

Organization: Thomas Paine Foundation

Project title: Vertical Axis Wind Turbine (VAWT) Demonstration Project

Amount Requested: \$1,000,000

If your organization has submitted more than one appropriation request this year, please include the priority of this project in parenthesis following your organization's name above. For example:
Organization: ABC Action (2 of 4)

{Priority will not preclude funding for lower priority projects or guarantee funding for higher priority projects}

Organization Information

1. Provide:

- Organization name: **Thomas Paine Foundation**
- Point of Contact (and title): **Drew Devitt, Founder**
- Address (include town, state, and zip code): **12 North Bryn Marw Place, Media, Pa 19063**
- Office Phone: **610 364 3460**
- Cell Phone: **484 767 2311**
- Fax:
- Email: **drewdevitt@hotmail.com**

2. If the Point of Contact is not located within the Pennsylvania 7th Congressional District:

- a. Is this project being done in conjunction/ for the benefit of an organization in the District?
(If yes, please list organization, its address, and relationship)

Drew Devitt is a constituent of the 7th Congressional District, and many of the employees of New Way Energy (which will manufacture the VAWT demonstration model) are located in the 7th District.

3. Describe the organization's main activities, and whether it is a public, private or nonprofit entity.

The Thomas Paine foundation is a nonprofit 501(c)(3) entity. Shortly after arriving in Philadelphia Thomas Paine wrote Common Sense which inspired the American Revolution and the Crisis Papers which sustained it. He also proposed the first iron bridge across the Schuylkill river and a generator powered by gunpowder for pumping water that looks very much like the wind turbine we are proposing.

Thomas Paine gave all of his inventions to the public for the benefit of mankind, just like his writings.

In the spirit of Thomas Paine, the Foundation was created to promote innovative inventions, technologies and ideas, particular those that create an energy-independent America.

4. If your organization has applied for an appropriation through Congressman Sestak's office in the past, please list past requests and outcomes. If the project you are now submitting was applied for in the past, please list it first on this list, and proceed with an "*".

We have not applied before

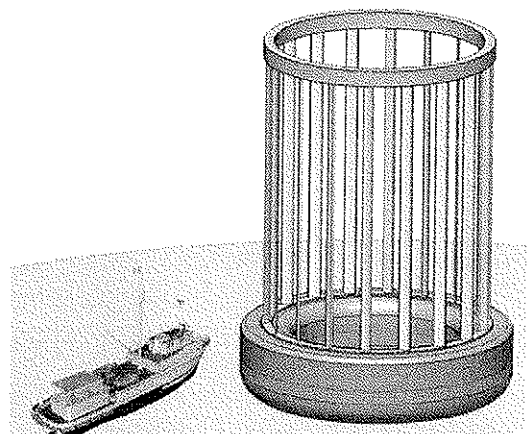
Project Description Information

5. Title: **Vertical Axis Wind Turbine (VAWT) Demonstration Project**
6. Brief description of the project for which funding is requested, specifically citing upfront what the funding will go toward (maximum 250 words) i.e. "The requested funding will be used to ..." A more detailed description should be included as an abstract.

The requested funding will be used to develop a prototype Vertical Axis Wind Turbine (VAWT) that could be floated offshore, utilizing recent developments in air bearing technology that allow for more efficient generation of electrical power. The Foundation would oversee the development of this prototype and work with researchers on aerodynamic and electrical generation concepts at area universities, including Widener University and Drexel University.

7. Brief history of the project.

Using radial air bearings to support the rotor at the perimeter, VAWT are less expensive and faster to build. 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. Manufactured onshore, towed out 30 or more miles, past the NIMBYs, in Class 6 winds, tied into a mooring field and plugged in. No foundation on the seafloor or assembly at sea required. Transmission to land lines through current and retired power plants for "Grid Recycling". These advantages dramatically improve the return on investment, the reliability of the energy stream and the ability to usefully locate the turbine.



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. 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.

Manufacturing VAWT's would provide hundreds of new jobs. The ideal place to build them would have ship building experience and or an aerospace industry on a river with ocean access. This is a perfect description of Chester, Pennsylvania which is a HUD district. The manufacturing facility here would be the first. There will likely be a need for more production facilities in other locations; like New England, the Great Lakes and the West Coast. The franchise model would be effective at developing other manufacturing facilities and putting Americans to work in Grid Smart, GreenJobs.

8. Explain the purpose of the earmark and why it is a valuable use of taxpayer funds in 250 words or less. (Why should federal tax dollars be used to fund this project and how it will benefit federal tax payers?)

The Obama administration has made it clear it wants to promote offshore wind turbine electricity generation. Tens of millions of dollars have been spent in Recovery Act (ARRA) funds specifically to enable technologies to reach offshore winds. The new idea of applying air bearings to the old idea of vertical axis wind turbines enables a wind turbine with a low center of gravity and a broad base, so they are easy to float. The current technology of horizontal axis wind turbines have a high center of gravity and a narrow base, it is difficult to make a floating design with this technology. So this activity will enable a major policy goal of the current administration and potentially bring thousands of clean energy jobs to our area. Our area could supply the whole east coast with floating wind turbines making us a leader in manufacturing clean energy generation equipment.

9. The Government Performance and Results Act requires federal agencies to measure how federal investments achieve the policy goals laid out in the federal program where the funds will be spent. Attach an abstract of your project (maximum one page) to describe your proposed activity and show what measurable improvements will result from it. Be sure to address how this project meets federal policy goals or has other national significance.

The construction of a 3 m diameter by 6 m tall prototype complete with aerodynamic system and electrical generation capability. The success of this prototype would lead the way to implementation of the President's offshore wind generation goals, create clean manufacturing jobs here, and provide a powerful way to reduce carbon emissions.

10. Provide a description of the anticipated benefit / impact of the project. Answer should start with anticipated benefit/ impact on the Pennsylvania 7th Congressional District. This should include the percentage of the project that will take place or impact the District and a description of that portion.

The requested money will all be spent within Aston, Pennsylvania, supporting at least two full-time jobs and purchasing components that are also manufactured here in Aston.

The components will all be designed and manufactured in Aston. This includes the construction of a 3 m diameter by 6 m tall prototype complete with aerodynamic system and electrical generation capability. Additional benefits may flow to area universities (such as Widener) that would conduct aerodynamic and electrical generation research in support of the prototype. Please reference number eight above for local and national benefits

11. a. List any governmental or organizational support/endorsements for this project along with name and contact information for the appropriate person. Unless specifically requested, unsolicited letters of support will not be accepted. Additional endorsements can be made known by emailing sestak.appropriations@mail.house.gov with the name of the organization, that they have endorsed the project, and with the name and contact information for that organization.

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Project Funding Information

12. Identify the name of the appropriations bill and the account from which you are requesting funding (if known).

- Appropriations Bill: **Energy and Water Appropriations**
- Agency: **Department of Energy**
- Account: **Science**

13. What is the total cost of the project?

\$1,000,000

14. Congress, in general, provides only one year of funding at a time. If your request involves more than one year, indicate the amount that will be used in FY 2011.

The prototype will be completed in the calendar year of 2011

15. What is the breakdown for the requested funding? (For example, salary \$40,000, computers \$3,000, construction \$2,000,000, etc.)

\$721,000 in components

\$279,000 in direct labor and overhead

16. Is this project scalable (i.e., if partial funding is awarded, will the recipient organization be able to use the funds in FY 2011?) If yes, please explain how.

The prototype will be completed in the calendar year of 2011

17. Has this project or activity received any federal funding in previous years? If so, please list the fiscal years for which funding was appropriated, the amount of funding appropriated, and the source (i.e. earmark (please include sponsor/s), name of loan program, name of grant program, or other source (describe).

No

18. Congress often requires that some portion (typically from 10% to 25%) of the project or activity be funded through non-federal sources, also known as a non-federal match. For this reason, please list any source and amount of secured or potential (designate which) non-federal funding identified to contribute to this project or activity. Include amount available for self-financing through your organization

The Thomas Paine foundation will offer a 10% match

19. Has a request for funding for this project been submitted to any other Members of the House or Senate for FY2010? If so, list the other Members to whom requests were made and provide appropriate staff contact.

Yes. Representative Robert A. Brady (D-PA)