

## **ABSTRAK**

### **RANCANG BANGUN TURBIN ALIRAN SILANG (*CROSSFLOW*) SEBAGAI PEMBANGKIT LISTRIK TENAGA MIKRO HIDRO (PLTMH) DI SUNGAI DESA TALANG MULYA KECAMATAN PADANG CERMIN KABUPATEN PESAWARAN**

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Perkembangan perangkat elektronik di Indonesia semakin meningkat, kebutuhan akan energi listrik pun semakin meningkat, baik perangkat elektronik rumah tangga maupun alat komunikasi. Kebutuhan terhadap listrik meningkat menyebabkan pasokan energi listrik selalu berkurang. Perkembangan pembangkit listrik di Indonesia saat ini pada umumnya yaitu pembangkit listrik menggunakan bahan bakar fosil berupa minyak bumi dan batubara yang suatu saat akan berkurang jumlahnya akibat eksploitasi yang berlebih. Sedangkan terdapat sumber energi alternatif lain yang dapat digunakan seperti sumber energi panas bumi, panas matahari, angin dan air. Berdasarkan sumber Kementrian ESDM, potensi sumber energi air di Indonesia mencapai 75 GW, dimana pulau Sumatera berada di posisi ketiga terbesar dengan 15.600 MW. Propinsi Lampung salah satu yang memiliki potensi sumber energi air tersebut. Berdasarkan penelitian oleh Subekti Bagus di Sungai Way Ngison desa Kebagusan Kecamatan Gedong Tataan memiliki potensi energi air 5105,15 watt. Penelitian ini bertujuan merancang dan membuat turbin berdasarkan studi potensi Subekti Bagus. Metode yang digunakan yaitu merancang turbin berdasarkan *head* dan debit yang telah dilakukan peneliti sebelumnya dan mendapatkan hasil dimensi turbin yaitu Diameter Luar 210 mm, Panjang Sudu 177 m, Ketebalan Sudu antara 1,0-1,2 mm serta Jumlah Sudu 18 buah.

Kata kunci : *head*, debit, turbin air

## **ABSTRACT**

### **DESIGNING OF CROSSFLOW TURBINE AS A MICRO HYDRO POWER PLANT (PLTMH) IN THE RIVER OF TALANG MULYA VILLAGE, PADANG CERMIN SUB-DISTRICT, PESAWARAN REGENCY**

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The development of electronic devices in Indonesia is gradually rising and the need of electrical energy is increasing as well especially for both household electronic and communication devices. This high demand of electricity causes the supply of electricity to be decreased. Nowadays, the development of power plants in Indonesia generally uses fossil fuel in the form of petroleum and coal that will decrease significantly in the future as the result of exceeded exploitation. Meanwhile, there are other alternative energy sources that can be used, namely geothermal energy, solar heat, wind and water. According to the Ministry of Energy and Mineral Resources, the potential of water energy sources in Indonesia reaches 75 GW, of which Sumatera Island is in the third largest position with 15,600 MW, and Lampung Province is one of the potential sources of water energy. Based on the research conducted by Subekti Bagus in Way Ngison River located in Kebagusan Village, Gedong Tataan Sub-district, it has water energy potential approximately 5105,15 W. Furthermore, this study is aimed to design and make a turbin according to potential study from Subekti Bagus. The method used in this study is designing a turbine based on the data of head and discharge from previous research. Finally, the results of this study are as follows: dimension of outer diameter: 210 mm, length of blade: 177 m, thickness of blade between 1.00-1.2 mm, and the number of blades is 18 pieces.

Keywords: head turbine, discharge turbine, water turbin

