Go with the Flow: Increasing the Efficiency of the Tesla Turbine to Reduce the Cost of Cleaner Energy Generation from Natural Gas

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My experiment was designed to determine if increasing or decreasing the spacing of the rotor disks in a Tesla Turbine had any correlation to the amount of energy, in volts, generated by the turbine. I hypothesized that decreasing the spaces between the rotor disks would increase the amount of energy generated by the Tesla Turbine. I built the turbine housing out of plexiglass and a cross section of PVC pipe. Four turbines were constructed with an aluminum rod, hard drives, nylon flat washers and varying spacing between rotor disks (1.5875mm, 3.175mm, 4.7625mm, and 6.35mm). While the turbine was powered by a closed system water pump, I used a multimeter attached to a generator to record millivolts. I conducted a set of 10 tests for each turbine, for a total of 40 tests. While my hypothesis was incorrect, I found that there was a correlation between the rotor disk spacing and the amount of energy generated by the Tesla Turbine. The second smallest spacing (3.175mm) had the highest average millivolts recorded with an average of 49.284 millivolts. The smallest rotor disk spacing (1.5875mm) generated significantly lower energy with an average of 34.005 millivolts. I attributed this to the smaller spacing restricting the input of the fluid. The mid-sized spacing (4.7625) generated an average of 29.552 millivolts. The largest spacing (6.35mm) was unable to generate energy and remained stationary. It was apparent that the optimal spacing of rotor disks was a midpoint spacing that allowed input flow and an increased surfaced area.

Awards Won:

Florida Institute of Technology: Full Tuition Presidential Scholarship