바람으로 만드는 새로운 전력

One Module
Wind Power System











탈착식 모듈 구조
Detachable Structure

디자인 확장성
Design Scalability

24시간 구동 시스템
24h Operation

Problem Definition

The Current Power System Has Reached Its Limits







'탄소중립'은 2050년까지 대기 중 이산화탄소(CO2) 배출을 '0'으로 만들자는 것이다.

한국고용정보원 송수종의 '청춘어람(青春語覽)' (8) 탄소중립사회로의 정의로운 고용노동정책의 방향

1. Grid Challenges
Centralized power structure
Transmission losses
Frequent output restrictions

2. Land Constraints
Large solar sites required
Difficult urban deployment
Limited land availability

3. Market & Policy Issues
Growing RE100 demand
Renewable energy shortage
REC requires certification

Bottom Line

The problem is not electricity. The problem is the power infrastructure.

Core Technology

Designed for Low Wind Conditions



Patent Pending

Coreless Dual-Rotor Axial Flux Generator



Horizontal Dual-Rotor Structure

Symmetrical dual-rotor design

Magnetic force from both sides

Stable low-wind operation

Double-Rotor Generator

Coreless generator design

Concentrated magnetic flux

Higher power output

Power Output

Approx. 10–30W per 1m module

Modular expansion available

Power generation with aesthetic integration

A New Power Architecture

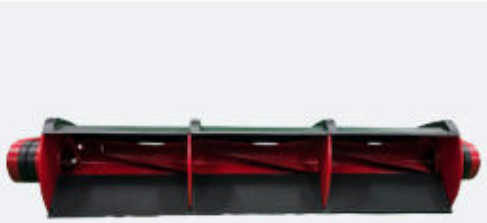
We Redesigned the Power System

A modular energy platform designed to address:

Grid limitations

Land constraints

Market challenges













Vehicle Power

Agriculture

Building Power

Infrastructure Power

Hydrogen + Wind Hybrid

One Technology, Multiple Solutions

Product Portfolio

Modular Wind Power System



Building-Mounted System

Urban microgrid solution
Space-efficient installation
RE100 ready

1000W 2blade 4 Gnerator
H 1200 W 400 D 200



Mobile Power System

Portable energy generation
Off-grid operation
24/7 power availability

500W 1blade 2 Gnerator
H 1200 W 230 D 350



Road & Infrastructure System

Distributed power supply
Energy highway applications

3000W 3blade 6 Gnerator
H 1000 W 1190 D 380



Industrial Power System

Factory and industrial parks
Peak demand reduction
On-site power generation

6000W 1blade 2 Gnerator
H 2745 W 1636 D 1636



Hydrogen-Wind Hybrid

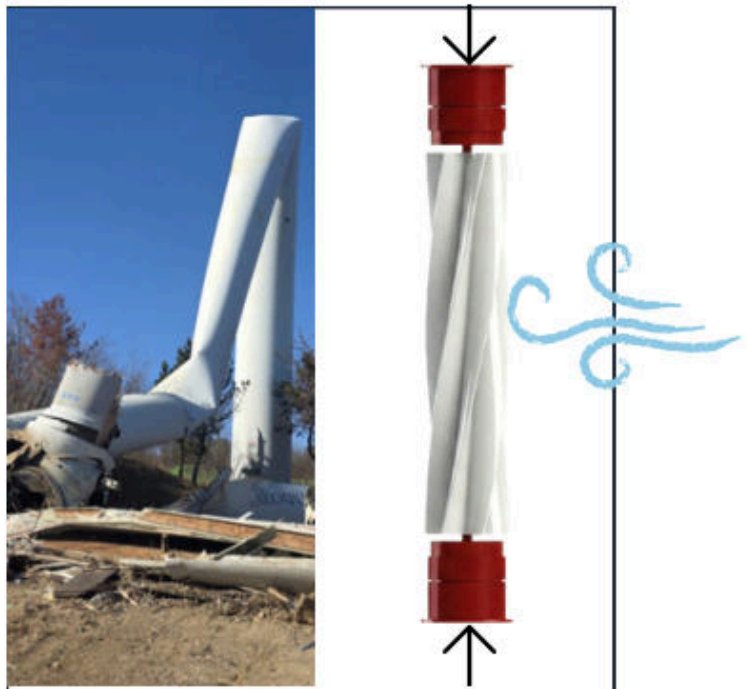
Continuous renewable energy
Sustainable low-wind operation

6000W 1blade 2 Gnerator
4bldc MOTER
H 1700 W 625 D 625

One Technology. Five Energy Solutions.

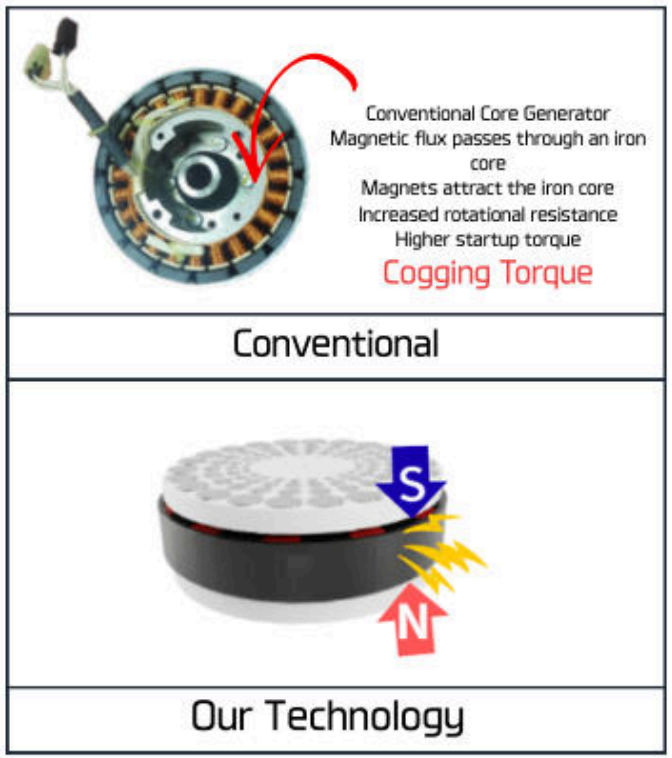
Core Technology

Designed for Low Wind Performance



Horizontal Dual-Rotor Structure

- Dual-sided magnetic force
- Symmetrical rotor design
- Enhanced low-wind efficiency



Double-Rotor Generator

- Coreless generator technology
- Reduced cogging torque
- Concentrated magnetic flux
- Improved power generation

Patent Pending

Coreless Dual-Rotor Axial Flux Generator



Screw Blade Technology

Helical blade design

Increased rotational force

Captures weak and turbulent winds

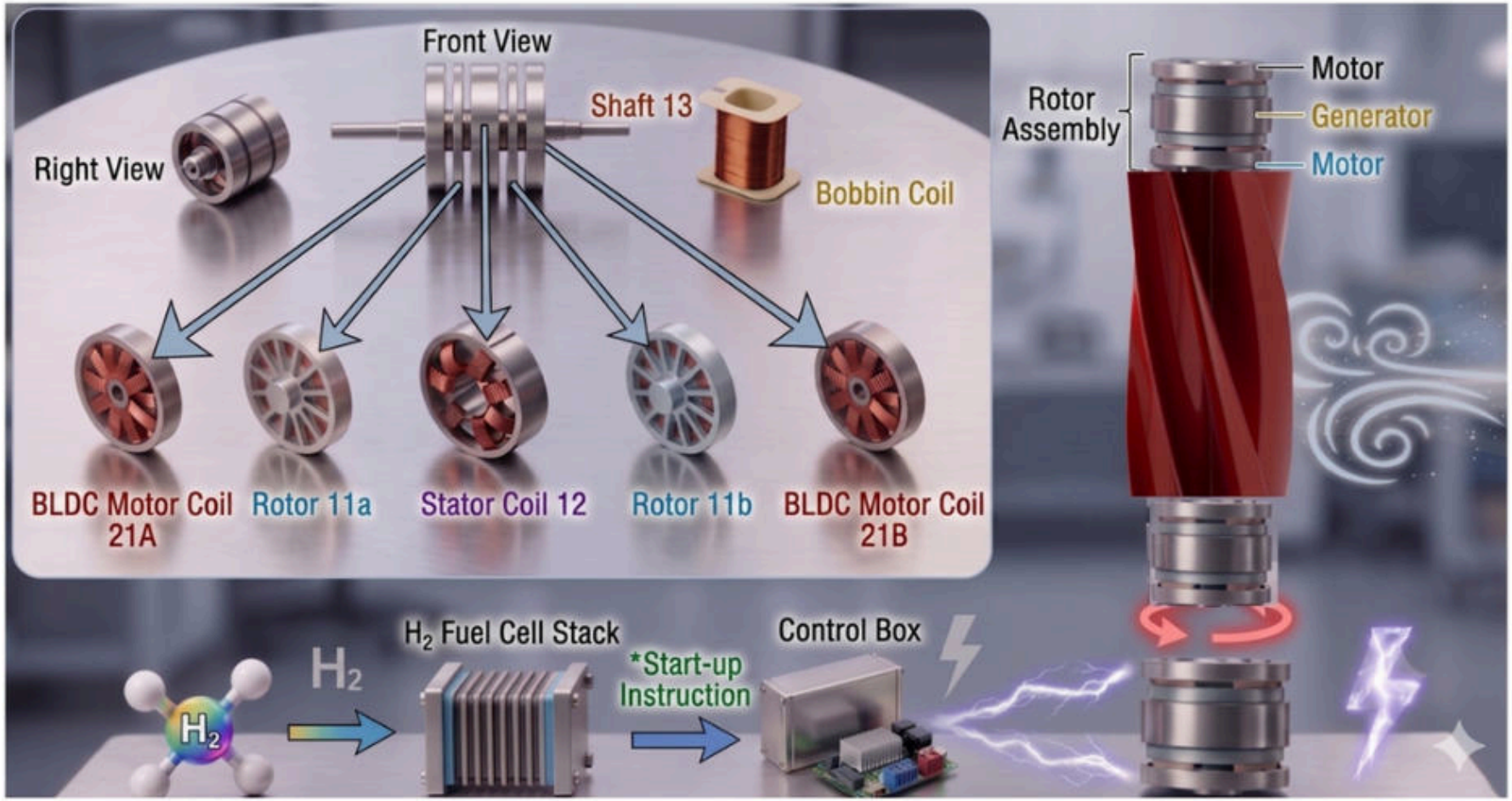
Suitable for urban environments

SWH

Small Wind HybriGen Power Module

Integrated Generator & BLDC Motor Platform

Power Generation and Motor Drive in One System





The Next Generation of Distributed Renewable Energy

SWH Power Wind Tower Smart Energy. Maximum Density.

A 15MW Intelligent Energy Landmark on Just 500 Pyeong

01 Ultra-Low Wind Startup

Operates from 2 m/s wind speed
Continuous energy generation
High-sensitivity blade technology

02 High-Density Vertical Design

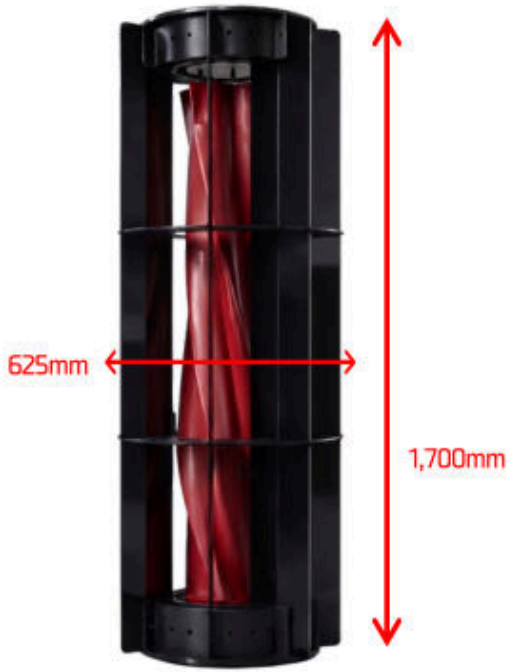
2,500 independent power modules
10-story vertical tower structure
Maximum land-use efficiency

03 Intelligent Energy Control

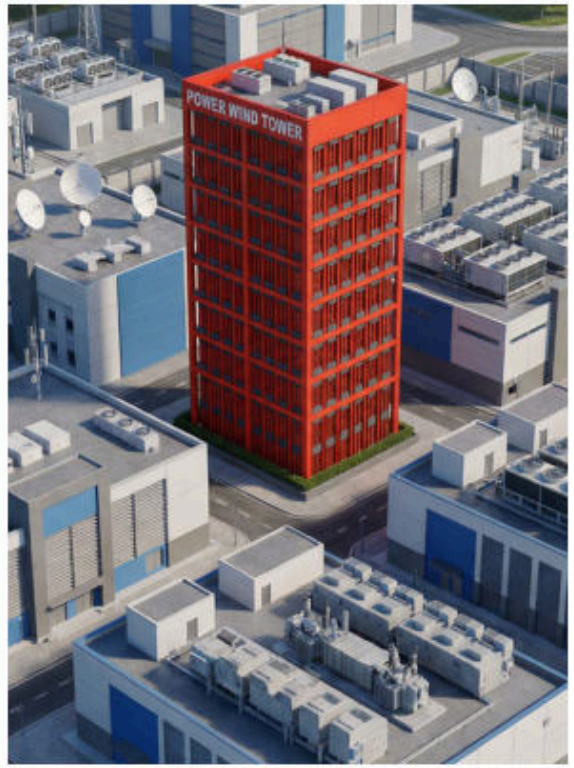
AI-integrated operation system
Real-time performance optimization
Grid stability enhancement

04 Hydrogen-ESS Integration

Wind, Hydrogen, and ESS hybrid platform
Reliable 24/7 energy supply
Enhanced energy security



Wind, Hydrogen, and ESS hybrid platform
Reliable 24/7 energy supply
Enhanced energy security



Key Value
Generate More Energy in Less Space
Starts at 2 m/s
2,500 modular units
10-story vertical structure
AI-controlled operation
Hydrogen-assisted power generation

Maximum Power. Minimum Space. Smart Control.

Renewable Energy Vertical Power Plant System

SEONG SIL ENERGY

System Architecture

High-Density Vertical Design

10-story tower structure
Maximized land utilization
Optimized airflow pathways

Modular Deployment

2,500 wind power modules
250 modules per floor
Scalable energy platform

Project Scale

Site Area
500 Pyeong (1,650 m ²)

Tower Structure
12 Floors
10 Power Generation Floors

Module Capacity
2,500 Units

Total Capacity
15 MW

Hybrid Energy System

Wind Power Generation
Hydrogen Energy Storage
Stable Year-Round Operation
Reliable Power Supply

Hybrid wind and hydrogen technology delivers stable, year-round power generation.





Project Specifications
Site Area: 500 Pyeong (1,650 m ²)
Tower Height: 12 Floors
Power Generation Floors: 10 Floors
Modules per Floor: 250 Units
Total Modules: 2,500 Units

Power Output: 15 MW

Total Project Cost:
Approx. USD 43 Million

Smart Inverter Power Conversion System

Flexible Power Supply and Grid Stabilization Solution

SEONG SIL ENERGY

500 Independent Control Units Ensuring System Reliability

High-Efficiency Power Conversion

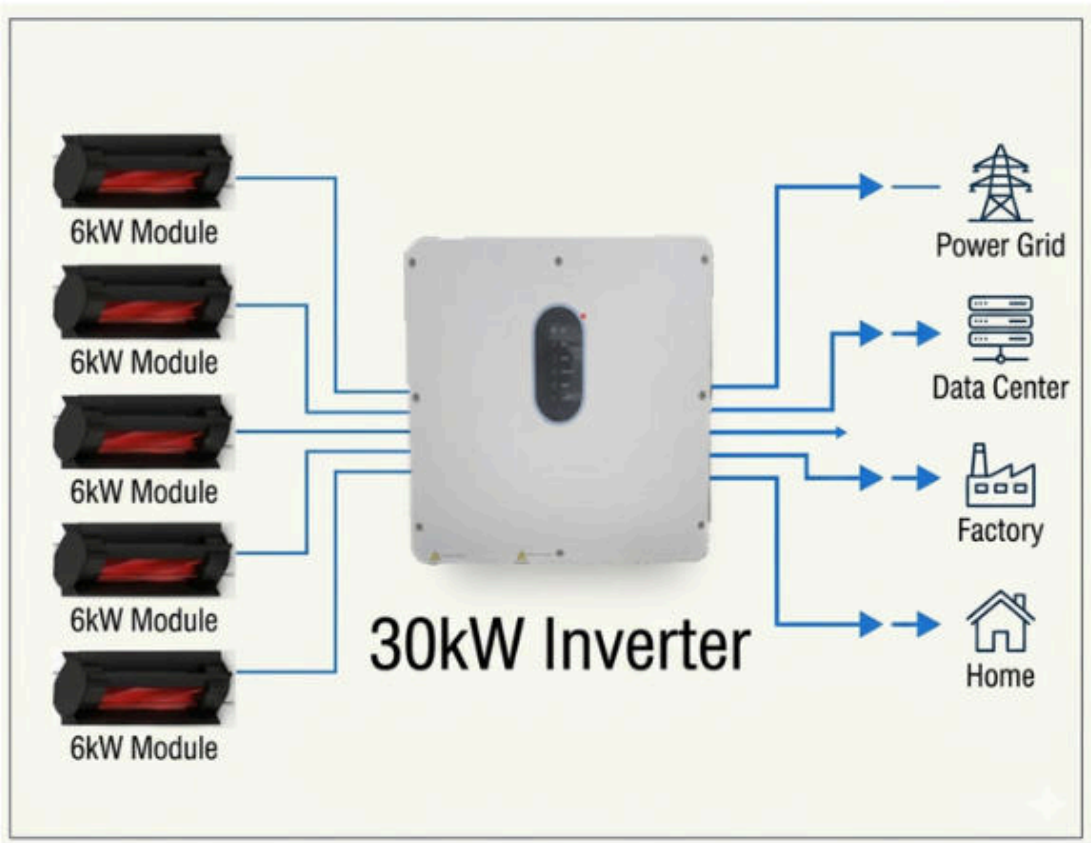
Converts generated power to 220V / 380V AC
High-efficiency energy management

5:1 Module Matching

One inverter for every five modules
Optimized power control

Dual-Mode Operation

Grid-Tied Mode
Stand-Alone Mode
Automatic switching capability



System Configuration

500 Inverters
30 kW per inverter
Supports 2,500 power modules

Reduced Maintenance Risk

Partial operation during failures
Lower maintenance costs
Improved system reliability

Scalable Architecture

Modular expansion
Flexible deployment
Utility-scale compatibility

Distributed Energy Storage System

Energy Safety Architecture

SEONG SIL ENERGY

Safe Energy Architecture Power On When Wind Stops Automatic backup power supply Continuous energy availability

LFP Battery Safety

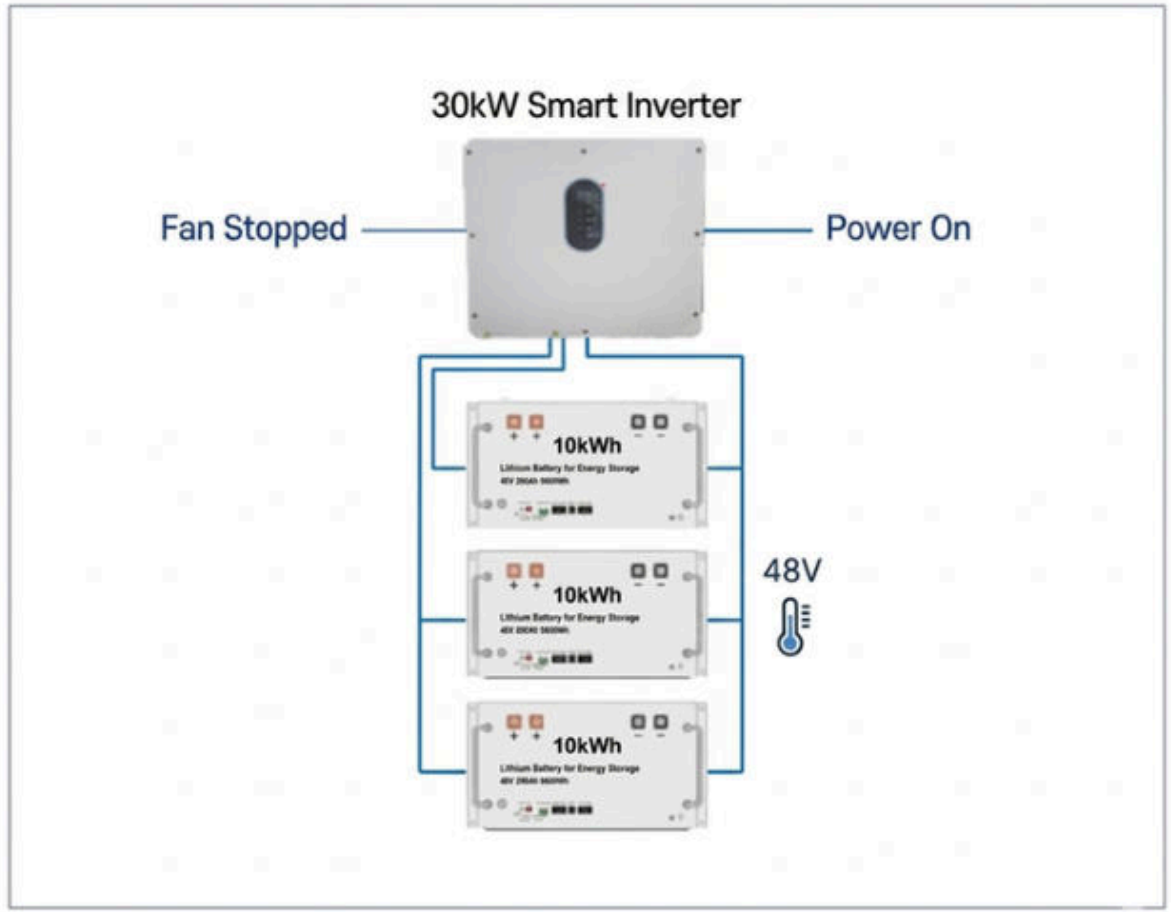
Lithium Iron Phosphate (LFP) batteries
Enhanced thermal stability
Reduced fire risk

3× Energy Buffer

30 kWh per inverter
Up to 3 hours of backup power
Reliable emergency operation

Distributed Storage Design

1,500 independent battery packs
High system availability
Fault-tolerant architecture



System Scale

Total ESS Capacity: 15 MWh
Total Battery Packs: 1,500 Units
Total Inverters: 500 Units

Cost Efficiency

Modular maintenance
Reduced failure impact
Improved operational reliability

Key Message

15 MWh Distributed Energy Storage Platform
1,500 Independent Battery Packs for Maximum Reliability
Safe, Scalable, and Resilient Energy Storage

Solutions

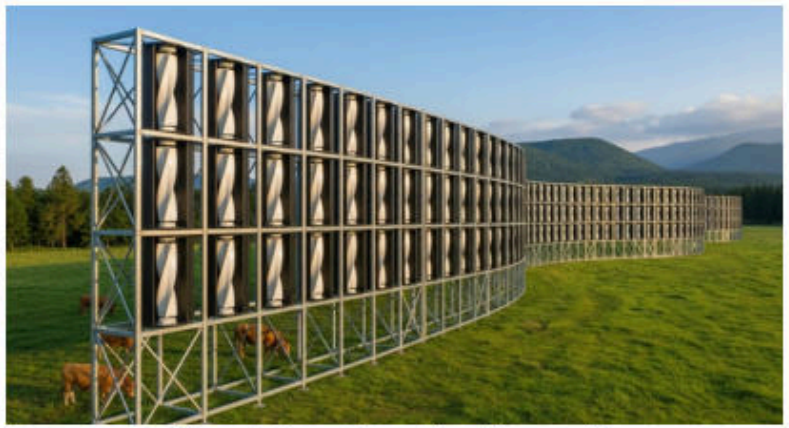
One Module. Unlimited Expansion.



Rooftop Wind Power



Data Center Power Tower



Steel Structure Configuration



Energy Highway



Vehicle-Mounted System



Smart Farm

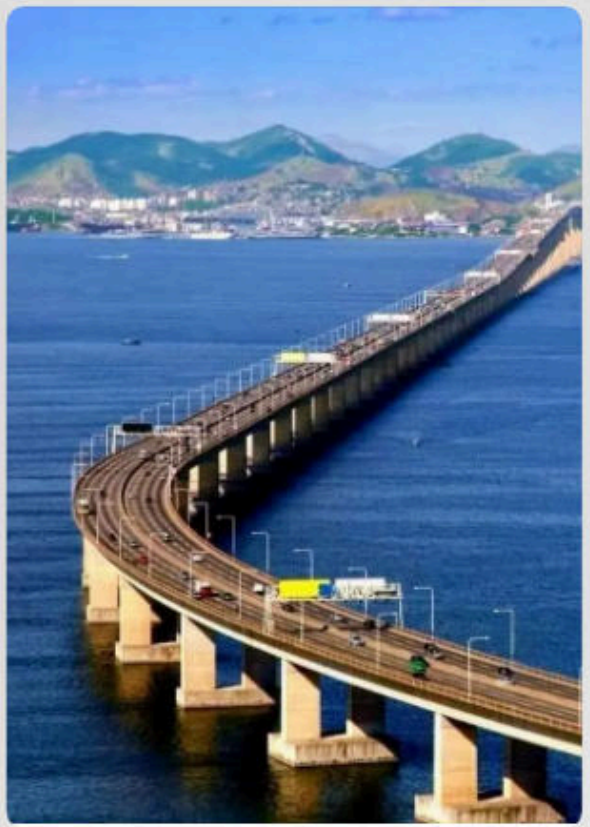
Detachable Modular Structure
Easy installation and expansion
Flexible system configuration

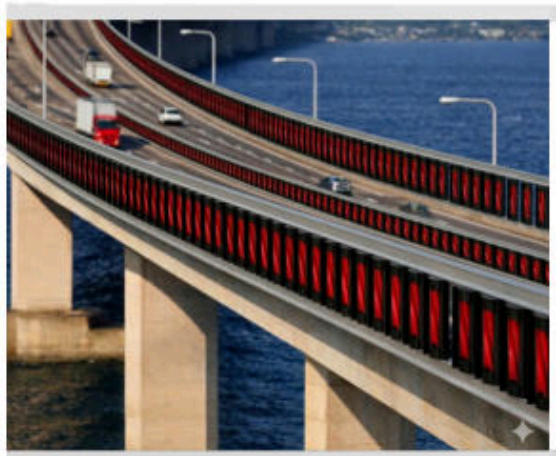
24/7 Operation
Continuous power generation
Hybrid energy support

Scalable Design
Linear, tower, wall-mounted,
and stacked configurations

Dual-Rotor Coreless Technology
Low-wind startup performance
High-efficiency energy generation

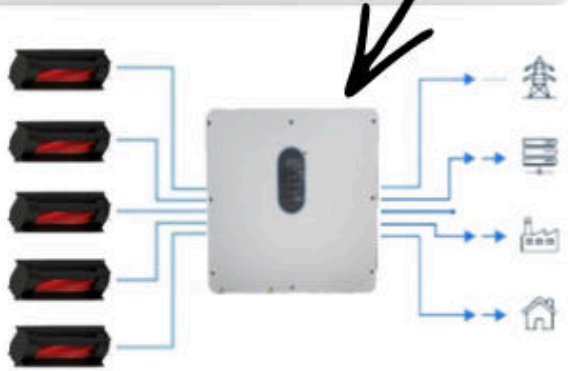
Rio–Niterói Bridge













Rio–Niterói Bridge

Total Length: 13.3 km
Six-Lane Coastal Bridge
Average Wind Speed: 4–6 m/s
Designed for Marine Wind Conditions
Dual-Support Structure for Enhanced Durability

Installation Scale

13.3 km × 3 Lines
Approx. 39.9 km Installation Length
24,000 Wind Power Modules (3 kW)

Power Generation Capacity

Total Capacity: 70 MW
Regional Power Supply System
Distributed Energy Network

Key Benefits

Stable Distributed Generation
High Operational Reliability
Efficient Energy Management

Modular Wind Power Tower System

100kW Power Wind Tower Wind Power System Specifications

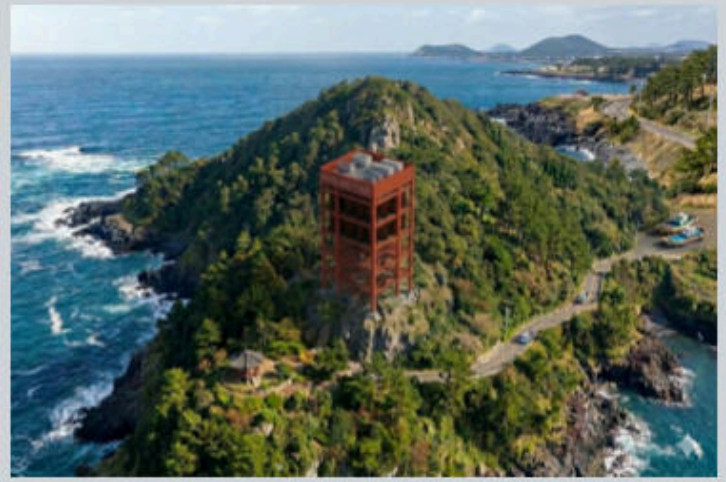
1. Project Overview

Project Name: Power Wind Tower 100kW
Installed Capacity: 100 kW
System Type: Modular Vertical Wind Tower
Site Area: Approx. 330 m ²
Tower Structure: 3-Story Modular Tower
Generator Type: Coreless Generator
Designed for Low-Wind Conditions



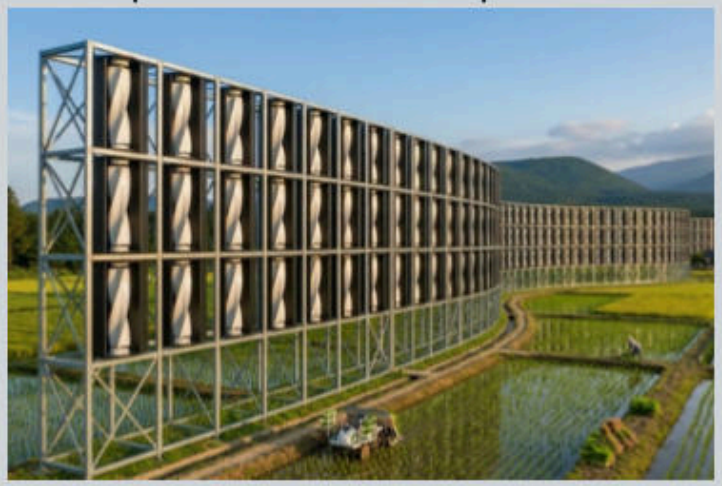
2. Site Requirements

Required Area: Approx. 100 Pyeong
Recommended Size: 18 m × 18 m
Foundation: Reinforced Concrete Foundation
Structure: Steel Tower Construction
Land Cost: Excluded**



3. Wind Power Module Configuration

Module Output: 3 kW
Number of Modules: 36 Units
Total Capacity: 108 kW
Blade Type: Screw-Type Blade
Generator Type: Coreless Generator
Tower Type: Modular Vertical Tower
Operation: Low-Wind Optimized



Advantages

Compact footprint
Easy installation
Scalable design
Suitable for urban deployment

Vertical Tower Design

The vertical tower structure reduces ground turbulence and improves wind exposure, enabling stable power generation and higher energy density within a compact footprint.

Key Features

Coreless Generator Screw-Type Blade
Modular ArchitectureLow-Wind Operation
Easy Maintenance Scalable Expansion

100 kW Power Generation Performance Comparison



Solar 100kW

Approx. 130,000 kWh

≈ _____

kWh / Year

Our Module 100kW

≈ 870,000 kWh

kWh / Year



Solar 15% Output

Our Module100% Potential

6.7 X

To Generate the Same Amount of Electricity, Solar Requires More Than 4× the Investment Cost of the Wind Tower System.

100kW System Comparison

Cost vs. Energy Performance

Including ESS, Batteries, and Installation Costs

Solar (100kW)

Standard PV System

Initial Investment
USD 1.4M – 3.6M

Daytime Generation — Approx. 4 Hours / Day

Limited to Daylight Hours

High Performance

Our System(100kW)

Modular Wind Energy

USD 0.36M

Premium Energy Infrastructure

24-Hour Generation

Continuous Day & Night Operation

The Difference Is Not Cost — It Is Energy Production Time.

Investment Process Roadmap.

₩300M → 시장진입

Step 1

Investment: USD 215,000
Renewable Energy Equipment Certification
Performance Testing & Validation
Grid Interconnection Approval

→ Certified Power Generation System

Step 2

Certification Completed
REC Eligibility
Public Market Access
Grid Power Sales Authorization

→ Market Entry Approval

Step 3

Financial Credibility Established
Project Financing (PF) Available
Government Funding Eligible
Public Sector Contracts Available

→ Outcome
은행,정부,공공기관 자금흐름

Step 4

Revenue Generation

Up to 80% Financial Leverage
USD 2.15M Investment
(26,280,000 kWh)
→ Annual Revenue: USD 2.07M

USD 7.15M Investment
(87,600,000 kWh)
→ Annual Revenue: USD 6.86M

→ Annual Revenue
10× to 100× Growth Potential
Private, Corporate & Government Markets



Venture Enterprise Certification



KMU Partnership



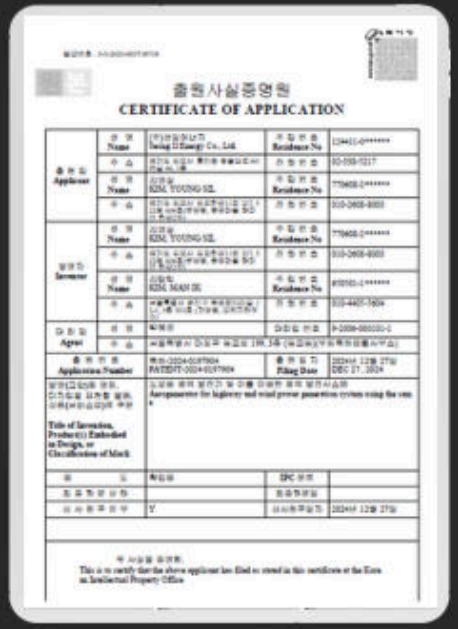
Heat-Exchange A/C



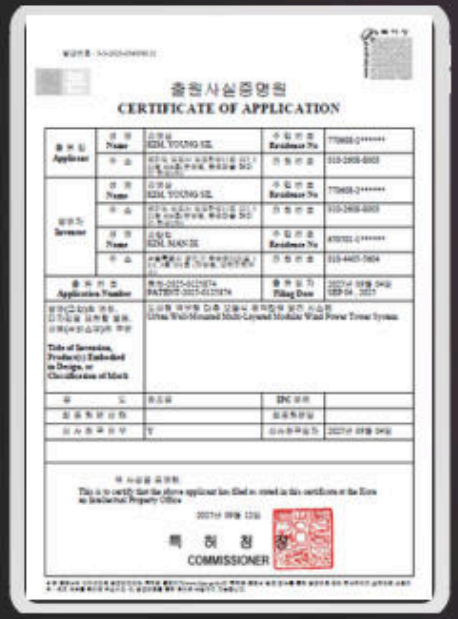
Heat Recovery A/C



Axial Flux Generator



Road Wind System



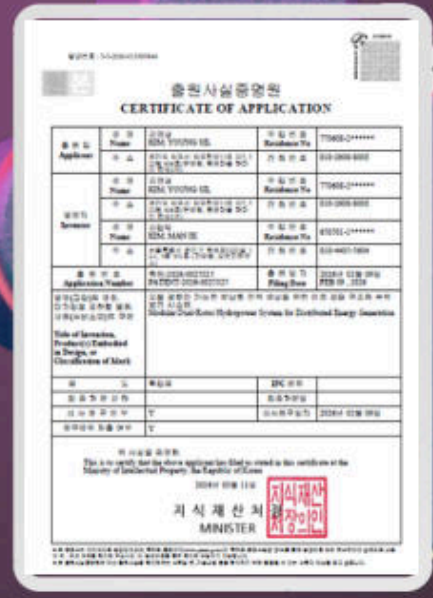
Wind Tower System



Vehicle Wind System



Hydrogen Hybrid Wind



Small Hydro System

Rapidly Growing Energy Market

Market Expansion Opportunities

Domestic Market

✓ Over 1,200 Industrial Complexes
✓ Growing RE100 Participation
✓ Accelerating Distributed Energy Policies

Infrastructure Market

✓ Over 4,000 km of Highways
✓ Low-Voltage Distributed Power Supply
✓ Scalable Without New Transmission Lines

Global Expansion

✓ Power Shortages in Southeast Asian Industrial Zones
✓ Microgrid Demand in the Middle East & Africa
✓ Exportable Modular Energy Platform

💡 A Scalable Infrastructure Market with Recurring Revenue Potential

We Design Expandable Energy Networks with a Single Technology Platform.

The Future
Runs 24 Hours

Modular. Scalable. Profitable



㈜성일에너지 (Seongil Energy Co., Ltd.)

Man Ik Kim

Chief Technology Officer (CTO) & Executive Director

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