



MBWIND
All solutions for wind power

WIND ENERGY

MBWIND

**THE COMPANY PROVIDING COMPREHENSIVE
SOLUTIONS FOR THE WIND POWER INDUSTRY**

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MBWIND



VỀ MBWIND



MBW originated and developed from a Japanese company specializing in repair, maintenance, installation, and heavy lifting services for oversized and overweight equipment

We have been accompanying and contributing to the development of the energy industry in Vietnam for over 10 years.

In 2022, MBWIND received strategic investment and collaboration from Vestas, a leading global manufacturer of wind turbine blades.

With a solid foundation from these two resources, we are confident in delivering our customers with impeccable and high-quality services.

- As a crucial link in the wind energy production process, we take pride in being a market leader in maintaining wind turbine blades - one of the most vital components of a wind turbine.
- In the event that the blades are damaged or simply lose their structural integrity due to erosion from wind and rain, the performance of the wind turbine will significantly decrease.
- Our job is to ensure that the blades maintain their structural and aerodynamic integrity at an optimal level to generate electricity with the highest efficiency.

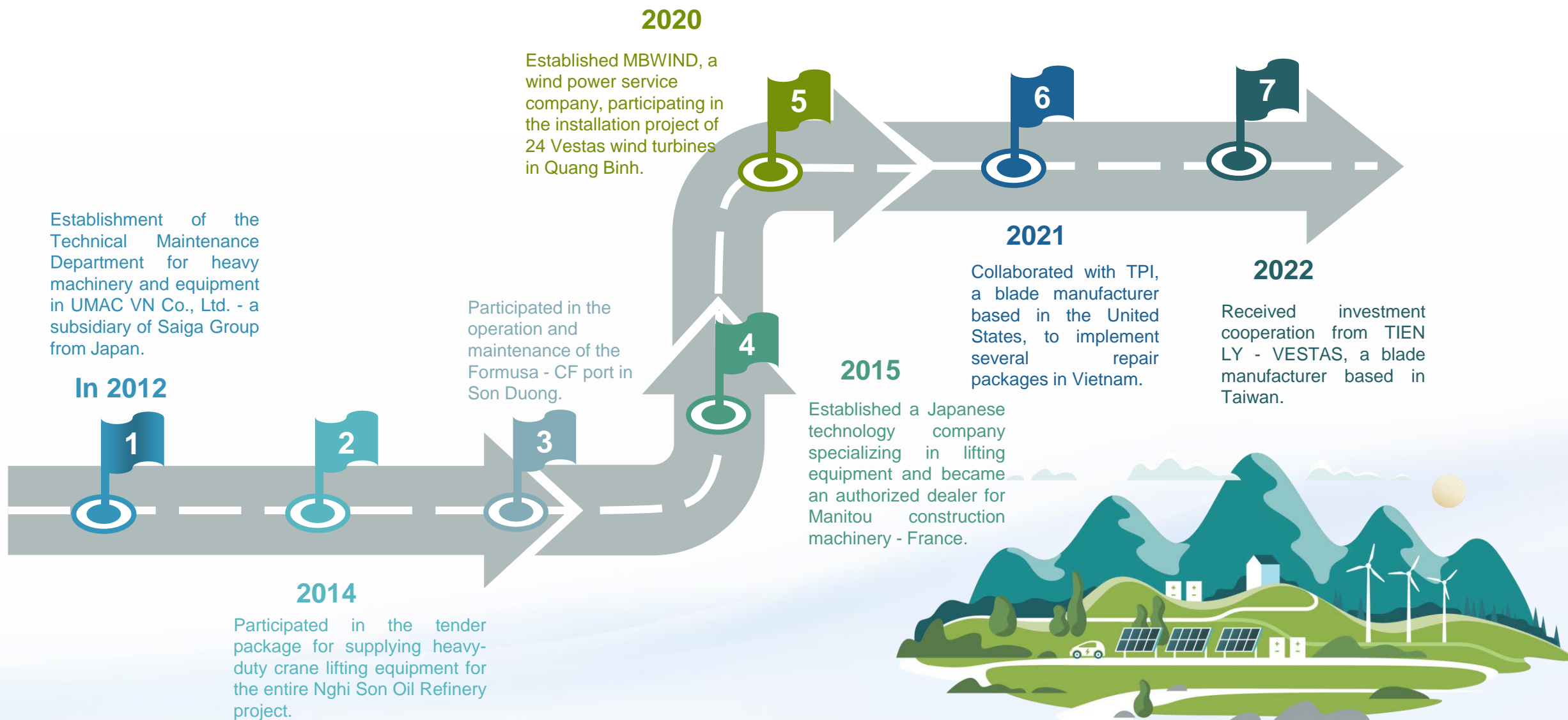


2

THE PROCESS OF FORMATION AND DEVELOPMENT



The process of formation and development

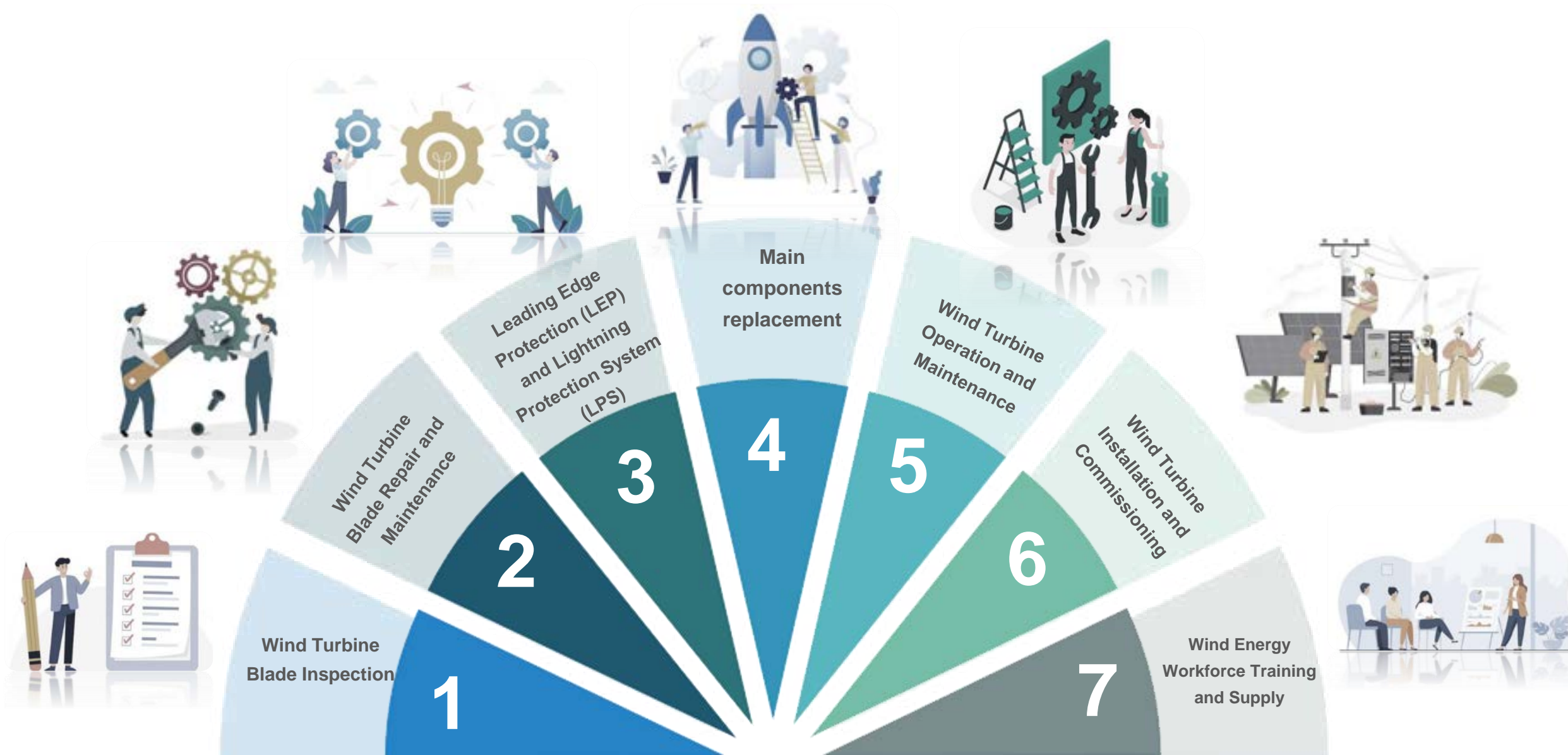


3

MAIN BUSINESS SECTORS



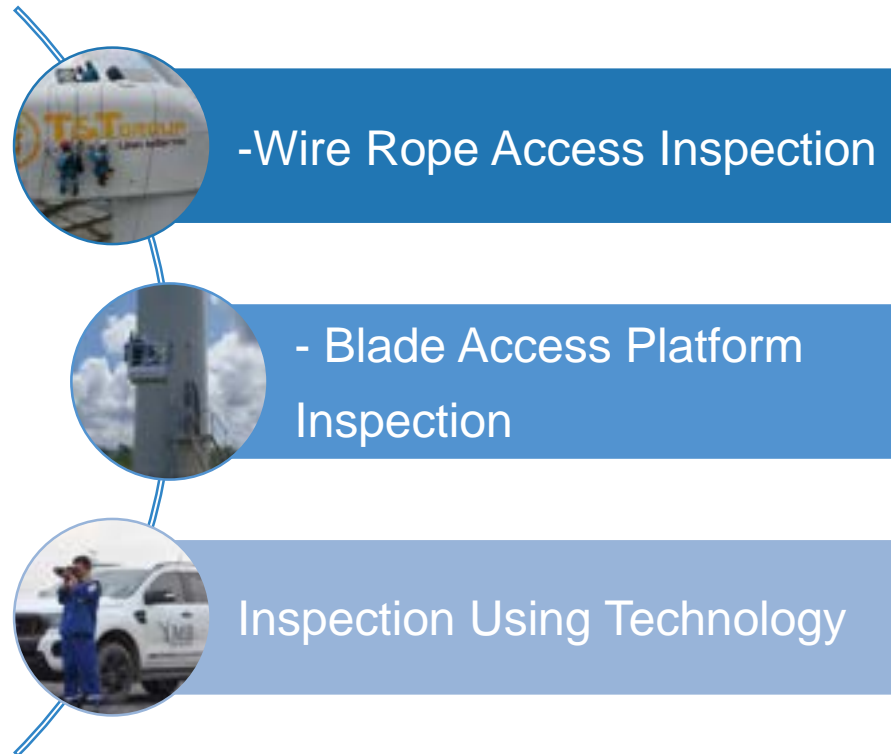
MAIN BUSINESS SECTORS



Wind Turbine Blade Inspection

By utilizing various approaches and techniques for inspection, MBWIND can provide fast and efficient services to conduct detailed analysis of any aspects of blade damage.

Inspection Methods



- ❖ Drone
- ❖ Robotic Inspection
- ❖ A Telephoto lens camera has the ability to zoom in far distances with high sharpness.

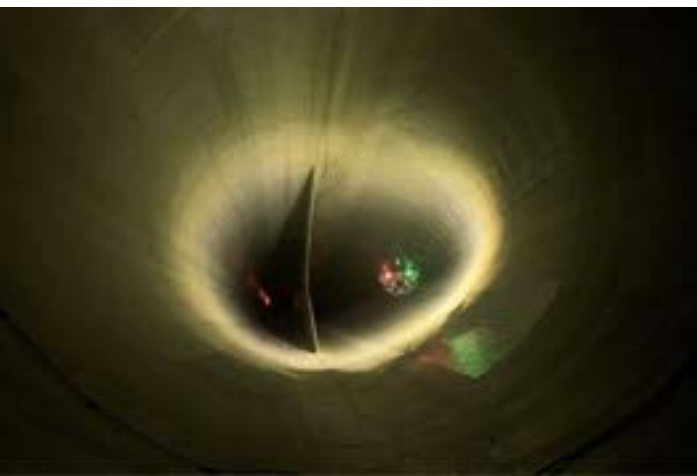


- Images of Inspection Using Rope Access Method



- Blade Access Platform Inspection

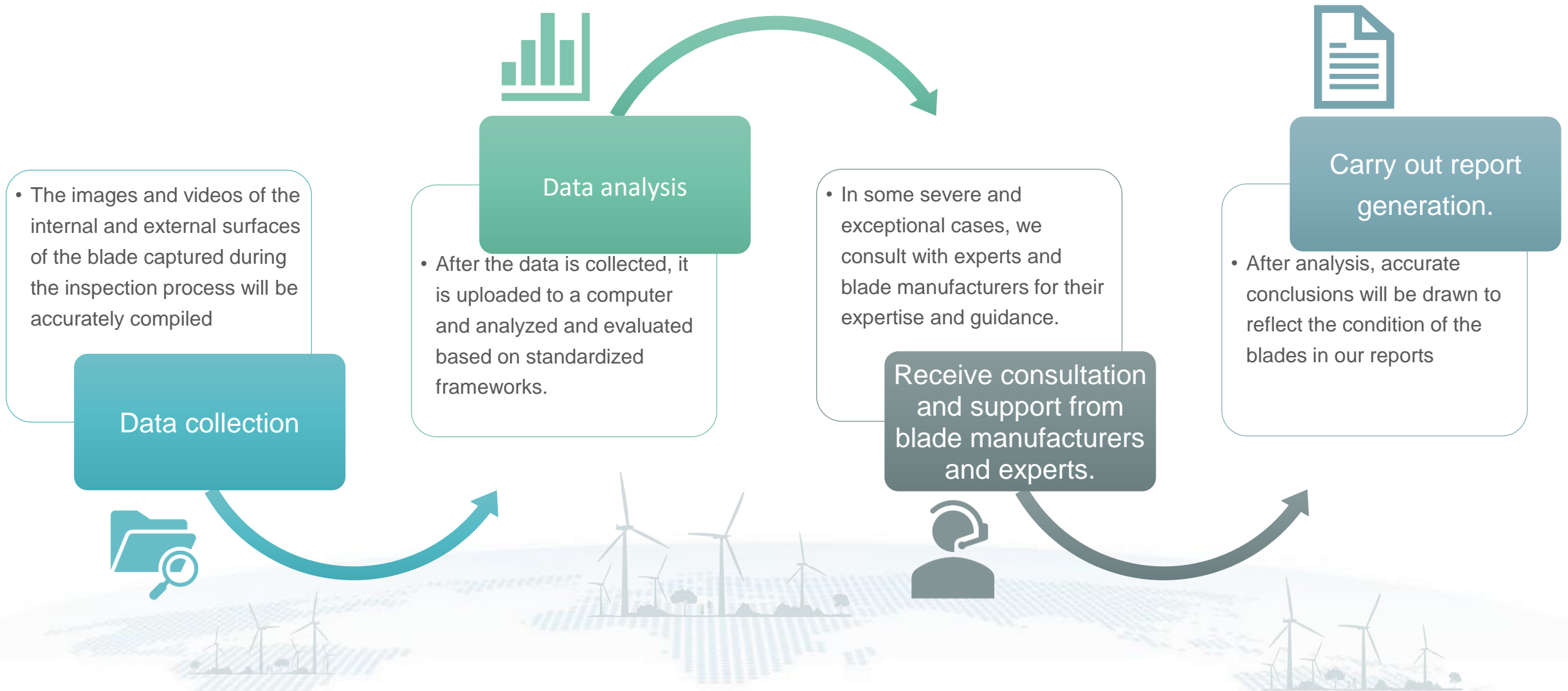




■ Inspection with the Support of Technology

- ❖ Drone
- ❖ Robotic Inspection
- ❖ A Telephoto lens camera has the ability to zoom in far distances with high sharpness.

- The process of completing an accurate inspection report to be sent to the customer



The reports generated after the blade inspection.



Interior blade inspection images.

| | | |
|--|--|-------------------|
| | MBWIND POWER SERVICES ANNUAL INSPECTION REPORT | Doc: FM-CN-PS-004 |
| | | Rev: A |
| | | Date: 2022-10-21 |

| | | |
|--|--|-------------------|
| | MBWIND POWER SERVICES ANNUAL INSPECTION REPORT | Doc: FM-CN-PS-004 |
| | | Rev: A |
| | | Date: 2022-10-21 |



图 1-98 叶片 PS 面壳体-5M

图 1-99 叶片 PS 面壳体-10M

图 1-86 叶片 SS 面壳体-15M

图 1-87 叶片 SS 面壳体-20M



图 1-100 叶片 PS 面壳体-15M

图 1-101 叶片 PS 面壳体-20M

图 1-88 叶片 SS 面壳体-25M

图 1-89 叶片 SS 面壳体-30M

Exterior blade inspection images.



| | | |
|--|--|-------------------|
| | MBWIND POWER SERVICES ANNUAL INSPECTION REPORT | Doc: FM-CN-PS-004 |
| | | Rev: A |
| | | Date: 2022-10-21 |

| | | |
|--|--|-------------------|
| | MBWIND POWER SERVICES ANNUAL INSPECTION REPORT | Doc: FM-CN-PS-004 |
| | | Rev: A |
| | | Date: 2022-10-21 |



图 1-11 小翼板后缘检查排点



图 1-12 前缘检查排点

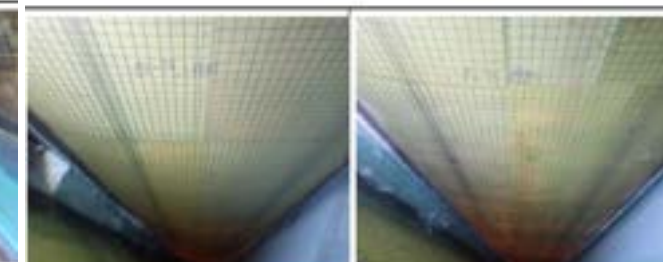


图 1-39 PS-TE-21M

图 1-40 PS-TE-23M



图 1-13 大小翼板中间的检查排点

图 1-14 SS-TE-6M

TE END

LE END

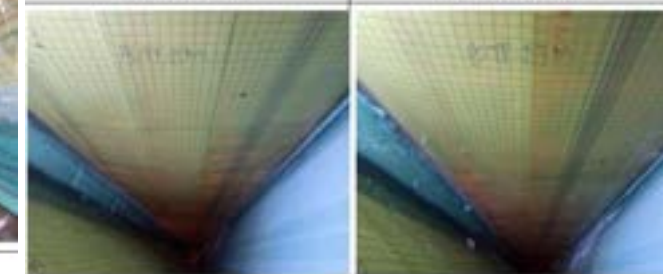
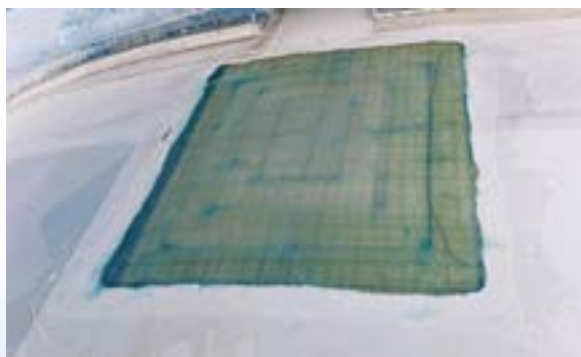


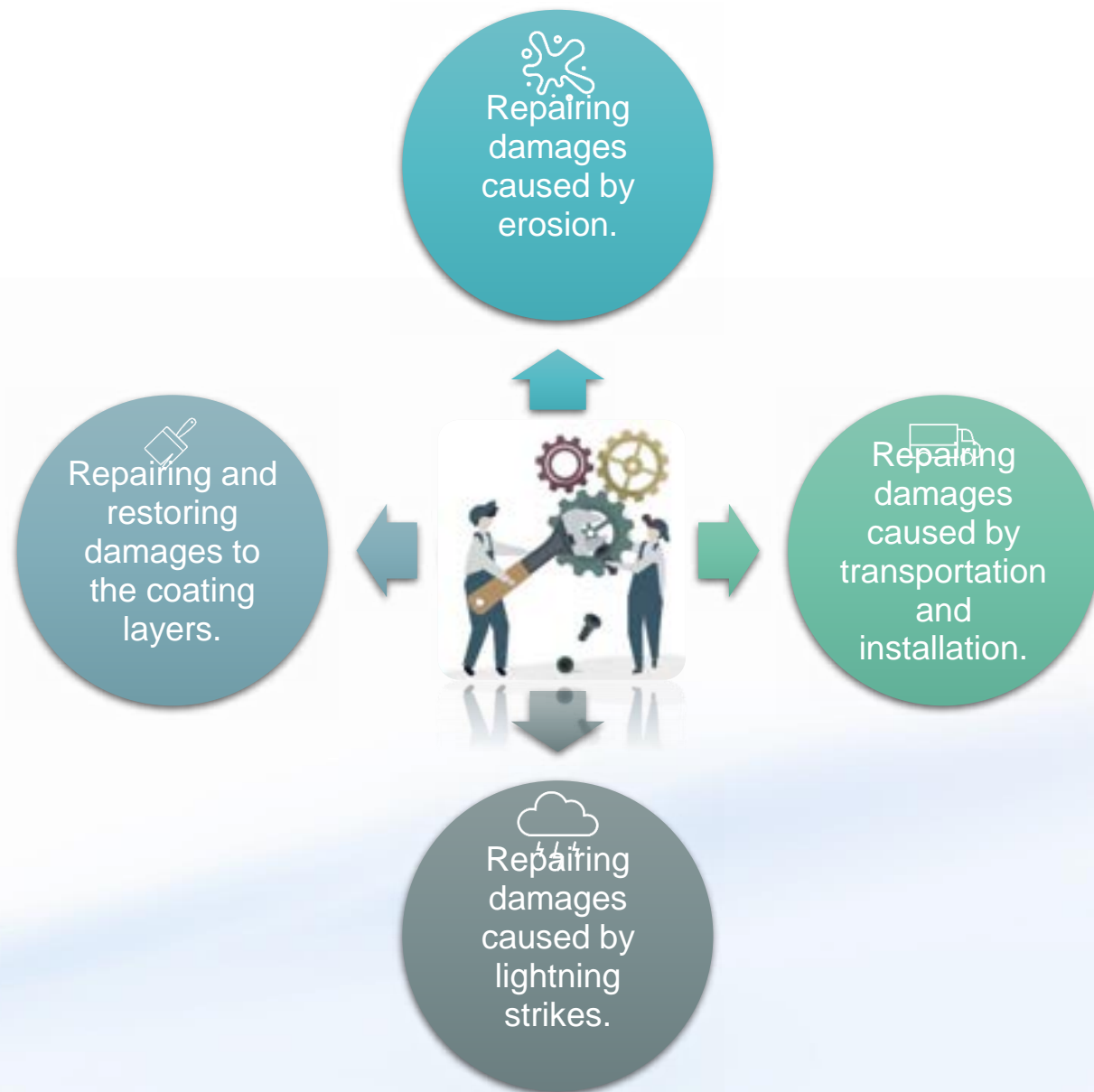
图 1-41 PS-TE-25M

图 1-42 PS-MID-6M

2. Wind Turbine Blade Repair and Maintenance



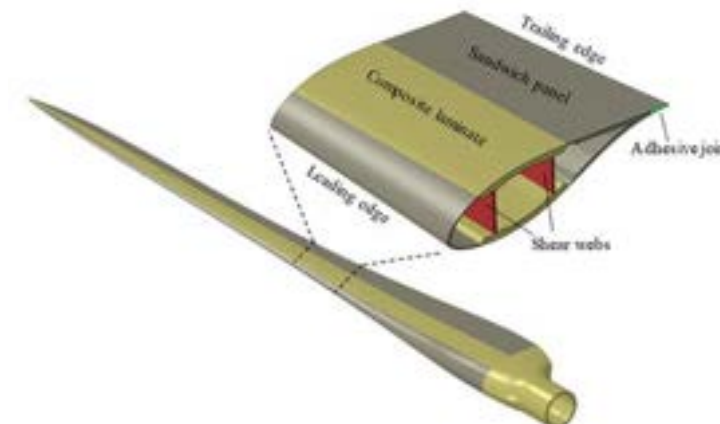
Images documenting the errors that require repair and maintenance



3. Leading Edge Protection (LEP) and Lightning Protection System (LPS)



- Leading edge protection (LEP) solution is an effective method to prevent leading edge erosion, which is a major concern in wind turbine maintenance in the wind energy industry.
- During operation, the leading edge of wind turbine blades can move at speeds up to 330 km/h, exposing it to environmental elements such as sand, dust, wind, rain, etc., at high velocities, leading to rapid erosion..
- LEP can be installed after leading edge damage occurs. However, during the original equipment manufacturer (OEM) production, it can be installed as an option at the factory, providing preventive measures and cost reduction for customers
- The installation of LEP as a corrosion protection solution can significantly improve the lifespan of the turbine blades, thereby increasing the Annual Energy Production (AEP) of the wind turbine.



4. Blade Upgrades



Upgrading the Power Curve Upgrade (PCU) of wind turbines aims to increase the return on investment for wind turbine OEMs, as performance and output decline. It is commonly accepted that there is a 2% reduction in performance and output compared to the previous year, highlighting the significant requirement for wind turbine OEMs.

MBWIND has demonstrated their extensive knowledge and experience in improving turbine performance through the installation of Power Curve Upgrades (PCUs), which is further evidenced by their comprehensive portfolio of global upgrade and maintenance projects.

MBWIND has the capability to install OEM-provided products and is also equipped to provide expert technical advice, considering the most effective solutions, on industry-leading products. This expertise contributes to increasing the Annual Energy Production (AEP) and reducing noise levels.



5. Installation and commissioning of wind



- Our wind turbine installation service encompasses a wide range of specialized expertise, ensuring smooth construction and seamless operation of these renewable energy systems.
- We meticulously plan and manage the entire installation process, coordinating all aspects from site management to material procurement and logistics, with a strong focus on construction management.
- Our team, backed by our expertise from our Japanese heavy-lift and transport company, facilitates our clients in completing each step of the installation process while ensuring quality control and adherence to industry standards.



6. Wind Turbine Operation and Maintenance

- Our operation and maintenance technicians are capable of troubleshooting and inspecting all components of the entire wind turbine to ensure accurate and safe operation.
- Depending on the requirements of the manufacturer and the investor, we can provide comprehensive operation and maintenance services such as:

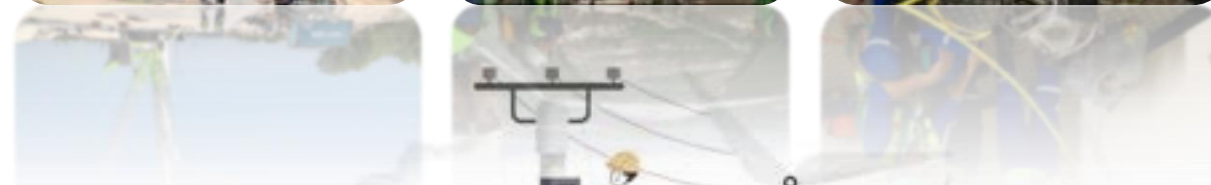
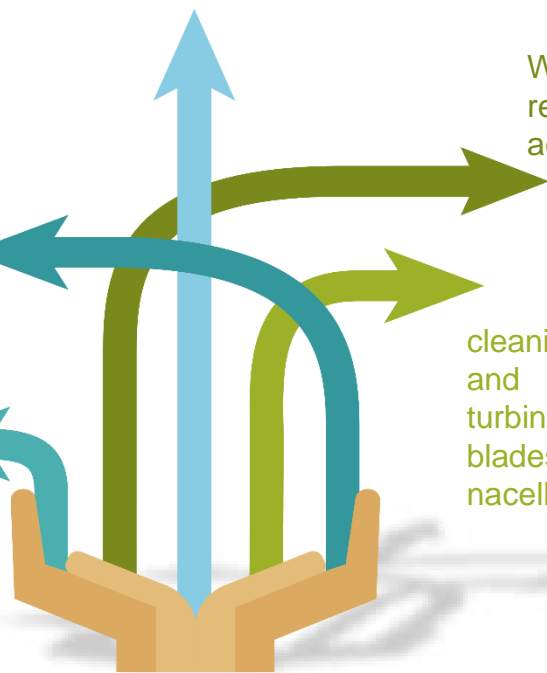
Replacement of turbine components: blades, gearbox, transformer, generator..

Wind turbine blade repair using rope access and platform

cleaning, painting, and repairing wind turbine towers, blades, hubs, and nacelles.

Providing personnel for energy wind project operations

Siết bu lông theo định kì



7. Training and supplying workforce for the wind energy industry



4 CORE VALUES



PREMIUM QUALITY



**GOOD SENSE OF
RESPONSIBILITY**



FAST SERVICE



5

CERTIFICATIONS



Certificates



Certificated for Quality Control and Safety in Wind Industry

Certificated From Vestas and Enercon



Agreement



This Agreement is made as of today, Jun 21th 2022

Between **TPI WIND BLADE (YANGZHOU) Co., Ltd**
Address: No 106 Guoh Road, Yangzhou Economic & Technological Development Zone, Yangzhou City, Jiangsu Province, China
Representative: Mr. Wang Fei Services manager
(hereinafter referred to as TPI)

and **MBWIND POWER SERVICES JSC**
No 89, Co Linh Street, Thach Ban Ward, Long Bien District, Hanoi City, Vietnam
Presentative: Mr. Stefan Dao/ Managing Director
(hereinafter referred to as MBWIND)

1. Basic cooperation principles:

- 2.1. Ensure the benefits of the Parties in the Agreement.
- 2.2. Build a comprehensive strategic relationship according to the strengths of Parties to support, resonate and develop.
- 2.3. Create linkages, close and long-term cooperation, practical support, sustainable development and look in the same direction on the principles of equality and efficiency.
- 2.4. Relationships must be systematic and highly unified, actively coordinated to create highly complementary synergy in operational activities.
- 2.5. Maximize the resources of the Parties for mutual development and highest efficiency. Agreeing on a detailed cooperation plan, coordinating action on the basis of predicting all favorable factors and risks to predict the effectiveness of each specific cooperation issue.

7
扫描全能王 创建

- Within 30 working days before the expiration of this Agreement, if either Party wishes to extend the validity period, it must be notified in writing to the other Party. In any other case, the Parties will agree in writing on the extension of validity period in the Agreement Appendices.

6.1.2. Termination of the Agreement:

- The Agreement is terminated in one of the following cases:
 - (i) The Agreement expires as in Clause 6.1.1 without being renewed;
 - (ii) The Parties agree in writing to terminate this Agreement;
 - (iii) One Party is dissolution, bankruptcy;
 - (iv) Due to a force majeure event in accordance with the Law;
- In case one of the cases specified at this Clause occurs, a Party has the right to unilaterally terminate the Agreement but must notify the other TPI at least 30 working days in advance from the date of termination, in which state the reason, the time of termination.

6.2 Other terms:

- 6.2.1 The Agreement are adjusted and interpreted in accordance with the legal laws of Vietnam.
- 6.2.2 Neither Party is entitled to assign all or a portion of the rights and obligations specified in this Agreement without the other Party's prior written consent. Where there is any transfer of any contrary provisions shall be deemed invalid.
- 6.2.3 If any provision of this Agreement is deemed invalid or may be voided by law then such term is separate from the terms of this Agreement, the other terms of this Agreement remain valid and obligatory.
- 6.2.4 The Agreement replace any memorandum concerning the above problems and can only be amended shall be made in Annex signed by the authorized representative of the Parties
- 6.2.5 The Agreement are made in 04 (four) original English copies, each hold 02 (two) copie with the same legal value as a basis for implementation.

REPRESENTATIVE OF TPI
Wang Fei
REPRESENTATIVE OF MBWIND
Stefan Dao
GUM DUC
Lieu Vuoc Luan

Cooperation Agreement between Mbwind and TPI - USA Blade Manufacturer

Agreement



3. Scope of Cooperative Activities:

3.1. General agreement:

3.1.1. Collaboration on Wind Turbine Replacement Parts and Components

- UCP and MBWIND cooperate in providing key replacement parts and components for wind power turbines in the Vietnamese market.
- Based on the needs of customers in Vietnam, MBWIND will approach to consult and offer prices for the purchase, sale and repair of main replacement parts of wind power turbines such as: Gearboxes, generators, transformers, main shaft, blade, bearings and others.
- UCP and MBWIND will cooperate to supply replacement spare parts and consumables for wind power turbines.
- Based on UCP's supply capabilities, MBWIND will approach customers and advise on the use of alternative materials solutions that ensure quality, safety and optimal costs for all parties.

3.1.2. Collaboration on Wind Power Plant O&M Services

- UCP and MBWIND cooperate in providing comprehensive operation and maintenance services for wind power projects whose manufacturer's warranty has expired.
- Based on experience in the Chinese market, UCP advises MBWIND to work with wind power project investors to provide wind power plant operation and maintenance services to ensure quality, safety and optimality, costing.

3.1.3. UCP and MBWIND cooperate in providing high quality skilled manpower to carry out the main tasks received by both parties.

- UCP and MBWIND have agreed to exchange expert personnel to support both parties in carrying out necessary work and tasks.

4. Rights and obligations of the Parties:

5.1. Rights and obligations of UCP:

5.1.1. Ensure full legal capacity and business registration certificate according to the provisions of law to perform all obligations under this Contract.

6.2 Other provisions:

6.2.1 This Agreement is governed and interpreted in accordance with Vietnamese law.

6.2.2 Neither Party is entitled to transfer all or part of the rights and obligations specified in this Agreement without the prior written consent of the other Party. In case of assignment, any contrary provisions will be considered invalid.

6.2.3 If any provision of this Agreement is held to be invalid or unenforceable by law, that provision shall be severable from the rest of the Agreement. The other provisions of this Agreement shall remain original, valid and binding.

6.2.4 The Agreement supersedes any memorandum of understanding relating to the above matters and may only be amended and made an Annex signed by authorized representatives of the Parties.

6.2.5 This Agreement is made in 4 (four) original English copies, with each Party retaining 2 (two) copies, all of which have equal legal validity as a basis for implementation.

REPRESENTATIVE OF UCP

Name: _____
Title: CEO
Signature: _____
Date: 26.6.2024

REPRESENTATIVE OF MBWIND

Name: _____
Title: Giám đốc
Signature: Nguyễn Đình Kiên
Date: 26/6/2024

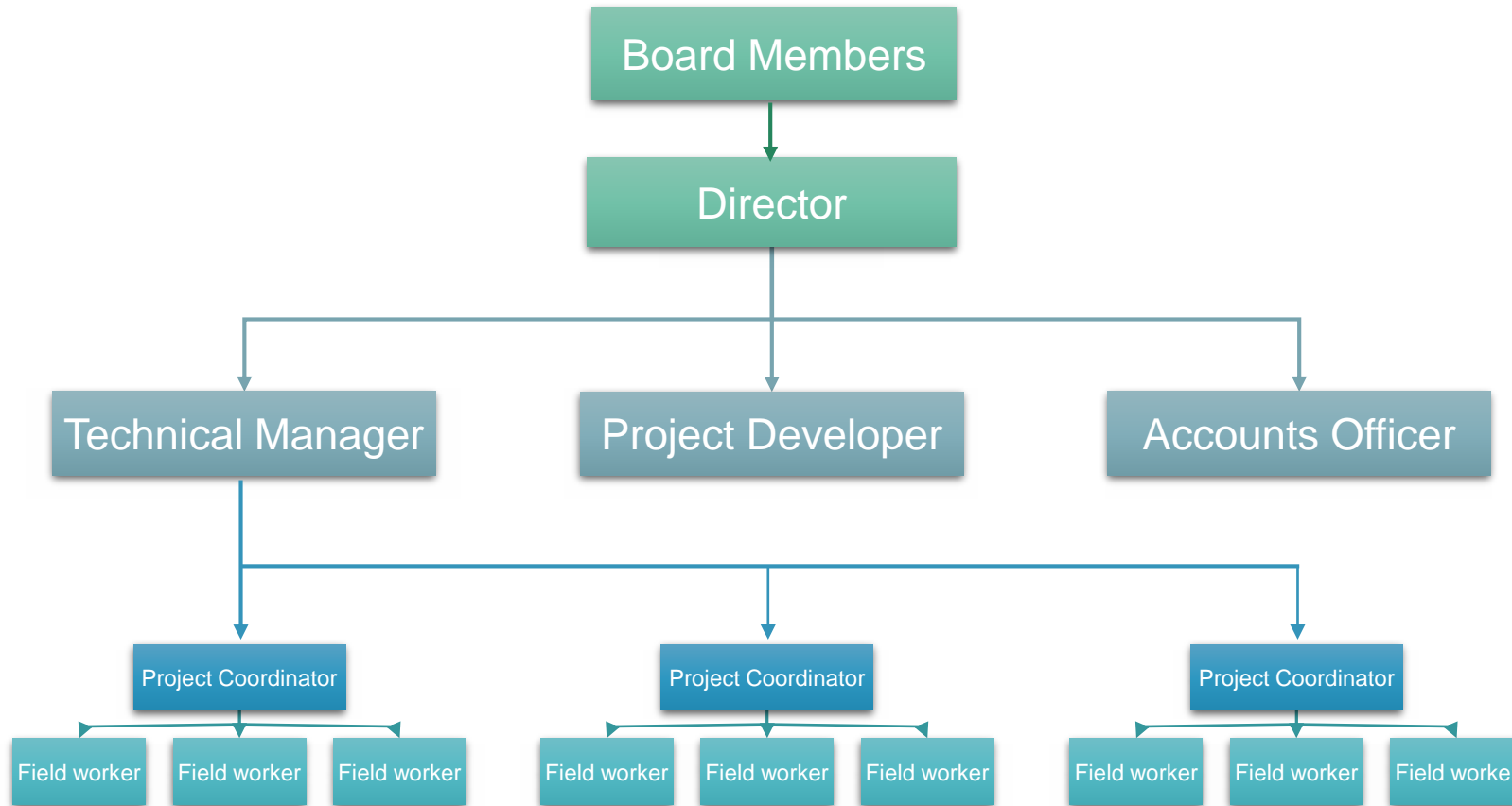
Cooperation Agreement between Mbwind and UCP

6

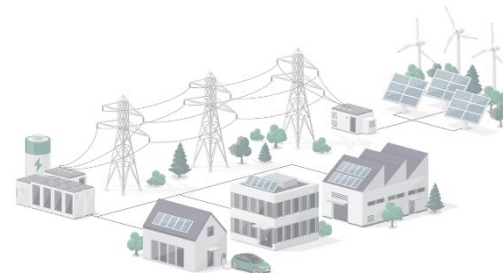
MBWIND RESOURCES



Manpower resources

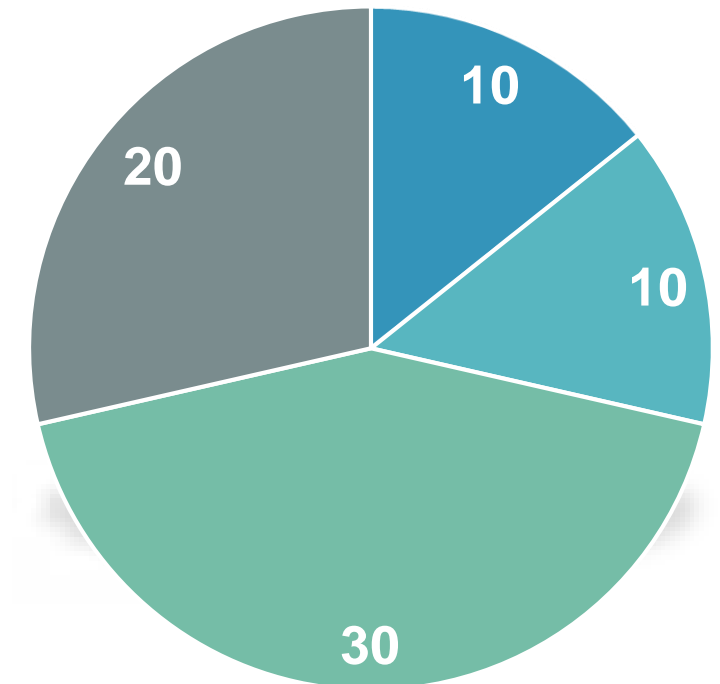


- Management Board: 8
- Experts and Engineers: 20
- Installation and Maintenance Workers: 120
- Operation and Equipment Installation Workers: 20

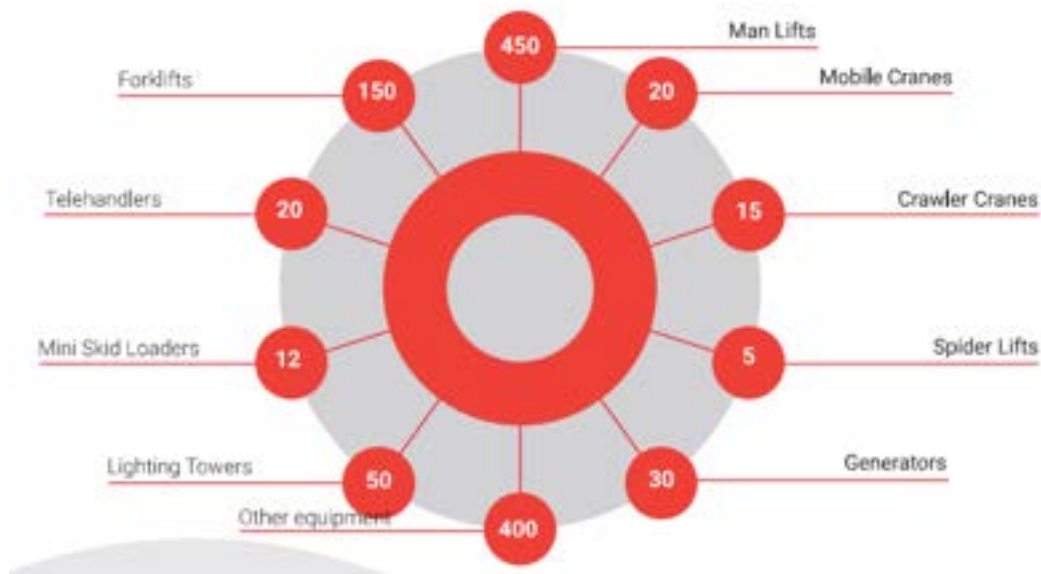


Percentage of certificates in a total of 160 certificates

- BLADE REPAIR LV1 AND
- BLADE REPAIR LV2
- MECHANICAL CERTIFICATE
- ELECTRICAL CERTIFICATE



Equipment



- With a foundation as a heavy lifting company from Japan, we have a large inventory of nearly 1000 units of machinery and equipment available in Vietnam, including heavy-duty cranes ranging from 25 tons to 1600 tons..
- Our warehouse network branches across the North to the South, ensuring optimal cost and time efficiency in mobilization.



7

IMPLEMENTED PROJECTS



IMPLEMENTED PROJECTS

GEABOX REPLACEMENT

Turbine: V150

Manuf: Vestas

Q'ty: 1 WTG

HH: 105m

Capacity: 4.2MW

Completed: 20.10.2021

Task: Replace Gear Box

PHU LAC PROJECT – BINH THUAN PROVINCE



IMPLEMENTED PROJECTS

BT1-2-3 WINDFARM PJ – QUANG BINH/

- ✓ Turbine: V150
- ✓ Manuf: Vestas
- ✓ Q'ty: 60 WTG
- ✓ HH: 145m
- ✓ Capacity: 4.2MW
- ✓ Period: 15.06.2021 - 31.10.2021
- ✓ Scope: C&I



IMPLEMENTED PROJECTS

BT1-2-3 WINDFARM PJ – QUANG BINH

- ✓ Turbine: V150
- ✓ Manuf: Vestas
- ✓ Q'ty: 60 WTG
- ✓ HH: 145m
- ✓ Capacity: 4.2MW
- ✓ Period: 15.06.2021 - 31.10.2021
- ✓ Scope: C&I



IMPLEMENTED PROJECTS

NHON HOI WINDFARM PJ

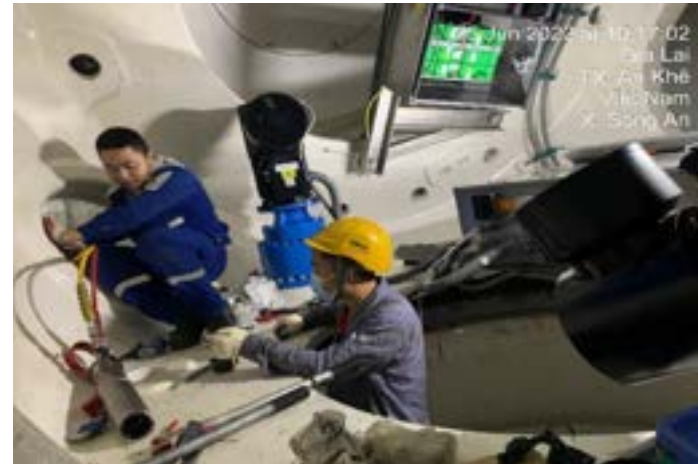
- ✓ Turbine: SG145
- ✓ Manuf: Siemens Gamesa
- ✓ Q'ty: 12 WTG
- ✓ HH: 110m
- ✓ Capacity: 4.2MW
- ✓ Completed: 06.11.2021
- ✓ Scope: Installation



IMPLEMENTED PROJECTS

CUU AN Wind Farm Project

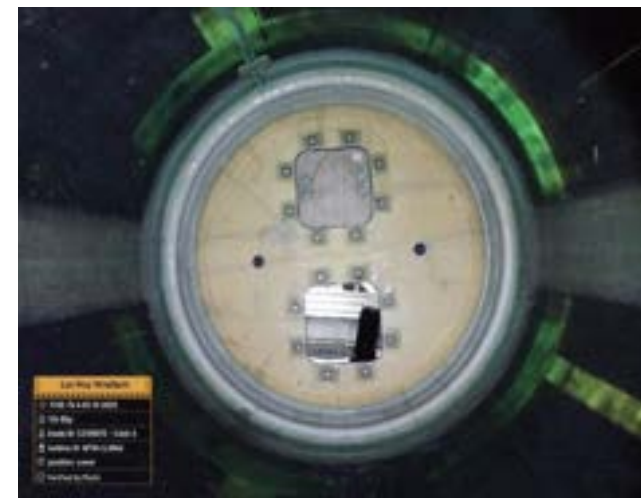
✓ Blade Repair Project In Cuu An Project



IMPLEMENTED PROJECTS

Lac Hoa Wind farm Project

- ✓ Inspection
- ✓ Inside and out side



IMPLEMENTED PROJECTS

IAPET Wind farm Project

✓ Repair Nacelle



IMPLEMENTED PROJECTS

Hoàng Hải - Tài Tâm Wind farm Project

- ✓ Inspection
- ✓ Inside and out side



IMPLEMENTED PROJECTS

Lac Hoa Wind farm Project

✓ Rope access



IMPLEMENTED PROJECTS

Hoa Dong Wind farm Project

✓ Inspection inside and out side



IMPLEMENTED PROJECTS

IAPET DAKDOA Windfarm

- ✓ Inspection inside and out side.
- ✓ Repair Blade



IMPLEMENTED PROJECTS

IALE Windfarm Project

✓ Repair Blade by working platform



IMPLEMENTED PROJECTS

Vien An Nearshore Windfarm
Project

✓ Repair Blade



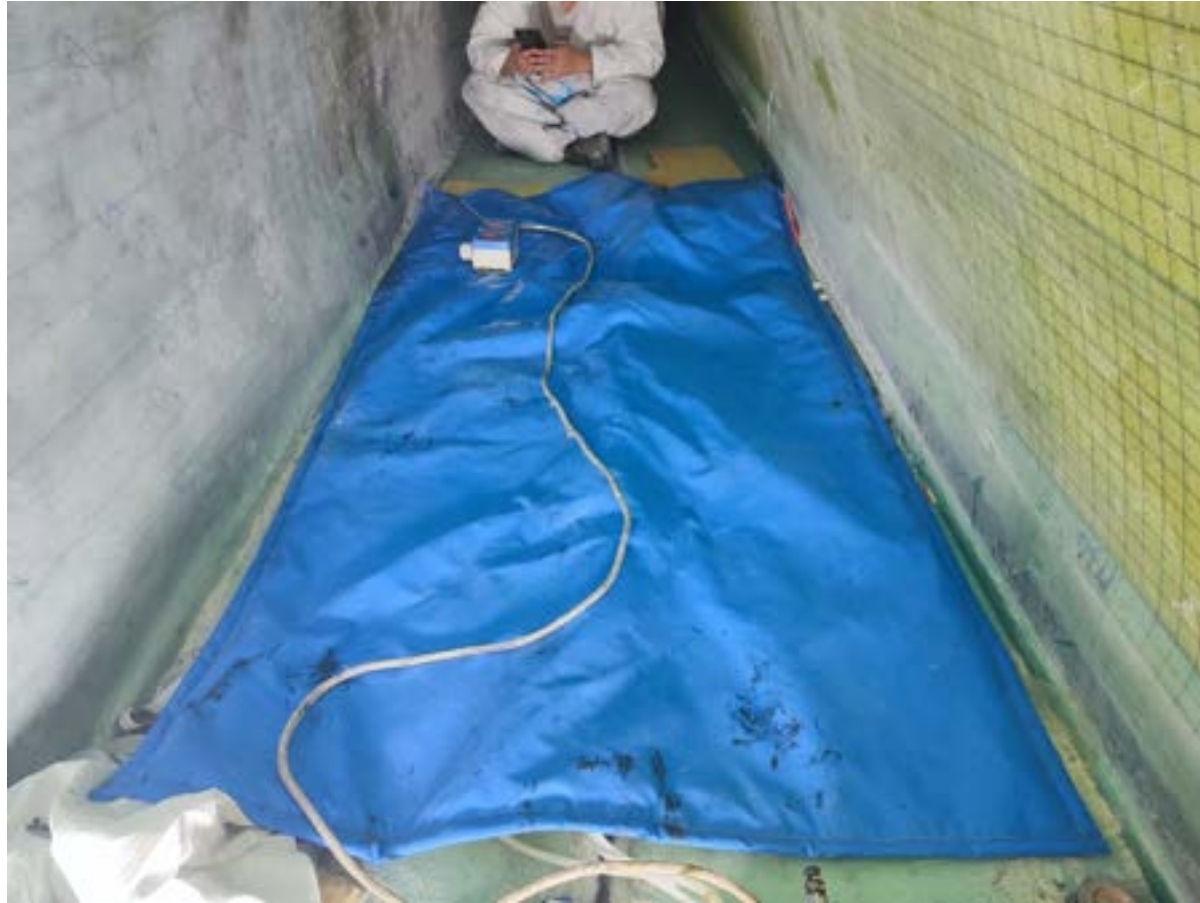
IMPLEMENTED PROJECTS

Dak Doa Windfarm Project

✓ Repair LEP of blade x 7 pcs



IMPLEMENTED PROJECTS



Repair Lightning Damage

IMPLEMENTED PROJECTS

SONG AN WINDFARM PROJECT



Blade Repair

Iapet Dakdoa Titan Blade



IMPLEMENTED PROJECTS

| No./ | PROJECT NAME/ | TURBINE TYPE – BLADE TYPE | NUMBER OF BLADE | SCOPE OF WORK |
|------|-------------------------------|---------------------------|-----------------|------------------------------|
| 1 | Lac Hoa 2 Wind farm project. | Envision – Titan | 120 | Inspection |
| 2 | lapet Wind farm project | Envision – Titan | 72 | Inspection |
| 3 | Chinh Thang Wind farm project | Windey - TMT | 48 | Inspection |
| 4 | Hoa Dong Wind farm project. | Envision – Titan | 60 | Inspection |
| 5 | Hoang Hai Wind farm project | Envision – Titan | 48 | Inspection |
| 6 | Tai Tam Wind farm project | Envision – Titan | 45 | Inspection |
| 7 | Cuu An Windfarm PJ. | CRCC - TMT | 18 | Mechanical repair |
| 8 | Thanh Phong Wind farm PJ. | GOLD WIND-LZ | 12 | Paint and Fiber Glass repair |

IMPLEMENTED PROJECTS

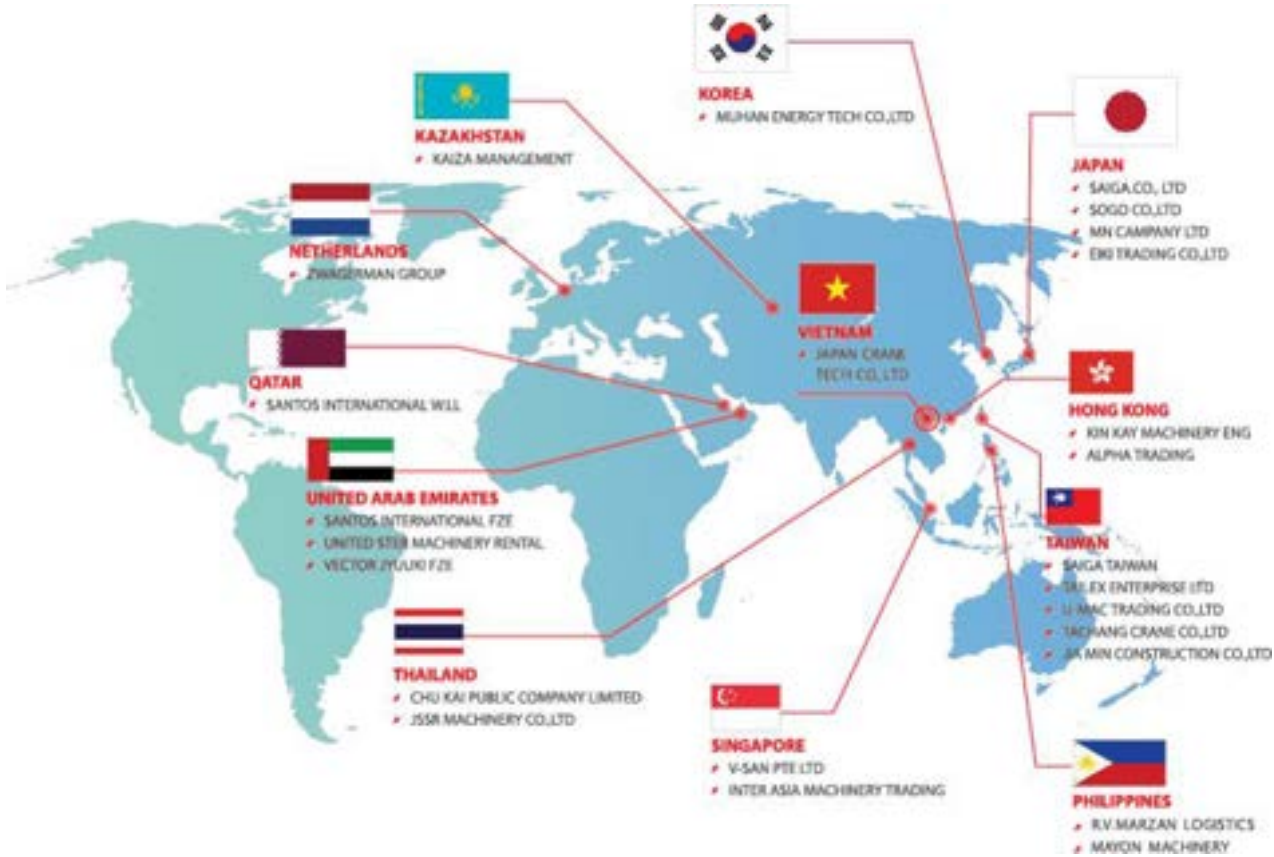
| No. | PROJECT NAME | TURBINE TYPE – BLADE TYPE | NUMBER OF BLADE | SCOPE OF WORK |
|-----|----------------------------|---------------------------|-----------------|--|
| 9 | IALE wind farm project | Ming Yang - Ming Yang | 4 | Repair damage of blade by platform. |
| 10 | TRE Wind farm project | Envision – Titan | 6 | Paint and Fiber Glass repair for Nacelle and Blade |
| 11 | Vien An offshore Wind farm | Ming Yang - Ming Yang | 1 | Repair damage of blade by platform |
| 12 | Lạc Hòa 2 Windfarm Project | Envision - Titan | 1 | Repair lightening damage |
| 13 | Dak Doa windfarm project | Envision - Titan | 7 | Repair lightening damage and Apply LEP for blade. |
| 14 | Nhon Hoi Wind farm project | SGRE – LM | 1 | Inspection |

8

PARTNERS



Global partners



THANK YOU!



MBWIND's installation project in Quang Binh