

## **A Study on Method for Identifying Capacity Factor Declination of Wind Turbines**

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**Abstract :** The investigation on wind turbine degradation was carried out using the nacelle wind data. The three Vestas V80-2MW wind turbines of Sungsan wind farm in Jeju Island, South Korea were selected for this work. The SCADA data of the wind farm for five years were analyzed to draw power curve of the turbines. It is assumed that the wind distribution is the Rayleigh distribution to calculate the normalized capacity factor based on the drawn power curve of the three wind turbines for each year. The result showed that the reduction of power output from the three wind turbines occurred every year and the normalized capacity factor decreased to 0.12%/year on average.

**Keywords :** wind energy, power curve, capacity factor, annual energy production

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