

VERTERRA ENERGY, INC

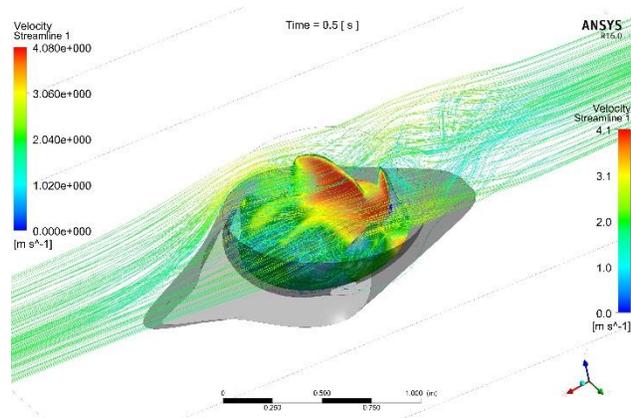
"Turning water into power"

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Frequently Asked Questions

Is Volturnus based on a previous concept and how does it work?

Volturnus is a pioneering waterpower technology not derived from previous concepts. ***VOLTURNUS deploys in harmony with the current to dynamically adjust to water direction, velocity and depth.*** The patented technology combines the working principles of centrifugal pumps and hydrofoils in a rugged hydrodynamic form to *uniquely harness the power in flowing water.* The rotating fins work in combination with the hydrodynamic, rugged base (we call it a "rampart") to *harness both the velocity and weight of the water in rivers, canals and oceans.*



Is this another DOE funded science experiment that will never be a viable product?

Unfortunately, the DOE has focused and funded designs that were derived from the wind industry or modest, incremental improvements on existing hydro concepts. With a heavily weighted focus on eking out small percentage increases in blade efficiency- they have neglected to solve important and obvious problems- in our opinion.

By focusing on mass production, OpEx and developing a device that addresses the issues of clogging and jamming, rapid deployment and retrieval in shallow waters, Volturnus can deliver pay back periods of under 2 years to our customers, just in avoided fuel costs for diesel generators. *Beyond just a MVP- Volturnus can harness the largely untapped power of flowing water on our planet.*

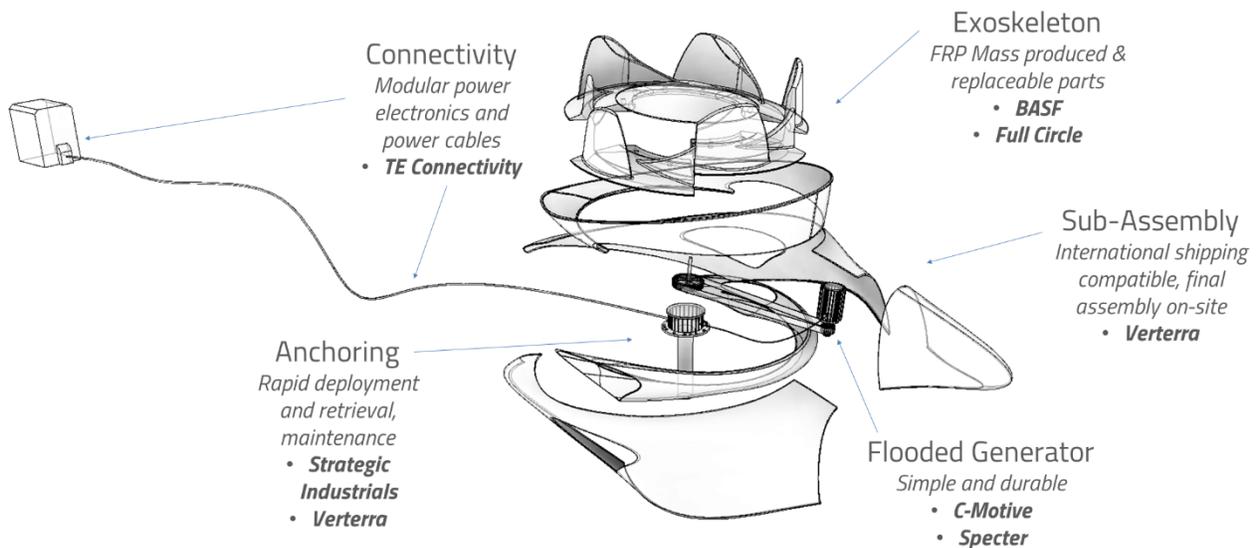
How does the power get to the shore?

A simple weighted, subsea power cable that runs from the generator inside Volturnus to the onshore power electronics.

How is Volturnus anchored?

There are 3 interchangeable anchoring systems, depending on site conditions- drawing from the oil & gas industry's centuries worth of experience of operating in water.

- Piling (shown), for muddy rivers
- Gravity anchor, for rocky rivers
- Tether, for canals where the walls and lining cannot be altered



What is it made of?

Volturnus is an exoskeleton and can be mass manufactured just like a composite boat hull.

- **BASF** can mass produce Volturnus with **100% recyclable plastics**, including some recycled recovered ocean plastics.
- FPR Fiber Reinforced Plastic (FRP) mass produced and replaceable parts.

Who are the customers?

Verterra has secured a collaborative contract with the US Army Corps of Engineers to deploy Volturnus on military bases as part of an advanced microgrid project. We are also exploring projects and strategic partnerships with large industrials; where the zero-emission, baseload power that Volturnus produces can enhance the economics of current energy assets and sites.



- US Army Corps of Engineers- *regulator & largest renewable energy entity in the country*
- Department of Defense- *real need for power resiliency and security*
- Fortune 500s including BASF

Fragmented markets are often hard to address

We are targeting projects that already have infrastructure in place that we can “plug” into. The US Military and Fortune 500s in the US around the world are ideal partners because they own and operate their sites.

- Global diesel generator market is projected to reach \$21.37 billion by 2022. Of that, the U.S. market alone is projected to be \$3 billion in 2024.
- Global microgrid market is projected to grow at a 23% CAGR to reach \$38 billion by 2026.

<https://www.gminsights.com/industry-analysis/microgrid-market>

Small hydro units are expensive and have poor LCOE

It's true that over the past decade, companies have tried to deploy wind derived designs in water, with little success. The use of exotic and expensive materials and units that were too big to mass produce led to high cost projects that were never economically viable.

- Voltturnus is mass manufactured using inexpensive materials
- Direct deployment- no on-site construction or altering of the natural environment
- Unique design exploits hydrodynamic forces

Voltturnus is too small and isn't a utility scale solution

Just like solar panels, Voltturnus can be deployed in arrays to scale on-site. When deployed throughout regions in distributed, decentralized projects, they can provide 100s of MW capacity cumulatively. ***Current interest from Global Energy Industrials for large site projects.***

- ***Demand for 50-250 kW per site in microgrids and villages- that can be deployed throughout whole regions in 100s of locations- means we don't have to be a big utility player right away to be successful.***

What's the technology risk?

Unlike many competitors in this space, Voltturnus is *purpose designed* for water and has *solved the 3 big problems in this space:*

1. New concept that is highly resistant to clogging & jamming from debris
2. Low Profile- which enables a much greater site viability
3. LCOE- Mass production and arrayed deployment; no onsite construction



The core ***team has previous experience in the space and knows how to commercialize the Voltornus technology.*** Sanjay lead Boeing's Cleantech Ventures business development, Eric was the lead engineer who took ORPC from concept to deployed commercial units, and Ted is a visionary inventor who has executed on the Voltornus technology and has attracted and recruited a world class team with relevant experience from the DOE, Tesla, Honeywell and GE.

Solar + Storage now have a lower LCOE

Just like solar panels, Voltornus arrays can be deployed into battery backup and storage- this is a huge market for us- paralleling with existing power projects with other renewables. However, it's really important to note that batteries typically can discharge power for 2-4 hours presently. This makes other standby sources of energy necessary to ensure reliable 24/7 power- especially at MW scale. So even as costs of lithium-ion batteries has fallen by about 80% over the past five years, there will still be a large gap in the possibility of reaching 100% renewable energy on state and regional scales. ***Pumped hydro storage*** has also received a lot of attention and is predicted to be a growth market. *The major limiting factor remain long project time ranging from 8-10 years, according to NREL, and uncertainty in the energy markets projected out a decade.*

We believe all these technologies and advancements are needed and good- we also know that *the predictable, reliable, zero-emissions-baseload power Voltornus can produce, with no major civil works, will always be in demand.*