

ABSTRACT

The blade is one of the components of a wind turbine that has a function to extract wind energy into mechanical energy. The amount of mechanical energy on the blade is determined from the type of blade itself so that a comparison of the type of blade is needed so that the amount of mechanical energy produced can be known. The author wants to compare the taperless type blade with the inverse taper type blade using NACA Airfoil 4415. The performance of the taperless type blade has a maximum thrust of 137 N at a rotational speed of 795 rpm. Maximum torque of 19.97 Nm at 318 rpm rotational speed. Maximum mechanical power of 825 Watts at a rotary speed of 530 rpm. The maximum coefficient power at tip speed ratio 7 is 0.49%. The performance of the inverse taper type blade has a maximum thrust of 139 N at a rotating speed of 583 rpm. Maximum torque of 23.14 Nm at a rotating speed of 265 rpm Maximum mechanical power of 814 Watts at a rotating speed of 477 rpm. The maximum coefficient power at the tip speed ratio of 7 is 0.45%. From the results of the study, it is hoped that most regions in Indonesia will start implementing PLTB.

Keywords : Taperless, Inverse taper, efisiensi, Coefficient power , tip speed ratio