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Bladeless wind turbines to save energy and protect bird populations [1]



What's the common link between migrating birds, a collapsing bridge and a windmill? The answer is a bladeless wind turbine. Vortex Bladeless converts a natural wind phenomenon, which led the Tacoma Narrows Bridge to sway and break in 1940, into renewable energy. The turbine works without blades, saving migrating birds from sudden collision.

Vortex Bladeless is composed of a pole that contains no moving parts, which makes it virtually noiseless. The design reduces the turbine's carbon footprint by 40%. This winning match is also cheaper as its maintenance costs are reduced.

Vortex's design cheap and noiseless design also makes it fit for domestic use. The company develops industrial-scale wind turbines that are appropriate for windfarms but also smaller-scale turbines for households.

The technology captures the wind kinetic energy by 'vortex shedding', transforming it into electricity. The mast of the turbine oscillates in swirling air reaching a natural frequency. Because there is no contact between moving parts, there is no friction which means that no lubricant is required and

spare parts don't need to be replaced.

Thousands of birds perish each year by hitting the circling blades of wind turbines on their migratory path, making concerns about birdlife the main criticism against this renewable energy source. Birds that encounter turbine blades on their migratory path in poor visibility or dark are especially vulnerable. Because Vortex doesn't threaten birds nor makes noise, several environmental advocacy groups, including the SEO Birdlife Association, are actively supporting Vortex's mission.

The project started back in 2002, when David Yañez first saw a video of the Tacoma Narrows Bridge swaying and oscillating in wind. The structure got caught up in so-called "aeroelastic coupling" and collapsed under influence of the wind. This disaster is still a topic among engineers and scientists discussing the aeroelastic flutter and continues to motivate their research.

Vortex started to work on the idea more seriously in 2011 started first field tests in 2014 in Gotarrendura (Avila, Spain). Today, they have a multiple patents of our technology and received an SME Instrument Phase 2 grant to develop their project in 2017.

Learn more about [Vortex](#) [2] or watch their video (and see impressive footage of the swaying bridge!)

Vortex Bladeless has developed a bladeless wind turbine, composed of a mast that contains no moving parts, which makes the turbine virtually noiseless. The design respects nature and reduces the turbine's carbon footprint by 40%. This winning match is also cheaper as its maintenance costs are reduced.

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[1] <https://ec.europa.eu/easme/en/news/bladeless-wind-turbines-save-energy-and-protect-bird-populations>

[2] <http://www.vortexbladeless.com/>