

COMPARATIVE ANALYSIS OF THE USE OF START STAR DELTA AND VARIABLE FREQUENCY DRIVE USING ETAP SIMULATOR

(Case Study: PDAM Tirta Jati Clean Water Treatment)

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ABSTRACT

The problem that often occurs in the drinking water treatment system at PDAM Tirta Jati is the frequent increase in costs incurred due to the use of electrical energy from operating distribution pumps that work 24 hours without stopping. This happens because the pump operating system still uses a manual star delta motor circuit system, where the distribution pump will work 24 hours. Efforts are being made to increase savings in the use of electrical energy using the commonly used starting method, namely Variable Frequency Drive. This Final Project report discusses the comparison of power usage and cost usage between Star Delta and VFD. The results of the analysis of power usage in stable conditions in the 10th second using a 22 kW motor using Star Delta is 19.3 kW, and the cost of using the power output is IDR. 36,910,080. Meanwhile, the power usage with the same motor load and in the 10th second using a VFD is 11.3 kW and the cost of using the power is IDR. 21,876,480.

Keywords: Distribution pump, Star Delta, Variable Frequency Drive