More than 1500 wind turbines inspected in Scandinavia

Reference Case: Vestas NCE wind turbine blade inspections

Vestas Northern Central Europe (NCE) was looking for a company to carry out the blade inspection on more than 1500 wind turbines across Denmark, Norway, Sweden and Finland. Time was the critical constraint and to solve this issue, they opted for Sulzer Schmid's drone-based solution. This allowed them to meet the high-quality standards and demanding time frame essential for this project.

The Challenge

End of February 2020, Vestas NCE approached Sulzer Schmid, a leader in delivering drone-based inspections. Having successfully led a smaller campaign for Vestas in the region the previous year, Sulzer Schmid with their artificial intelligence (AI) and data processing software were well prepared for the task.

The scope was announced with a challenging lead time of four months and an immediate start. This required swift mobilisation and training of multiple certified inspection teams in March 2020, at the height of the Covid-19 outbreak. This created additional complexities through social distancing rules and travel restrictions.

The Solution

Sulzer Schmid carried out the inspections utilizing its 3DX™ Blade Platform which deploys automated Unmanned Aerial Vehicles (UAVs) to inspect wind turbine blades. Partnering up service providers WKA, Energy Innovation, 3DWS and Fairwind, Sulzer Schmid introduced an online training program and trained a total of 11 teams. This enabled simultaneous inspections in all four countries.

Central project management with detailed planning and overview of all ongoing inspections 24/7 was provided by Sulzer Schmid and ensured on-time completion of the campaign.

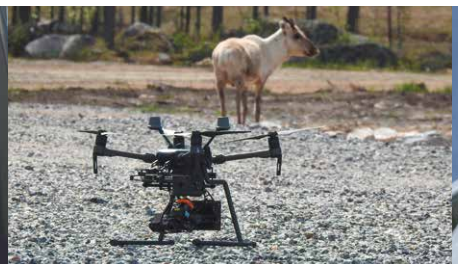
During the inspections, high-resolution images and sensory data were captured by the UAV payload and transferred to the 3DX™ Blade Platform. The state-of-the-art software employs artificial intelligence during a pre-annotation step and blade experts are then able to work on the data and deliver reports to Vestas on a continuous basis. Vestas could access the live inspection data in the BladeStation software for full transparency at all times.

The Benefits

By tasking Sulzer Schmid to carry out the inspections, Vestas NCE had one point of contact throughout this large-scale project. With eleven different wind turbine types and sometimes very remote locations, Sulzer Schmid managed to inspect up to 13 turbines per system and day.

The AI driven data and exploration part of the 3DX™ Blade Platform can handle several hundred thousand annotations per customer while facilitating the work of the blade experts. The compressed data is stored centrally and can be filtered for multiple usage.

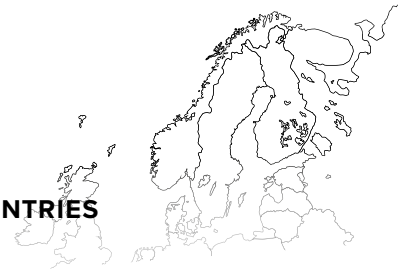
In addition, data captured in the 2019 campaign could be used to track the state of the blades over times and ensure their integrity. Vestas NCE are now in a position in which they can utilize data over time to optimize and plan repair activities in this region.




SULZER SCHMID

> Inspecting more than 1500 wind turbines across four different countries and in very remote locations during a short period of time was always going to be a challenge. With the outbreak of Covid-19 it was an even greater one. Sulzer Schmid fully met our expectations. With complete dedication, flexibility and agility they managed to mobilise inspection crews and help our engineers to deliver very good reports with reliable, high-quality data within the given timeframe by doing a great pre-assessment. Excellent cooperation gave us full transparency and peace of mind throughout the process."
>
> *Jöns Sjöstedt, Sr. Service Director Vestas Nordic*

	2019	2020
Countries	Finland and Sweden	Denmark, Finland, Norway and Sweden
Number of months for campaign	3	4
Inspected turbines	1,179	1,501
Average time / WTG	60 min	45 min
Inspected turbines types	7	11
Number of inspection teams	5	11
Turnaround annotations	4.5 days	2 days
WTG inspections per day	up to 11	up to 13



4
COUNTRIES

4
MONTHS

1501
WIND TURBINES

45 MIN
ON AVERAGE PER WTG

11
TURBINES TYPES

11
TEAMS

UP TO
13
INSPECTIONS PER PILOT/DAY

About Sulzer & Schmid Laboratories AG

Founded in 2016 by Tom Sulzer and Christof Schmid, Zurich-based Sulzer Schmid is at the forefront of innovation in the energy service sector. Recognizing the potential for unmanned aerial vehicle (UAV) technology to redefine industrial grade inspections, the two entrepreneurs and their engineering team have developed an end-to-end technology platform that produces high-quality inspection results with ease – precisely, repeatably, efficiently. To date, Sulzer Schmid has achieved a track record of more than 6000 turbines that were inspected fully autonomously across more than 20 countries around the world. The capture part of the 3DX™ Blade Platform allows for up to 17 wind turbines to be inspected in a single day. The data processing and exploration part of 3DX™ can handle several hundred thousand annotations per customer. All together, it underpins the commitment of Sulzer Schmid to the highest quality, efficiency, safety and ground-breaking use of technology.