

Wind Sensing Doppler LIDAR, Improving Wind Turbines

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INTRODUCTION

In recent years, the focus on alternative energy has grown and with that the interest in optimizing of known alternative energy sources. It has been shown by Catch The Wind inc. that wind sensing Doppler LIDAR mounted on a wind turbine can be used to optimize the performance of wind turbines up to 10%. It has further more been shown, that wind sensing Doppler LIDAR mounted on the ground is a good alternative, to expensive mast mounted wind measurement, for analyzing potential wind park locations.

THE PROJECT

This project investigates a novel technique of Doppler LIDAR and its pros and cons. In specific the choice of wavelength, the use of fiber laser, and pulsed signal versus continues signal will be investigated.

In addition to this, other uses of the LIDAR will be investigated. This could be temperature measurements, ash detection, or detection of atmospheric composition such as CO₂ concentrations.



Figure 1 Horns Rev wind farm, wake effects