TURNING THE WIND INTO SUSTAINABLE ENERGY: THE ROMBLON ISLAND PROJECT

Forum on Advancing Article 6 Implementation through Business Engagement and JCM Project Matchmaking in the Philippines

January 21, 2026

The Otoyo Wind Power Plant, Shikoku Electric Power
Otoyo, Kōchi Prefecture, Japan

OVERVIEW

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1.BRIEF COMPANY INTRODUCTION

- Founded: 1883
- HQ: Osaka, Japan
- Capital: 6.619-billion yen
- No. of employees: 632
- Main Business:

Bridge

Tokyo Bay Aqua-Line

Steel Frame

Azabudai Hills

Shanghai World Financial Center

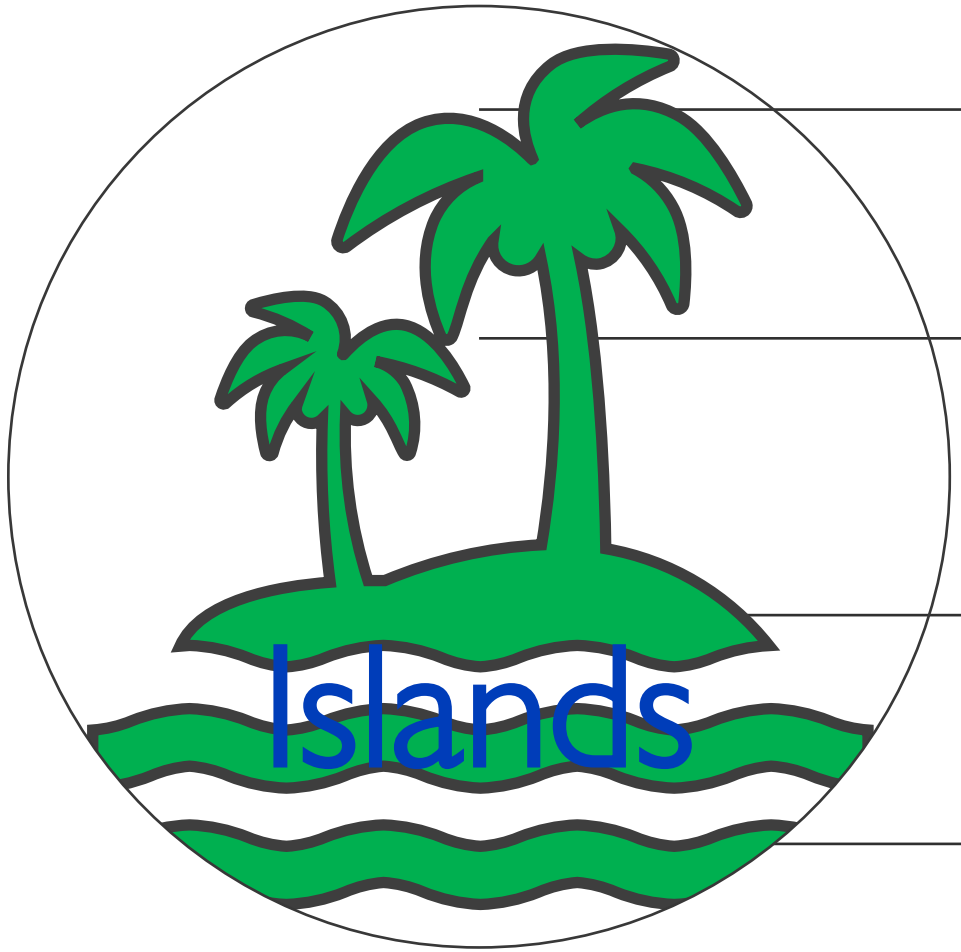
Tokyo Skytree

Renewable Energy

Fukushima Renewable Energy Institute

Miyako Island

2.WHY ISLAND ENERGY IS CHALLENGING



Diesel dependence &
fuel logistics constraints

High generation cost
& price volatility

Weak grids with
limited flexibility

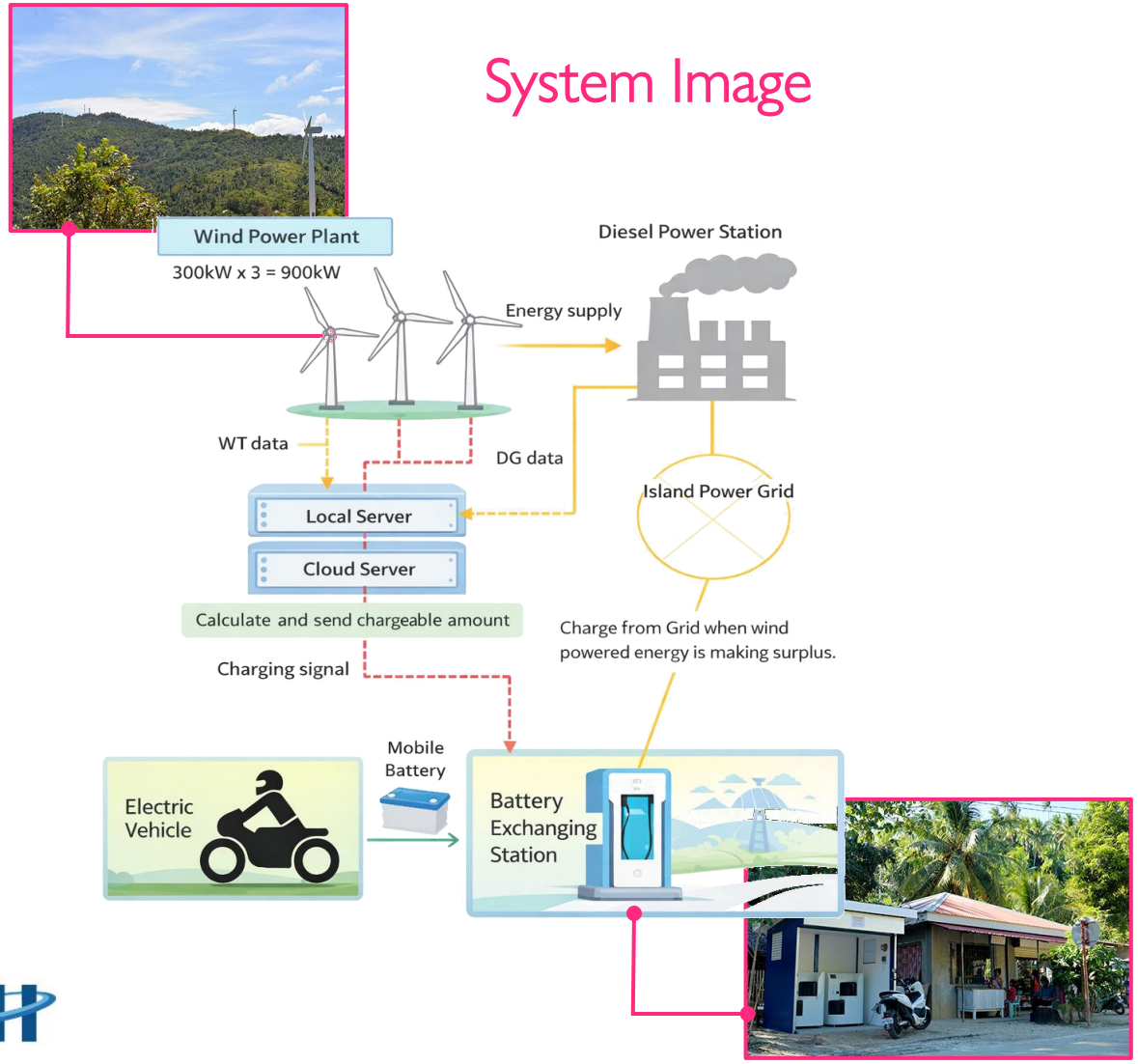
Exposure to typhoons
and extreme winds

3.ROMBLON WIND PROJECT OVERVIEW

- **Project:** Development and Demonstration of a Typhoon-Resistant Wind Turbine and a Surplus Power Utilization System Using Multi-Purpose Batteries for Remote Islands
- **Location:** Romblon Island, Philippines
- **Capacity:** 900 kW (3 units X 300 kW)
- **Commissioned:** February 2019
- **Status:** Operational
- **Utility:** Romblon Electric Cooperative (ROMELCO)
- **Public subsidy support:** Japan MoE

4. TECHNOLOGY & SYSTEM DESIGN

System Image



System Overview

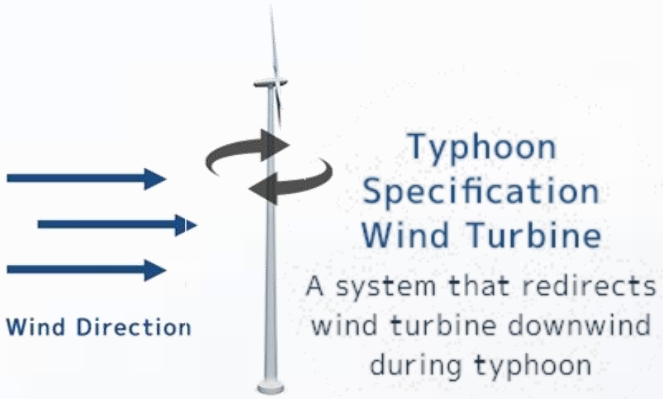
1. Key Components

- Wind Power Plant: 3 × 300 kW WTG (900 kW total)
- Diesel Power Station: Backup and peak-load support
- Island Power Grid: Local generation–load balancing
- Battery Exchange Station (BES): Controllable load and energy buffer
- Local & Cloud Servers: Monitoring, control, and optimization

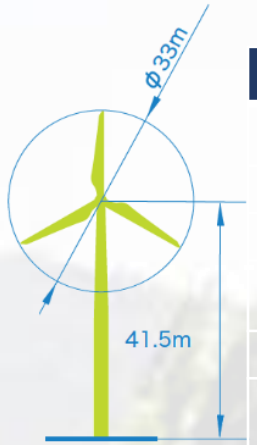
2. Operational Principle

- Wind power prioritized as primary energy source
- Surplus wind energy detected in real time
- Intelligent control calculates chargeable energy
- BES charges batteries during surplus periods
- EVs receive energy via fast battery swapping

5. TYPHOON-RESILIENT WIND TURBINE



KWT300 ESV (Extreme Storm Version)



Rated power:	300kW
Rotor diameter:	33m
Hub height:	41.5m
Blade length:	16.0m
Nacelle weight:	18t
Cut-in speed:	3m/s
Cut-out speed:	25m/s

Post-Typhoon Recovery

- Structural and vibration health checks
- Controlled restart after safe wind conditions are confirmed

Typhoon-Proof Design

- Auto cut-out
- Blade feathering
- Yaw active control at a Typhoon attack using emergency DG set
- IEC 61400 Class II S, designed for 91.26 m/s winds

One-Short Blade

- Glued-free structure eliminates joint weaknesses and improves durability

Integrated Battery

- On-turbine storage smooths power fluctuations and stabilizes output

Microgrid-Optimized

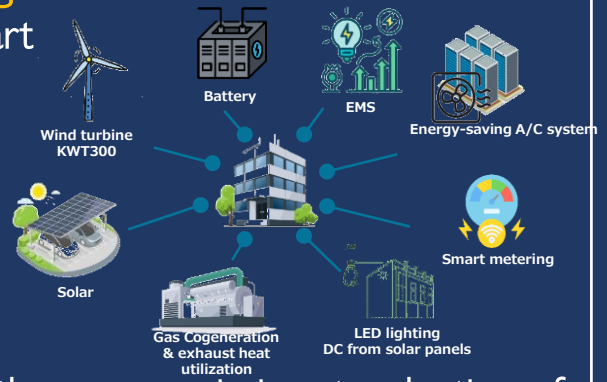
- Proven reliable operation in islanded and weak grids

6.CHALLENGES & SOLUTIONS

8.KOMAIHALTEC PROJECT SOLUTIONS

① Hybrid on-site power generation

Project: The Mie University Smart Campus Demonstration, Japan



In-house power generation for the campus aiming at reduction of CO2 emissions and optimization of power usage

② Captive power use

Project: Food factory Rock Field Co., Ltd., Japan

Wind power is utilized to purify the water used at the factory, circulate it through a biotope, and promote the greening of the area

③ Regional microgrids

Projects: Combination with diesel generation in cold climate
i) Ust-Kamchatsk and ii) Tiksi, Russia

Wind turbines are installed in challenging site access and climatic conditions.
KWT300 has excellent features allowing transportation in difficult conditions to improve the resiliency and save on cost of fuel.

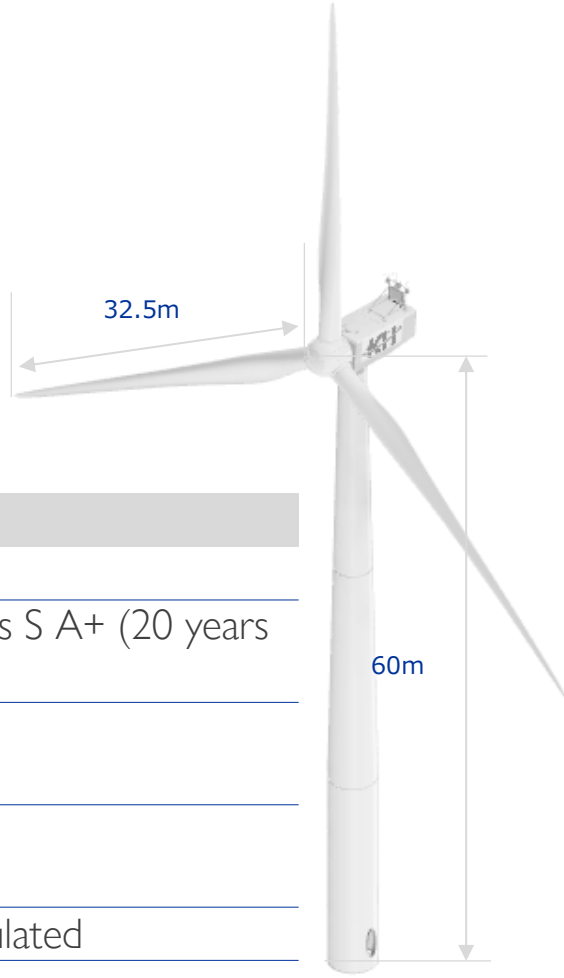
④ Local consumption

Project: Ōtoyo Wind Power Plant, Kōchi Prefecture, Japan
Wind Turbines: 3 × 300 kW
Client: Shikoku Electric Power
Purpose: Generation of 2.3mln kWh/year, supplying ~730 house-holds and reducing ~1,000 t CO_2 annually

9.1MW WIND TURBINE

KWT1.0, 1,000kW unit capacity wind turbine

- Withstands wind speeds up to 70 m/s (standard) and 90 m/s+ (typhoon type)
- Certification:
  - Design Evaluation Conformity Statement (DEWI OCC (UL)): in progress
  - Type Certification (Class NK): 2026~2027



General details	
Rated power	1,000kW
IEC class	Type Class S A+ (20 years lifetime)
Average wind speed Vave (m/s)	8.5m/s
Reference wind speed Vref (m/s)	50m/s
Power regulation	pitch-regulated
Rated wind speed	11.5m/s
Operating wind speed range	3-25m/s
Rotor diameter	67.0m
Hub height	60m
Generator	Asynchronous generator
Nacelle weight	35t

10.WHY CHOOSE KOMAIHALTEC

1 Reliable technologies and diversified power supply solutions

We offer reliable technologies and diversified power supply solutions suitable for complex terrain and weather conditions, such as in Japan

2 Total solutions for wind power plants

Komaihaltec offers a full spectrum of services from planning to design, construction and maintenance aiming to meet the needs of individual customers.

3 Innovations and Track Record

We have extensive experience in construction of numerous long-span bridges and production of advanced steel structures for skyscrapers. By utilizing our expertise in steel and wind analysis, we constantly improving our technologies and implement innovation solutions.

THANK YOU FOR YOUR ATTENTION!