Micro Hydro Turbine Model for Project Based Teaching

Cho Thinzar Win[1], Nyan Win Bo[2] and Hla Toe[3]

Abstract

The main focus of this research is micro hydro turbine generator's design and construction. This generator can improve power production and availability at a slower rate without harming the environment, aiding in increased power production and improving the quality of power for its consumers in underdeveloped areas. The turbine was built using Pelton's wheel design. Potential energy is present in water that has been kept at a height of 15 feet in a tank or reservoir. Water is allowed to descend onto the blade of turbine wheel, which rotate to turbine wheel, wheel turns to generator and produced electricity. Rotating the runner attached to the turbine blade produces mechanical energy from the potential and kinetic energy present in the water. An electromotive force (EMF) is generated as a result of the water turbine's rotation. In this research work, we tested the 2 inches and 4 inches of penstock at a certain head. The tilted angle of the water pipe is 50 degrees. The result of the flow rate is 2500 cm^3s^{-1}. The output power results are 1.043 W (2 inches of diameter pipe) and 2.188 W (4 inches of diameter pipe).

Keyword: Pelton's wheel design, electromotive force (EMF)

1. Lecturer, Dr., Department of Physics, Yangon University of Education.
2. Demonstrator, Department of Physics, Yangon University of Education.
3. Professor and Head, Dr., Department of Physics, Yangon University of Education.