Passive Acquisition of Energy through the Utilization of a Fluid Turbine

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Carbon Dioxide is released in our atmosphere today will be in our atmosphere one hundred years from now. There is a great need for alternative energies that are sustainable and minimize environmental impact. Hydrogen is often called the fuel of the future. Hydrogen's main advantage as an alternative energy is that it does not produce air pollutants or greenhouse gases when used in fuel cells. The design of this project is unique in coupling a mechanical water turbine with a fuel cell resulting in the production of hydrogen gas. Design Criteria for this project included; generation of voltage in field tests, blade design with increased surface area, gear ratio to maximize power output, cost effective, portable, and production of hydrogen gas. Three test solutions were applied to determine the efficiency and effectiveness of the turbine; voltage generation, amplification through a transformer, and hydrogen production. The data indicated the turbine was able to harness passive energy and generated voltage in field tests. The test also specified that the turbine design required a transformer to maximize voltage generation. The data concluded the system was able to produce hydrogen gas at 3, 4.5, and 6 volts in increasing increments. By improving alternative energy technologies, dependency on carbon fuels can be reduced, the emissions problem will improve, and alternative energy sources will be blended with traditional consumption practices for a more sustainable world.

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