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Wind power is one of the fastest-growing renewable energy technologies across the world over the past few decades. Conventional wind turbines use blades which rotate by aerodynamic force exerted by the wind and the rotational energy is translated into electrical energy using electric generators. The most common type of wind turbine is the three-bladed upwind Horizontal-axis Wind turbine (HAWT) and Vertical-axis Wind Turbine (VAWT). Despite all their advantages, these turbines not only have high initial and maintenance cost but also are noisy and hazardous for birds. Transportation is increasingly challenging too as the size of the components keep rising.

As alternative solutions, one concept named vortex bladeless wind turbines was proposed based on the p