

# **COMPARATIVE ANALYSIS OF ENERGY EFFICIENCY OF CONVENTIONAL WIND POWER PLANTS WITH ARCHIMEDES SPIRAL WIND POWER PLANTS**

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## **ABSTRACT**

*Currently, many power plants are being developed that have minimal negative impacts on the environment. The development of renewable energy plays a very important role. Recently, a new wind turbine model has been developed, namely the Archimedes Spiral Turbine Liam F1. However, not much research has been done on this turbine. Therefore, this study will discuss the development of the Archimedes Liam F1 spiral turbine model by comparing the Archimedes Liam F1 spiral turbine with a conventional wind turbine in wind media. The study conducted to compare the use of the Archimedes Liam F1 spiral turbine and a conventional wind turbine in wind media shows that the use of the Archimedes Liam F1 spiral turbine is more efficient than the conventional turbine in wind media. The Archimedes Liam F1 turbine in wind media with a wind speed of 4.9 m / s gets a power of 70.54 mW using a gear ratio of 3: 1 while without a gear ratio it gets a power of 10.428 mW. conventional wind turbines in wind media with wind speed of 4.9 m/s get power of 0 mW using gear ratio of 3:1 while without gear ratio get power of 4.59 mW, with wind speed of 3.5 m/s Archimedes wind turbine can move while conventional wind turbine moves at wind speed of 4.1 m/s. So it can be concluded that Archimedes liam F1 turbine is more efficient than conventional wind turbine.*

**Keywords:** *Conventional Wind Turbine, Archimedes Spiral Turbine Liam F1, Turbine Efficiency, Wind Median*