

Sean Papile
Counter Rotating Wind Energy

How do the number of blades on a counter-rotating wind turbine effect the energy output, tower vibration and amount of power available on the turbine? Is it better than a single axis turbine? To solve this problem, I built two types of wind turbines. One was the typical type we see on today's plains and fields, the single rotational axis turbine. The other, is my own invention. It has two sets of blades that spin in opposite directions; called a counter rotating wind turbine. I tested the two machines with a leaf blower in my garage. To measure the power output, I hooked up a voltmeter to the wires coming out of the turbines. My data showed that the counter rotation was more cost efficient than the single axis turbine. My design has not only produced more power per hub, but has also broken the Betz limit. The counter rotating wind turbine is almost twice as cost efficient than the single rotational axis wind turbine.