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Presentation - Next-Generation Wind Energy Technologies and their Environmental Implications

A friend just emailed me a copy of the "Presentation - Next-Generation Wind Energy Technologies and their Environmental Implications".

I would like to see how I can get involved, either to request funding or be part of a demonstration project or business development engagement. I am involved in a start-up with novel new low-carbon wind power generation and storage technology. Please see attached document. If you think this is appropriate for your research program I would love to speak further.

Thank you for consideration!

Additional submitted attachment is included below.



EiP Technologies Overview

Brad Burkle / CEO

10-30-18

Executive Summary

Our breakthrough patented technology opens up an untapped market for low-carbon rooftop powerplants on commercial, industrial, and high-density residential buildings, whether in urban cities or remote communities. Consider for the first time the ability to deliver low-maintenance power from the wind and sun, reliably during adverse weather conditions, right where loads are consumed on building rooftops, on-demand without the need for any local storage system. Our patented and tested science completely differentiates us from any other combination of wind machine, flywheel, or battery system available today.

EiP's societal impact of delivering truly low-carbon and locally-managed renewable power is transformative. The benefit to local economies around the world, our natural environment, and our grand-children's generation depend on the bold energy decisions we make today.

What We Do + Why It Is So Compelling

EiP machines generate internal power, generate power from the wind, and store power based on patented "Electronic Inertial Power". The science itself is tremendously complex, comprised of 30 individual patents approved by the USPTO (US patent #9,803,623). For a simple illustration of how EiP technology works, consider ripples of wind on an ocean surface. These ripples are individual energies transferred from the wind across the water surface that become waves. On a lake, when the wind stops, the waves will dissipate. But on a large ocean, over a great distance, small waves naturally organize into an ocean swell – an oscillation. The large waves that hit the north shore of Hawaii each winter are an example of this type of oscillation.

Now consider the famous historical example of the old Tacoma, Washington Narrows Bridge – the "Galloping Girtie" which collapsed in 1940. A crazy phenomenon occurred when the winds hit 40 mph - the bridge began to oscillate like a set of waves! The incredible power produced ultimately caused the bridge to collapse catastrophically. Imagine what would happen if that energy could be contained and harnessed?

Patented EiP Technology contains and harnesses oscillations for power use. All energy input into each machine is sampled 40,000 times per second, then converted and fed into an oscillation. The minimum power required to energize the electronics, magnets, inductors, and flywheel rotor within an individual EiP machine, resulting in an oscillation, is 200W. At this minimum speed an EiP machine will create an oscillation capable of driving an approximate 5000W load. Additional power can be harvested by speeding up and slowing down the rotor. What gets really interesting is when multiple EiP machines are interconnected. In our two-machine test, we will be validating the amount of power that can be generated from the wind, plus the amount of additional power generated by speeding up & slowing down the rotors. In a cluster of four machines, the minimum energy required per machine will be serviced by the combined energy within the system, resulting in 24x7 always-available, battery-free power. The source of energy in an EiP microgrid can be the wind, a solar system, or the EiP machines themselves. EiP machines can operate in a stand-alone microgrid or be simply attached to the grid via inverter. We encourage skeptics to study the technology and results – this incredible scientific breakthrough works!

Each EiP machine is 8' wide x 6' tall, weighs about 2000 lbs, and has only one moving part. EiP machines produce virtually no vibration, are bird safe, and produce power in 90+ mph winds. A single EiP machine will produce from 15-120 kW depending on wind speed. A power curve for a 2-machine system will be created during the winter of 2018/2019. EiP machines can be clustered together in groups of 2 or 4 on a rooftop to meet whatever power needs are required.

For further information visit <http://eiptechnologies.com>.

Patents Awarded

US patent #9,803,623 - Direct wind energy generation
<https://patents.google.com/patent/US9803623?q=patent:9803623>

What Has Been Verified To Date + What Is To Be Tested

To date we have produced power in winds > 90 mph (twice), observed virtually no vibration at maximum rotor speed of 120 RPM, and have created a simple single-machine wind curve. We have observed within two separate machines only 200-250W required to power the machine, producing loads of approximately 5000W in windless conditions. The difference is the power produced within the oscillation itself. We've connected a single machine with a string of 216 NiMH D sized batteries that ran for 10 hours while disconnected from a power source, and produced over 4.0 kWhr power with a battery system only capable of producing 0.9 kWhr! In another test, we produced a 7 second burst of 2500W by simply slowing the rotor from 60 rpm to stop, thus validating the ability to generate power within an EiP system by speeding up and slowing down the rotor.

In our upcoming two-machine test (winter 2018/2019) we will measure the amount of power that can be harvested in no wind, the amount of power that is produced in various wind conditions, and the amount of time that power can be stored without assistance from a nominal battery system. All results will be presented in kWhrs.

A final 4-machine test (upon funding) will demonstrate battery-free on demand power, and also enable us to discover the total aggregate power that can be produced without wind in a 4-machine system. This final production test will complete all development steps, and most likely be deployed and showcased on a high-visibility customer roofscape.

Who We Are – Company / People

EiP Technologies was founded by brothers Brad Burkle, CEO, and Steve Burkle, CTO / inventor. Brad has held executive management roles in technology start-ups for 17 years, and also spent 14 years at Intel Corporation. Steve spent several years at Intel Corporation in electronic and hardware engineering, then moved to the Oregon coast, where he has been living off-grid and working on renewables since 1990. Steve began working full time on EiP R&D in 2009.

EiP is an acronym for 'Electronic Inertial Power'. We founded EiP Technologies in Yachats, OR, where Steve lives. We conduct product development, employ an experienced lab technician, and house 3rd party manufacturing in Oregon. Brad resides in San Diego, where our CFO, VP Sales, and investment advisor reside.

R&D began in 2009, our first prototype was built in 2014, patents were filed in 2014, we won the VERGE start-up accelerator competition in 2015, our 2nd prototype was built in 2017, patents were awarded in 2017, and our initial prototype was refurbished into our production prototype in 2018. We have remained largely self-funded, with only a minor contribution by patent firm Perkins Coie, and small convertible note from PECl (www.peci.org).

We are currently engaged in a two-machine test that will prove our ability to generate power from the wind, generate power internally within the system, and also store power. These tests will be completed during the 2018/2019 winter, at about the same time we expect to take an investment, preparing us for production ramp in 2019/2020.

How We Will Sell & Grow Over The Next 5 Years

Our vision is to provide 100% low-carbon and renewable power to business owners, high density residential customers, and remote communities across all international geographies. We hope to empower the existing infrastructure of renewable installers, developers, and power companies, providing new revenue streams for locally sourced power generation and use.

We have extensive relationships within the renewable channel community of installers, developers, and system integrators across several international geographies. We understand the specific results we need to demonstrate, and have several prospective customers ready to place orders when our development steps have been completed. Our vision is to be an equipment provider that enables these partners to expand their success in low-carbon renewables. With EiP technology, a combination of EiP machines and small solar array becomes your resilient power plant, able to produce power in hurricane force winds, survive marine conditions, and store power locally without toxic/explosive battery arrays. We will tie in well with transactive blockchain power as that technology becomes available.

Our initial manufacturing facility for the machine frame is in Portland, OR – this part of the process can be outsourced to regional geographies where we sell in high volume. Electronics assembly is currently done by hand in Oregon – this part will become automated and stay in Oregon, as electronic subassemblies will be shipped to remote geographies where machine frames are built. To date we have built three prototype machines. We anticipate initial customer orders upon completion of the 2-machine test, with broader adoption in response to our final 4-machine test.

Summary

Our patented technology enables new high-power, low-footprint, and low-carbon revenue opportunities for commercial, industrial, and high-density residential buildings in urban or remote settings across all international geographies.