Wind farm Sønder Bork

ADLS Case Study

Initial situation

The Sønder Bork wind farm is located in in the Midtjylland region of Denmark, close to the North Sea coast. It consists of five Vestas V162 wind turbines with a total capacity of 30 MW. The project was intended to demonstrate what an ADLS could look like under the current legal framework in Denmark. To this end, the pilot project was planned as a reporting project together with the Danish authorities and the operator.

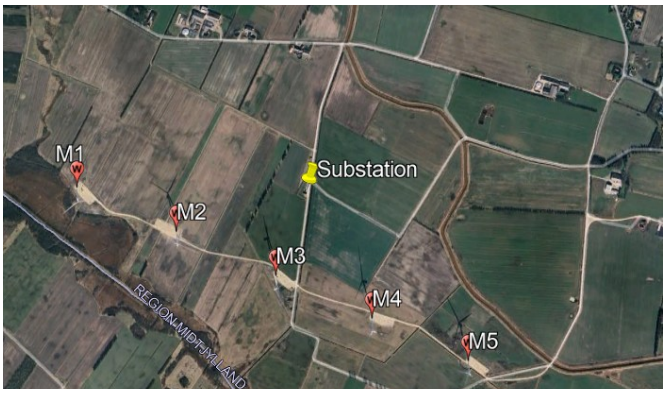

***Figure 1**: Sønder Bork wind farm on a map. Red markers indicate the individual turbines; the substation is shown in yellow.*

Solution

A Light:Guard Receiver was installed to detect aircraft in the area surrounding the Sønder Bork wind farm. Together with the Danish project partner, the receiver was installed at ground level at the substation. Because the lighting of the five turbines could not yet be suppressed by the light:guard system due to the lack of legislation, the Aircraft Dection Lighting System was simulated. A virtual Light Control Unit (LCU), developed specifically for this project, was used for this purpose. Normally, the LCU controls the lighting at the wind farm; in this case, it was used exclusively for reporting.

Results

Six months of data, from March 2026 to September 2026, were evaluated to analyse when the lights would be switched on and off. Over this period, it produced excellent results: an average system availability of 98,7% and a theoretical lights-off time of 97,4%%.Table 1 shows the summary of lighting states for all months at the Sønder Bork wind farm.

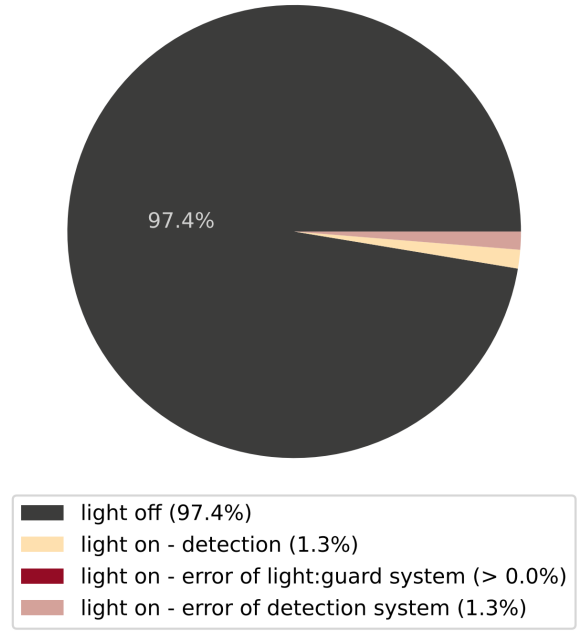

***Figure 2:** Percentage shares of lighting status (Sønder Bork wind farm, March to September 2026)*

Month	Lights off	Lights off (detection)	Lights off (error)	System availability
March	97,50%	2,50%	0,00%	100,00%
April	92,50%	1,10%	6,50%	93,50%
May	99,00%	0,90%	0,10%	99,90%
June	98,70%	1,30%	0,00%	100,00%
July	99,70%	0,30%	0,00%	100,00%
August	98,30%	1,70%	0,00%	100,00%
September	99,50%	0,50%	0,00%	100,00%
Average	97,40%	1,30%	1,30%	98,70%

***Table 1:** Summary of lighting times (Sønder Bork wind farm, March to September 2026)*