



ACHIHA

TRADITION AND ADVANCE

BUSINESS INTRODUCTION AND
PRESENTATION



About ACHIHA



01



OUR COMPANY

- Who we are

- CORPORATE PROFILE

02

OUR STRENGTH

What we can do

03

OFF-SHORE WIND

What we plan

04

TRUCK RECORDS

Case Study

Business Timeline

Who we are 100 Year's History

FOUNDED

Starting from hauling
oversize cargo by
horses



3RD GENERATION

Expanded its work scope
Including installation and
crane work business



1923

1954

1990

2008

2ND GENERATION

Restated hauling business
after WW2 and improved its
business magnificently



4TH GENERATION

Launched wind business
including global logistics
and developing it globally

ACHIHA In Numbers



Founded in
1923

Family Owned
4th Generation



Around
200
Employees



Over
400
Units
Installed
In Wind



Over
500
Units
Maintained
In Wind

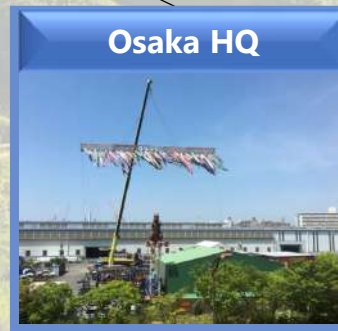


Over
100
Field
Engineers

About ACHIHA

Where our offices are

Our locations



01

OUR COMPANY
Who we are

02



OUR STRENGTH

What we can do

- Service Portfolio
- Business Development

03

OFF-SHORE WIND
What we plan

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TRUCK RECORDS
Case Study

Service Portfolio



What We can do in Wind



Development and Investment



Transportation and Installation



Engineering, Procurement, Construction



Operation and Maintenance

Special Tower Crane for WTG Installation



Special Tower Crane for WTG Construction

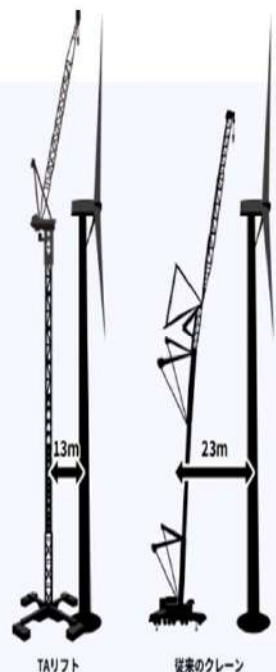
We have developed Japan's first tower crane dedicated to wind turbines, which solves the problems of 2000 square meters of forest land development, high towers, shortened processes and reduce the damage of environment.

Special Tower Crane for WTG Installation

01 再生可能エネルギーの可能性を拡大

直径25m以内で設置可能なため、伐採・整地・復旧の負担を低減し、風車設置の可能性を拡大し再生可能エネルギー導入に貢献します。

- ✓ 山岳地帯、峠などの狭険地での建設に対応
- ✓ 大型風車導入の可能性を拡大



TAリフト 直径25m



従来クレーン 50m



140m

02 ハイパワー&ハイタワー時代に応える

国内最大級となる最大作業高140m、最大吊上げ荷重140tのハイスペックにより、導入が進む大容量ハイタワー風車の効率的な建設を担います。

- ✓ 大型化は発電効率向上・単価低減に効果的
- ✓ 最新の海外メーカー製大型風車建設を支援

03 技術と経験値を結集した高い信頼性

風力発電所建設に多くの実績を持つ東光電気工事と風力発電機部材輸送、資材運搬に高度な技術を持つアチハが協業し、ノウハウを結集して信頼性の高い施工を実現します。

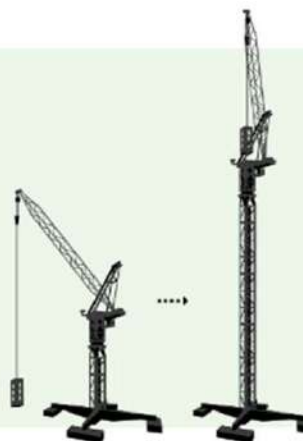
- ✓ 風力発電所建設350基以上の東光電気工事が出資
- ✓ 高度な技術を持つオペレータを派遣



04 風車建設の造成コスト削減

容易に作業高が変更できるため1基で幅広い工程に対応可能。高いコストパフォーマンスを発揮して重機入替、搬送、据付などの手間とコストを低減します。

- ✓ 基礎工事が不要、マストクライミング方式で組立
- ✓ タワー組立からナセル、ブレード設置までカバー



What We can do in Wind



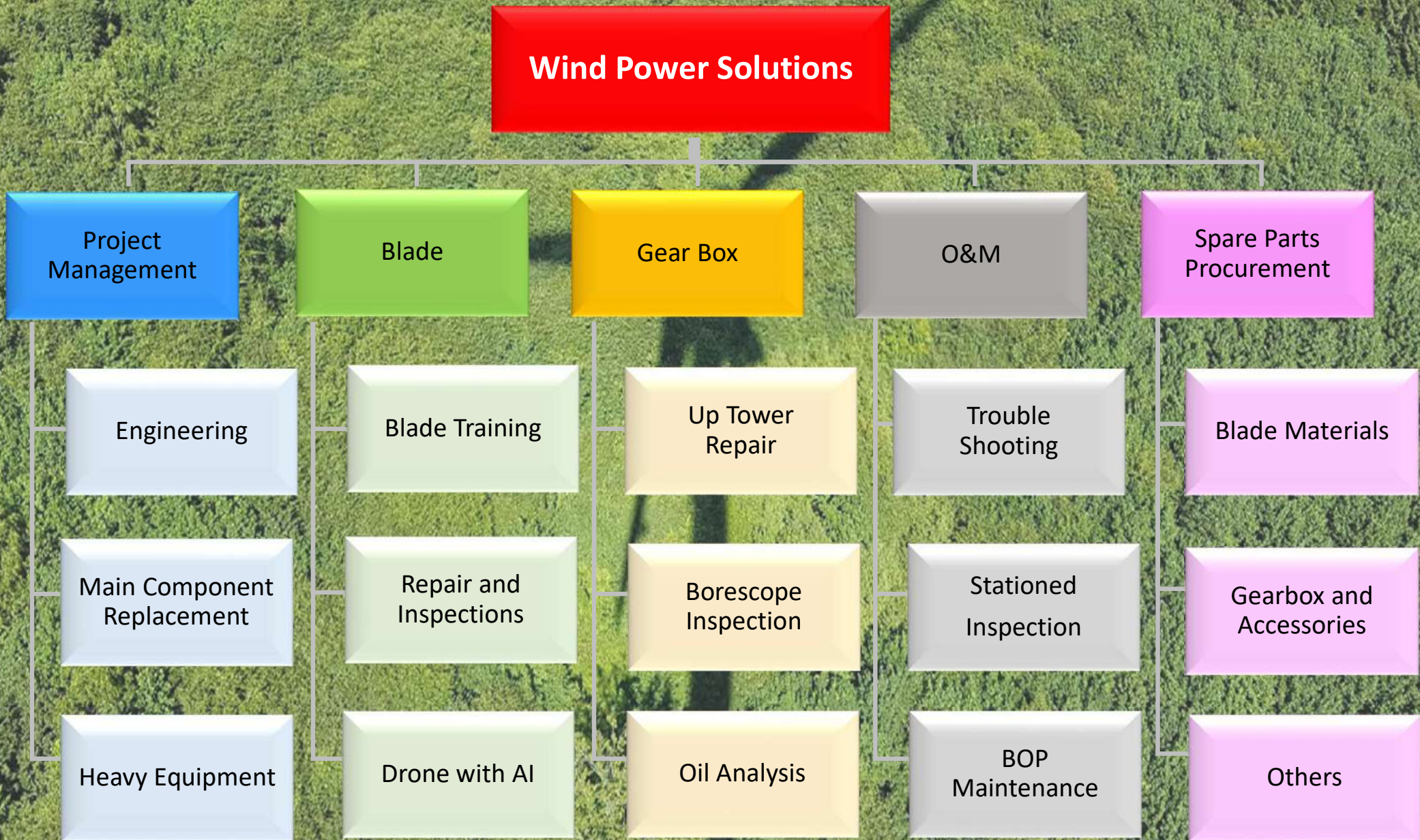
Special Transportation

- 120 axels of SPMT owned
- 150 axels will be added for off-shore wind
- FTV as blade lifter and tower adopter owned



Wind Power Solutions

Wind Service Resource Chart



One Stop Service For O&M

Full Turn-Key Service

Oversea Procurement



Pick-up EXW



Arrangement port & vessels



Domestic custom clearances



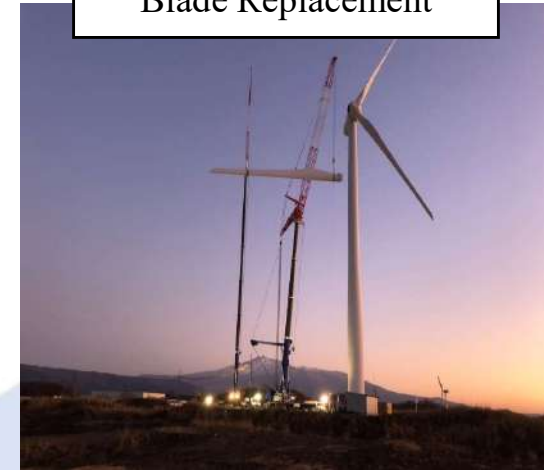
Transportations & Installations



Test-run and Inspections



Blade Replacement



MS Dis/Assembling



Management of Spare Parts



Overseas
Procurement

Overseas
Transportation

Domestic
Storage

Domestic Inland
Transportation

Service

Storing Spare Parts for Repair

By storing spare parts procured from overseas at our warehouse base near the Port of Akita, we can respond quickly to sudden breakdowns or repairs to wind turbine sites in the three Tohoku area. By operating and managing a series of services at our own facilities, we can reduce intermediate costs and shorten downtime, thereby contributing to our customers' OM cost reductions.

Introduction of Self Hoisting Crane



Service of Self Hoisting Crane Usage

By introducing SHC, it is possible to replace not only the speed increaser but also the generator, blades, and other major components. The SHC can be used in narrow sites with much lower costs than conventional mobile cranes in terms of ground curing, road construction, and transportation costs. Planning to introduce the crane in Japan by the end of 2024.

Introduction of Self Hoisting Crane



Introduction of Drone with AI

Blade Inspection Service – How it works

AI Blade Total Service
AI・ブレードトータルサービス

Clobotics

SkyScape
スカイスケープ株式会社

系組
Since 1923

The image shows a close-up of a white wind turbine blade against a clear blue sky. A mechanical arm with a yellow gripper is positioned to inspect the blade. The background is a solid blue color with the text and logos overlaid.

Introduction of Drone with AI

Blade Inspection Service – How it works



Introduction of Drone with AI

Blade Inspection Service – How it works

65,000 TURBINES
INSPECTED WORLDWIDE

CUSTOMERS



IBIS V4.5

DJI M300にカスタマイズした機器を搭載しています。
収集されたデータはクラウドへ保存されAIが解析を行います。



Service of Blade Inspection with Drone + AI

In anticipation of large-scale offshore sites, we are considering introducing drone + AI-based blade inspection operations. The goal is to use AI to manage not only analysis but also drone operations to improve work efficiency, shorten time, and reduce costs

Business Development with Blade Repairing Company

Rotor blade repair:

- ◊ Rope Access technology
- ◊ Working platforms for all rotor blade types
- ◊ Winter platform up to 160m lift height
- ◊ LEP erosion foil application
- ◊ Tower working platform
- ◊ Winter platform
- ◊ Repair on the ground / hall
- ◊ LEP surface coating application
- ◊ Blade structural damage
- ◊ Serial damages
- ◊ Transport and production damage
- ◊ Erosion damage
- ◊ Leading edge protection
- ◊ Serration and retrofit repairs

We work with our partners to guarantee that our clients' rotor blades have a longer service life.



Business Development with Blade Repairing Company



Development with Blade Repairing Company

ACHIHA has been cooperated with Gold Blade Service to apply their capability to Japanese market to support serious blade damages which could not be repaired before in reasonable price.

Business Development with Blade Training

Global Blade Service

Full training program for
blade technicians



Collaboration with Blade Training Provider

Global Blade Service is a Danish company that specializes in teaching blade inspection and repair training programs to blade companies such as LM and TPI, as well as OEMs such as Vestas and SGRE.

Certificates of Blade Service

GBS Certificate

Name: _____
Date of birth: _____
Country: _____

Has completed the qualifying Training module 30-0001
GBS Level 1 – Inspection of Blades.
The holder of GBS L-1 certificate are qualified to perform blade service inspection on all types of WTG blades, according to Global Blade Service Standard.

The holder has knowledge to:

- Describe the general construction of WTG blades
- Describe health risk involved when handling polyester, epoxy and isocyanates
- Use correct terms for blade communication
- Recognize different types of defects and damages
- Assess and categorize defects and damages

And have competences to:

- Carry out General Visual Inspection, from ground level
- Carry out Close Visual inspection, use of hands, tape measures, photo cards, off rope or crane
- Carry out Detailed Visual Inspection. Use of tools to further inspection of damage by sanding away damaged paint/gelcoat, and visually inspect laminate, and bonded joints
- Carry out minor cosmetic repair of surface coatings
- Fill in blade status report

This certificate can be verified at certified-technicians database:
www.globalbladeservice.com Date of issue: 04-04-2022

Trainers signature: _____ Approved by GBS: _____

Global Blade Service - Certificate
NO. 0242

GBS Certificate

Name: _____
Date of birth: _____
Country: _____

Has completed the qualifying Training module 40-0001
Repair of Blades - Level 2
according to Global Blade Service Standard.

The holder of this certificate is qualified to:

- Carry out internal and external inspection, assess and categorize damages on blade surface.
- Read and use information for service from:
 - Service Work Instruction
 - Technical Data Sheet
- Carry out repairs on blade surface for various types of blades including:
 - Shell coating and laminate down to core or first 2 layers of fiberglass.
 - Leading edge first two layers.
 - Trailing edge max. 50 mm. crosswise.
 - Replace and test lightning receptor
 - Replace stall strips, vortex generators and LE tape
- Fill in inspection report and documentation for damage and repair

The holder of this certificate has basic knowledge of:

- Blade design, materials and construction.

This certificate can be verified at certified-technicians database:
www.globalbladeservice.com Date of issue: 06-04-2022

Trainers signature: _____ Approved by GBS: _____

Global Blade Service - Certificate
NO. 0242

 **连云港中复连众复合材料集团有限公司**
Lianyungang Zhongfu Lianzhong Composites Group Co., Ltd.

兹证明 Achiha 公司 Mr. Hidekazu Achiha 于 2022 年 07 月 26 日及 2022 年 08 月 02 日，在我司进行叶片鉴定，一般性缺陷维修，叶片巡检相关知识培训学习，并取得较好的学习效果，特此证明！

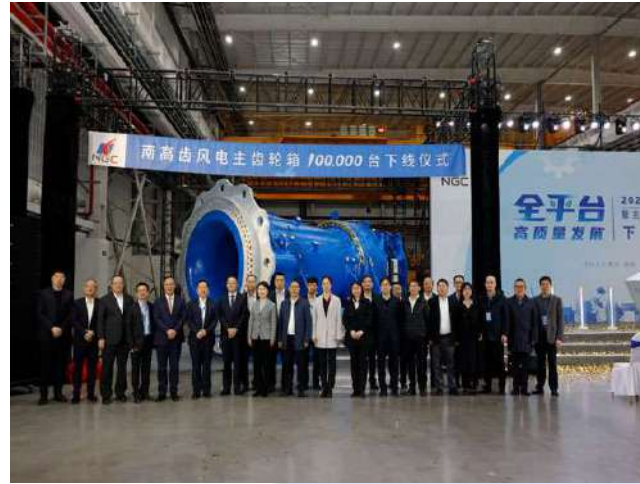
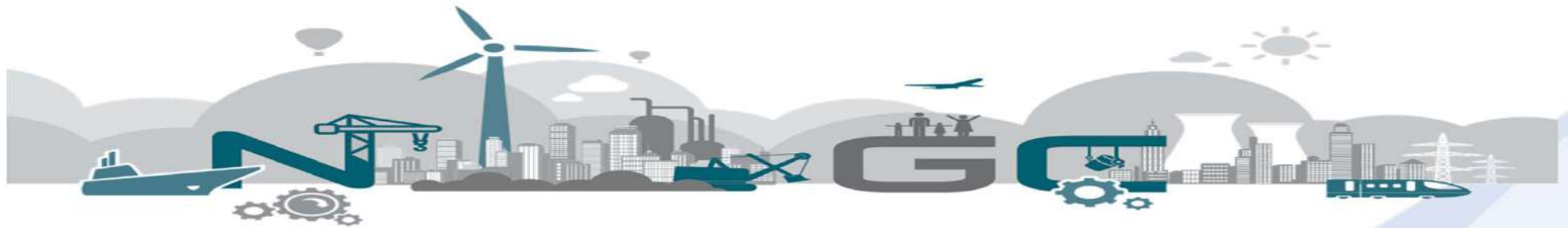
This is to certify that Mr. Hidekazu Achiha from Achiha Co., Ltd. has successfully completed the O&M training course (including blade defect identification, general defect repair and blade inspection) on July 26th and August 2nd.

连云港中复连众复合材料集团有限公司
Lianyungang Zhongfu Lianzhong Composites Group Co., Ltd.

Certificates of Blade Service

We are striving to improve the quality of our blade services by attending international standard training programs for proper blade inspection and repair from blade specialists such as Global Blade Service and Blade OEM, and by learning in detail about blade structure, materials, and manufacturing processes.

Business Development with GBX OEM



Better Service with NGC for Your Gearbox

NGC and ACHIHA have officially signed the only distributorship agreement in the Japanese wind power generation market, selling speed boosters and ancillary products and repair, inspection, analysis, and replacement work. By owning our own stock of speed boosters, we work daily to provide services that reduce downtime and increase the efficiency of wind turbine operations.

Up Tower Service for GBX Repair



Up Tower Service for GBX Repair

By forming a technical alliance with NGC, partial repair and replacement of gears and bearings in HSS, IMS, and other speed increasers can be performed in the nacelle. By receiving parts from NGC and performing repair and replacement work in the nacelle, downtime and costs can be reduced compared with the conventional method of dismounting the speed increaser or replacing the entire unit.

Wind Turbine Dismantling



WTG Dismantling

- More than 80 units dismantling records
- Shortened construction period due to construction speed
- Environmentally friendly blade recycling methods
- Proposals for repowering

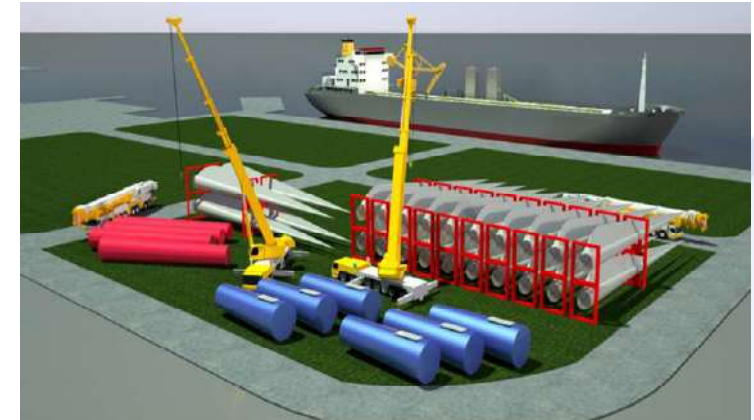


Applied Advanced Techs

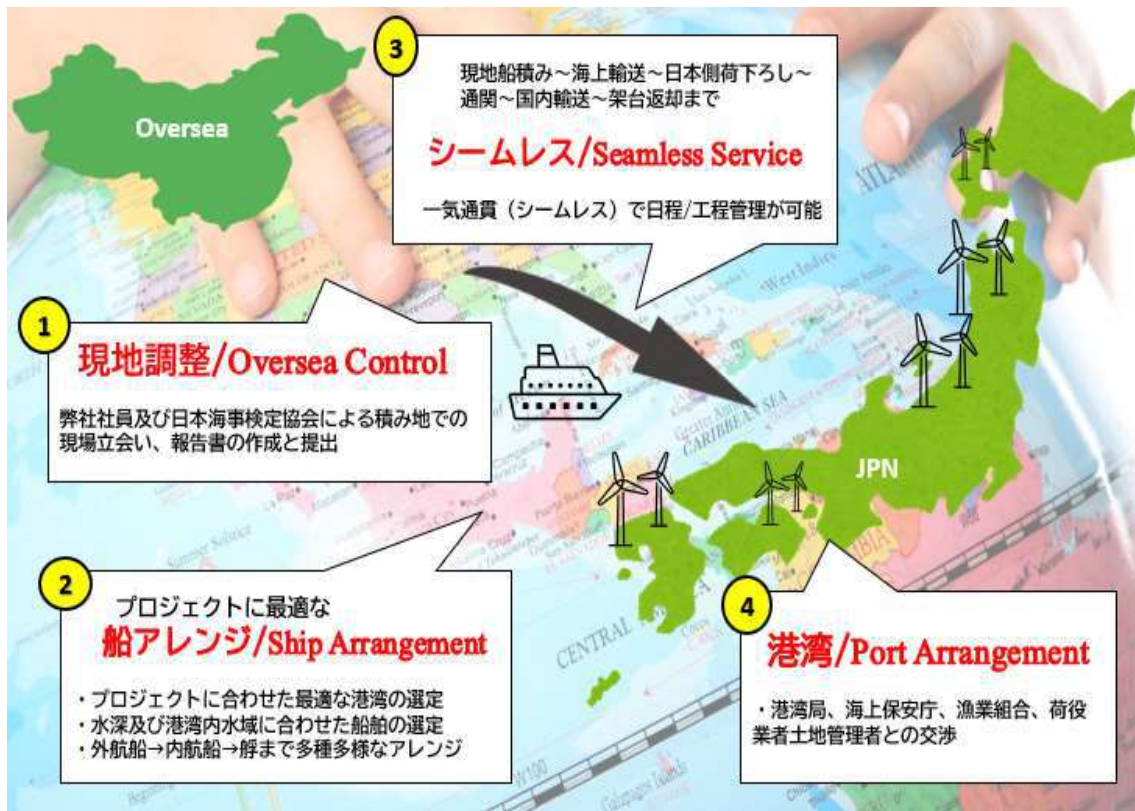


Application of 3D Data

- Dozens of route survey conducted annually
- Obtained dimensions for each location accurately
- Acquired CAD data by utilizing the scanner
- Proposed accurate routes based on the data



Global Logistics for PJs



Project Cargo Handling

- Providing marine transportation of project cargo and customs clearance, selection and coordination of ports, and drainage.



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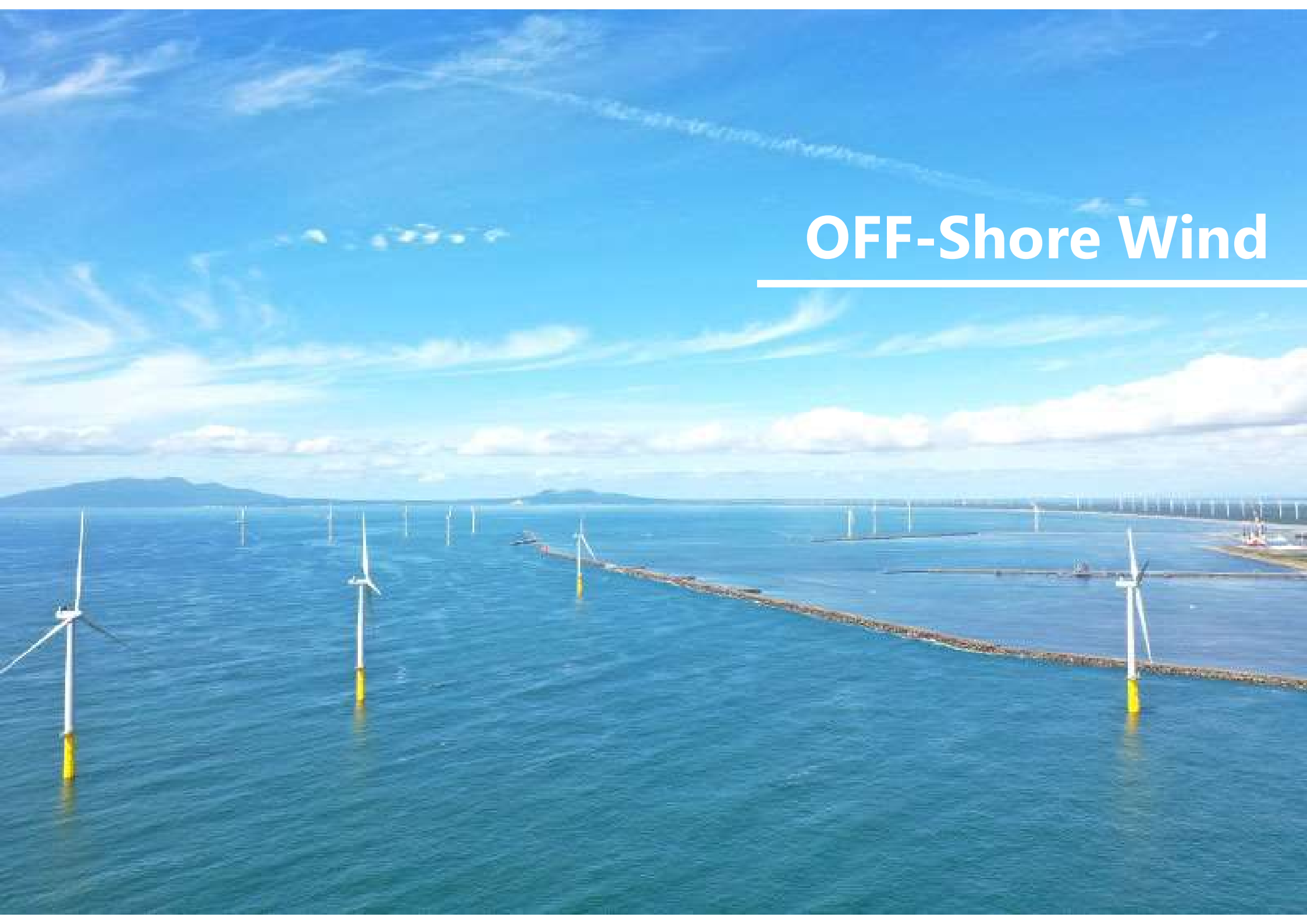
OFF-SHORE WIND

- What we have done
- What we plan

04

TRUCK RECORDS
Case Study

OFF-Shore Wind



Off-Shore Wind BOP Maintenance



Off-Shore Wind BOP Maintenance

We are the first Japanese company to perform BOP maintenance work for the first commercial offshore wind farm in the Japanese market, in collaboration with Akita Offshore Wind Co. Mechanical and electrical engineers are stationed at the site to perform daily monitoring and periodic inspections to ensure safe and stable operation of the wind turbines over the long term.

Introduction of UTC for Off Shore



Service of Self Hoisting Crane Usage

The SHC can also be used for replacement of major components such as gearboxes, rotors, and blades on offshore wind turbines and can be installed without the use of special work vessels such as SE vessels. By eliminating the use of special work vessels allows us to realize significant cost reductions in the work.

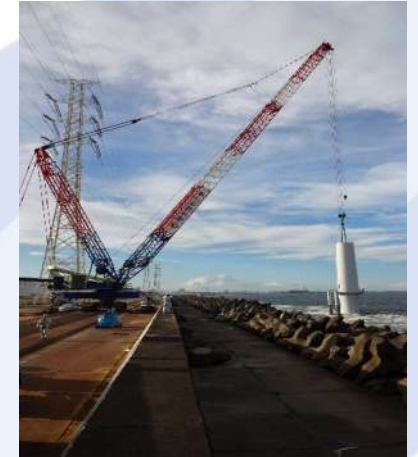
Off-shore Wind PJs

Kashima, Ibaraki, Japan

HITACHI 2MW × 15 SETS at Kashima



Off shore WTG Installation



Other Locations
in Japan





Using Floating Cranes for Off-shore Wind PJ

Achiha worked for the construction of the offshore wind projects in Fukushima and learnt hard lessons through those operation works with the floating cranes.



Off-shore Wind PJs

LR12500
Crawler Crane

CC8800
Demag Crawler Crane



Game Changer for Off-Shore constructions

- Planned to purchase new Giant cranes with the crane capacity as 2,500 ton and will use this crane for the off-shore wind power constructions in 2028.
- Achiha is convinced by the concept and performance of this crane, the new 2000t plate form crawler crane and shall.
- Liebherr new LR 12500-1.0 has plenty of power in reserve for potentially increased future requirements with its capacity and performances.

Off-shore Wind PJs

Kita-Kyushu Hibiki-nada Wind Power Plant



#1 Heaviest WTG Transport in Japan!

460T

Wind Turbine Nacelle



190T, 40m

Wind Tower Base



66m

Wind Turbine Blade



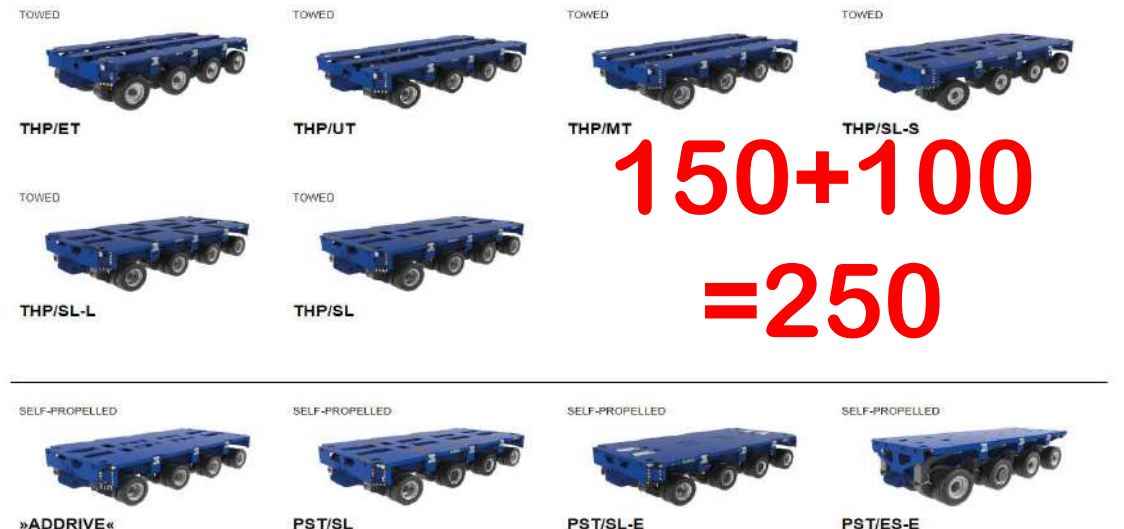
Off-shore Wind PJs



Goldhofer/SPMT

PST SL-E/ADDRIVE/FTV

- Achiha has SPMT in 100 axles now, and order additional 100 axles for onshore/offshore wind power constrictions. So, Achiha will have SPMT in **250 axles in 2028-2030**.
- Capacity for single axle is 50 tonne, so Achiha can transport up to 5,000 tonne now and will be able to transport up to 10,000 soon.





ACHIHA
TRADITION AND ADOVANCE

THANKS FOR YOUR TIME

WWW.ACHIHA.CO.JP