



072-PEP

# Proposed Modification of the Runner Vanes of a Kaplan Turbine

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*Hydroelectric power, or hydroelectricity, is basically electrical energy that is generated using flowing water as a natural renewable source. It is usually produced by dams, because dams can store and direct large volumes of water. Waterpower is used to spin a turbine, which in turn spins an electrical generator that produces electricity. The present work introduces a proposed modification of the runner vanes of Kaplan turbines. A hollow vane with flow passage was adapted instead of the traditional vane, thus, increasing driving torque by increasing friction. Moreover, the cross-sectional area of the passage was altered for additional torque due to momentum change. Computational simulation was carried out to demonstrate the proposed idea.*