore turbine on the ERP website was premised upon the submission of the operational data; the Commission relied upon the accuracy and validity of this data when it added the DyoCore turbine to the list and identified the rated output as 1.6 kW at 18 mph winds. However, the operational data submitted by DyoCore and relied upon by the Commission grossly overstates the performance characteristics of the DyoCore turbine, and thus, is inaccurate and invalid. Accordingly, the DyoCore turbine should be de-listed from the ERP website on this basis alone.

VII. Requested Action (§ 1231(b)(5))

I respectfully request that the DyoCore turbine be immediately removed from the Energy Commission's list of eligible equipment for use in the ERP. As shown by the KEMA report, and reflected by DyoCore's admissions on its own website, the DyoCore turbine was listed as eligible for use in the ERP on the basis of grossly overstated, inaccurate, and invalid information. I further request that the Energy Commission provide guidance regarding the resolution of applications for rebate reservations and payment requests under the ERP for small wind systems that use DyoCore turbines, and take such action as may be necessary to recover ERP funds that were paid as rebates for such systems.

In addition, I request that the Energy Commission refer this matter to the Attorney General for investigation and prosecution, as appropriate.

Finally, I also request that the Energy Commission send the following or similar notice to all retailers and end-use consumers who applied for rebates under the ERP for small wind systems using DyoCore turbines along with the Energy Commission's order serving this complaint:

> Under the Emerging Renewables Program ("ERP") there are three categories of consumers who may be affected by the attached complaint proceeding: (1) consumers who received a rebate payment under the ERP for the purchase and installation of a small wind system that uses DyoCore SolAir wind turbines ("DyoCore turbines"); (2) consumers who were issued an R2 Form reserving ERP funding for systems that use DyoCore turbines, but have not received, or submitted a request for a rebate payment; and, (3) consumers who have pending applications for rebate reservations under the ERP for systems that use DyoCore turbines. All parties to these

[31] KEMA Report, p.7,

rebate payments, payment requests and applications are on notice that payments may be revoked or withheld, and pending applications may be rejected, pursuant to the Audits and Inspections provisions contained in Section 2, subdivision (K) of the ERP Guidebook, and the Fraud and Misrepresentation provisions contained in Section 7, subdivision (b) of the Renewable Energy Program Overall Program Guidebook ("Overall Program Guidebook"). Further, any misstatements, falsifications, or misrepresentations contained in these payment requests or applications may be referred to the Attorney General for possible investigation and prosecution pursuant to Section 7, subdivision (b) of the Overall Program Guidebook.

VIII. Identification of All Parties Who Would be Affected by Relief Sought (§ 1231(b)(7))

A. The following retailers will be affected by the relief sought in the complaint. Each of these retailers has submitted applications for rebate reservations and/or payment request claims under the ERP for small wind systems that use DyoCore turbines.

Bay Area Energy Solutions
1326 Marsten Road
Burlingame, CA 94010
(650) 375-5955

California Solar Systems
1411 Rusch Court
Santa Rosa, CA 95401
(707) 637-0762

Synergy Corp.
863 N Bush Avenue
Clovis, CA 93611
(559) 352-6987

Crizer Wind Energy, Inc.
1191 4th St
Los Osos, CA 93402
(805) 528-4812

My Wind Power
4037 Phelan Road, A267
Phelan, CA 92371
(760) 314-9375

Solar Point Resources
P.O. Box 4761
San Jose, CA 95150
(408) 313-2814

Energy Pros
2235 Solitude Court
Rocklin, CA 95765
(800) 709-4168

Canaday Electric
402 Avalon Street
Morro Bay, CA 93442
(805) 975-7739

CA Green Team
337 Ridgecrest Blvd
Ridgecrest, CA 93555
(760) 684-4458

Prevailing Wind Power
324 N Gertruda
Redondo Beach, CA 90277
(310) 529-5217

Green Solar Solutions, Inc.
22267 Vacation Dr.
Canyon Lakes, CA 92587
(951) 258-8580

San Diego Small Wind
3125 Tiger Run Ct. #103
San Marcos, CA 92009
(866) 404-2428

Desert Power, Inc.
77380 Michigan Dr.
Palm Desert, CA 92211
(760) 360-9060

Apple Acres, Inc. DBA GRIDNOT
P.O. Box 645
Lucerne Valley, CA 92356
(760) 978-6840

B. All end-use consumers who have submitted applications for rebate reservations and/or payment request claims under the ERP for small wind systems using the DyoCore turbine.

VIIII. Declaration of Penalty under Perjury (§ 1231(b)(8))

I, the undersigned, declare to the best of my knowledge and under penalty of perjury, to the truth and accuracy of all factual allegations contained in this complaint.

Sincerely,

Robert P. Oglesby
Executive Director
California Energy Commission

EXHIBIT A

The Emerging Renewables Program (ERP) is for all small wind and fuel cell market segments for distributed generation offsetting on-site load. For wind turbine eligibility, a manufacturer must either have the turbine certified to IEC 61400-2, or a similar certification from a national or international standards setting body, or gather one year of operational data.[1]

The process for adding wind turbines for ERP is as follows:

1. The manufacturer either gets their product certified as meeting the requirements of a small wind turbine-specific safety and/or performance standard adopted by a national or international standards setting body, including, but not limited to International Electric Code (IEC) 61400-2 **or** gathers one year of operational data.

   This is a non-exhaustive list of companies that perform IEC 61400-2 testing:
   - SGS Taipei (Taiwan)
   - Germanischer Lloyd (Germany)
   - Dynatech Engineering, Inc. (California, USA)

2. The manufacturer generates a power curve for the turbine. This is often already known and readily available.

3. Submit documentation to KEMA, Inc. **All documentation must be in English – KEMA will reject any test reports that are not in English.** Required documentation is either:
   a. The turbine's power curve data, a copy of the IEC 61400-2 Certification or similar certification, and a short product description (under 10 words) for the website.
   b. The turbine's power curve data, a year of operational data (including wind speeds and power output), and a short product description (under 10 words) for the website.

The small wind turbine eligibility list is updated monthly on the first of the month. The cut-off date for the monthly update is the 15th day of the preceding month; all documentation must be submitted before this date.

[1] http://www.energy.ca.gov/2010publications/CEC-300-2010-003/CEC-300-2010-003-F.PDF. *Emerging Renewables Program Guidebook, Tenth Edition;* Appendix 3 describes the requirements for listing small wind turbines.

EXHIBIT B

DyoCore

SolAir I 800

SolAir is a dynamic hybrid vertical mill that combines wind/solar integrated into a single balanced frame/fin design. SolAir is designed so versatile it can be mounted on any flat horizontal, vertical or pitched surface and can be either bolted or ballasted down. SolAir's unique design allows it to work effectively in low turbulent winds from any direction.

For the majority of property owners living in urban areas, installing wind turbines on or close to buildings with overall wind speeds of less than 14 mph has not been a realistic proposition. Equipment is expensive, hard to install, electricity generation will be disappointing and pay-back periods are likely to recede into the distant future if at all.

DyoCore products present a dramatic change to this way of thinking. DyoCore turbines have been specifically tooled and specifically created for turbulent wind in both low wind and obstructed areas. Perfect for the average home roof!

Technical Specs

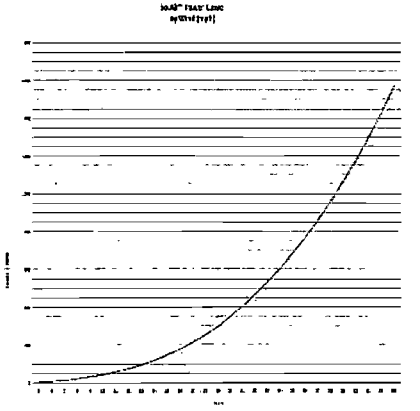
- Weight 60lbs. fully assembled.
- Can be setup and installed within minutes out of box
- Height of SolAir from it's mount bracket surface to the blade at it's highest point is only 67".
- Blade diameter is 60".
- Number of Blades - 3 (Aluminum)
- CEC Listed: 1.6kW at 18mph
- Maximum output is approximately 2.2kW (26 to 30mph winds)
- Average power is approximately 400watts (12 to 14mph winds)
- Quieter than a whisper with no vibration
- Optimal install height is along the roof line or approximately 20'.
- SolAir units can be stacked when more energy generation/storage power is needed.
- Federal 30% tax credit
- CA CEC - up to 100% direct rebate!
- On-grid or Off-Grid - combined DC solar/wind output for simple plug and play.
- Shipping Details:
  - Frame & Mounting Hardware - 1 Box, 60" x 11" x 20", 60 lbs
  - SolAir Motor - 1 Box, 13" x 13" x 10", 28 lbs

Easy Math! Simple tool to calculate your SolAir Equipment Costs

DyoCore Installation/Setup of a SolAir System

http://www.youtube.com/watch?v=dAQfjEgtVXI

- SolAir Performance
- Small Wind Barriers
- Inverters
- Environmental Conditions at Install Site
- Additional Equipment – Steppers / Capacitors
- Technology Development
- Successful Deployment Model



Annual Wind/Power production is based on the estimated annual energy you can potential experience from a collective average annual wind speed.

winds from any direction.

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- Can be setup and installed within minutes out of box
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- Blade diameter is 60".
- Number of Blades - 3 (Aluminum)
- CEC Listed: 1.6kW at 18mph
- Maximum output is approximately 2.2kW (26 to 30mph winds)
- Average power is approximately 400watts (12 to 14mph winds)
- Quieter than a whisper with no vibration
- Optimal install height is along the roof line or approximately 20'.
- SolAir units can be stacked when more energy generation/storage power is needed.
- Federal 30% tax credit
- CA CEC - up to 100% direct rebate!
- On-grid or Off-Grid - combined DC solar/wind output for simple plug and play.
- Shipping Details:
  - Frame & Mounting Hardware - 1 Box, 50" x 11" x 20", 50 lbs
  - SolAir Motor - 1 Box, 13" x 13" x 10", 28 lbs

EXHIBIT C

CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814

Main website: www.energy.ca.gov

Temporary Suspension of the Emerging Renewables Program

The Energy Commission is temporarily suspending the Emerging Renewables Program (ERP) effective March 4, 2011, at 5 pm PST. New applications for ERP rebate reservations will not be accepted after this date. The Energy Commission will, however, continue to process payment claims for rebate reservations approved before this date.

Complete applications for rebate reservations postmarked through March 4, 2011, or received via fax or email before the suspension takes effect will be processed. Applications submitted by fax must be sent to (916) 653-2543. Applications submitted by email must include a scanned copy of the application as an attachment, and be sent to [ang@energy.state.ca.us]. Please include "ERP Rebate Application" in the subject line.

The Energy Commission is suspending the ERP so it may address deficiencies with the program requirements. The goal of the ERP is to increase the installation of small wind systems and fuel cells using renewable fuels, by reducing the net cost of on-site renewable energy systems. The program, however, is not intended to fully eliminate a consumer's economic interest by covering the entire cost of the system. Over the last several weeks, the Energy Commission has seen a significant increase in applications for small wind energy systems, where the applicant is requesting rebate amounts close to or equal to the total installed cost of the system. As a result, the consumer and retailer/installation contractor may have no interest in verifying that the installation site has adequate wind resources to accommodate the wind energy system and generate enough electricity to offset the consumer's electrical load. Wind energy systems installed in locations with a poor wind resource are likely to underperform and result in a poor investment and use of ERP funding.

During this suspension the Energy Commission will review its current ERP Guidelines and adopt necessary changes to guidelines to address deficiencies with the program requirements. The suspension will remain in effect until further notice. The Energy Commission anticipates that it will take 60 to 120 days to review the ERP Guidelines and adopt necessary changes. New applications for rebate reservations received after the suspension becomes effective, will **NOT** be reviewed or approved by the Energy Commission and will be returned to the applicant.

The Energy Commission recognizes that the current rebate level for wind energy systems is scheduled to drop from $3.00 per watt to $2.50 per watt on April 7, 2011, and that the suspension of the ERP will extend beyond this date, thereby precluding prospective applicants from taking advantage of the higher rebate level. To avoid affecting any pending negotiations or potential sales that are contingent on the higher rebate level of $3.00 per watt, the Energy Commission intends to extend the $3.00 per watt rebate level for approximately 30 days after the suspension is lifted. Applications for rebate reservations submitted to the Energy Commission after the suspension is lifted and the ERP is re-started **will** be subject to *ERP Guideline* changes that are adopted while the suspension is in place.

Please direct all news media inquiries to the Media and Public Communications Office at (916) 654-4989, or by e-mail at [mediaoffice@energy.state.ca.us]. For technical questions on the subject matter, please contact James Lee, at (916) 653-1195 or by e-mail at [jslee@energy.state.ca.us].

JAMES D. BOYD
Vice Chair and Presiding Member
Renewables Committee

Electronic Mail Lists: Renewables
Date: March 4, 2011

EXHIBIT D

KEMA

memo

To:	CEC ERP Staff	Date:	July 25, 2011
From:	KEMA Team		
Copy:			
Subject:	Small Wind Data Review		

Objective

Review certification data for DyoCore SolAir wind turbine and evaluate claimed performance.

Methods

Two types of data must be submitted to the CEC to become eligible to qualify for rebates from the Emerging Renewables Program: power curve and either one year of operational data or IEC 61400-2 Certification. Dyocore opted to submit power curve and one year of operational data. Using this data, KEMA were able to perform the following analyses to evaluate their claimed performance.

Power Curve Analysis

A power curve shows the power output of a wind turbine system over the operational range of wind speeds. An example power curve is shown in Figure 1. The power output in watts or kilowatts is shown on the vertical axis and the wind speed in meters per second or miles per hour is shown on the horizontal axis. Due to the variable nature of wind, the standard method for measuring a power curve requires taking many measurements over the entire operational range of the wind turbine and averaging power output over a range of wind speeds.

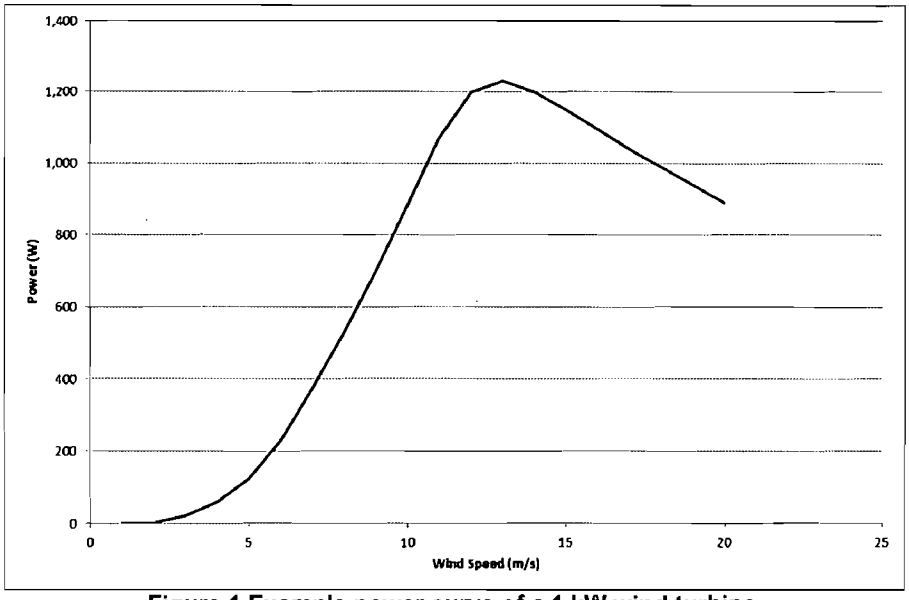


Figure 1 Example power curve of a 1 kW wind turbine.

The power curve can be evaluated by comparing the claimed turbine performance to the theoretical maximum performance as well as the current state-of-the-art performance. These comparisons can be made using the power coefficient (Cp) -- a percentage of how much power a wind turbine rotor is able to extract from the total wind available. For this analysis, Cp is determined by dividing the turbine power output at a certain wind speed by the total power in wind at that speed (Equation 1).

$$Cp = \frac{P_{turbine}}{P_{wind}}$$

Equation 1

The equation for the total power in the wind is shown in Equation 2

$$P_{wind} = \frac{1}{2}\rho V^3 A$$

Equation 2

Where:

- P_{wind} is the power of the wind in watts
- ρ is the air density in kg/m^3 (1.225 kg/m^3 unless otherwise noted)
- V is the wind speed in m/s
- A is the swept area of the rotor in m^2

This approach neglects mechanical and electrical losses in the turbine system and results in a conservative value for Cp, but is still sufficient to determine if the claimed power curve is in within a reasonable range.

The theoretical maximum for Cp is 0.593, which is known as the Betz limit and was derived in the early 1900's by Albert Betz and others [1]. With substantial development, current utility scale turbines can attain peak rotor Cp values of 0.49 [2]. The Cp of the claimed power curve was compared to the theoretical maximum performance as well current state-of-the-art performance of utility scale turbines.

Annual Energy Production Analysis

The Annual Energy Production (AEP) for a turbine can be estimated for a given wind resource using the power curve and a standard wind speed distribution. To calculate the AEP, first an annual wind speed distribution (number of hours per year spent at each wind speed) is determined using a Rayleigh probability distribution with the average annual wind speed from the test site. Equation 3 gives the Rayleigh distribution of the number of hours per year at a wind speed (V_i) given the site average wind speed (V_{ave}) and the wind speed bin size of 1.

$$Number\ of\ hours\ per\ year\ at\ V_i = \frac{\pi}{2} * \frac{V_i}{V_{ave}^2} * e^{-\frac{\pi}{4}\left(\frac{V_i}{V_{ave}}\right)^2} * 8760 * 1$$

Equation 3

Where:

- V_i = Wind speed of interest
- V_{ave} = Average wind speed
- *8760* = total number of hours per year
- *1* = size of the wind bin (spacing between each V_i)

Figure 2 shows an example Rayleigh wind speed distribution with an annual average wind speed of 7 m/s.

wind speed (m/s)	Hours per year
0	0
0.5	140
1.5	406
2.5	635
3.5	807
4.5	913
5.5	951
6.5	927
7.5	855
8.5	750
9.5	628
10.5	504
11.5	388
12.5	287
13.5	204
14.5	140
15.5	93
16.5	59
17.5	36
18.5	22
19.5	12
20.5	7
21.5	4
22.5	2
23.5	1
24.5	0

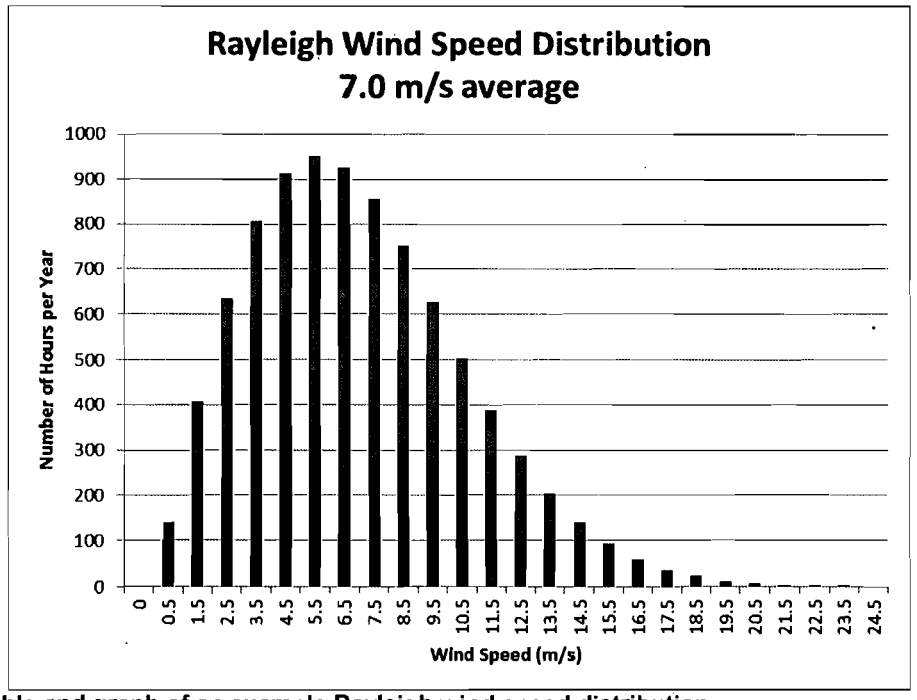


Figure 2 Table and graph of an example Rayleigh wind speed distribution

The energy production at each wind speed is the product of the turbine power output at that wind speed and the number of hours each year that the wind speed occurs. The AEP is then the sum of energy production at all of the different wind speeds. The estimated AEP was then compared to the claimed AEP taken from the operational data submitted by the manufacturer.

$$AEP = \sum_{i=3}^{V_{max}} P_t(i) \times Hours\,per\,year\,at\,V_i$$

Equation 4

Where:

- $P_t(i)$ = turbine power output at wind speed *i*

Results

Using Power Curve Analysis and Annual Energy Production Analysis, KEMA evaluated the following equipment.

Manufacturer Name:	DyoCore
Model Number:	S80015dc
Description:	SolAir 1600W
Rotor Diameter:	1.2 meter
Claimed Power Output:	1,600 Watts
Claimed Annual Energy Production:	2,554 kWh
Notes:	Produces rated power at 18 mph

Table 1 shows a list of data files submitted by DyoCore for the SolAir turbine for eligibility for the CEC Emerging Renewables Program. Additional information and sources used in the analysis are also listed.

Table 1 DyoCore data summary.

File/Document Title	Description
Submitted Data	
DATA.xls	Correct Performance Curve, Performance Curve, Operational Year Data
DATA;001.xls	Performance Curve, Operational Year Data
DATA;002.xls	Correct Performance Curve, Performance Curve, Operational Year Data
DATA;003.xls	Correct Performance Curve, Performance Curve, Operational Year Data
Dyocore_Hamshire_IL_compiled_raw_ginlong_1_hr.xlsx	Operational Year Data
image003.png	Voltage/RPM Graph
image005.png	Power/RPM Graph
image007.png	Annual Energy/Wind speed Graph
Power Curve.bmp	Graph
rawdata09_hampshireIL.xlsx	Operational Data
rawdata09_hampshireIL;001.xlsx	Operational Data (Same as above)
Additional Information	
www.dyocore.com/solair.html	DyoCore web site turbine information page
IEC_Standard_61400-SolAir.pdf	Turbine and Testing overview document
www.dyocore.com//images/power_curve.JPG	Power curve picture on web site dated April 11, 2011
www.dyocore.com/sphpblog_0511/index.php?entry=entry110130-214346	DyoCore blog entry dated January 30, 2011 that includes power curve data
www.dyocore.com/sphpblog_0511/index.php?entry=entry110608-120151	DyoCore blog entry dated June 8, 2011 that includes power curve data

Power Curve Analysis

Several power curves were found in the submitted data and on the SolAir web site. The submitted file named Power Curve.bmp contained mis-labeled and unlabeled data and was not used in this analysis. Data for the Claimed Power Curve 1 shown in Figure 3 was taken from the submitted file "DATA.xls" on the tab titled "Correct Performance Curve". Data for the Claimed Power Curve 2 was taken from Figure 3 in the file "IEC_Standard_61400-SolAir.pdf" found on the DyoCore website. The third curve shown is the theoretical maximum power (Betz Limit) that a 1.2 meter diameter rotor could extract from the wind. The fourth curve on Figure 3 is the power curve of an optimal state-of-the-art turbine rotor with the same diameter as the DyoCore rotor.

DyoCore's claim of 1600 watts power output at 18 miles per hour (8.1 m/s) is 7.5 times greater than the theoretical maximum power output at that wind speed and 9.0 times greater than an optimal state-of-the-art turbine rotor with the same diameter.

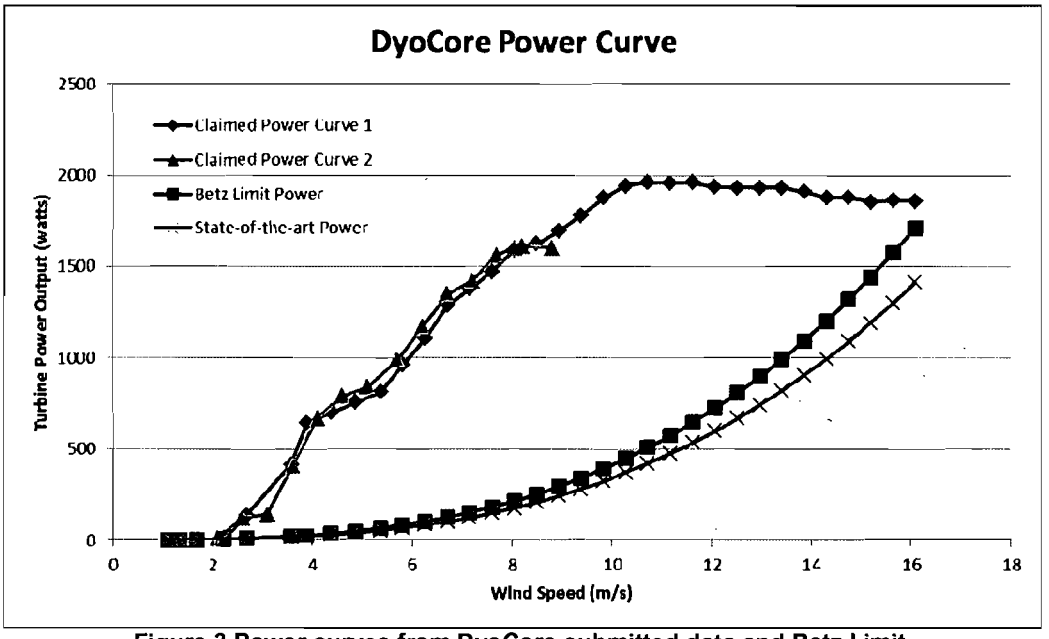


Figure 3 Power curves from DyoCore submitted data and Betz Limit.

Several other power curves were found on the manufacturer's web site that are substantially different than the claimed power curve submitted to the CEC. The data was found in two blog posts, dated January 30, 2011 and June 8, 2011 and a picture of a power curve graph that was added to the DyoCore web site on April 11, 2011. Website address for these data can be found in Table 1. The power curve picture can be found in Appendix A. These three power curves were very similar to each other, so only the data from the January 30 blog post was included on Figure 4. Figure 4 also shows the power curve from the submitted file "DATA.xls" and the Betz Limit and State-of-the-art power curves for reference. The power curve from the blog post is much lower that the submitted power curve, but still above the theoretical maximum of the Betz Limit power curve.

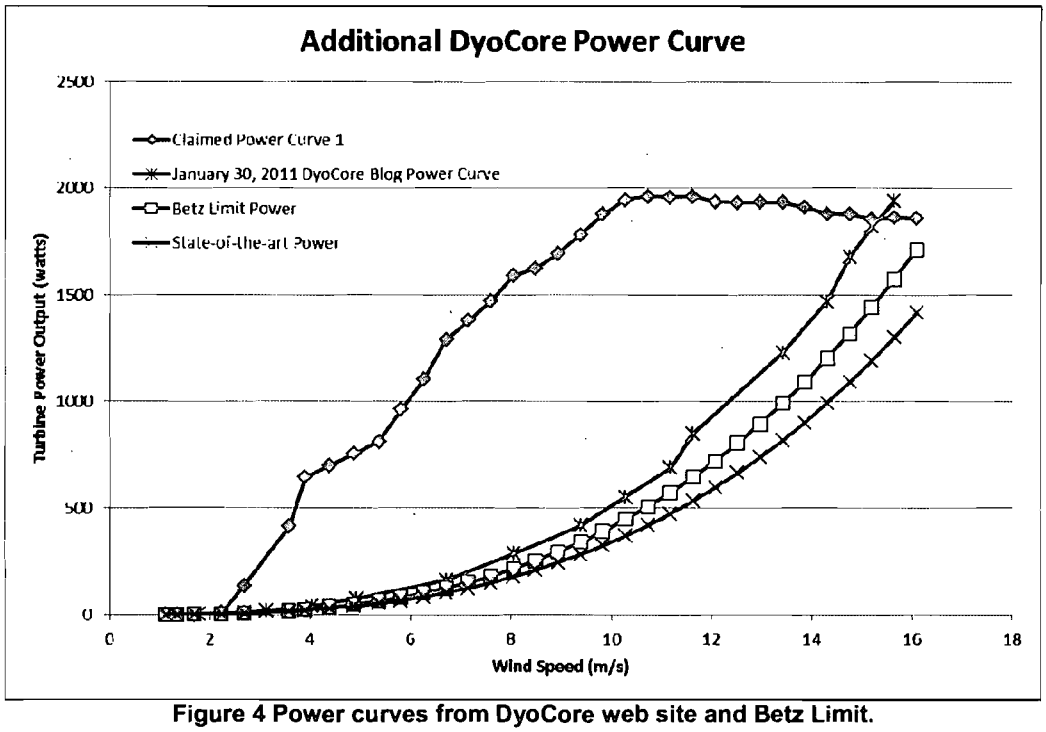


Figure 4 Power curves from DyoCore web site and Betz Limit.

Annual Energy Production Analysis

Data for the AEP analysis was taken from the file "DATA.xls". This same data was repeated in several of the other submitted data files (DATA;001.xls, DATA;002.xls, DATA;003.xls, and Dyocore_Hamshire_IL_compiled_raw_ginlong_1_hr.xlsx). Units for winds speed and energy production were not stated, and assumed to be miles per hour and kilowatt-hours respectively. These assumptions lead to results with the correct order of magnitude and are shown in Table 2 as the Claimed AEP. The annual average wind speed for the site was calculated from the submitted data to be 6.8 m/s (15.3 mph). Using Equation 3 and Equation 4 above and the Claimed Power Curve 1 shown in Figure 3, the annual energy production was calculated to be 9,513 kWh. The same analysis method using the state-of-the-art rotor power curve results in an annual energy production of 1,643 kWh.

Table 2 Annual energy production analysis results.

Claimed AEP	2,554 kWh
AEP using Claimed Power Curve	9,513 kWh
AEP using state-of-the-art rotor	1,643 kWh

Conclusions

From the above analysis, the manufacture's claimed performance is not possible because the claimed power curve exceeds the performance of a state-of-the-art wind turbine rotor by 9.0 times.

References

1. de Vries, O., Fluid Dynamic Aspects of Wind Energy Conversion, National Aerospace Laboratory NLR, The Netherlands, 1979.

2. Based on industry experience and conversations with experts in wind turbine aerodynamics.

Appendix A

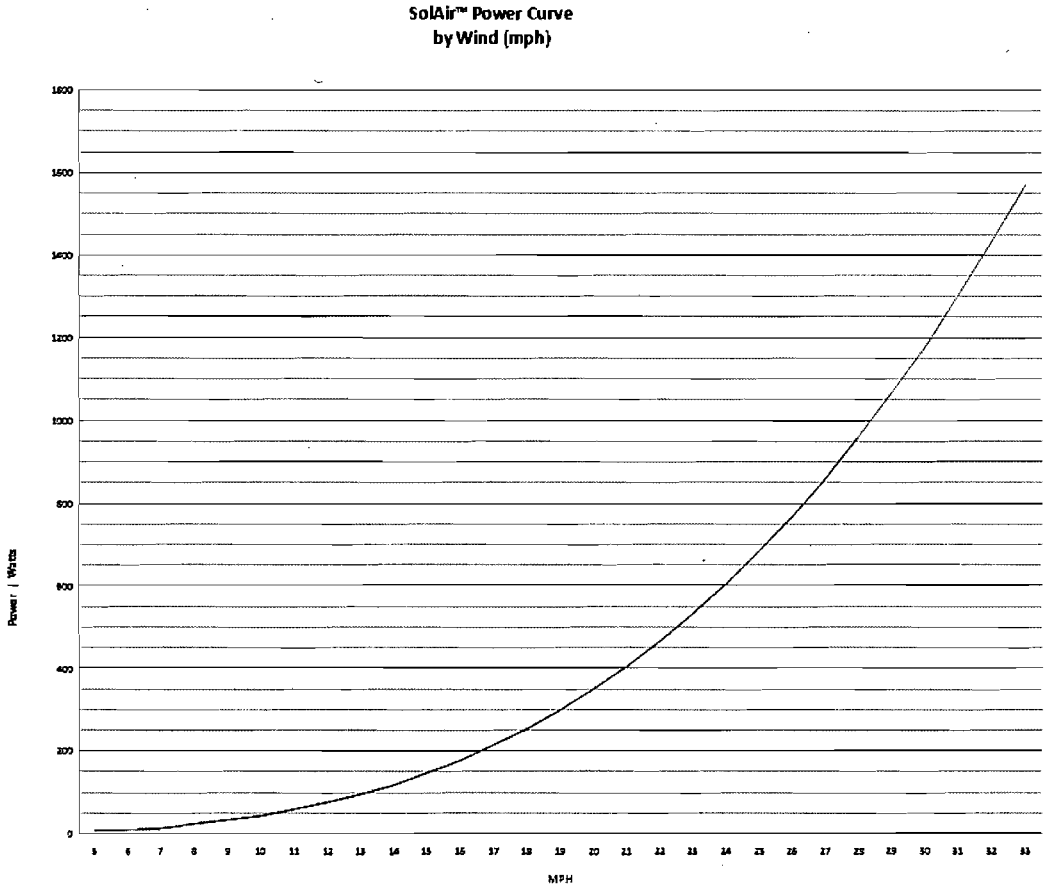
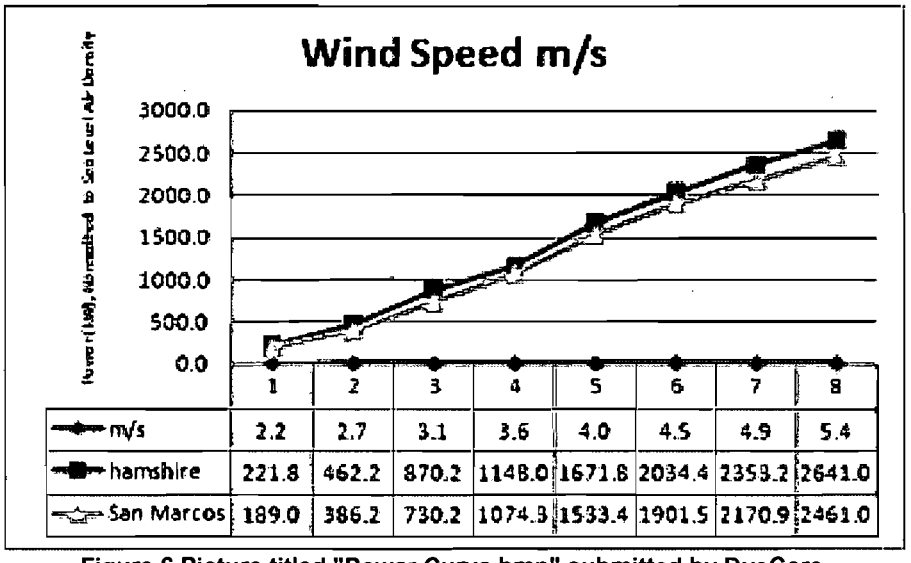


Figure 5 Power curve picture found on DyoCore web site (www.dyocore.com//images/power_curve.JPG).



	1	2	3	4	5	6	7	8
m/s	2.2	2.7	3.1	3.6	4.0	4.5	4.9	5.4
hamshire	221.8	462.2	870.2	1148.0	1671.8	2034.4	2353.2	2641.0
San Marcos	189.0	386.2	730.2	1074.3	1533.4	1901.5	2170.9	2461.0

Figure 6 Picture titled "Power Curve.bmp" submitted by DyoCore.

EXHIBIT E

DyoCore SolAir Wind Pit

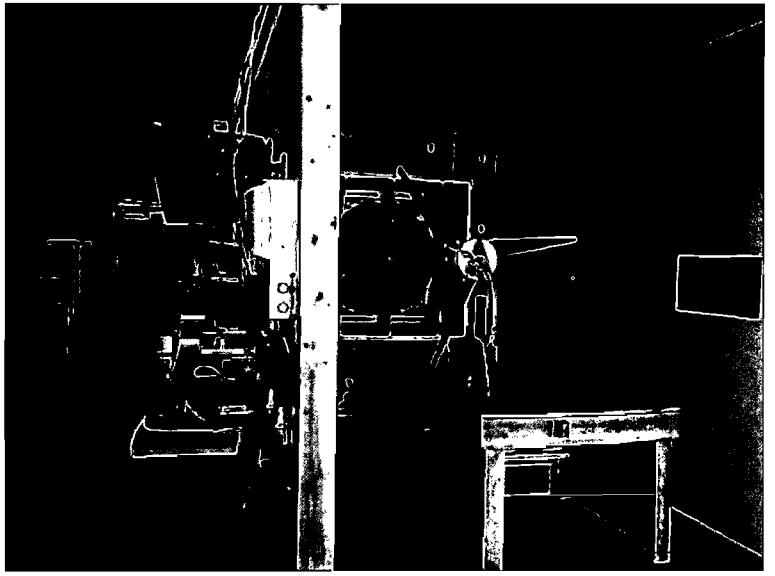
Monday, February 7, 2011, 09:40 AM **Technology**

February 2011 DyoCore completes the setup of its testing facility in Carlsbad CA. Now called the SolAir Wind Pit, DyoCore will expand testing and further development of its unique low turbulent wind solution called SolAir.

The wind pit can create simulated winds up to 30mph and DyoCore techs indicate with a little modification wind simulation tests can reach upwards of 60 or 70mph!

DyoCore's new facility is one of only a small handful of wind simulation testing facilities nationwide and demonstrates our commitment to making SolAir the best solution for the homeowner, said David Raine, founder of DyoCore. within this new facility we can simulate, within reason, actual conditions in a controlled environment on demand to further test and develop our product to optimal performance. We will additionally make this facility available to our industry to assist in the continued momentum to make small wind power obtainable, efficient and affordable for the average home owner.

Testing begins this week and guests are welcomed. Over the next few months DyoCore expects to log hundreds of simulation hours and continue to add on new testing tools to its facility. For more information about the SolAir Wind Pit email **testing@dyocore.com**.



Administrator (David Raine)

Monday, April 11, 2011, 08:30 AM

This is the most accurate reference to estimated power production based on wind conditions. Though this does not account for gusts or rapid changes it can provide a basis for your production expectations at specific constant wind speeds:

http://www.dyocore.com//images/power_curve.JPG

power_curve.JPG (JPEG Image, 839x674 pixels) - Mozilla Firefox

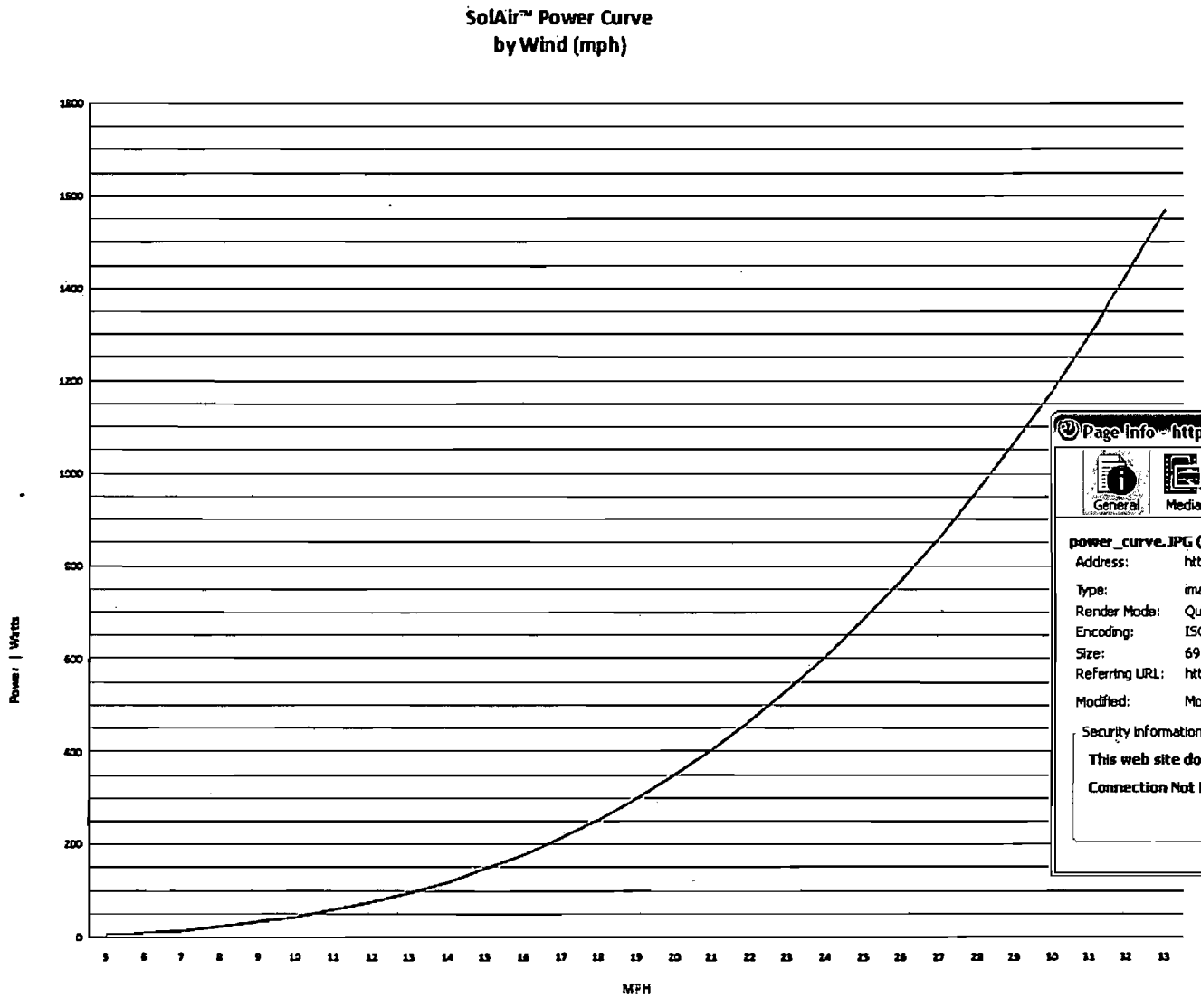
File Edit View History Bookmarks Tools Help

power_curve.JPG (JPEG Image, 839x674 pi...

http://www.dyocore.com//images/power_curve.JPG

Google

Go Solar California - I... EnergyNet, the Intran... California Cash For Ap... DSIRE: DSIRE Home California's Emerging ... Go Solar California Energy News Latitude Longitude loc... California State Board...



Page Info - http://www.dyocore.com//imag...

General Media Permissions Security

power_curve.JPG (JPEG Image, 839x674 pixels):

Address:	http://www.dyocore.com//images/power_curve.JPG
Type:	image/jpeg
Render Mode:	Quirks mode
Encoding:	ISO-8859-1
Size:	69.49 KB (71,157 bytes)
Referring URL:	http://www.dyocore.com/solair.html
Modified:	Monday, April 11, 2011 7:15:45 AM

Security Information for this page

This web site does not supply ownership information.

Connection Not Encrypted

Details

start Novell GroupWise - M... Document1 - Microsof... power_curve.JPG (JP... Page Info - http://w...

Tuesday, July 26, 2011

2:17 PM

EXHIBIT F

DyoCore, Inc.
3125 Tiger Run Court, #104
Carlsbad, CA 92010

P/F 866.404.2428

www.dyocore.com

California Energy Commission
1516 Ninth Street
Sacramento, California 95814

DOCKET
02-REN-1038
DATE APR 18 2011
RECD. APR 18 2011

April 18, 2011

California Energy Commission,

Thank you for this opportunity to present and thank you to the committee for your diligent efforts in reinstatement of the ERP.

California created the Renewable Portfolio Standard (RPS). Under the RPS, the Renewable Energy Program's focus is twofold as published;

- To increase, in the near term, the quantity of California's electricity generated by renewable energy resources, while protecting system reliability, fostering resource diversity, and obtaining the greatest environmental benefits for California residents.

- To identify and support emerging renewable energy technologies with the greatest near-term commercial promise that merit targeted assistance.

In 1996 ERP was established as an initiative to promote "wind" but later was re-invested in to promote energy conservation. Then after very few qualified recipients the program evolved into an incentive to promote new technology. This is the current modern direction of the plan. With the recent economy downfall and more direct financial crisis in CA, I think that, now today, the program is also in place to promote jobs and economy within CA.

- Companies like DyoCore are the intended target of the program.

- DyoCore's SolAir is New innovative Technology

- SolAir applies to the largest majority of CA residents who directly funded the program

- DyoCore both as a CA company and through its organization of professional distributors represents 100's of jobs and millions into our economy.

- DyoCore is the forefront company for the momentum created within local communities towards the acceptance and installation of Wind power technology throughout CA and the US.

- SolAir combines wind and solar, this is again the most innovative development of technology towards the ERP's intended objectives.

DyoCore, Inc.
3125 Tiger Run Court, #104
Carlsbad, CA 92010

P/F 866.404.2428

www.dyocore.com

Summary concerns with the current ERP:

On March 4th the CEC sent notice that it suspended the renewables rebate program so it may address deficiencies with the program requirements.

The goal of the ERP is to increase the installation of small wind systems and fuel cells

Though the suspension notice indicated "deficiencies with the program requirements", this does not fit well into the intention of the program as outlined.

The most current intention of the program, the state and our country is to promote the development of new technologies.

The concern is the recent large activity of ERP reservations from a single company whereas only a few months ago only a very few manufacturer products applied to a very few qualified recipients. Additionally these products are priced at significantly higher price points.

Now that products are available to a larger quantity of participating recipients Attention is now being placed on the production of energy at installation sites and the method of rating products qualified for the program.

Solution overview:

Separation of wind into specific qualification categories. Currently a power/wind rating incentive applies equally to a vague range of installation sites regardless of the wind conditions. A turbine qualified at 2kW @ 25mph and a turbine qualified at 2kW at 35mph apply to the exact same incentive regardless if either are installed in wind conditions substantially less than the rated wind speed.

By defining wind categories and ratings based on qualified installed locations will strengthen the intended benefits of the program. A turbine should be qualified based on its location and based on the projected power production as applied to that location.

Unfortunately wind experienced at a location can change dramatically from day to day less year to year. A qualified site today might not be qualified next week, however, relevance at the time of qualification and good history data should present a foundation for future expectations. we recommend the consideration of wind, product categories (wind zone categories)

Wind zones specific to turbines in size and intended use can be created that build a foundation for qualifying the program as applied to specific expected conditions. Data is readily available for easy separation of these categories.

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- Micro wind – turbines under 500w or under a specific blade size, usually less than 48" (more appropriate) can only produce so much power and intended use is typically at ground level.

- Low or small wind – Turbines again with a blade diameter under 70' and whereas the intended installation is under 50' fall well into this category.

- Medium wind – installation sites well above 50', typically large pole mount, and with blade diameters exceeding 70" typically apply to this category.

- High wind – greater than 5kW and installed on poles exceeding 100'.

Special circumstances can apply to any category whereas local wind conditions at the intended site could be greater or lower than normally anticipated for the original category. A smaller turbine can be applied to a pole mount application and increase it's expected normal applied performance. The solution is a simple application exception request that can be accompanied with supporting data, installation details and wind analysis.

Summary Conclusion:

The ERP program was designed and is in effect today to:

- make green energy available financially

- create green jobs

- promote green technology

- make CA a green community

- make green products accessible to everyone

Until small wind products like DyoCore the program did not fully accomplish any of these objectives. Manufacturers like DyoCore are the core of the ERP intended results and DyoCore has demonstrated significant success in accomplishing the ERP objectives.

Unfortunately without site qualifications any turbine can be installed in a location that does not meet the intentions of the ERP. If you create site specific guidelines and more specific product categories for incentive qualification you can distinguish between productive and non-productive installations.

An incentive that varies based on the installed location and turbine size creates a powerful tool that maintains the direction of the program as designated.

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DyoCore notes from ERP workshop

Presentation moderator – Anthony NG

April 14, 2011

1. Primary stated barrier and cause to suspension of the ERP; Rebate amounts applied for in reservations covered most and in some all costs of the systems resulting in systems being installed that could possibly have little owner vested interest in the success of the application.

   Response:

   This is a direct correlation with over inflated Industry pricing / overpriced products. ERP was projected to bring down costs. New tech is less expensive and opens doors for greater deployment. New technology and resources for manufacturers present lower price point advantages and in turn will drive down pricing – this in turn is a benefit to the program and its success.

   The program as it is priced today should remain the same and be a tool to reward companies that maintain lower cost margin products and an incentive for larger turbine manufacturers to reduce highly over inflated price points.

   Manufacturers already have tremendous pressure to assure the success their products as installed and spend considerable resources to assure installations meet expectations.

2. It was presented that a $ per kWh produced annually could be applied.

   Response:

   If backed by an upfront incentive as applied to an annual objective it could be a good solution. However, we caution that any program with a spread out rebate structure will provide barriers to financing for product sales. If banks are unable to provide financing for installation of proposed/qualified systems due to lengthy repayment of their funds the sales agents will not have the resources needed to maintain growth within the market.

   A potential solution is the state initiates a direct funding incentive and provides the rebate based on pre-qualified conditions which then apply to a term loan or other method of payback over time that is funded through the existing program.

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3. Bergey presented that they, Bergey, are the only qualified product. Bergey presented that the list should be scrubbed. Mike Bergey is on the SWCC board and has already demonstrated extreme bias towards the industry – specifically towards "small wind".

   Response:

   All turbines installed in California by simple permitting standards have to present extensive 3rd party engineering, testing and performance proof prior to being issued a permit for installation. Even if a product acquires CEC listing, it will not be able to pull a permit until it can demonstrate it meets all the current applicable standards.

   Proper equality in listing should be given to all companies. Manufacturers should not hold positions that allow discrimination against other companies. Any 3rd party certification body should be completely independent. To force companies to meet a standard that is enforced and managed by distributors directly is in conflict with the intentions of a fair program.

   The ERP does and should encourage tech and its continued development. We cannot simply dismiss new development of tech and remove these tools from the eligibility, this is completely opposite of the ERP program. Without encouragement and resources of new tech there will be no new tech.

4. Listings at fixed wind speeds. It was discussed that turbines have arbitrary wind speed listings.

   Response:

   This is a valid point. Wind ratings are arbitrary and only effective if a turbine is installed in the rated conditions. This is highly unlikely. Most turbines will never experience the amount of wind they are rated for. 99% of the contributors to the program do not experience winds that most of the qualified products are listed at.

   Ratings should be based on realistic expectations as related to the specific install site. A turbine size and intended use is a great indication of its performance.

   Breaking up turbines into respective categories that label them for specific expectations and incentive consideration is a key method in the success of the program.

5. Site wind analysis reporting

   Response:

   Education is a primary solution, a wind turbine needs wind, an unqualified location damages the success of the program, distributors and manufacturers.

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High variable wind conditions make it difficult to do site evaluate in dense areas most applicable to the majority

Simple tools are fairly readily available for local area conditions through accumulated wind data but not always specific to a site. Possibly within several blocks and if specific to turbines than only applicable to 60' poles. Tools like Wind Cad are very expensive and only applicable to larger pole mounted turbines. They have no relevance on low wind and the majority of intended applications in California.

Large costs of formal assessments could be greater than the cost of the power benefit and possibly the cost of the system

Qualified professional installers should be held accountable for bad decisions. Training and certification by the ERP or CEC will provide the resources for distributors to make smart installation decisions.

Great source for residential and small commercial low wind analysis:
http://www.wunderground.com/wundermap/

6. Certification qualification for ERP inclusion

   Response:

   Limited and expensive resources towards 3rd party testing, standards have not yet been formally accepted towards certification, no current standard exists or is agreed upon within the wind field directly. But readily available professional and recognized 3rd parties exist and are already required prior to a permit or installation being done in California.

   Standards for safety already exist, are excepted by state codes and provide a solid foundation for qualification. Safety and quality should be the primary factor IEC standards present a very good guideline and 3rd party NRTL companies have done qualified testing for safety and engineering for years.

   The current CEC qualification does not need to be changed.. Any CA city or community already has a very stringent installation/permitting process to assure safety and quality standards are met. All of which already highly exceed any state minimums.

7. Combining solutions into the ERP (wind, solar, fuel cells)

   Response:

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Simple process for applying Additional Benefits to tie together wind, solar as a combined application.

Separation of fuel cells that could substantially improve wind, solar performance. A direct incentive would encourage important tech development in this direction. Similar to solar now.

8. Add a cost cap based incentive

   Response:

   Avoid cost cap, this encourages overpricing. Lower cost turbines move the market in the right direction holding manufactures to fair market prices.

We appreciate your consideration in reviewing our comments towards your objectives in reinstatement of the ERP.

Sincerely,

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