Building dreams and creating spaces

Green Power Initiatives as Domestic Wind Turbine Manufacturer

KOMAIHALTEC Inc.

Our Business

Bridge

From familiar bridges used in daily life through to long span bridges

Tokyo Bay Aqua-Line

Steel Frame

Supporting contemporary architecture and contributing to the creation of social foundations

Azabudai Hills Mori JP Tower

Shanghai World Financial Center

Tokyo Skytree

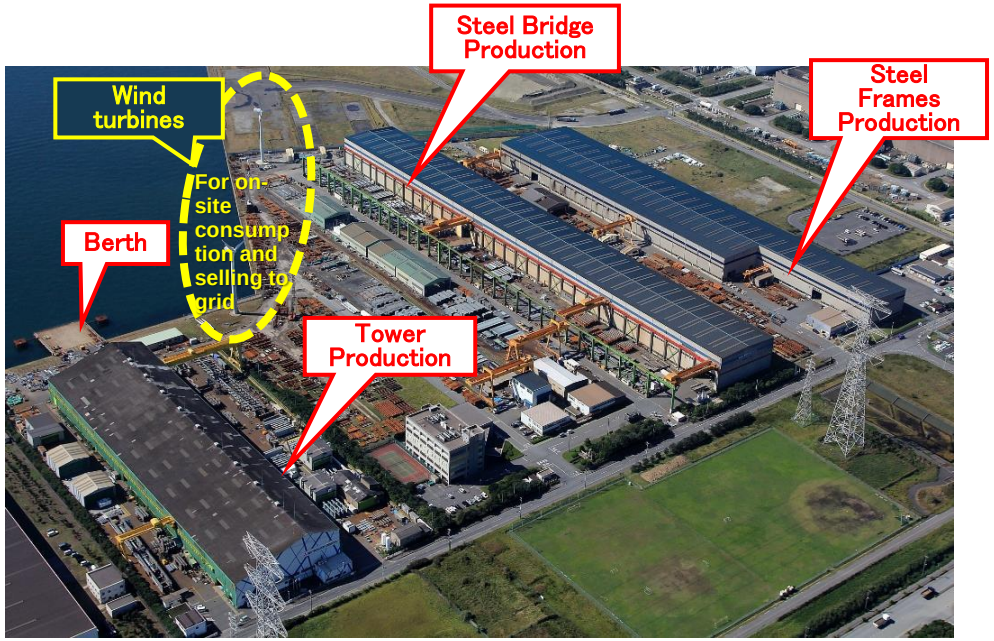
Environmental

Social solutions for achieving a "sustainable society"

Fukushima Renewable Energy Institute

Production Facilities Renewable Energy

- ***KWT300**, a 300kW wind turbine model*
- ***KWT1.0**, a 1MW wind turbine model*



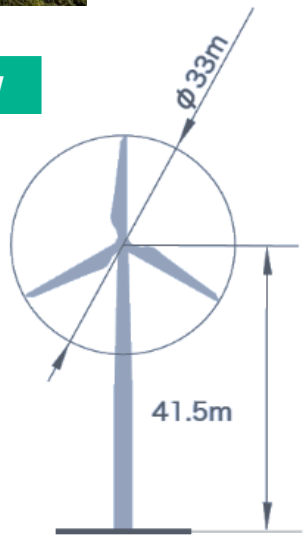
Approximately 15.8% (7,400,000 kWh/year) of the plant's electricity consumption is covered by wind generation.

About 96% of the electricity generated by the wind turbines is consumed at the plant and the surplus occurred on holidays and nights is sold.

Products Medium-Sized Wind Turbine

KWT300, a 300kW unit capacity wind turbine

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



CLIMATE VERSIONS

NCV

Normal Climate Version
Designed for normal climate conditions with the temperature range of -15～45℃ and max wind speed of 70m/s

CCV

Cold Climate Version
Also available in Extreme Cold Climate Version
Designed for cold climate conditions with the temperature range of -30 (-35)～30℃ and max wind speed of 59.5m/s

ESV

Extreme Storm Version
Designed for typhoon climate conditions with the temperature range of -15～45℃ and max wind speed of **91.26m/s** (204.14mph)

Engineered with a system that redirects wind turbine downwind during typhoon

Products Medium-Sized Wind Turbine

KWT300, Easy to transport, Easy to install

1 Easy to transport

Compact design of wind turbine components allows most of them to be transported by truck.
For example, tower is divided into 4-5 sections which can be transported by a 10t truck.

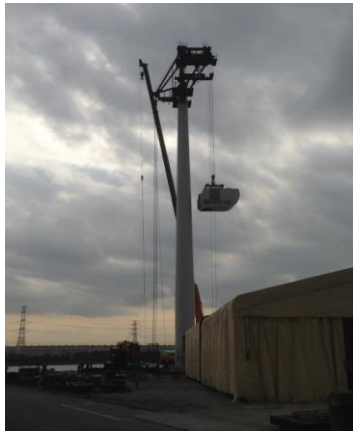

Tower section


Blades

2 Easy to install

i) Normally, installation is carried out by a 200-t crane.

ii) For remote sites where heavy lift cranes are not available, our unique system enables installation using a 60-ton crane.



Products

Medium-Sized Wind Turbine

KWT1.0, a 1MW unit capacity wind turbine

Incorporates enhancements for high power generation efficiency even in low wind speed regions

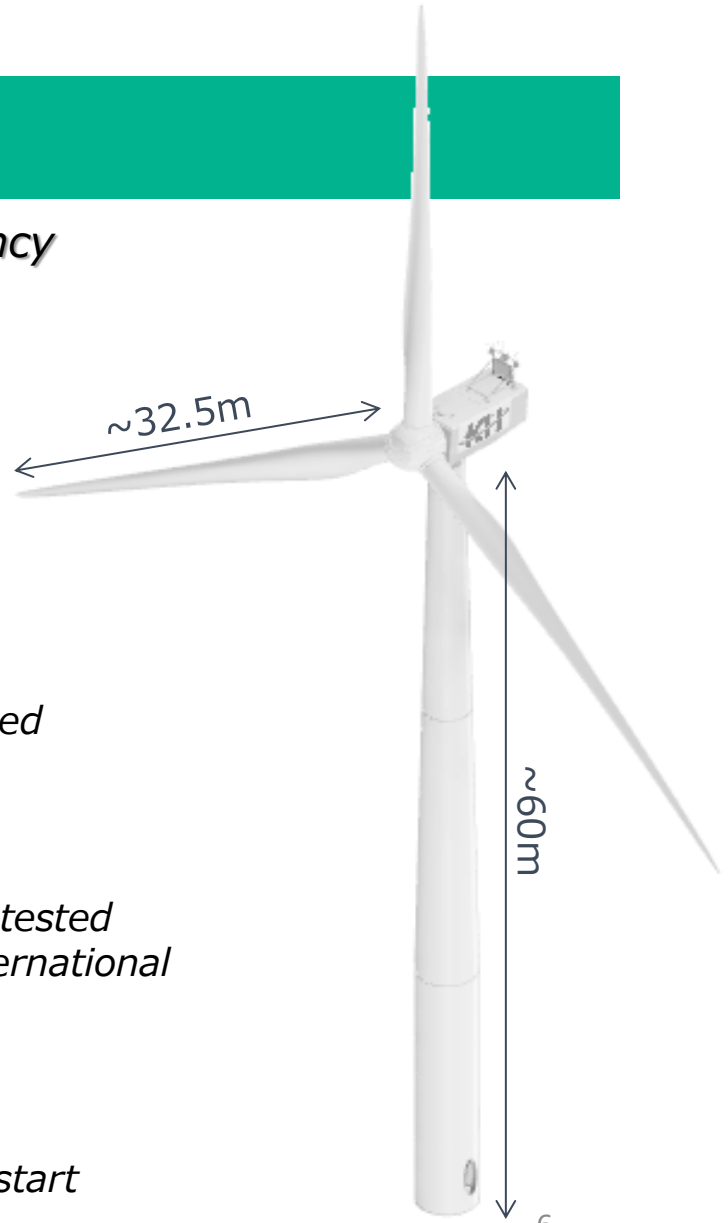
Rated power:	1MW
Rotor diameter:	67m
Hub height:	60m
Blade length:	32.5m
Nacelle weight:	35t
Cut-in speed:	3m/s
Cut-out speed:	25m/s

2024 **Design completion**
Engineered to withstand winds up to 91.26m/s (204.14mph)

2025 **Prototype assembly and site installation**
Prototype wind turbine to be installed at the site

2026 **Testing & Certification**
Prototype wind turbine to be tested and certified according to international standards

2027 **Serial Production**
Commercial production start



Products Medium-Sized Wind Turbine

TRACK RECORD: DOMESTIC MARKET ①

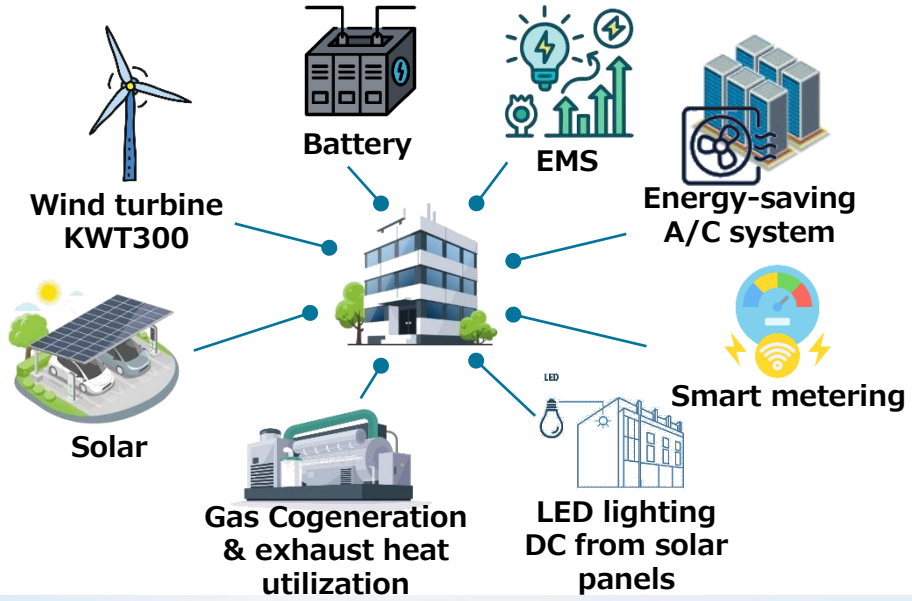
The Mie University Smart Campus Demonstration Project

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

System composition

Wind Turbine:	300kW
Solar panel:	50kW
Battery:	432kWh
Gas engine:	1,000kW x 2 units

Smart campus concept scheme



Mie University, Mie Prefecture, Japan

Products Medium-Sized Wind Turbine

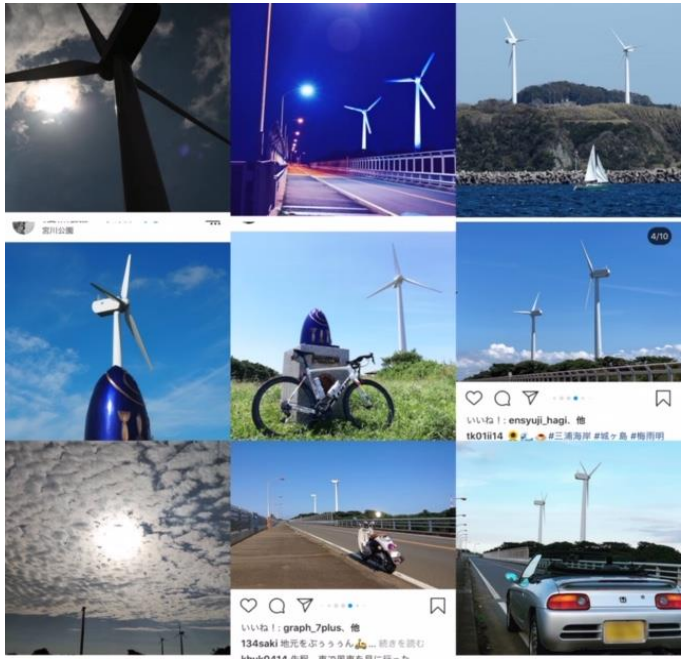
TRACK RECORD: DOMESTIC MARKET ②

Miyagawa Park, Miura City, Kanagawa Prefecture

2 units of KWT300 replaced old aging wind turbines and the power generated is used as a local power source for public conveniences and night illumination.

The park is also equipped with charging stations for cell phones and other devices in case of emergency.

The park became popular among residents and tourists.



Pictures of WTs on social media were posted one after another by both residents and tourists
(Source: Instagram)

Products Medium-Sized Wind Turbine

TRACK RECORD: DOMESTIC MARKET ③

Power generation for private on-site consumption
Rock Field Co., Ltd., Shizuoka Factory

2 units of KWT300 were installed during the factory expansion.

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

Products Medium-Sized Wind Turbine

TRACK RECORD: DOMESTIC MARKET ④

Typhoon-resistant wind turbine for remote islands
Miyako Island, Okinawa Prefecture

KWT300ESV installed to undergo type certification of the **typhoon-resistant** wind turbine model according to international standards.


Miyako Island, Okinawa Prefecture, Japan

Products Medium-Sized Wind Turbine

TRACK RECORD: OVERSEAS MARKET ①

Regional microgrids (remote settlements)
KWT300 wind turbines adapted to a cold climate

Ust-Kamchatka

- Operation start : September 2015
- Minimum operation temperature: minus 30C
- Approximate capacity factor : [25]%
- Wind turbine: 300kw x 3 units
- Diesel generator: existing
- Electrical boiler : Supplied by Fuji Electric. To absorb electricity from wind power.
- Energy Management System: Supplied by Fuji Electric

Remoteness constraints and limited access influence the electricity cost and many of these remote communities rely on Diesel Generators (DG) for electricity supply.

Extension of the electricity grid is not always a feasible option for electrifying remote areas, due to low population density and sparse population distribution.

For this reason, simple configurations of microgrids can be realized to improve the resiliency and save on cost of fuel used for powering the plant.

Tiksi

- Operation start : December 2020
- Minimum operation temperature: minus 35C （minus 50C stand by)
- Approximate capacity factor : [25]%
- Wind turbine: 300kw x 3 units
- Diesel generator: 1000kw x 2 units made by Yanmar
- Battery : 300kwh made by Toshiba.
- Energy Management System: Supplied by Toko Takaoka

Products Medium-Sized Wind Turbine

TRACK RECORD: OVERSEAS MARKET ②

Regional microgrids (remote tropical islands)
KWT300 wind turbines adapted to typhoon climate and excess power utilization

Komaihaltec KWT300 typhoon-resistant wind turbines

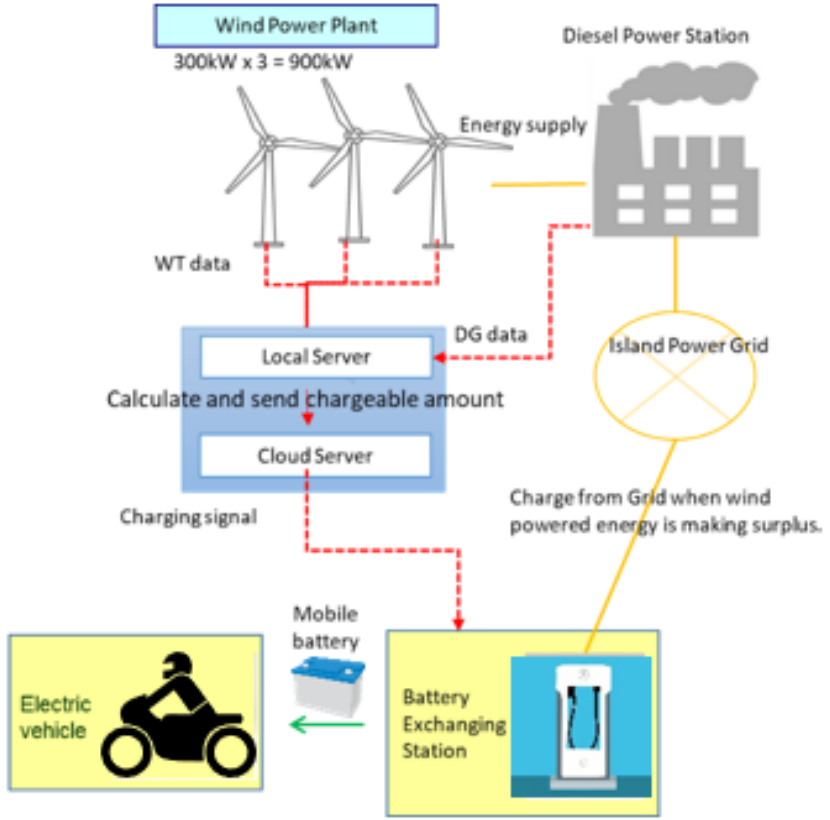
Romblon Island, Philippines

Remote islands and mountain areas are most affected by isolation in general and prolonged isolation during emergencies.

Tropical islands in addition to remoteness constraints are affected by typhoons and other natural disasters, and face unplanned outages not only due to emergencies but traffic accidents, damage to power lines, and most commonly storms and high winds.

For this reason, simple configurations of microgrids can be realized to improve the resiliency and utilize excess power generated during the night.

System for utilization of excess energy



Products Medium-Sized Wind Turbine

TRACK RECORD: OVERSEAS MARKET ③

Regional microgrids (remote mountains)

KWT300 wind turbines installed in the Bhutan mountainous area with challenging delivery conditions.

Wandupodang Province, Kingdom of Bhutan

Products Sky Solar Systems

Sky Solar, systems for high efficiency installation of solar panels

1 High Pole Sky Solar

Designed for mounting on evenly spaced high poles with beams passing through them.

High Pole structure installation

Solar panels installation

- Installation interval between high poles can be up to 9 x 9m.
- Designed and installed with a pole height suitable for specific land use needs (standard range 3～7m).
- The most optimal tilt angle is selected for individual location.

2 Cable-Suspension Sky Solar (Patented)

Specially designed cable system solution, enabling solar panel installation in challenging terrains and unique land use.

- The solution of PV panels suspension is built based on our experience and expertise in suspension bridge technology.
- This solution allows utilization of space above lakes, rivers, and many others.
- Customizable to fit the land-specific conditions.

The cable system with a span of up to 50m can be installed in complex terrains, such as over the water, increasing the flexibility of land use under the panels.

Solar power solutions that utilize the space above the ground not affecting topography and land use.

Products Sky Solar Systems

TRACK RECORD: HIGH POLE SKY SOLAR

Regulating Reservoir

Steel pipe bearing piles are adopted.

In the interest of disaster preparation, a water depth of 3.35 m, (the depth when the reservoir is filled with water) has been secured.

Location : Kumagaya, Saitama Prefecture
Nakagawa River No.2 Regulating Reservoir

Area: approx. 23,000㎡

Rated power: 2,4MW (panel-based)

Sky Solar Systems

TRACK RECORD: HIGH POLE SKY SOLAR

Snowfall area

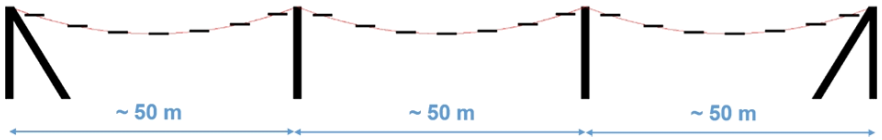
Designed to be able to resist 2m of snow accumulation.

A snow melting device is installed and the angle of panels is set at 30° to reduce the amount of snow accumulating on the panels.

Location: Aizuwakamatsu, Fukushima Prefecture
Area: approx. 27,127㎡
Rated power: approx. 1.4MW (panel-based)

Products Sky Solar Systems

TRACK RECORD: CABLE-SUSPENSION SKY SOLAR



Our specially designed cable system solution is designed using our best practice and know-how in bridge suspension structures, enabling solar panel installation in challenging terrains and unique land use.

The cable system with a span of up to 50m can be installed in complex terrains, such as over the water, increasing the flexibility of land use under the panels.

Prototype Cable-Suspension Sky Solar at Technical Center in Matsudo

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!

Contact us

We're here to support you along the way

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https://www.komaihaltec.co.jp/env/english/