

Wind farm Lüdersdorf

ADLS Case Study



Initial situation

The Lüdersdorf wind farm is located in the municipality of Wriezen in Brandenburg, approximately 50 km northeast of Berlin. It consists of three Vestas wind turbines with a total output of 11.6 MW. There are three airfields nearby: Marxwalde-Neuhardenberg (15 km), Strausberg (16 km), and Werneuchen (22 km). Due to legal requirements, the implementation of an ADLS system was required.



Figure 1: Lüdersdorf wind farm and the adjacent airfields

Solution

In February 2024, the light:guard Aircraft Detection Lighting System was put into operation at the Lüdersdorf wind farm. The system uses transponder signals from flying objects to determine their location. The wind turbines' obstacle lights are only activated when a flying object is nearby, reducing light pollution and ensuring flight safety.

Results

During the six-month analysis phase from September 2024 to February 2025, the average time the lights were switched off was 92.61%, despite high flight activity in the area. This emphasizes the effectiveness and reliability of the light:guard system. Table 1 shows the summary of switch-off times for all months at the Lüdersdorf wind farm.

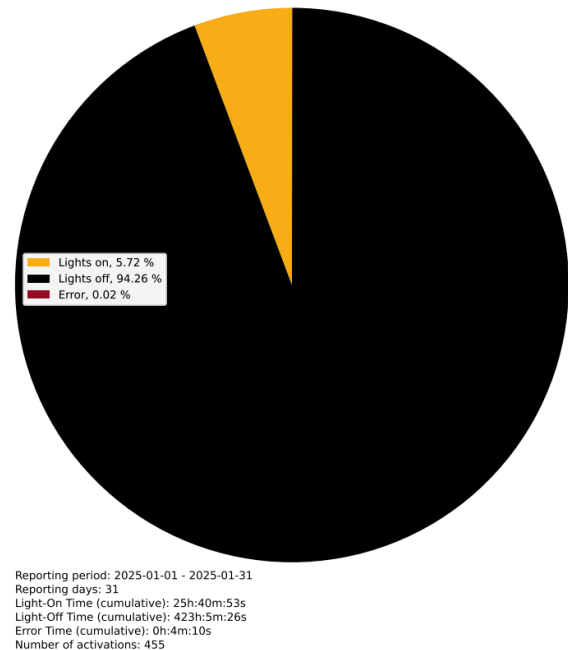


Figure 2: Percentage shares of lighting status (Lüdersdorf wind farm, January 2025)

| Month | Activations | Lights on (s) | Lights off (s) | Lights off (%) | Lights on per activation (s) |
|-----------|-------------|---------------|----------------|----------------|------------------------------|
| September | 108 | 27:05:12 | 277:47:14 | 91,10 % | 00:15:03 |
| October | 191 | 15:32:24 | 365:12:06 | 95,92 % | 00:04:53 |
| November | 309 | 14:08:55 | 408:09:20 | 96,65 % | 00:02:45 |
| December | 89 | 11:55:46 | 452:50:29 | 97,41 % | 00:08:03 |
| January | 455 | 25:40:53 | 423:05:26 | 94,26 % | 00:03:23 |
| February | 828 | 71:12:23 | 290:29:12 | 80,29 % | 00:05:10 |
| Average | 330 | | | 92,61 % | 00:06:33 |

Table 1: Summary of lighting times at the Lüdersdorf wind farm from September 2024 to February 2025