Rain Power

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This project's question is: can the Hydrokinetic Energy System, a system that converts rainfall into electricity via piezoelectric technology, be improved by efficiently integrating it with solar technology? I hypothesized that lightweight, more malleable materials would best improve the efficiency of the system and that when the Hydrokinetic Energy System is integrated into the solar panel to create a "rain panel," that it will have a noticeable impact on the amount of electricity produced by the system in the rain and in darker conditions. To test this, you need to initially test different materials with the piezoelectric elements to determine what structure works best with the piezoelectric elements. With this information, then find a solar panel of similar properties and test the panel by itself in different light levels. Then, combine the piezoelectric elements with the solar panel and determine how well it operates in varying light levels and environments compared to the actual panel by itself. In conclusion, the best material to use to integrate the piezoelectric elements with the solar panel to create a rain panel is from firm, rigid materials. Furthermore, the rain panel is 148% more efficient than a standard solar panel in rainy conditions and has a passive 123% increase in the energy production compared to a standard solar panel. When accounting for the loss of energy due to the rain not falling at terminal velocity, we see a 228% increase in the efficiency.

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