

## Energy - Docket Optical System

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**From:** Kevin Wolf [kwolf@windharvest.com]  
**Sent:** Thursday, February 13, 2014 9:13 AM  
**To:** Energy - Docket Optical System  
**Cc:** Sethi, Prab@Energy  
**Subject:** EPIC Second Investment Plan

**Categories:** Ready to Docket

Re: Docket Number 12-EPIC-01

California Energy Commission

**DOCKETED**

**12-EPIC-01**

**TN 72536**

**FEB 13 2014**

Dear California Energy Commission and interested parties,

We appreciate the opportunity to comment on how to shape the future of EPIC funding to help California meet its renewable energy goals. Our primary advice is to not put limits on what types of ideas and products can be considered for support.

Wind Harvest International designs and oversees the manufacture of vertical axis wind turbines (VAWT), which have as their major market the understory of commercial wind farms with good near ground wind resources. Most of California's wind farms have good to excellent wind resources at 10 meters above ground level. These VAWTs were developed in California but now the state is not likely to be the epicenter of our business.

In 2011, WHI received an EISG PIER grant for \$50,000 to conduct aerodynamic modeling using data from our prototypes. The modeling results were instrumental to our ability to secure our Series A funding round. We needed millions in new investments to build the commercial prototype of our VAWT and bring it through the third party testing process and create and validate an aeroelastic model. All of these are critical steps toward gaining international certification. Certification is needed before most of the world's utilities will allow a new type of renewable energy device to be connected to their grid.

We had hoped to receive additional support from the first EPIC funding cycle or from the DOE's SBIR and other grants, but all their grant guidelines prevented any VAWT technology from being considered. Thankfully most European nations don't try to guess what innovative technologies will be important and we were able to find support there.

This spring, with help from the Danish government, our new 70kW VAWT will undergo certification testing in one of their national wind energy testing centers. The government has also been instrumental in helping us secure our first sale of 20+ of our turbines to the UN and a local business group for installation in two projects near Mogadishu Somalia. As a result, our first order of turbines will be fabricated by a Danish company. And

because of the support and promise of funding from European governments (e.g. SMART Scotland grants), most of our engineering team is now based in Europe. We would have liked to have had California play the role that the Danish government and businesses are playing, but after the PIER program closed, no opportunities for additional support were available. (Note: *The PIER grant that provided us with the instrumental aerodynamic modeling resulted in support from the EISG Technology Transfer Program, but there was little that they were able to do to help.*)

Our recommendations for how the EPIC program can better identify and help innovative products such as WHI's VAWTs include the following:

1. Focus on products that are past the seed stage level and have working prototypes in place with good data available for third party review. Help companies get through the "valley of death" and the costs it takes to gain the expensive, third party certification (e.g. Underwriters Laboratories) needed for the sale of most energy related products.
2. Don't set limits on what can be brought forward for consideration. As Beverly Alexander said in your Feb 7 workshop, don't try to predict what will be innovative. We recommend that you change the formula of setting grant parameters and instead, use something similar to the SMART Scotland program where applicants send an executive summary of their business plan for consideration. If that summary is reasonable, the applicant can produce a full business plan for consideration. The SMART Scotland guide to creating an acceptable business plan weeds out many ideas and products that are not ready for commercialization. CEC staff and consultants have the talent and wisdom to be able to evaluate a business plan and all of its associated documentation.
3. Take a percentage of the company in exchange for providing the funding for the commercialization process. There is still risk in this process, which is why venture capital firms won't often fund this part of a company's growth. Some of the companies will fail and the state will "lose" its investment, which isn't much different than what happens with all of its grants. Some companies will do quite well and will be happy to pay back the state for helping when it was really needed.
4. Help companies pull together all the information needed to figure out how to commercialize their product. For example with us, we were slowed down because we had a difficult time figuring out how to create the turbine design file for certification without having a proven aeroelastic model to base it on. Once a company has developed a working prototype, it could use funding help to properly develop the information needed for a successful business plan and budget.

WHI's VAWT technology will eventually help the wind farms of California double or more their capacity and will likely provide one of the lowest cost energy sources in its future. We are grateful for the CEC's EISG PIER program for its help in getting us there. We hope that the EPIC program will help other California companies bring their renewable energy products to market and keep their main base of operations in the state.

Best regards,

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