

TLG WindPower Products response to CEC about statements made by DyoCore on August 8th 2011

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Carla Peterman
CEC Commissioner

California Energy Commission
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RE: DyoCore Response to Complaint of California Energy Commission Request for Informal Hearing

Dear Ms. Peterman,

First I would like to introduce my self. My name is Terry Galyon and I am the owner of TLG WindPower Products a company that has been in business as a renewable energy company supplying rotor blade solutions and turbine systems to distributors and the public since 2003.

Although the actual company TLG WindPower wasn't named and opened until 2003, my interest in wind power had begun when I was a child, and at the age of seventeen I made my first repairs to a mass production wind turbine. To date I have been active in the renewable energy field for over 31 years, making repairs to wind turbines of many makes and models including large commercial systems such as Carter and Vesta. I have been onsite at large commercial wind farm installations, and I understand the workings of wind turbines whether it's a PMA or Induction powered head from the nuts and bolts of the rotor blades to the Triac,s or SCR's on the control module that feather to power to the utility grid.

In all my years of service work I have ran across one common complaint that it seemed every owner of a wind turbine had, and that was that the unit never produced like they thought it should. This is caused by industry standard of rating turbines at approximately 28 mph wind. Most people don't understand that nor do they have that kind of wind. Most new turbine consumers somehow believe their turbine will produce its rated power as long as the blades are turning at any wind speed. So instead of focusing on rated output or the industry standard I tune my turbines to provide as much power as possible in common winds of 10 to 18 mph and to insure that TLG would not end up misleading its customers I adopted my own power rating system of "Real World" output when I opened TLG WindPower to the public. "Real World" output is based off of customer provided data for each product. Once enough "matching" data is supplied I then compile it and release it to the public. This arms my customers with data they can apply to their own wind environment and the amount of power they can count on getting. Although I would like to see my "Real World" output become the industry standard I realize that it is not feasible because it does not provide a fast path to success, and that it also leaves a lot of loopholes open for scam artists that care more about money than reputation.

RE: DyoCore Response to Complaint of California Energy Commission Request for Informal Hearing

In my introduction it may appear that some of what I have said might in some way be in support of DyoCore. Let me be clear after David Raine of DyoCore made reference to TLG in his response to the CEC, it doesn't matter to me if I am the one who gets to throw him under the bus or the one who gets to drive it.

With that said, I would like to bring my issue with the comments made by David Raine to your attention followed by proof otherwise in my exhibits and closing comments.

In response to DyoCore asking for an informal hearing, I ask that the hearing be a formal hearing to prevent further deception on their part. There seems to be a pattern to DyoCore which is to have everyone look somewhere else instead of at the real problem.

I will not say that everything DyoCore has said is deceitful as I have to agree with the statement made by David Raine himself (on page 1 of his response) about his "inexperience and naiveté". The inexperience rang clear to me from the very beginning when DyoCore's own description of their turbine was "vertical axis". Point and case, their turbine is in fact a horizontal axis turbine. On the other hand if you search Google for (David Raine DyoCore) you will find that David Raine is known as the co-founder and chief engineer of DyoCore. Chief engineer is a title that warrants some experience in my opinion (shown in exhibit A)

In reference to power generated by a TLG turbine compared to a DyoCore turbine, this in my opinion is another attempt to take the focus off of the real issue that the DyoCore turbine does not function as stated and never will. Furthermore there is no comparison of the actual product other than first glance appearance.

I will explain in my exhibits and closing comments.

In the DyoCore response David boldly make the statement that TLG uses their PMG for our power curve for our TLG-1800-GT. Here is the quote from page 12 of the DyoCore response located below the TLG-1800-GT power curve.

"TLG power curve utilizing the DyoCore PMG. -Same motor that is utilized on the SolAir."

That statement from David Raine is a blatant lie, and yet another example of an attempt to take the focus off of the real issues that faces the DyoCore product.

You can see for yourself in (exhibit C)

Just because the DyoCore PMA may look similar at first glance does not mean it is in any way shape or form, and it does not mean that their turbine will perform anything like a TLG product as their blades size is even smaller.

This is one point where Mike Bergey and I agree. With the small diameter of blades on the DyoCore system it is impossible that their turbine could reach the output claimed neither in the wind speed indicated nor even in a wind range close to it, and that still remains an issue no matter which direction DyoCore would like to steer the CEC this time.

The differences between the DyoCore PMA, and the Ginlong PMA used by TLG (are shown in exhibit C)

When it comes to the DyoCore turbine there are other issues to be considered, such as the yaw assembly used to mount the turbine to the consumers' rooftop.

The DyoCore yaw assembly is in no way strong enough to handle strong wind events such as storms. It seems clear to me from the pictures I've seen and some I will show here that the yaw lacks in engineering and testing to provide a safe solution to the public and it is likely that most if not all DyoCore turbines will break which could cause property damage, personal injury, or even death. (DyoCore broken yaw assembly is shown in exhibit B)

As a side note; mounting a wind turbine to a residential roof top is prohibited by TLG to its dealers because the roof joist or rafters on most homes cannot withstand the twisting force applied at the base of the turbine mount from lateral force wind loading.

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Several distributors of DyoCore have been in contact with TLG to try to find a workable solution to the DyoCore product which in their words is non functional or non working. I had not been able to assist in making any DyoCore system functional because no one I talked to was able to provide me with any technical data or even the power curve characteristics of the PMA they use. Although it was not the responsibility of TLG to support the DyoCore product, none the less they were still using a Ginlong inverter and TLG is the US distributor and technical contact for Ginlong so I felt I should at least try. Based off of those conversations with these DyoCore distributors it appeared to me that the PMA they were trying to use may not have been compatible with a grid tie inverter.

Special thanks to David Raine for his clarification on page 22 of his response to the CEC which provided me the answer I needed to clarify the exact reason everyone is having problems with the performance of the DyoCore system which will be explained in my closing comments.

TLG WindPower Products is the US distributor and Technical Contact for Ginlong in the US. We worked closely with Ginlong in the making of their first model, the GL-PMG-500A and even today we still fly the original prototype here at TLG.

The GL-PMG-500A is the only model Ginlong produces with a 1" flat landing behind the threads. That shaft design was provided by TLG to Ginlong and Ginlong produces it that way for TLG instead of the standard tapered shaft that is present on all their other models up to the GL-PMG-3500 in which the shaft is totally different again on it and larger units.

The DyoCore PMA bares striking resemblance to Ginlong's GL-PMG-500A from the magnetic armature, winding and lamination stack, to the TLG's custom shaft. The exceptions are a small keyway added to the shaft, some case fluting, and outer cosmetic changes.

I would like to note that the GL-PMG-500A is custom built for TLG WindPower by Ginlong and it is the unit we use on our TLG-500 which utilizes low voltage high amperage PMA technology only suitable for battery charging.

I am sending a carbon copy of this information to Jimmy Wang of Ginlong as he has expressed his interest in sending you an email.
Jimmy Wang of Ginlong will be in contact with you soon.

(I will further explain PMA differences below in exhibit C)

I would like to state for the record that there is absolutely no connection between DyoCore and TLG WindPower, I would also like to say that I am appalled and just short of infuriated by the fact that David Raine makes it sound as though TLG uses anything that comes from DyoCore.

To be perfectly clear I am not even remotely flattered that David Raine even made reference to TLG in any manner.

The quality and performance of a TLG product will far surpass a DyoCore unit any day of the week.

To those that are not familiar with the day and night differences in products and business ethics of the two companies I can see how David Raine might think this tactic could work for him, because at first glance one might think there is some connection due to the fact that the blades and hub used on the DyoCore system look so much like the blades and hub that TLG manufactures and distributes.

However to clarify who's product looks like a copy of the others, this can simply be resolved by looking at how long each company has been in business.

Closing Comments

In closing I will offer my opinion to the CEC and anyone who is interested.

It is asinine for DyoCore to even compare their company to TLG WindPower, from a product standpoint, and certainly not from a business ethics standpoint.

DyoCore has stated output ranges that are impossible to achieve regardless of any wind range. I would like for the CEC to know and understand why it is impossible. With the information provided by David Raine on page 22 of his response, **the DyoCore PMA is in fact a low voltage high amperage PMA, that is ONLY suitable for battery charging.** A grid tie inverter utilizes high voltage and low amperage to produce grid energy (the exact opposite of the DyoCore PMA). The 2Kw inverter from Ginlong that DyoCore uses in their system has a MAX DC amp input of 9 amps. Meaning that if we use the voltage range provided by DyoCore it shows it has a MAX voltage of 60 volts on the top end. If I were extra nice and allow them the luxury of claiming 100% efficiency for power extraction from the wind and allow them to pretend their turbine could actually reach 60 volts DC under load you would then only be able to produce 540 watts of power before the 2Kw inverter would see too high of amperage and throw an error and go off line. The math: 60 volts times 9 amps = 540 watts. Please remember that in this equation I allow them the luxury of claiming 100% efficiency which I'm sure has already been clarified by field experts that it is impossible to achieve. One more point of interest, the 2Kw inverters lowest possible activation point to grid-connect is 30 volts. As the voltage curve clearly shows us 30 volts is the midrange point of the curve. This kind of explains the addition of the solar panel on their system it would be required to keep the system alive since the PMA will be waiting for a strong wind to get it turning fast enough for the minimum required voltage of 30.

So for the DyoCore distributors that were doing their best to come up with a way to make the system work, it is my opinion that you are wasting your time. The 2Kw inverter from Ginlong has 40 programmable points from 30 volts to 750 volts. The DyoCore PMA has a max voltage of 60 which will only afford you a window of 4 programmable points to use, 30, 40, 50, and 60 volts. Therefore it is Impossible to make it work to any reasonable degree.

Please don't think you can just change the PMA to the GL-PMG-1800, because your next problem will be the blades are already too small to drive the current PMA.

You cannot add larger blades because the yaw assembly is already not strong enough for the current blade size so it would just break sooner.

Anything you try to make this system function as rated will be like putting perfume on a pig. It's over...

The fact that David Raine admits his "inexperience and naiveté" should be all any distributor or consumer should ever need to hear.

If any of the comments that I have made in this response are deemed offensive to anyone please accept my apology! To those that may be offended I would like to ask for your understanding. You see I went to bed one night with a business that has always had top rating with the Better Business Bureau and 100% customer satisfaction, to awake the next morning to find that a business with people who in my opinion are scam artists and thieves had compared their poorly designed product to mine. That was insulting, but what was more insulting was hearing them try to deceive people into believing that I use the same technology they use!

I can't help but think that others might be appalled as well.

The comments herein are my opinion based off of my experience and information I have been witness to; please feel free to formulate your own opinion and thank you for your time.

Terry Galyon: Owner TLG WindPower Products

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Exhibit A

Direct links to statements made by TLG to website references.

David Raine known as the co-founder and chief engineer of DyoCore.

http://www.dyocore.com/sphpblog_0511/index.php?m=06&y=09&entry=entry090603-153512

To members of the CEC please feel free to search Google with the following words.

DyoCore David Raine

You will find lots of posted information as well as interviews where David Raine does not seem to claim “inexperience” at all.

NOTE: In this response I use the term PMA throughout where DyoCore uses PMG.

PMG: Permanente Magnet Generator

PMA: Permanente Magnet Alternator

the concept of the heads used is Permanet Magent Alternators producing AC power thus PMA.

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Exhibit B

My opinion of the DyoCore yaw assembly having lack of engineering and perhaps all units will break if subjected to high wind conditions.

Photo 1 Broken DyoCore turbine mounted on building



Exhibit B continued

Photo 2 DyoCore Yaw snapped off above the yaw bearing



Exhibit B continued

Photo3 Clear view of what is left of the DyoCore turbine



Exhibit B continued

Photo 4 Tip of the blade cuts into roof after yaw assembly broke



Exhibit C

Proof that DyoCore does not supply TLG with product.

TLG utilizes the GL-PMG-1800 from Ginlong on our TLG-1800-GT system.

GL-PMG from Ginlong (front view)



Please note 5 distinctive notches in face

PMA by DyoCore (front view)



Please note 10 distinctive notches in face

Exhibit C continued

Left GL-PMG-1800 used on TLG-1800-GT

DyoCore PMA right.



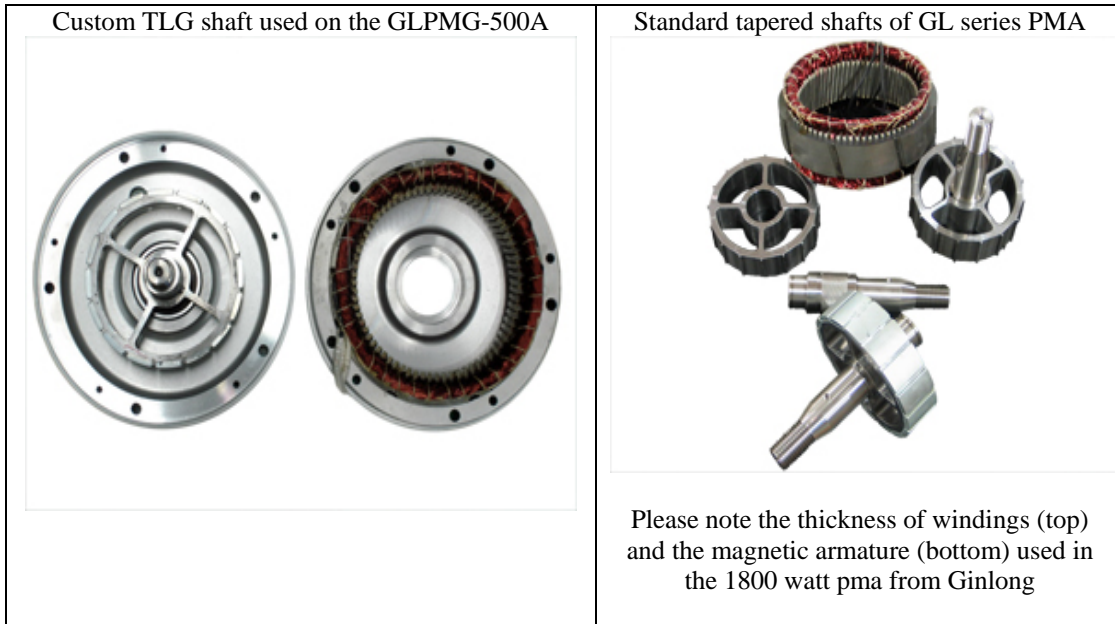
Please note the very clear size difference from larger lamination stack, windings, and magnetic armature.
It is clear to see that one could produce more energy than the other.

Front high view of both PMA's side by side TLG-1800-GT left / left DyoCore right.



I hope this clarifies that TLG did not use the DyoCore PMA for our rating.

Exhibit C continued



The image below shows the insides of the DyoCore unit on display in their office. Please note the much thinner windings on the lamination stack below from the one above right used on the TLG-1800-GT



Please note the similarities of DyoCore shaft to TLG's custom shaft, the magnetic armature, and the winding and lamination stack to the above left picture of Ginlong's model GL-PMG-500A. The only apparent changes between the GL-PMG-500A to the DyoCore unit seems to be the notch cut in the shaft, fluting cut in the inside outer edges of the bottom cover, and cosmetic changes to the outer case.