Change the history of renewable energy, change the world

Tornado Wind Turbine

Firstly

The Design Philosophy of Eco-Technology

1. Safety
2. Care for the surrounding environment
3. Generation Efficiency

Designed with the thought that if the things people use are not safe or good for those people and living things around them, they are not "eco." Industry specialists have applauded the exceptional precautions for wild birds and noise in its operations.

Examples of Installed Wind Turbines Worldwide

Types of Wind Turbines

Vertical Wind Turbines

Horizontal-Axis Wind Turbines (HAWT)

Darrieus

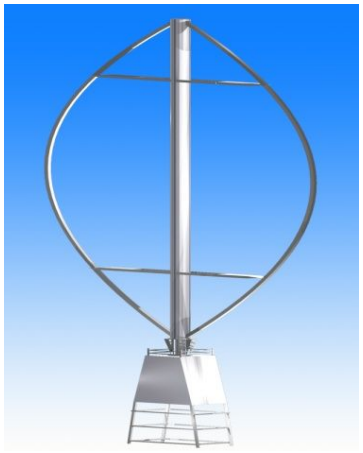
Straight-Blade Vertical Axis Wind Turbine

Mitsubishi 1000kw HAWT

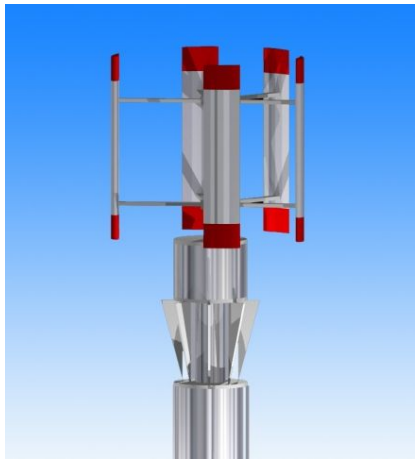
[Turbine Comparison 1 Basic Turbine Operation]

Types of Wind Turbines	Blade Shape	Start-Up	Efficiency	Blade Tip Speed	Noise Development of the Advanced Vortex	Axle Vibration Axle Torque Imbalance	Structural Vibration Gyro Scopic Momentum
3-Blade Propeller	Knife Shape	Motor Ring	High	High-Speed	Large	None	Large
Multi-Blade Propeller	Knife Shape	Self Start-Up	Mid	Intermediate Gear	Small	None	Large
Vertical Blade	Knife Shape	Motor Ring	Mid	High-Speed	Large	Large	None
Savonius	Knife Shape	Self Start-Up	Extremely Low	Slow	None	Large	None

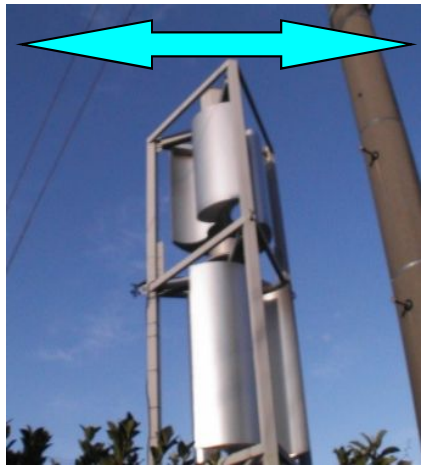
Possesses both functionalities



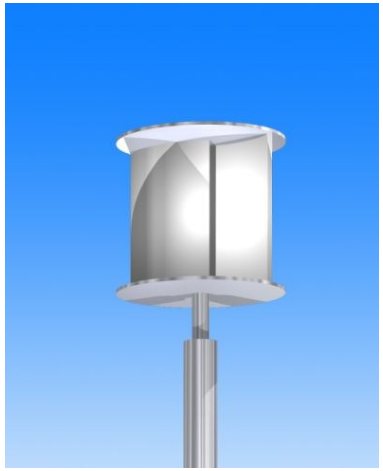
Darrieus Wind Turbine: A turbine which uses curved airplane wing-like blades installed on a vertical axle.



Giromill Wind Turbine: A vertical blade turbine that uses airplane wing-like blades.



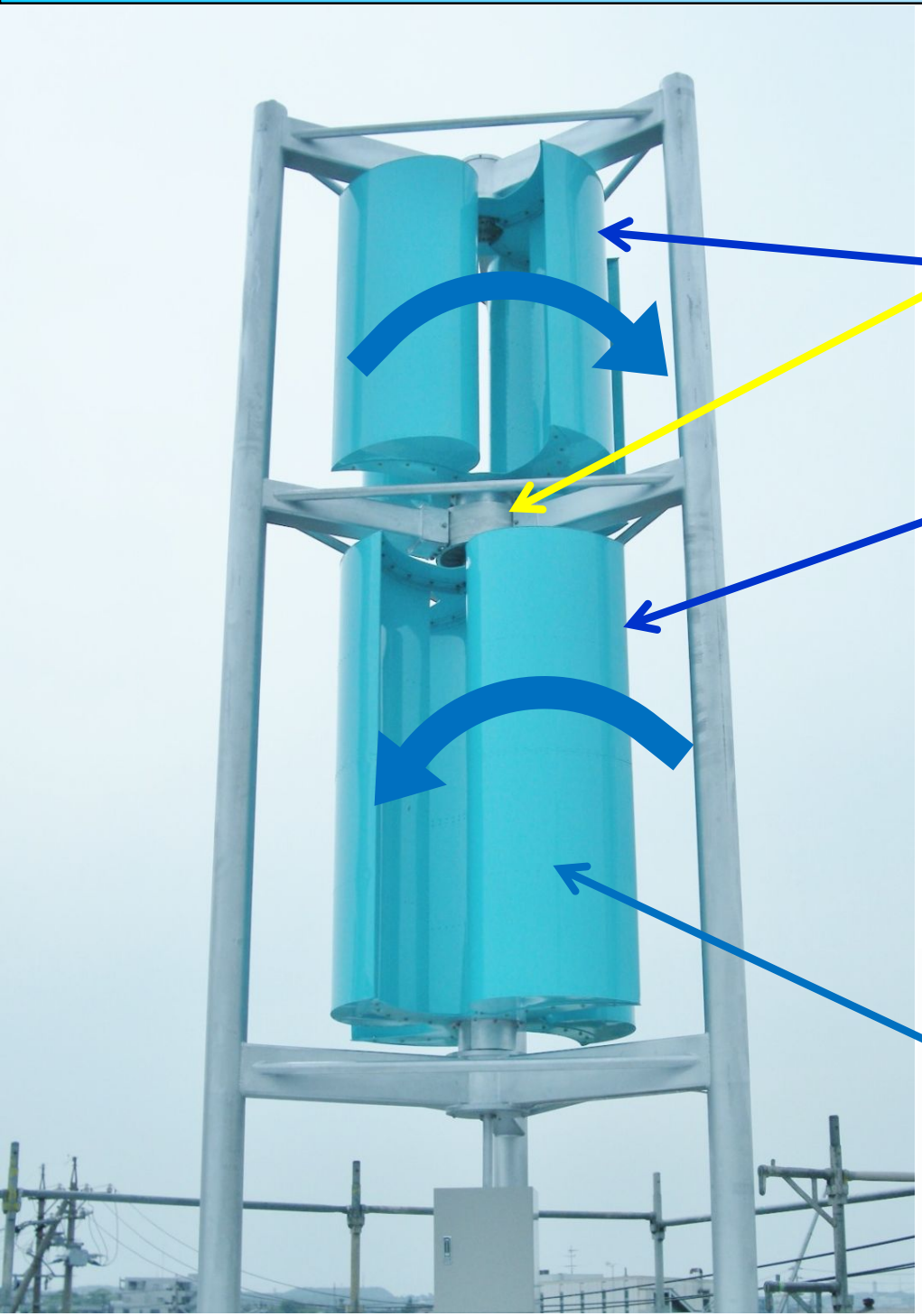
Tornado Model: The world's first turbine to use both drag and lift to rotate the two levels of turbine blades bidirectionally.

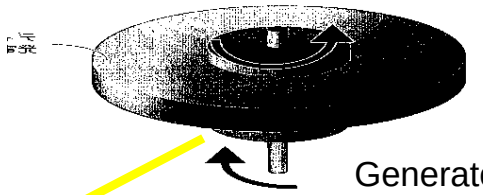


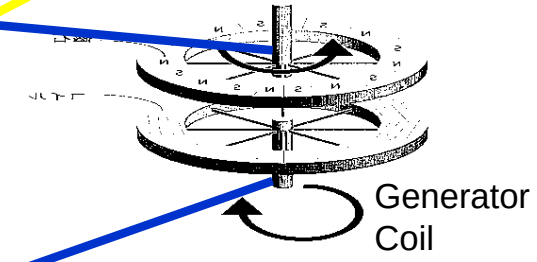
Savonius Wind Turbine: Shaped like a two halves of a vertically-cut pipe and shifted towards the circumference.

Standard Wind Turbine
3-Bladed Propeller Turbine

This is new! Gaining an International Permit, the Tornado Wind Turbine Blade Structure (Wind Flow)







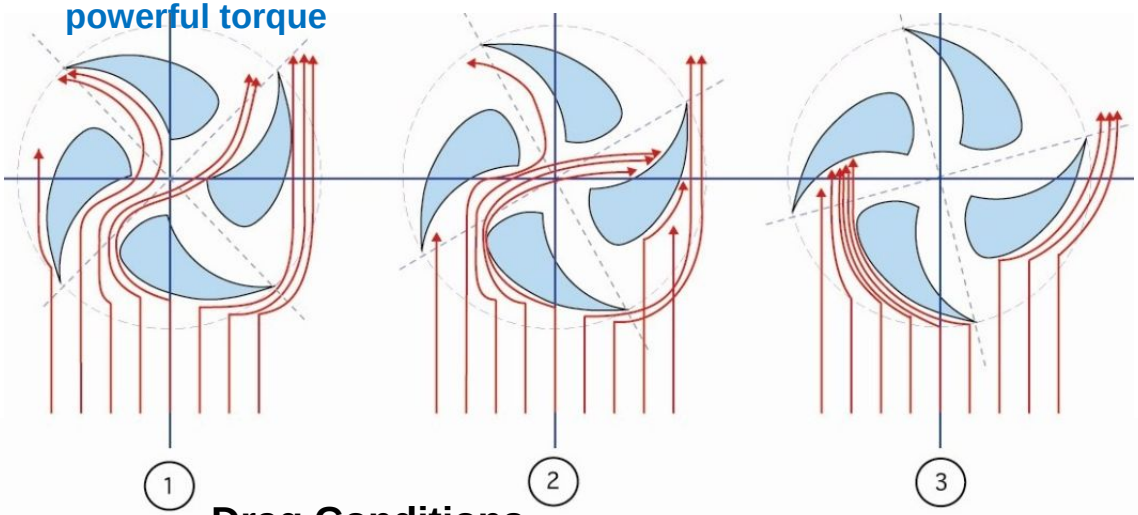
Bidirectional generator

Both upper and lower level blades have their own coil and magnet and when rotated bidirectionally it doubles their relative speed.

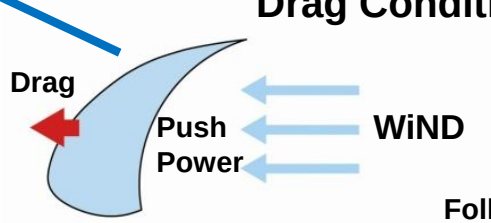
The structural is stabilized by a gyroscoping effect which neutralizes the counterforce incurred during rotation as it rotates.

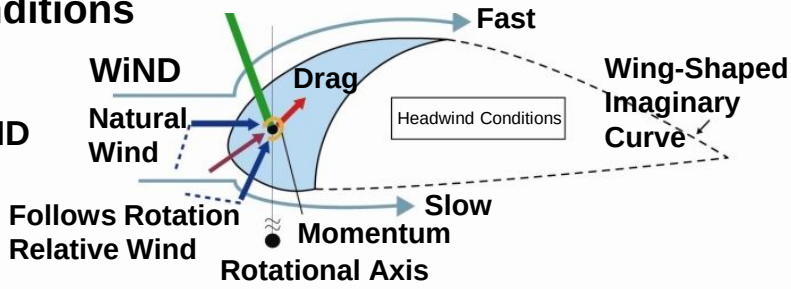
Patented Bidirectional Blade

The blades operate using both lift and drag, thus producing powerful torque

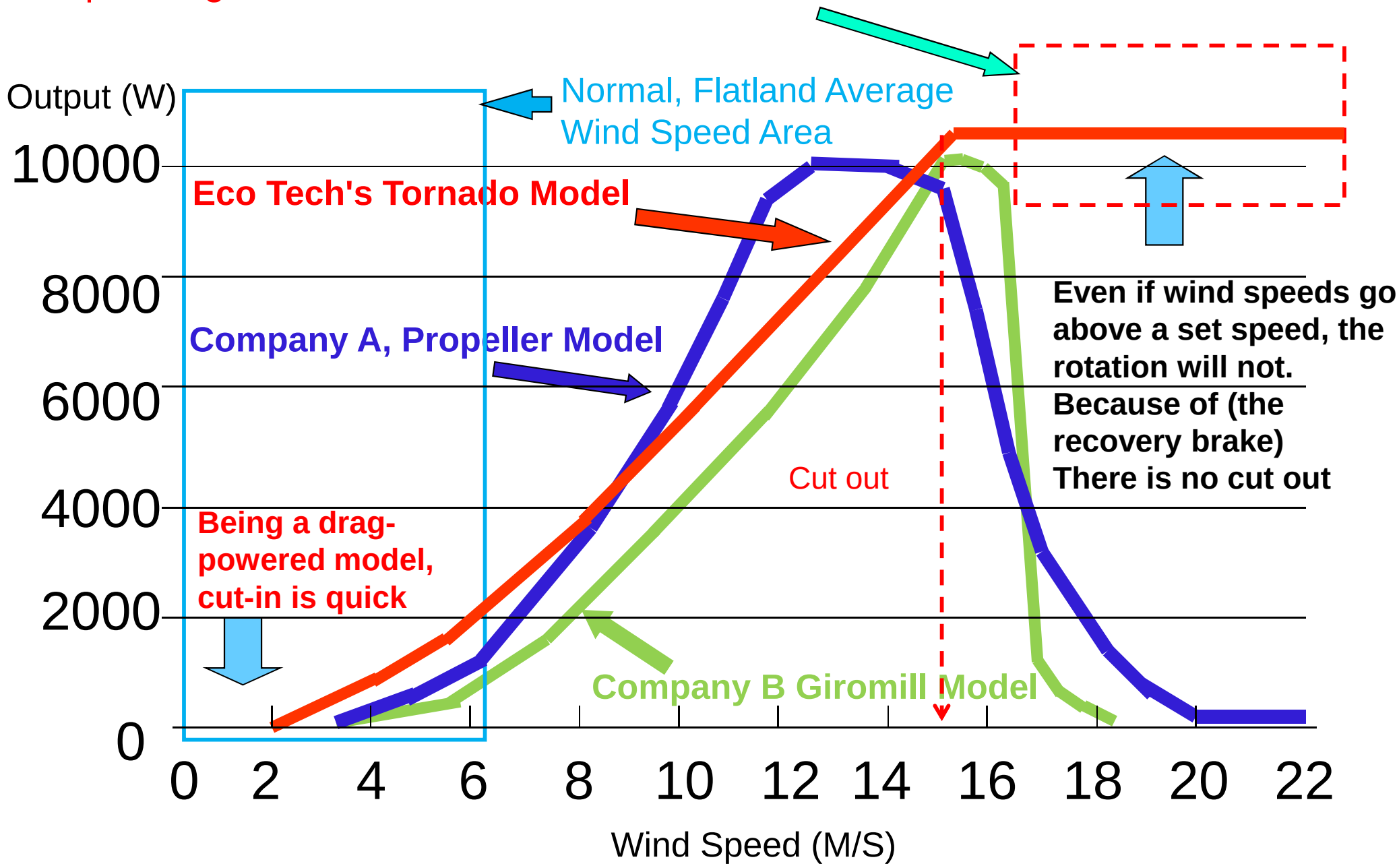


Drag Conditions



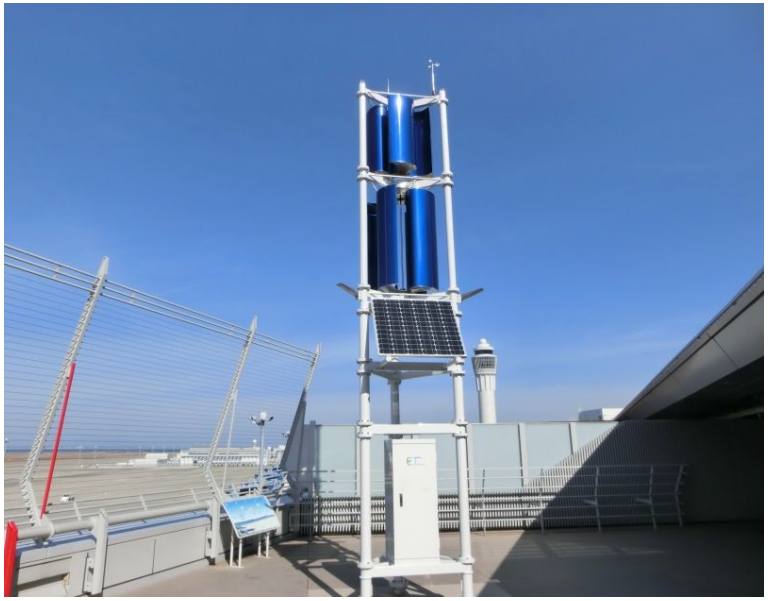


Wind Turbines, Curve for 3 Types of Generation Functionality



Small-Scale Wind Turbine Plan (Installation Example) Hybrid Streetligh (TN-30HL)

Kao Corporation (Toyohashi Plant)



Chubu International Airport (Centrair)

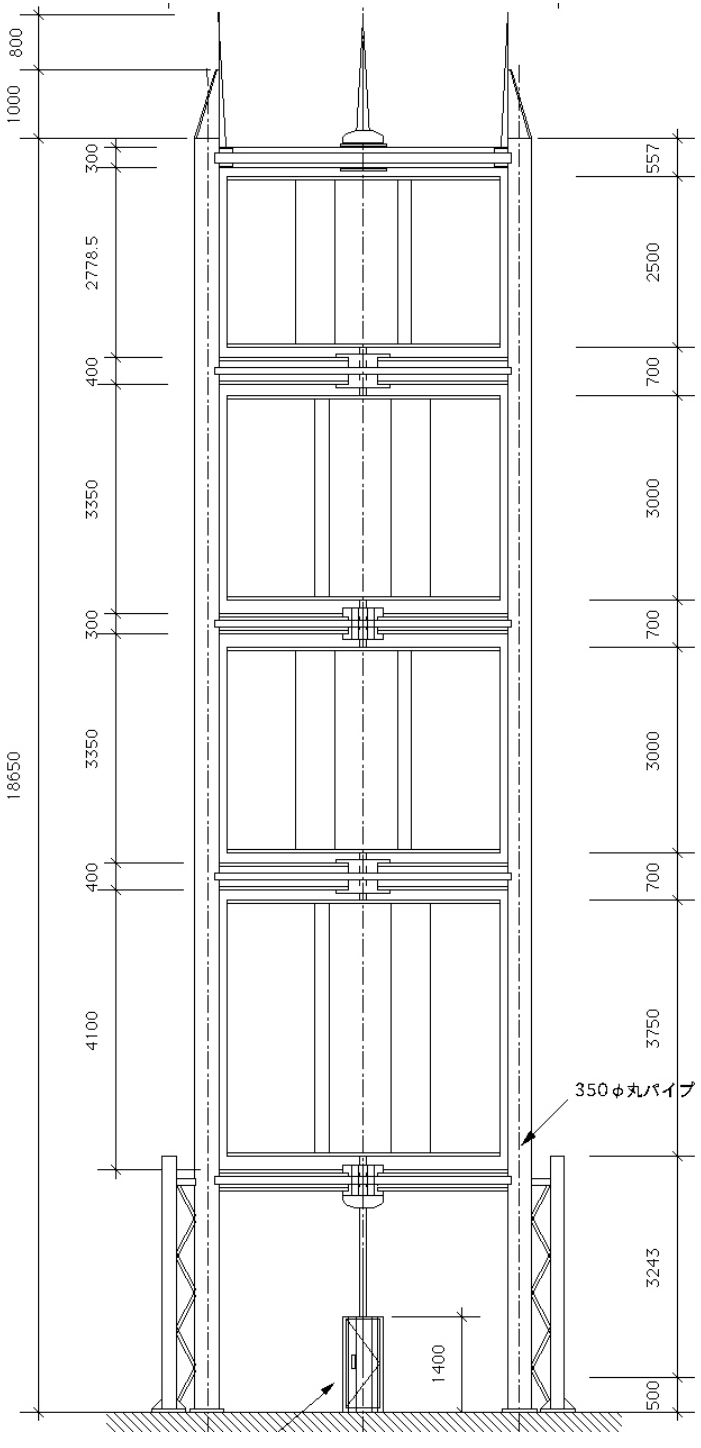
Tomei No. 2 (Hamamatsu Service Area Outbound)

Mitsubishi Estate Co., Ltd. Residence (tsudanuma)

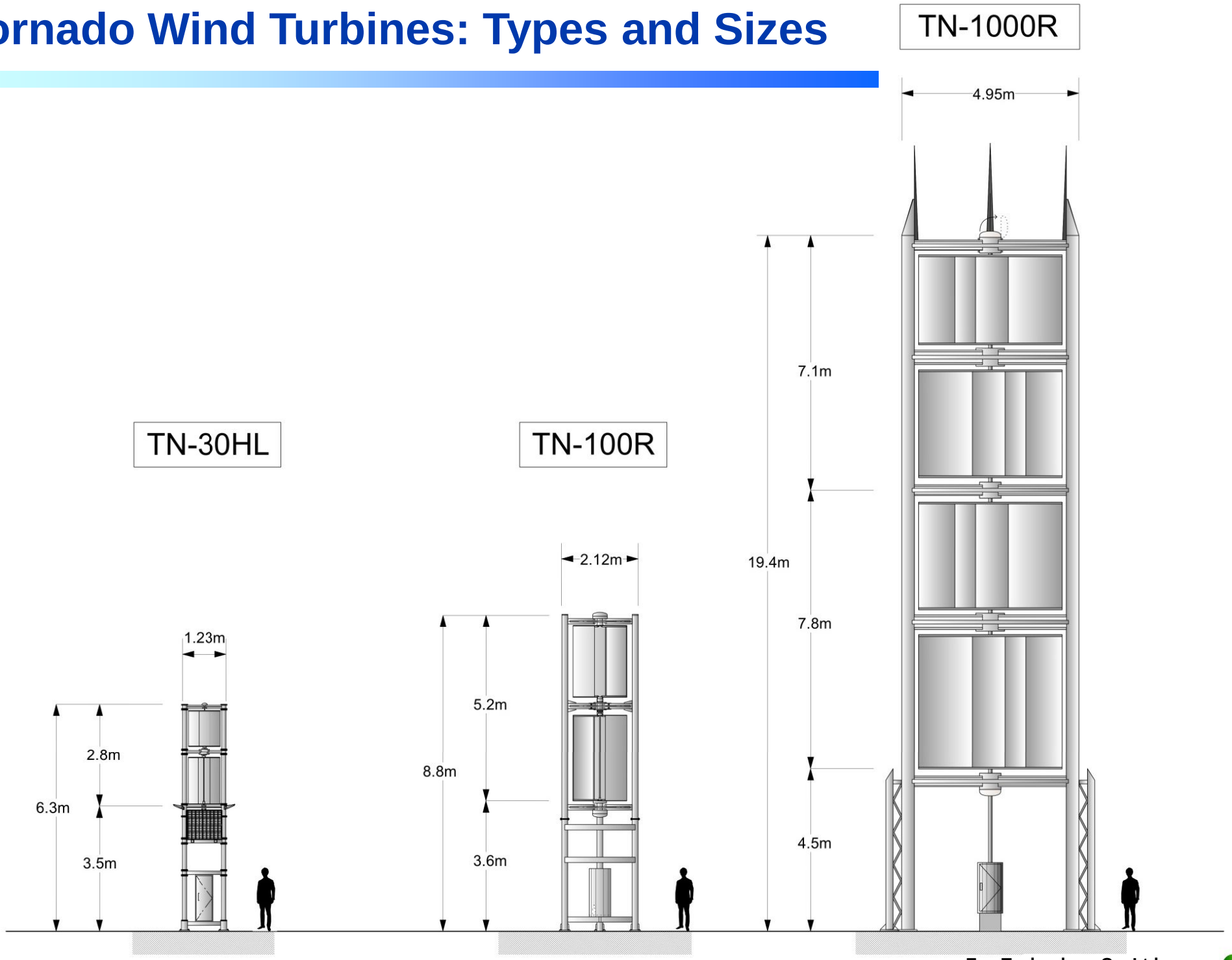
Bridgestone Corporation (Tokyo Plant)

Small-Scale Wind Turbine Plan (Installation Example) 1kW - Max 2kW Wind Turbine (TN-100)

Bidirectional Wind Turbine (10kW Class)



Tornado Wind Turbines: Types and Sizes



Eco Technology Co. Ltd.

株式会社 エコ・テクノロジー

Landscape type, a plan to harmonize with and care for nature and living things

It is mindful of problems facing natural living things (noise, low-frequency vibrations, bird strikes, etc.) and does not mar the landscape.

Examples of wind turbine collapses and bird-strikes

Typhoon-caused collapses

Damaged by wind gusts

Outstanding features of Tornado wind turbine in comparison with other existing wind turbine (Summary)

1. **Small Footprint**
   Smaller footprint means it can be installed on top of buildings or in hazardous mountain areas
2. **Low-Noise, Low Risk of Bird Strikes**
   It is noise-less and prevents bird strikes, thus it is neighborhood- and bird-friendly

3. **Resistant to Lightning, Gusts, and Typh (Cyclones)**
   It can stand up to the harsh climate conditions of Japan.
   Also, the sturdy triangular frame means less damage.
4. **Its simple structure means easy maintenance**
   Since there is no pitch- or yaw-control, there are fewer parts to break down.
   Also, when stopped, it does not consume electricity.
5. **Its simple structure also means fewer flickering shadows**
   The simple structure also lends itself to solving the problem of cost efficacy You can expect to save on parts.
6. **No cut out means more viable sites**
   Normally, wind turbines cut out at wind speeds of 15-20 m/s, but Tornado wind turbines can still generate power during these ideal times.


The United States of America

The Director of the United States Patent and Trademark Office

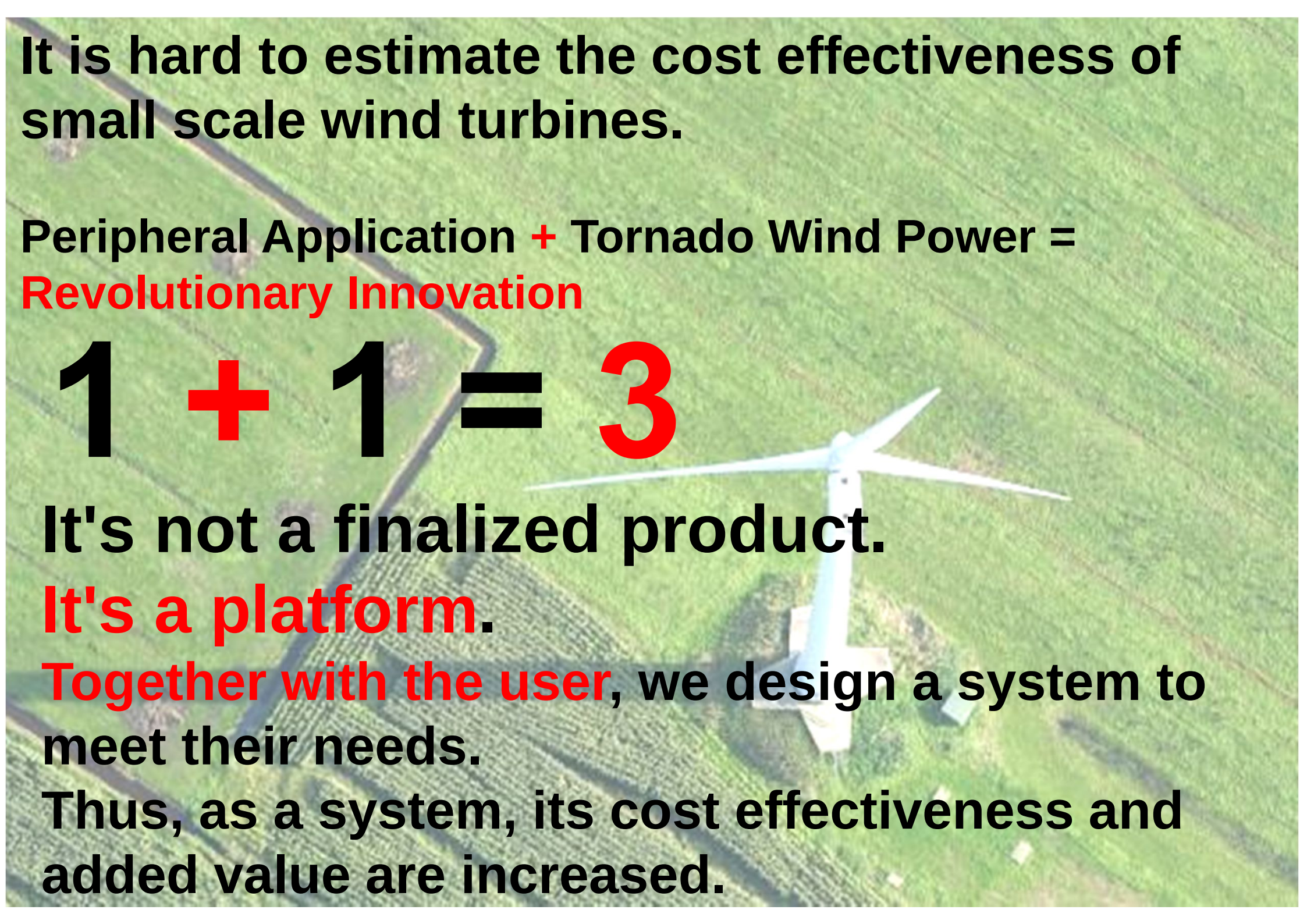
Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

David J. Kappos



It is hard to estimate the cost effectiveness of small scale wind turbines.

Peripheral Application + Tornado Wind Power = Revolutionary Innovation

1 + 1 = 3

It's not a finalized product.

It's a platform.

Together with the user, we design a system to meet their needs.

Thus, as a system, its cost effectiveness and added value are increased.

Tornado Wind Turbine Application Methods

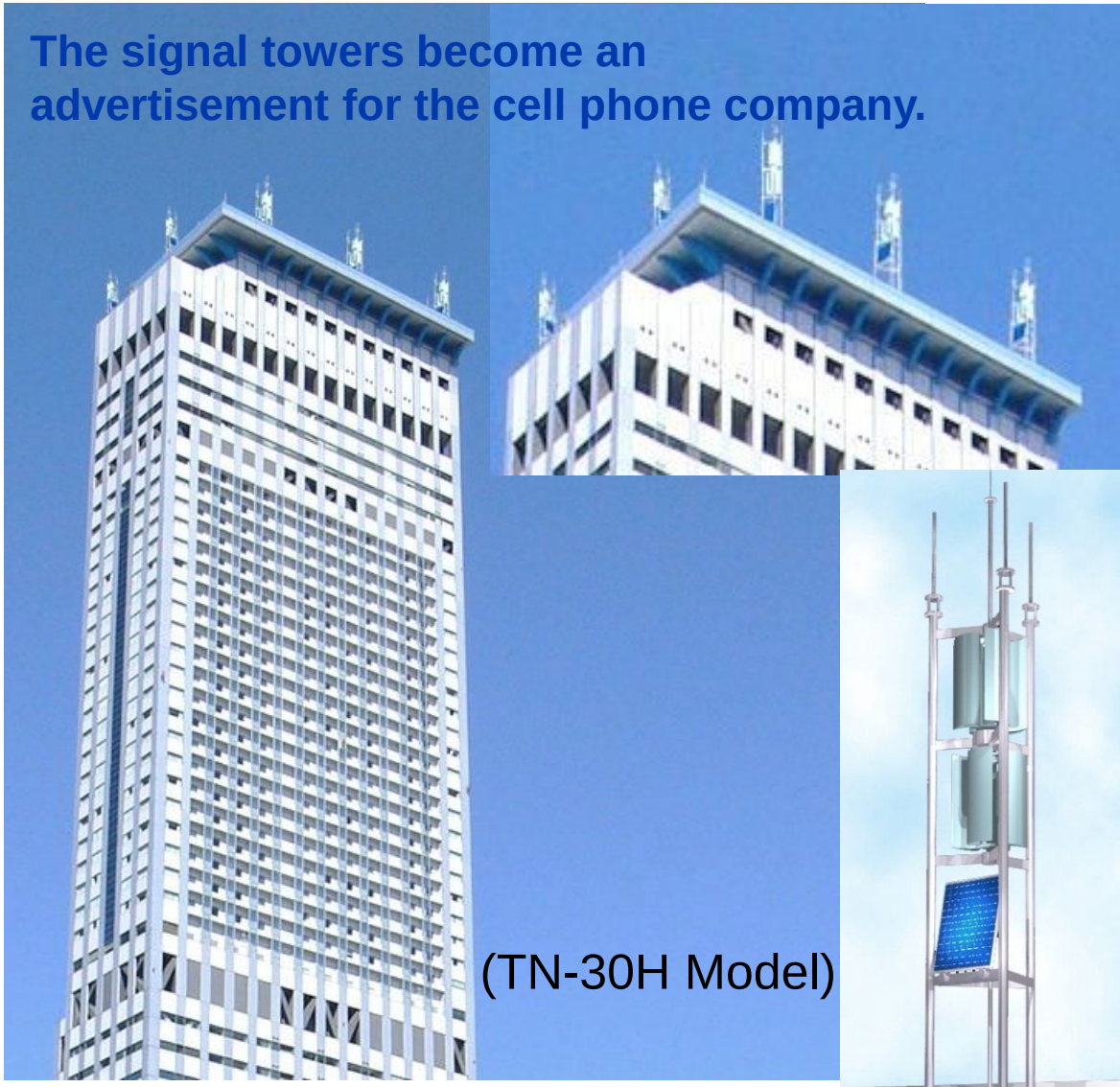
Kanazawa, Tokumitsu Parking Area

Newly developed bolt-on type

Tornado Wind Turbine Application Methods

Urban Model, SkyscraperRooftop Solar Model

Skyscraper Rooftop, Cell Phone Relay Station Model



Small-Scale Wind Power Hybrid Signal Tower

Tornado Wind Turbine Application Methods

Mobile Cell Phone Signal Tower Plan

(TN-100H Model)

Relay Station Equipped with Wind Power Hybrid Generation and Battery Storage

Tornado Wind Turbine Application Methods

The Tornado wind turbine setup stands out more than the rest stop

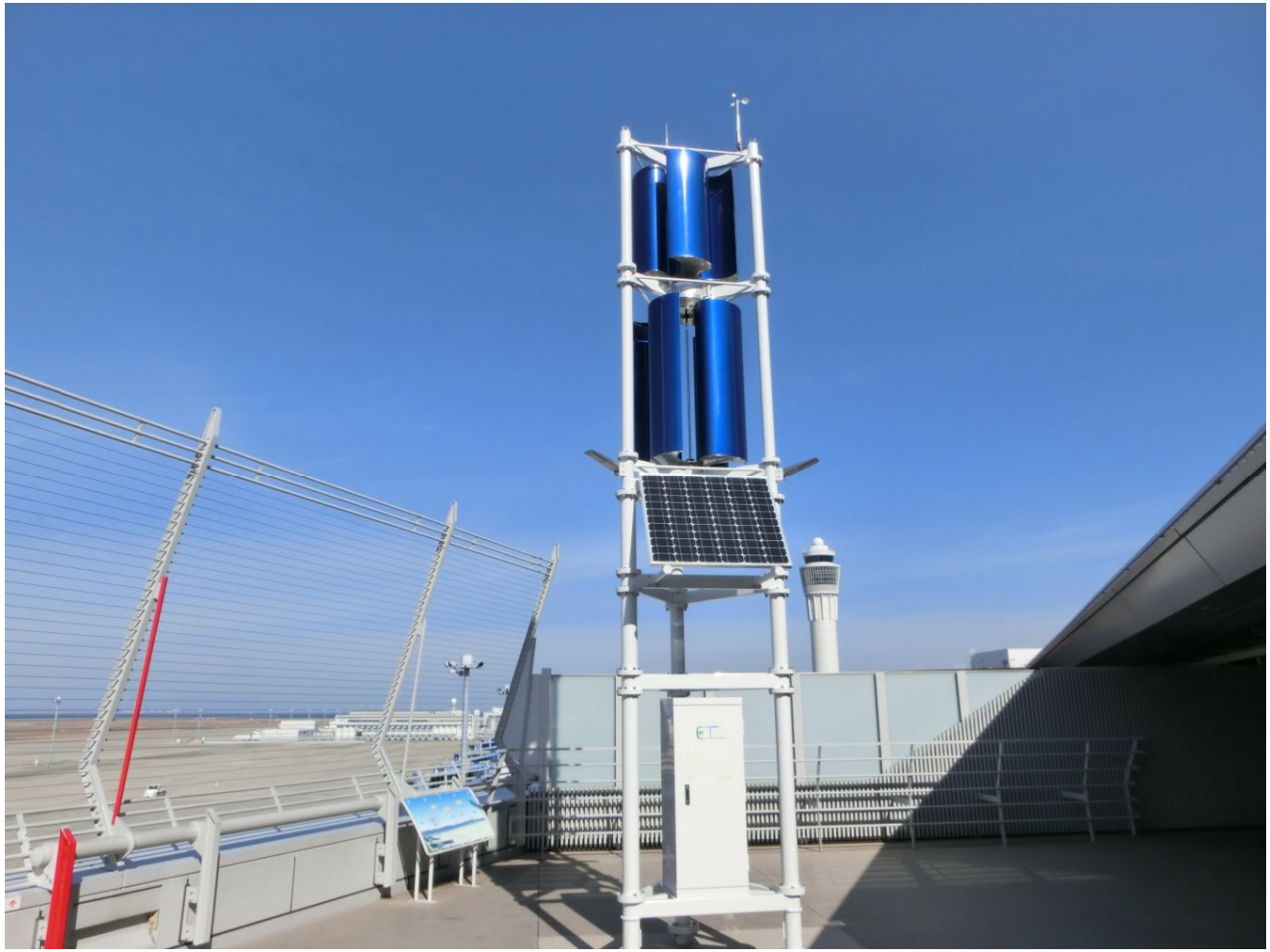
It acts as a light for Sukusukugaoka, and becomes a symbol against the dark background of the hill area.

The Tornado wind turbine setup stands out more than Sukusukugaoka

Tornado Wind Turbine Application Methods

Chubu Centrair Airport, Hybrid Streetlight, Installation Image (Skydeck Side)

For the airport, it was the first demonstration experimental streetlight equipped with both emergency lighting and power source



Because it is located in an airport, the FRP blades used were made with care regarding signal disruption

Tornado Wind Turbine Application Methods

Security of the home or office
Monitoring and management system

Surveillance camera

Also it serves as a CSR, object type corporate image signage sign

(Revised Independent Power Source)

(Normal Contents)

Things to Do

D Signage

Image access to the world

Advertisements etc.

[Normal Situation]

Commercial Power Source

Cloud Computing

A response which took lessons from the Great East Japan Earthquake

(Emergency Contents)

Wi-Fi Station

[Emergency Situation]

Evacuation Center Etc.

Emergency, the charging of the mobile terminal

Emergency Power Source

Hybrid wind power generator (TN-30SHL)

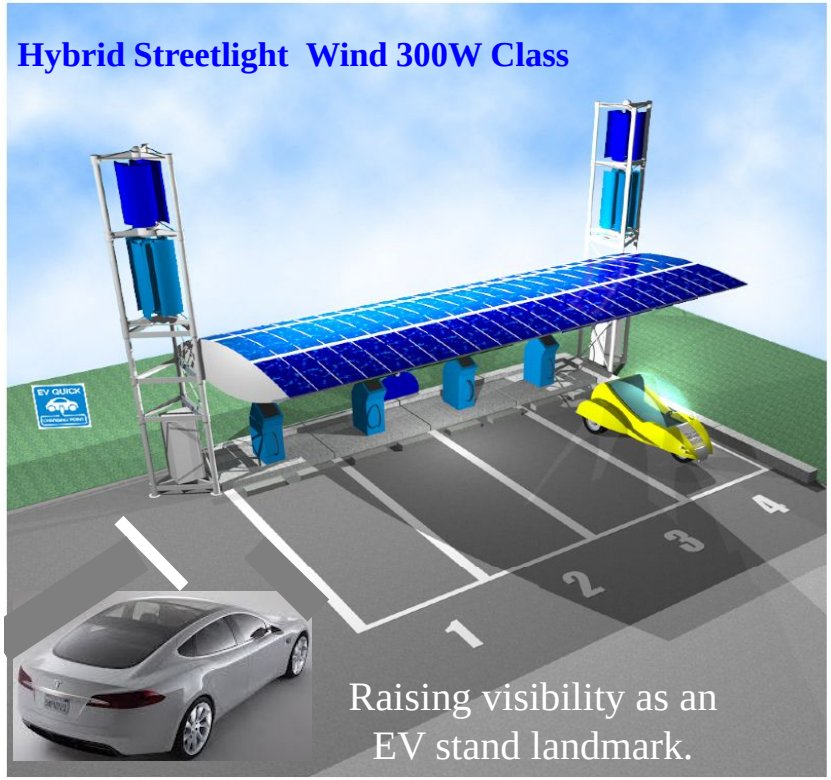
The event of a power failure, serve as a guide light up to evacuation areas

Power ensure emergency radio

EV mobility stand image with a wind genera

Wind 10kW Class

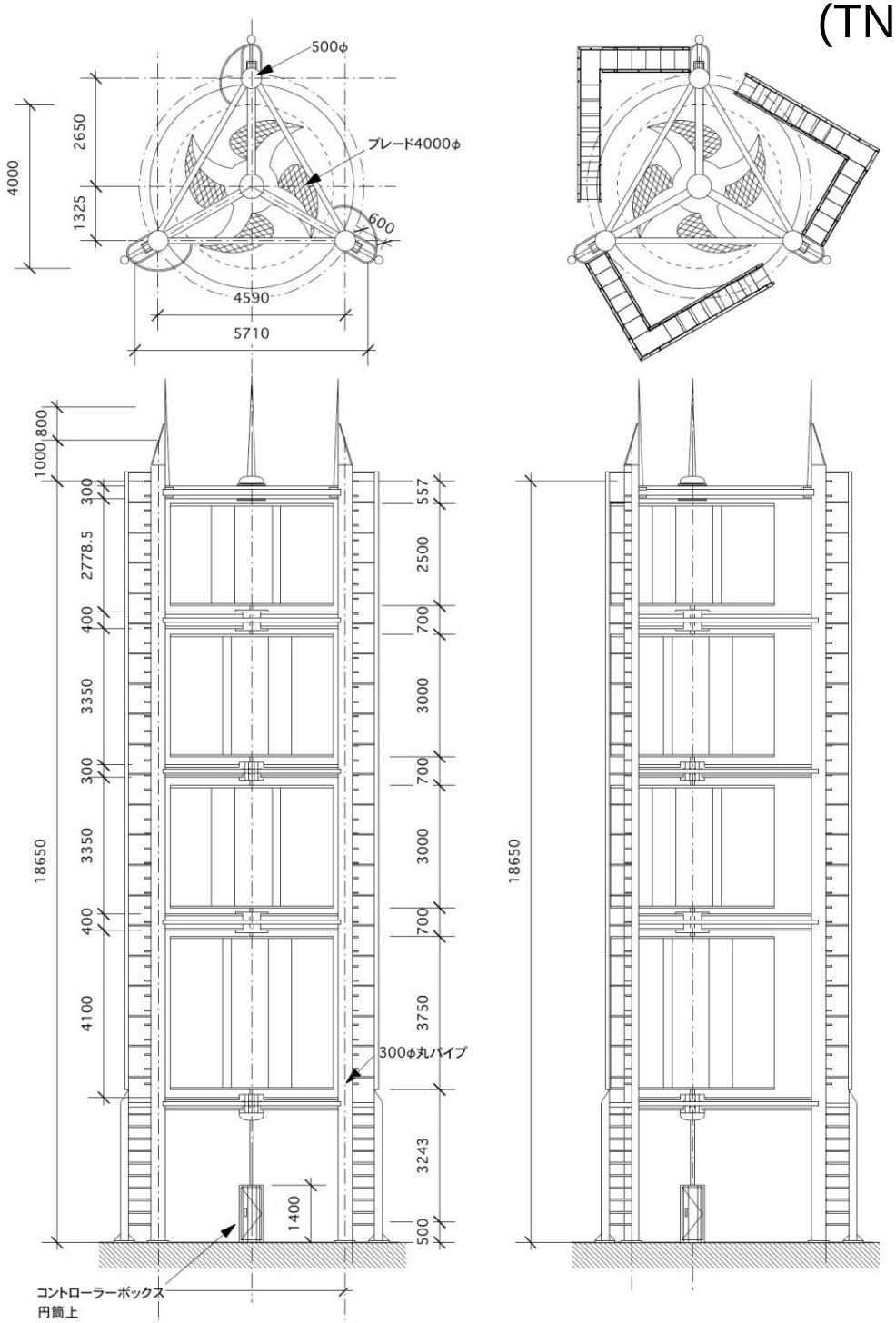
Hybrid Streetlight Wind 300W Class

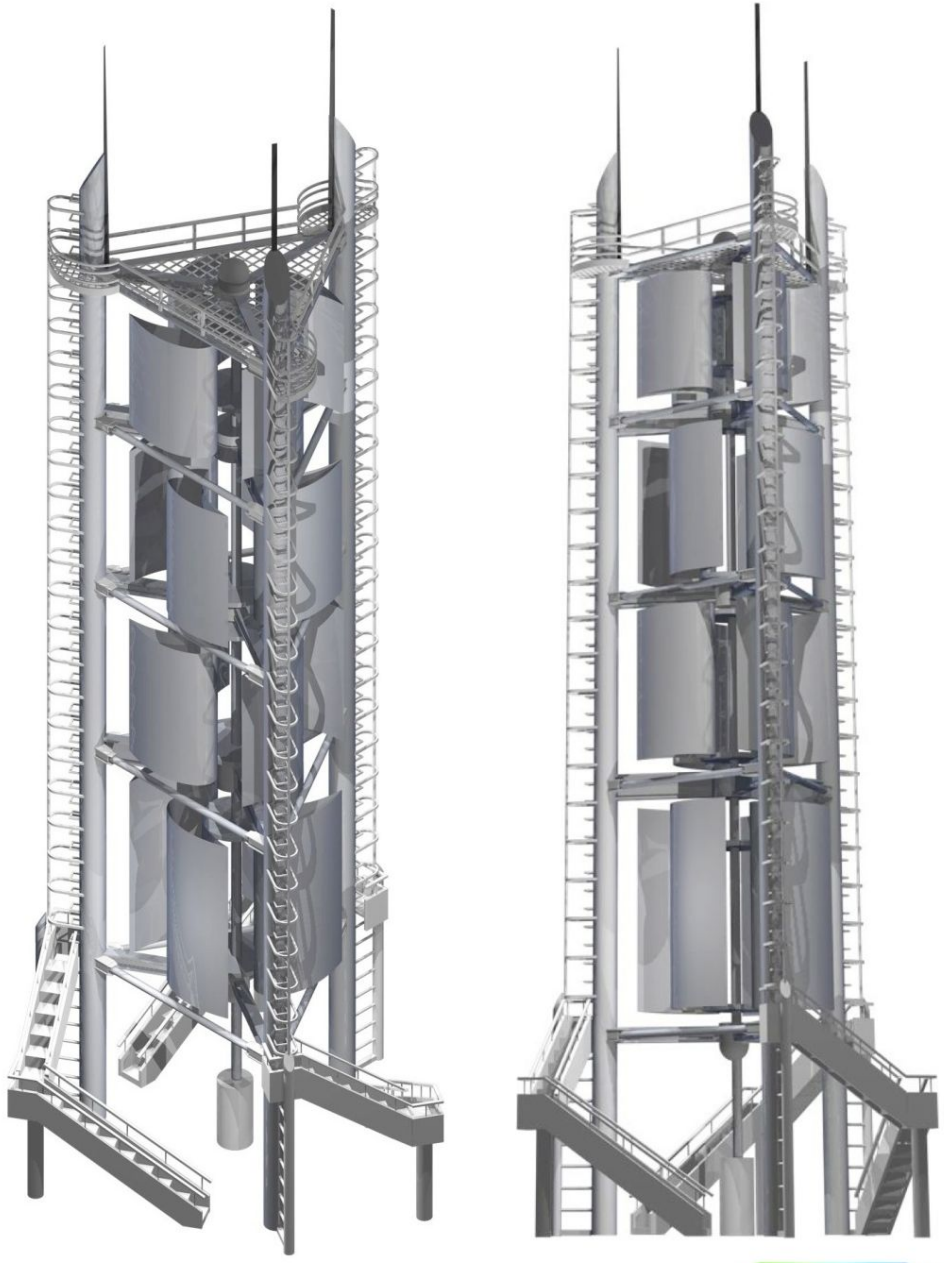


Raising visibility as an
EV stand landmark.

Tesla Motors

Wind Turbine/Tsunami Evacuation Tower (TN-1000)





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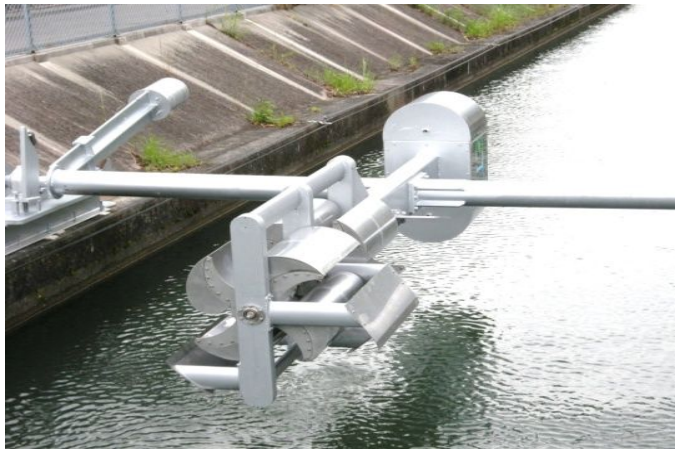
Conceptual plan Macroscale model of Tornado wind turbine (1000KWclass)

If it's a Tornado model, it would be possible to build a Megawatt-sized wind turbine with its own observation deck.

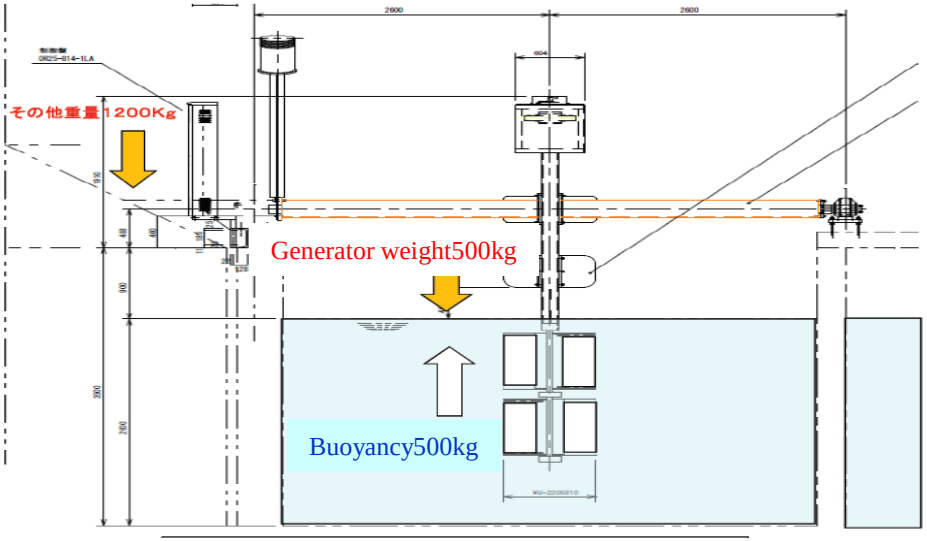
(Height 120m)

The structure and parts are the same as existing construction methods, just scaled up.

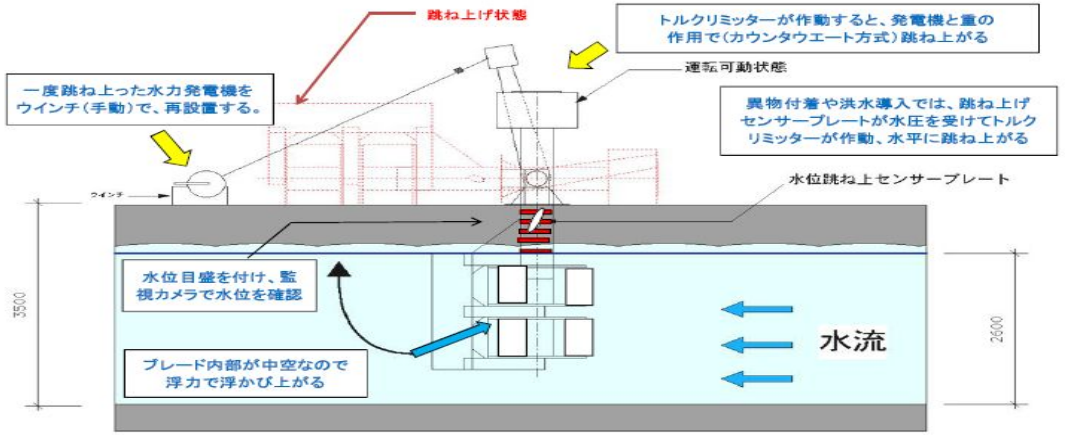
Eco Technology Co. Ltd. New development projects Micro-hydroelectric generator



15、水力発電装置の既存物への影響の計算図



メンテナンス及び緊急時、跳ね上げシステム説明図

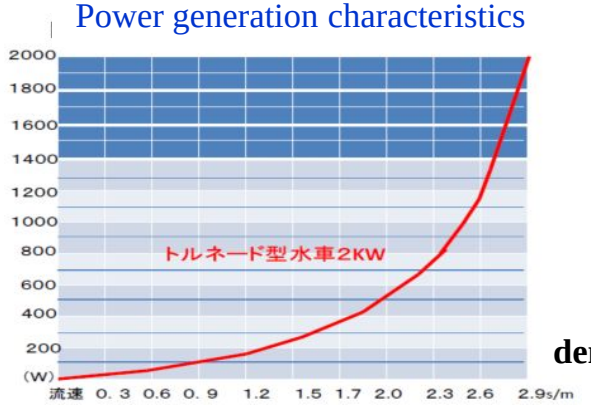


1,Neutral buoyancy

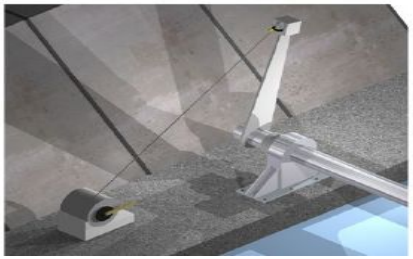
2,Escape function

3,Easy installation is

Micro-hydroelectric generator
Power generation characteristics



Torque limiter structure



Water Agency Aichi Irrigation water demonstration Completion of the experiment

Tornado Wind Turbine Business Marketing Plan (System Application)