

Research Work Title

The Pressure Reducer Valve with the Ability to Generate Electricity



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Abstract

This project aims to use a gravity-fed water distribution system to generate renewable energy. To this end, the water stream overpressure is reduced by the pressure reducer valves (PRV) taking inlet water with high pressure and feeding it back to the same stream after passing through the turbine. By replacing the turbine, instead of the pressure relief valve, while stabilizing the fluid flow pressure downstream, renewable electricity is generated from the hydrodynamic energy of the flow. This system makes water infrastructure smarter, more sustainable, and more resilient. It also provides a stable adjustment of outlet pressure and helps decrease water leakage due to overpressure in the distribution system.

