

RINGKASAN

ANALISIS KINERJA BATERAI PADA AXIS TURBIN ANGIN UNIT 1 KOTA HOUHOKUCHO, PERFEKTUR YAMAGUCHI, CLEAN ENERGY FACTORY CO., LTD.

Bagas Duta Respatty

Penelitian ini bertujuan untuk menganalisis kinerja baterai yang digunakan dalam sistem pitch control pada turbin angin horizontal (*horizontal axis wind turbin*) Unit 1 yang terletak di Kota Houhokucho, Prefektur Yamaguchi, milik CLEAN ENERGY FACTORY Co.,Ltd. Baterai pada sistem ini tidak berfungsi sebagai penyimpan energi listrik hasil pembangkitan, melainkan digunakan secara khusus untuk menggerakkan bilah turbin melalui sistem pitch kontrol berbasis elektrik.

Analisis dilakukan berdasarkan parameter teknis baterai seperti kapasistas, tegangan, arus, dan daya tahan, serta mempertimbangkan kondisi lingkungan seperti suhu, kelembaban, dan kecepatan angin. Selain itu, dibahas pula pola penggunaan baterai dalam pengoperasian turbin serta beban daya yang diberikan oleh sistem pitch kontrol terhadap baterai. Penelitian ini diharapkan dapat memberikan gambaran tentang efisiensi dan ketahanan baterai dalam kondisi operasional sebenarnya dan menjadi bahan pertimbangan dalam pengelolaan pemeliharaan turbin.

Kata kunci : Turbin Angin, Pitch kontrol, baterai, Axis horizontal, daya tahan.

SUMMARY

BATTERY PERFORMANCE ANALYSIS ON WIND TURBINE AXIS UNIT 1 HOUHOKUCHO CITY, YAMAGUCHI PREFECTURE, CLEAN ENERGY FACTORY CO., LTD

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This study aims to analyze the performance of batteries used in the pitch control system of the horizontal axis wind turbine (HAWT) unit 1 located in Houhokucho City, Yamaguchi Prefecture, owned by CLEAN ENERGY FACTORY Co.,Ltd. The battery in this system does not serve as an energy storage for generated electricity but is specifically used to operate the turbine blades through a fully electric pitch control mechanism.

The analysis is conducted based on technical parameters of the battery such as capacity, voltage, current, and durability, while also taking into account environmental conditions such as temperature, humidity, and wind speed. In addition, the study discusses the usage pattern of the battery during turbine operation and the electrical load imposed by the pitch system. The results are expected to provide insight into the battery's efficiency and endurance under actual operating conditions and to support maintenance planning for wind turbine systems.

Keywords : Wind Turbin, pitch control, battery, horizontal axis, durability