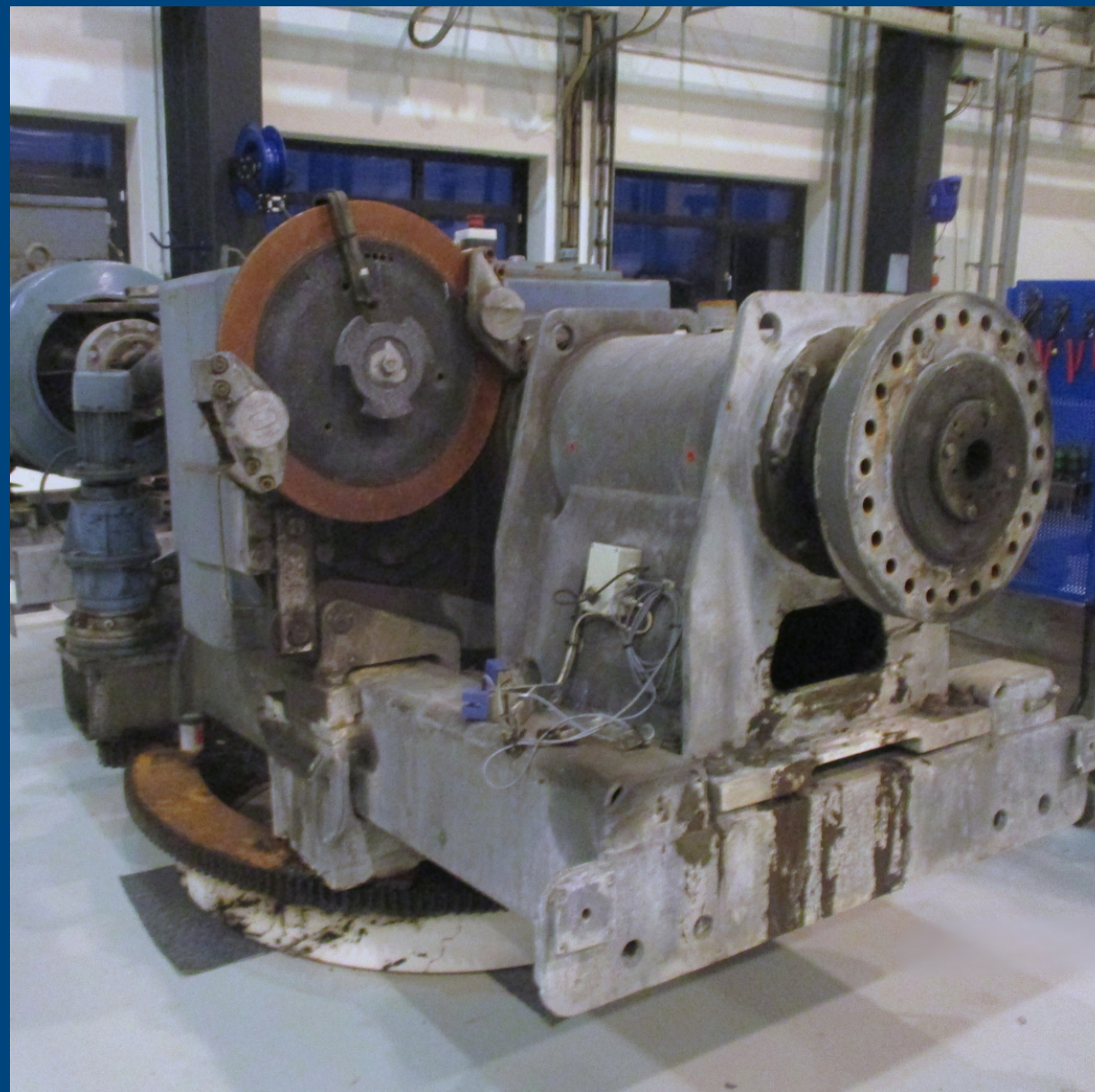


A WindTech case

Ørsted Wind Power and WindTech refurbishes and donates a Vestas V27 to a Taiwanese university



WindTech *as*

Date of the project:

December 2018

In late 2018, Ørsted Wind Power made the decision to donate a V27 wind turbine for educational purposes to a university in Taiwan.

With a deadline of February 2019, WindTech had the dual task of both refurbishing and crafting a user manual for the nacelle.

Explore the challenges, objectives, and outcome of this exciting project in our 2018 case study.

Need help with your wind turbine project?

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Project background

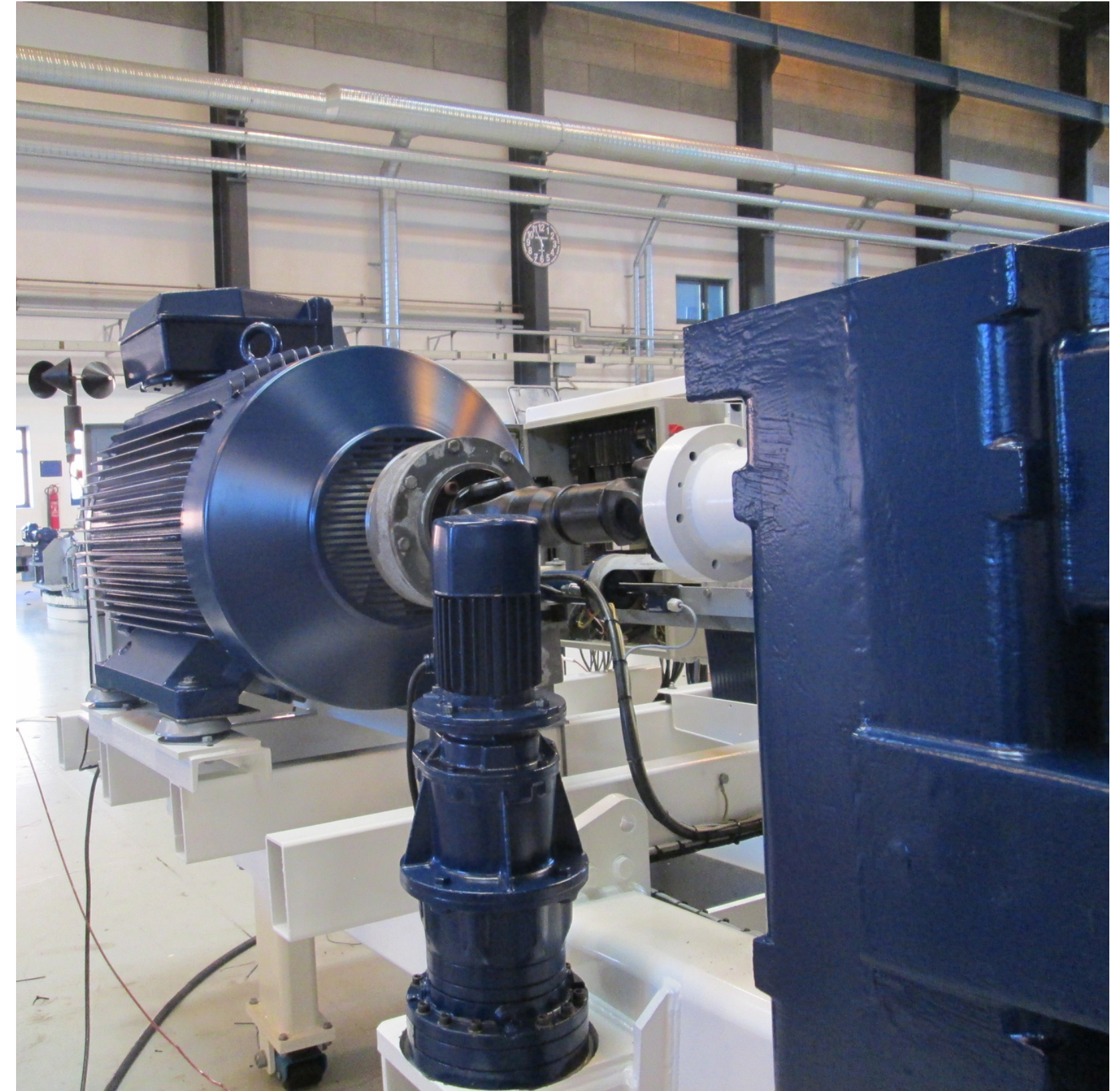
In the wind energy industry, creating a sustainable future means educating the next generation and encouraging new ideas. This goal isn't limited by borders; it's a global effort. By supporting learning and innovation worldwide, we're all working together to make a cleaner, greener future, with wind energy leading the way.

Refurbishing and Donating a Vestas V27 Wind Turbine to Taiwan

Ørsted Wind Power chose to embrace this goal, and they did so by donating a Vestas wind turbine to a Taiwanese university. For this task, they chose WindTech as their refurbishment partner. But because of the educational purposes of the refurbished wind turbine, WindTech also needed to implement a list of very specific functions along with a manual on how to use these functions. This would serve as a guide for the university and students on how to use the functions for educational purposes.

Besides the complete refurbishment and implementation of the new functions along with the manual, WindTech also had to transform the nacelle from 50Hz to 60Hz to accommodate the new electrical grid.

So, a rather simple refurbishment turned into a more complex project by adding on several additional requirements that would all aid the Taiwanese University in providing practical learning of the wind industry.



The Assignment

The Objective

- Refurbish and repair a Vestas V27 wind turbine for Ørsted Wind Power.
- Implement specific functions and a manual for university faculty and students.
- Prepare the nacelle for transportation to the Taiwanese university.

The Challenges

- Full refurbishment of the V27 along with the transformation from a 50Hz to 60Hz electrical grid.
- Combining a full refurbishment with the implementation of new functions and a written manual.
- Communicating clear and precisely how the university's faculty could utilize the wind turbine.

The Results

WindTech successfully refurbished a Vestas V27 wind turbine for educational purposes and adapted it to a 60Hz electrical grid. The nacelle was subsequently donated by Ørsted to the Taiwanese university.

Who is WindTech?

We are a Danish company with a long history dating back to 2008, specializing in the repair and refurbishment of wind turbines. Our core expertise lies in the renewal of older wind turbines, and we are dedicated to offering trust, reliability, and high-quality to all our customers and business partners.

Our services extend far beyond Denmark's borders, with successful operations in Europe, Asia, and the USA. When you choose to collaborate with us, you're not simply refurbishing or repairing a wind turbine; you're forging a partnership with an experienced business partner who shares your commitment to clean energy, sustainability, and a high turnover.

**Need help with your
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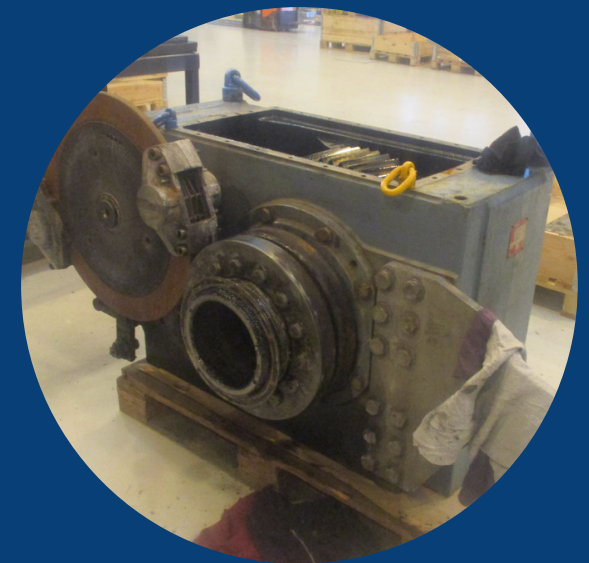


Refurbishing and improving an old Vestas V27

In December 2018, WindTech embarked on the project, one that would breathe new life into a Vestas V27 wind turbine. The mission was clear: to complete a full refurbishment, ensuring that this wind turbine was not only operational, but also optimized for the specific needs of the Taiwanese university and energy grid.

The project began with an entry-check to assess the condition of the nacelle and its key components. After the entry-check, it became clear that the nacelle had been subject to great wear and tear over the years. The degradation was evident as each component was separated, thoroughly cleaned, and degreased. The main challenge of the project lay in the electrical components. To align with the Taiwanese 60Hz electrical grid, we replaced the existing 50Hz electrical components, a task that demanded precision and expertise.

Besides the full refurbishment and transformation, the project also included the implementation of new functions to enhance the wind turbine's capabilities. These additions included the ability to measure wind speed, gauge wind direction, and enable the turbine to rotate at slower speeds when required. This expanded functionality would further contribute to the turbine's adaptability and performance for the university and its faculty. After the functions were implemented, they were noted, formulated and written down so they could serve as a manual for the Taiwanese university.





Who is Ørsted Wind Power?

Ørsted Wind Power is a Danish company and a global leader in offshore wind energy, and their organisation has played a vital role in the continued growth of the wind industry across the world.

Ørsted was among the pioneers who created the world's first offshore wind farm in 1991 and since then, they've continued to contribute to the development of offshore wind farms.

By choosing to completely refurbish, transform and develop an older Vestas V27 to a university, Ørsted continues to educate and reinforce the wind energy industry and their future employees.

Together with WindTech, Ørsted Wind Power contributed an essential tool along with guidelines and knowledge to utilize it for educational purposes.

Refurbishing and Reassembling the V27 Nacelle

With the transformation of the electrical components and the new features and guideline completed, the mechanical components received their due attention. The main shaft and yaw system, showing significant signs of wear and tear, were refurbished to restore them to their optimal working condition.

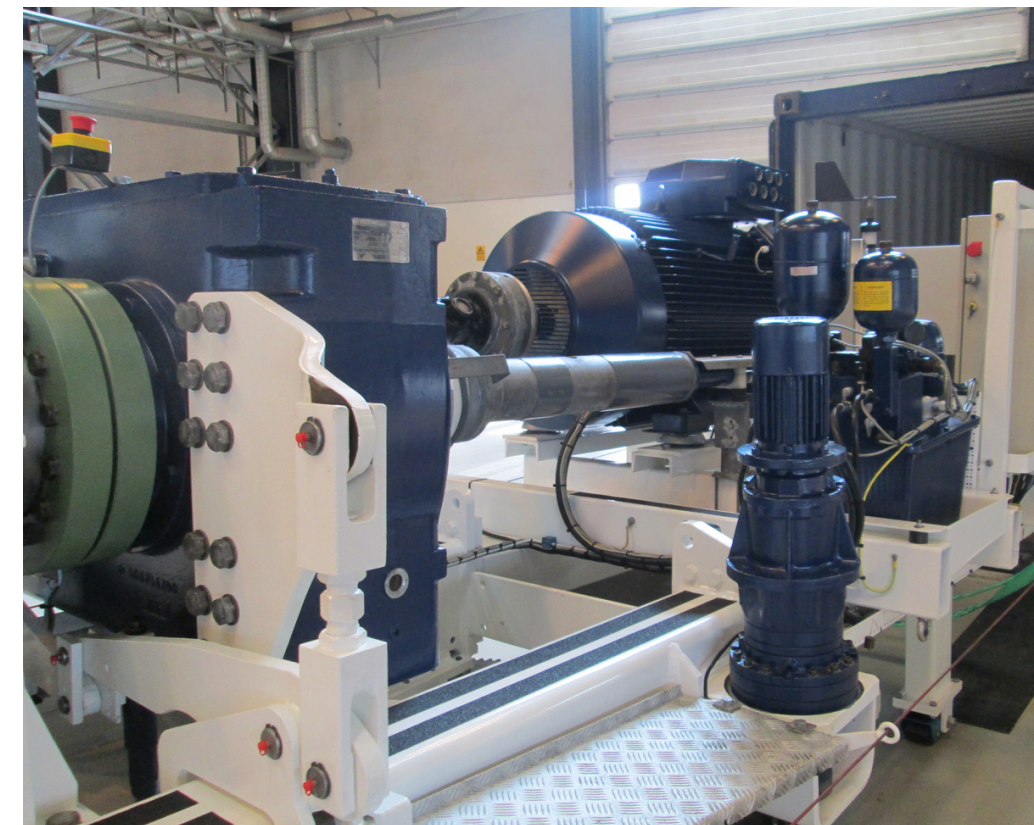
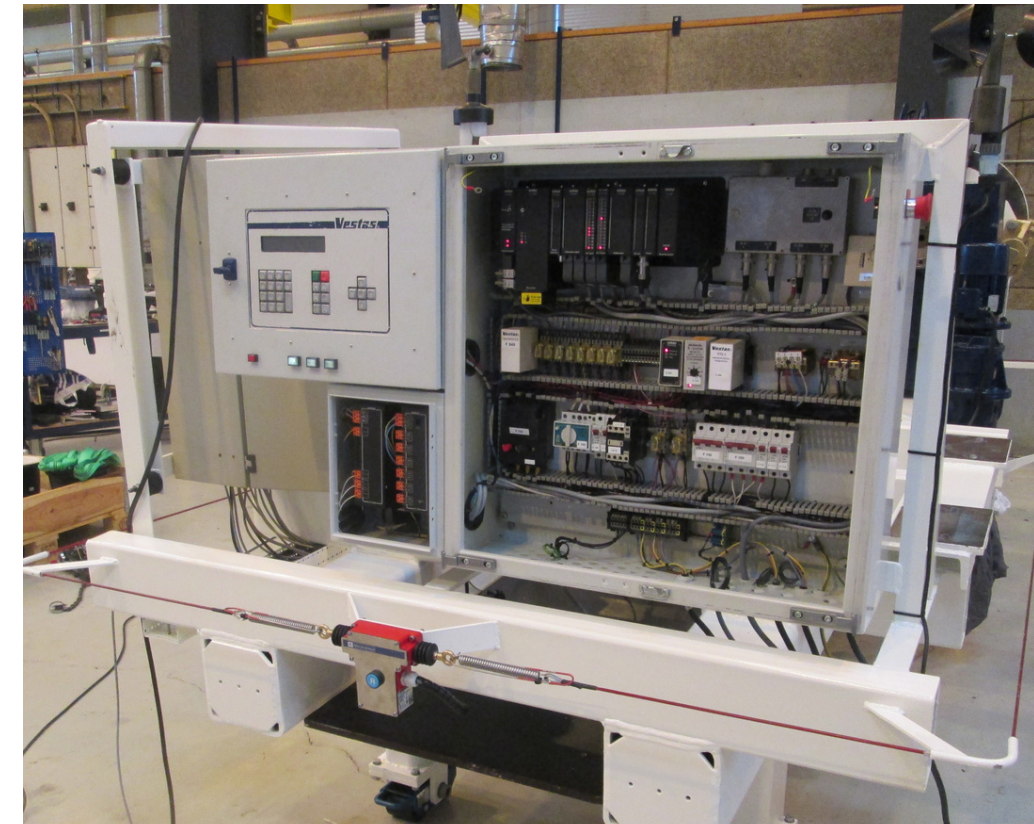
This process marked the final milestone in the project, as the wind turbine began to take its final shape.

Upon reassembling the nacelle, the last finishing touch was the placement of the nacelle cover, which was given a fresh coat of paint. This not only ensured the wind turbine's functionality, but also enhanced its appearance. The nacelle underwent a detailed exit-check to ensure that every component was in perfect working order. This comprehensive evaluation was a crucial step to guarantee the wind turbine's performance and life extension.

The Long 40-day Journey to Taiwan

Now, the fully refurbished and revitalized Vestas V27 wind turbine awaited its 40-day journey to the Taiwanese university. Its purpose was clear: to serve as a valuable educational tool for the future minds of the wind energy industry.

In the end, the Vestas V27 was given a much-needed refurbishment and life extension. Along with a variety of new features and functions, it was ready to be used for educational purposes, ensuring that the knowledge and skills of the future generation in the wind industry would benefit from this sustainable and innovative project.



WindTech as

If you're interested in learning more about our nacelle refurbishment services or exploring what we can offer your company and projects, please don't hesitate to reach out to us.

We're here to answer your questions and discuss how we can assist you in achieving your wind energy goals.

Get in touch

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