제주 남동부 지역을 대상으로 한 WindPRO의 발전량 예측에 관한 연구

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Study on the Power Performance on WindPRO Prediction
in the Southeast Region of Jeju Island

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In order to research the way to evaluate wind resource without actual Met Mast data, this paper has been carried out on the southeastern region of Jeju island, Korea. Although wind turbine has been an economical alternative energy resource, misjudging the prediction of lifetime or payback period occurs because of the inaccurate assessment of wind resource and the location of wind turbine. Using WindPRO(Ver. 2.7), a software for wind farm design developed by EMD from Denmark, wind resources for the southeastern region of Jeju island was analyzed, and the performance of WindPRO prediction was evaluated in detail. Met Mast data in Su-san 5.5Km far from Samdal wind farm, AWS in Sung-san 4.5km far from Samdal wind farm, and Korea Wind Map data had been collected for this work.

Key words : WindPRO, WAsP(Wind Atlas Analysis and Application Program), Wind Power density(풍력에너지밀도), Weibull distribution(와이블 분포), Wind density map(풍력밀도지도)

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Simulink에서 영구자석 동기형 풍력발전시스템의 전압변동에 대한 시뮬레이션

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Simulation for Voltage Variation of a Permanent Magnetic Synchronous Generator
Wind Turbine Systems on Simulink

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This study performs modelling and simulation of permanent magnetic synchronous generator wind turbine by using Matlab & Simulink. In simulation, change of wind velocity, change of load, and voltage decrease of infinite bus are performed. Through such simulation, different with wiring system that there is only existing load, this study can confirm problems and voltage changing characteristics, which can occur in distributed electric power that load and electric power is mixed and operated, especially, in interconnecting with wind power generation.

Key words : Permanent Magnet(영구자석), Synchronous Generator(동기발전기), Voltage Variation(전압변동), Matlab & Simulink(매틀랩&시뮬링크)

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Simulink에서 계통연계 유도형 풍력발전시스템의 특성해석에 대한 연구

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A Study on the Characteristic Analysis of a Grid-connected Induction Generator
for Wind Power Systems on Simulink

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This study suggests a modeling of grid-connected wind turbine generation systems and performs simulation according to increase/decrease of real wind speed. MATLAB & SIMULINK implemented modeling of grid-connected wind turbine generation system. Terminal voltage, grid voltage, and active/reactive power shall be observed following the performance of simulation.

Key words : Wind Turbine Generation(풍력발전), Matlab&Simulink(매틀랩&시뮬링크)

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