JOE SESTAK
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CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515
(202) 225–2011

April 12, 2010

Mr. William Brinkman
Director
U.S. Department of Energy
Office of Science
1000 Independence Avenue, SW
Washington, DC 20585-0002

Dear Mr. Brinkman,

I am writing to introduce you to Drew Devitt, the Founder and Chairman of New Way Energy LLC, a company located in Aston, PA and suggest a meeting with the app. Mr. Devitt would like to discuss utility scale, floating Vertical Axis Wind Turbine (VAWT) as a means to reach off-shore winds quickly and cost effectively. The technology has been developed in conjunction with his non-profit organization, the Thomas Paine Foundation.

As you know, the Obama Administration has placed a new emphasis on the development of offshore wind power generation. The National Renewable Energy Laboratory, for example, has estimated that offshore resources located between 5 and 50 nautical miles off the nation's coasts could provide 900 gigawatts of generation capacity, which is roughly equal to the United States' total current electrical capacity.

As you can see from the enclosed white paper, New Way Energy has proposed an innovative VAWT technology, utilizing radial air bearings and direct drive electricity generation at the perimeter. These turbines have a wide base and are more stable at sea than Horizontal Axis Wind Turbines (HAWT), and the plan is to be able to deployed them 30 miles offshore, out of sight from the coastline. New Way Energy estimates that they are less expensive to build and do not require the complicated supply chains of HAWTs, putting Americans to work more quickly in our underutilized ship building facilities.

According to Secretary Chu, "wind power has the potential to provide 20 percent of our electricity and create hundreds of thousands of jobs. We need to position the United States as the clear leader in this industry, or watch these high-paying jobs go overseas." The VAWT technology developed by New Way Energy and the Thomas Paine Foundation presents an opportunity for the Department of Energy to invest in U.S.-based technologies that will provide research and manufacturing jobs in our country and my home state of Pennsylvania. I encourage you to learn more about this transformational technology and further discuss with Mr. Devitt on resource opportunities that may currently exist at the Office of Science or other sources.

To follow-up with Mr. Devitt by contacting him at:

600 NORTH JACKSON STREET, SUITE 203
MEDIA, PA 19063
(610) 892-8623

1022 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-2011

Mr. William Brinkman
April 12, 2010

Thomas Paine Foundation
12 North Bryn Mawr Place, Media, Pa 19063
drewdevitt@hotmail.com
(610) 364 3460

Please send any written correspondence to my Washington Office at 1022 Longworth House Office Building, Washington, DC 20515. If I can be of further assistance, please contact Jason Marmon of my staff at 202-225-2011 or Jason.marmon@mail.house.gov.

Thank you for your attention to this matter.

Sincerely,

Joe Sestak
Member of Congress

JS/jm

Encl.

The Thomas Paine Foundation and New Way Energy LLC

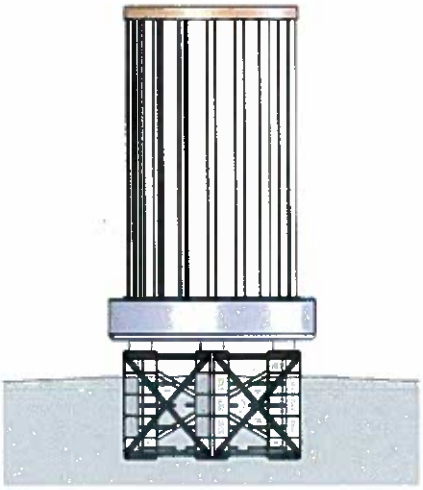
Contact: Drew Devitt ddevitt@newwayairbearings.com Cell- 484 767 2311

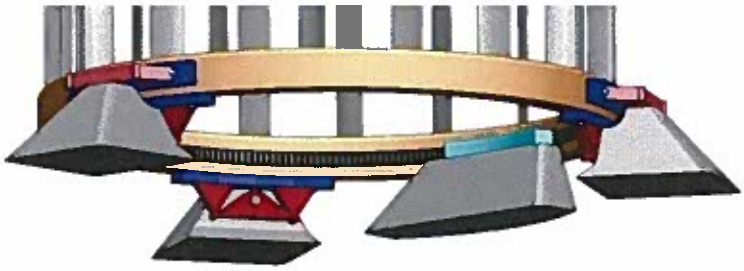
Using radial air bearings to support the rotor at the perimeter, Vertical Axis Wind Turbines (VAWTs) are less expensive and faster to build then Horizontal Axis Wind Turbines (HAWTs). With just one moving part – the rotor – direct-drive generation may be employed to eliminate the drive line, gear box, and bearings at the generator. The resulting mechanical system would be simpler and much less expensive to maintain, it would have 100 times less friction, and could be delivered in months instead of years. The bearings and generator are the lowest turbine components, allowing ground-level service. This low center-of-gravity and broad base conveniently allow for flotation. VAWTs could be manufactured onshore at idle ship-building facilities, towed out 30 or more miles, past the NIMBYs, into Class 6 winds, tied into a mooring field, and plugged in. No foundation on the seafloor or assembly at sea would be required. Transmission to land lines would be accomplished through sea cable to current and retired power plants for grid recycling.

There have been many wild claims regarding the advantages of VAWTs. There have also been many reputable research organizations that have studied vertical axis wind turbines and not seen much promise. This is recognized by our research team. We understand that Savonius impulse-type VAWT turbines are less efficient then HAWT, but their tactical advantages have become too significant to ignore. Please suspend any prejudice you may have against them for just a few pages.

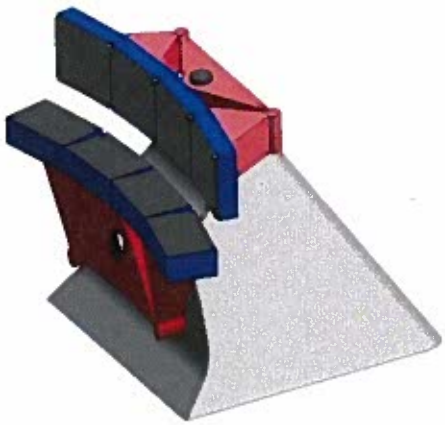
The Big Picture

To generate 20% of our electricity from wind by 2030, a dramatic improvement in the return on investment for wind turbine-based electrical generators is required. It has been learned that they cannot be justified based on tax credits alone. The ROI can be improved by a paradigm shift from (HAWT) to (VAWT) because they float easily, allowing inexpensive siting in Class 6 winds. Using radial air bearings to support the rotor at the perimeter, VAWT's are less expensive and faster to build. They would have just one moving part, the rotor. Direct drive generation at the perimeter may be employed to eliminate the whole drive line, the gear box, and even the bearings of the generator, because one set of near-frictionless air bearings support the rotor at the perimeter. These advantages result in: A 50% cost reduction per megawatt; a delivery time of six months instead of two years; and a simple mechanical system that is inexpensive to maintain, and has 100 times less friction. Seventy percent of our electricity demand is close to our coasts and Great Lakes, our best wind resources are only 30 miles offshore. Floating VAWT enable a host of advantages that dramatically improve the return-on-investment, the reliability of the energy stream and the ability to usefully locate the turbine. It is recognized that the impulse-based VAWT has less than half the efficiency of the aerodynamic HAWT, but this is more than made up for by the fact that Class 6 winds have more than twice the energy as Class 4 (because power in the wind is a cubed function of its velocity).





Recent developments in air bearing technology enable this paradigm change. Bearing technology with the capacity and speed to support a large swept area at the perimeter has not been available but is now offered commercially by New Way Air Bearings. Hydro turbines and steam turbines both use hydro bearings to support their rotors. It is not surprising that wind turbines should be supported on air bearings. This is a transformational and disruptive technology for the wind industry which solves multiple Energy Policy Issues.



Assembly and Installation

The vertical axis wind turbines described are supported on three bearing points. This is a Kinematic design, and just like a three legged stool will not rock, the three bearing points will always present a plane for the rotor. The bearings are mounted on gimbaled mounts so that they self align to the rotor. This simplifies assembly and avoids the requirements for rigid structures. Moment loads from the wind are spread across the large base circumference of the VAWT, rather than on a narrow pole for the HAWT. The three-point support and very low center of gravity – achieved by having the steel base and generating components on the lowest portion of the rotating member – make for a fundamentally-stable arrangement. Putting massive gearboxes and generating components weighing hundreds-of-tons on the top of an 80m tall steel pole is not so stable.

In direct contrast, everything above the base ring in our VAWT is built with lightweight materials. Fiberglass blades support a top ring which is also made from fiberglass. Steel wires are used in a combination of sailboat mast and bicycle spoke technology in order to create a lightweight, but stiff cylindrical shape. Assembly is done at a ship yard and the completed turbine is towed out to a field of mooring anchors, tied up and plugged in. This eliminates the requirement for a foundation on the sea floor and cranes at sea, while keeping the bearing and generator components at sea level. Three-point flotation provides convenient places for three mooring tethers to provide the required anti-rotation. The VAWT doesn't care which direction the wind comes from, it will always tighten its tethers in the same direction. The HAWT needs to be actively pointed into the wind, this would be quite a challenge without a sea floor foundation, even for down-wind turbines. These advantages represent huge potential cost savings for transportation, installation, inspection, and maintenance needs. If there is a major issue with a turbine it could be towed back to the yard in a day. Sinking the turbine to avoid hurricanes would not harm the bearing system or genorator and could be done by remote control.

Transformational Policy Impact

The 30-mile transmission line from deep sea wind farms is relatively short, easy to permit, isolated from summer heat, and requires no towers. In fact, Interior Secretary Ken Salazar and FERC Chairman Jon Wellinghoff are following President Obama's lead in specifically making offshore wind a top priority. This plan for floating offshore wind farms is not just consistent withthe new national policy direction – it enables it. Turbines positioned 30 miles from the coastline would not

be visible or audible from the shore, where they would also be beyond State control, so beyond NIMBY issues and local lawsuits. Flotation opens up over 1000 GW of wind resource within 50 miles of our main load centers. Additionally, ocean winds are stronger and more consistent, making them more appropriate for baseload, and minimizing the need for energy storage. Our VAWT has a rotation speed 5 to 7 times slower than HAWT, and has a high solidity so it is not a threat to birds or bats. The vertical orientation and high solidity gives good horizontal radar reflection with no vertical reflection. As a slow-speed machine, and employing ocean transportation, VAWT may be scaled to huge sizes.

Many power plants were located near the coasts or Great Lakes for access to coal and cooling water. These plants offer logical places to bring the electricity ashore for distribution through the existing grid, providing ready-made, high amperage distribution points. As we generate enough wind power to supply some base load, we can start to turn off coal fired turbines and use the same electrical grid to distribute the new clean wind energy. This is "Smart Grid Recycling."

When it comes to putting Americans to work, VAWTs have a huge advantage. They can be manufactured with shipbuilding skills in our idle shipbuilding facilities. The supply chain and capital equipment associated with huge gears, bearings, and precision-machined castings required for HAWTs is not required for a VAWT. Most of the steel in a HAWT is in the pole, but must wait for the gearbox which currently has a 2-year delivery time. The time to manufacture and install VAWT's is a fraction of the time required for a HAWT, so wind farms could be populated, and useful electricity produced, much more quickly. The best part is that we create manufacturing jobs without having to make the huge capital investments required by the HAWT manufacturers. We can take our old shipbuilding facilities and cargo transfer ports and turn them into clean energy manufacturing facilities with little capital investment. Once we have the first facility up-and-running, we can use a franchise model to replicate facilities in New England, the Carolinas, the Great Lakes States and the West Coast. This is one of our best opportunities to put thousands of Americans to work manufacturing clean energy equipment and gives us our best chance to meet our renewable energy portfolio standards by deploying wind turbines quickly.

The Philadelphia area has deep water ports with shipbuilding and aerospace infrastructure. Philadelphia Naval Base and the City of Chester are both appropriate places for the first manufacturing site. We have the riverfront real estate, local skills in steel work, heavy machining and ship building. Barge, tug and other marine services are readily available on the river. The City of Chester supports this plan and has already been a help in locating the most desirable riverfront real estate.

Because the wind farms for the VAWT's would be located in deep water, which have been off-limits to HAWT, there is not an either-or choice between the turbine technologies. VAWT's may be seen as an additional layer of wind-energy capacity that can be built on top of the already existing wind turbine manufacturing industry. VAWT's will be like the icing on the cake, going after the sweetest winds with the lowest-cost turbine technology.