JETPRO TECHNOLOGY, INC.

www.jetprotech.com.tw

We have only one earth, environmental protection is our job.

Company Profile

Jetpro Technology, Inc., which was established in 1992, mainly designs and produces unique ducted wind turbines, including 100W, 200W, 1KW, 5KW, and 50KW turbines. It is a technical oriented wind turbine equipment manufacturing company with design, research, development, manufacturing, and testing as a whole. Jetpro is leading the technology and creating significant business in a booming wind turbine market, owning many innovative patents and is willing to cooperate with business partners in creating bigger business or licensing our technology. Jetpro has many experienced, well educated and talented engineers working diligently toward high quality wind turbine technology development. It also cooperates with many domestic notable universities in the technology development, including the top notch National Cheng Kung University.

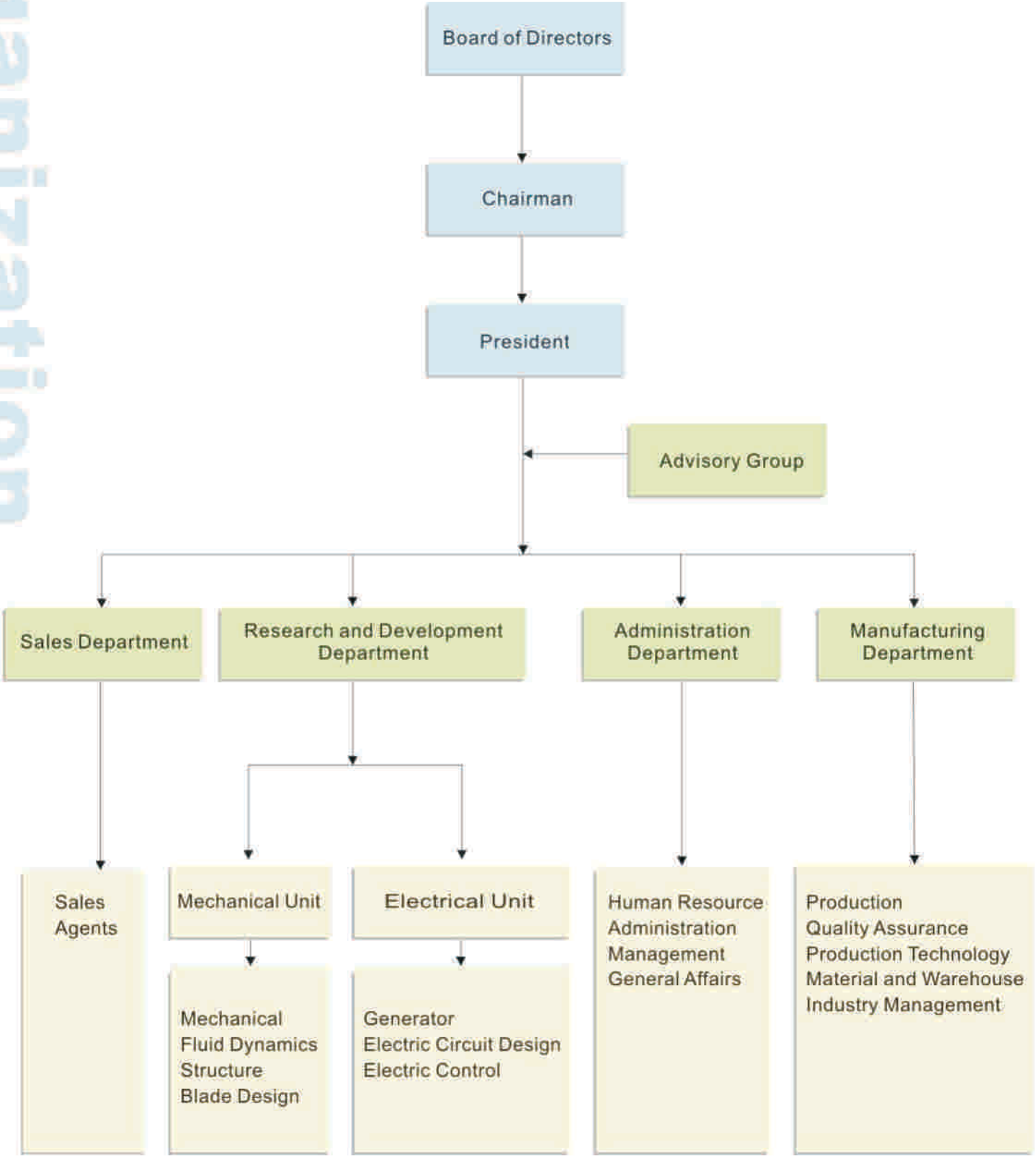
Jetpro History

1992	Founded in Los Angeles, CA. USA – Technical consultant for China and Taiwan companys.
1994	Registered in Taiwan.
1994-1999	Industrial design and technological consultant, assist product development, including fan, wind turbine, steam turbine, compressor, propeller, air-conditioner, etc., and established a very good reputation in Taiwan industry.
2000-2005	Spin off to form SonicEdge Industries Corporation (SEI), which designs and manufactures computer cooling fans and heat sinks, obtaining ISO-9000, QS-9000 certifications. SEI was officially certified the honorable RD Center by Taiwan government.
2005-	Present - Develops green energy products, including high performance small wind turbines, solar thermal energy devices, hydro power generation, and energy saving equipments. Obtained many patent certificates of more than 30 types. Current wind turbine applications cover street light, outdoor charging, household electrification, agriculture, aquaculture, factory, billboard, telecom base stations, building energy savings, etc. Jetpro is now a leading small wind turbine manufacturer.

Business Fundamental

- Research and Development as the core, high product quality and long life is the goal.
- Develop key technology, outsource major components, final assembly at own factory or at site.
- Build strong R&D team and laboratory, continuously provide innovative and competitive products.
- To become a worldwide reputable small wind turbine manufacturer in 2 years.

Organization



CE Certificate

SGS

VERIFICATION OF MD & LVD COMPLIANCE

CE

SGS

VERIFICATION OF EMC COMPLIANCE

CE

Jetpro Technology, Inc. Building

R & D Center

Production Building

Associated patents

We own many patents worldwide

Europe, U.S., and Japan Patents

Taiwan Patents

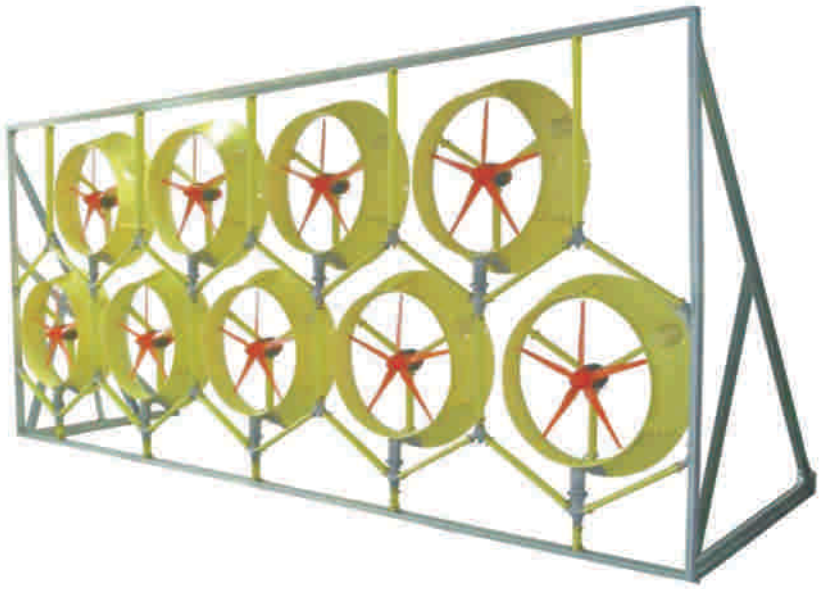
China Patents

Ducted Wind Turbine

- JPS-200
- JPS-400
- JPS-600
- JPS-1KW
- JPS-5KW
- JPS-50KW

Jetpro wind turbines can be more easily assembled or dismantled by one self (DIY, do-it-yourself). They can also be single unit installation or installed in a cascaded format. It is now being used as household and building lightings.

Jetpro Technology designs wind turbines from jet engine know-how. Optimal performance is achieved using CFD technique. Light weight and shrouded design with high performance is the key.

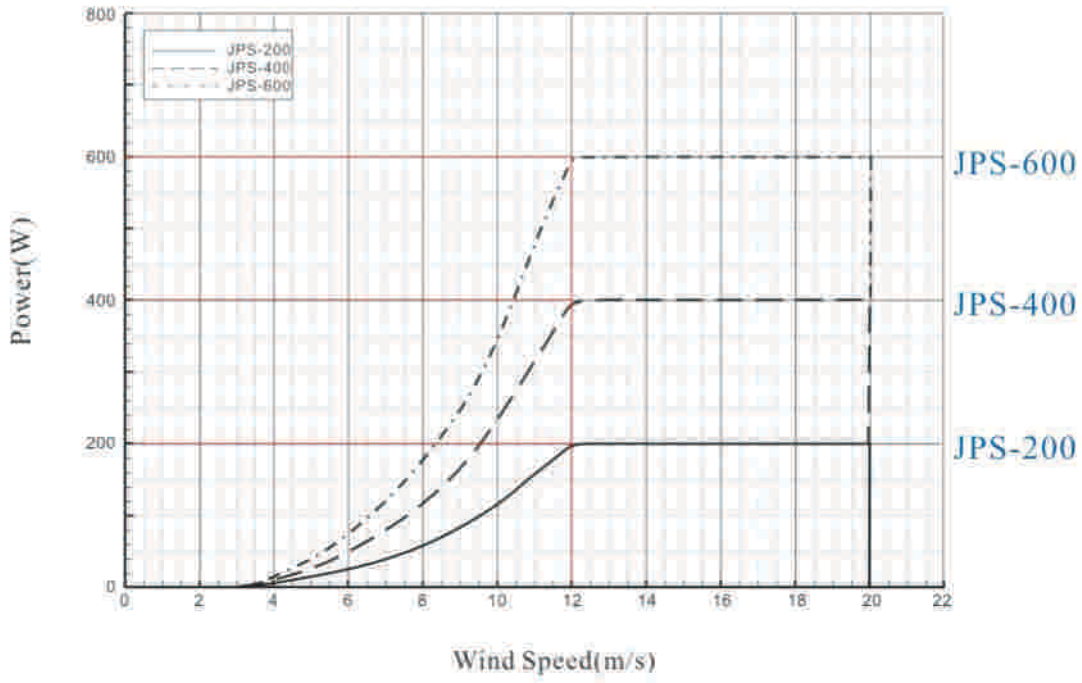


The cascaded WindWall design is unique and can produce the maximum amount of electricity within a limited space. Each wind turbine can independently follow wind to achieve the highest performance. The WindWall structure is simple, weight is distributed, and it can reduce overall transmission loss. It is particularly suitable for building rooftop installations.

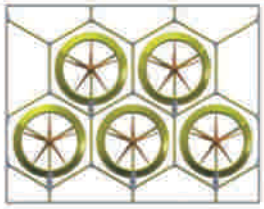
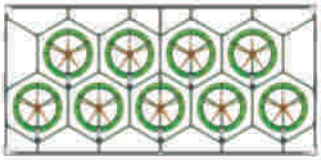
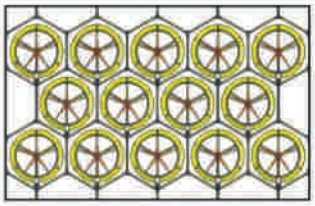
General Specifications

Model Number	JPS-200	JPS-400	JPS-600
			
Shrouded Design	YES	YES	YES
Generators	Permanent Magnet Generator		
Rated Power (W)	200	400	600
Voltage Output (Vdc)	12	12	12
Rotor Diameter (m)	0.68	0.68	0.68
Number of Blades/set	5	5	5
Start-up Wind Speed (m/s)	3	3	3
Rated Wind Speed (m/s)	12	12	12
Cut-out Wind Speed (m/s)	20	20	20
Total Dimension (mm)	1026 x 912 x 330	2032 x 1146 x 330	2032 x 2100 x 330
Weight (kg)	10	29	43
Cascaded	N/A	N/A	N/A
Yaw System	Shroud Wind Force Automatic Adjustment		
Brake	Electrical		

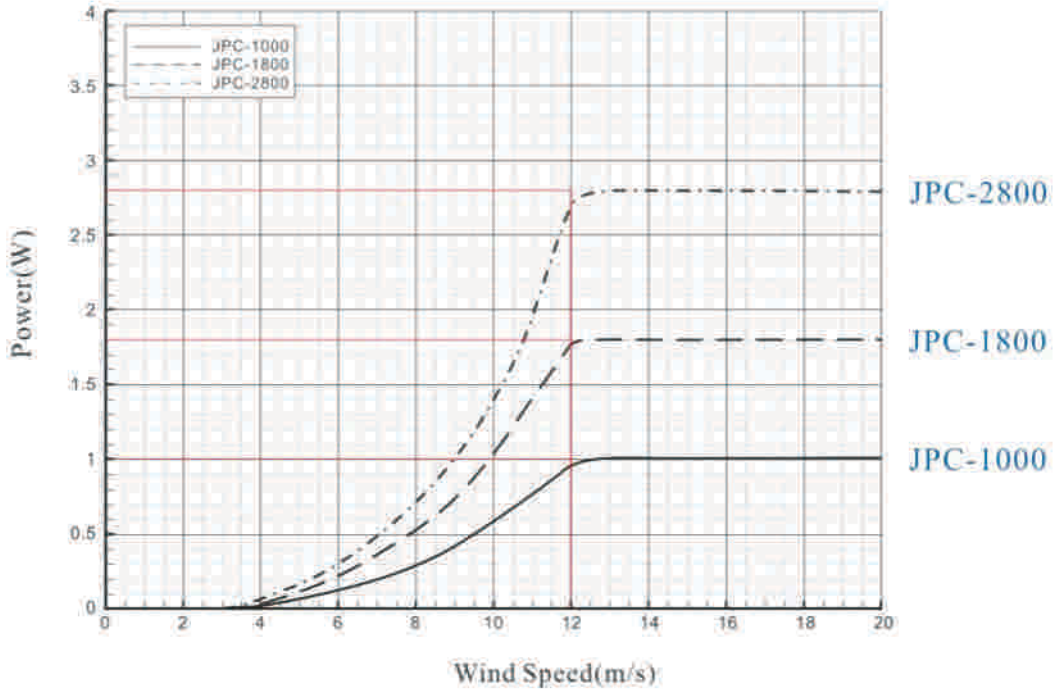
Power Curve



General Specifications

Model Number	JPC-1000	JPC-1800	JPC-2800
Cascaded Module			
Yaw System	Each unit follows wind independently		
Shrouded Design	YES	YES	YES
Number of PM generators	5	9	14
Rated Power (W)	1000	1800	2800
Voltage Output (Vdc)	12	12	12
Rotor Diameter (m)	0.68	0.68	0.68
Shroud Diameter (mm)	913	913	913
Total Dimension (mm)	3500 x 2640 x 330	5790 x 2640 x 330	5790 x 3625 x 330
Number of Blades/set	5	5	5
Start-up Wind Speed (m/s)	3	3	3
Rated Wind Speed (m/s)	12	12	12
Cut-out Wind Speed (m/s)	20	20	20
Weight (kg)	150	230	310

Power Curve

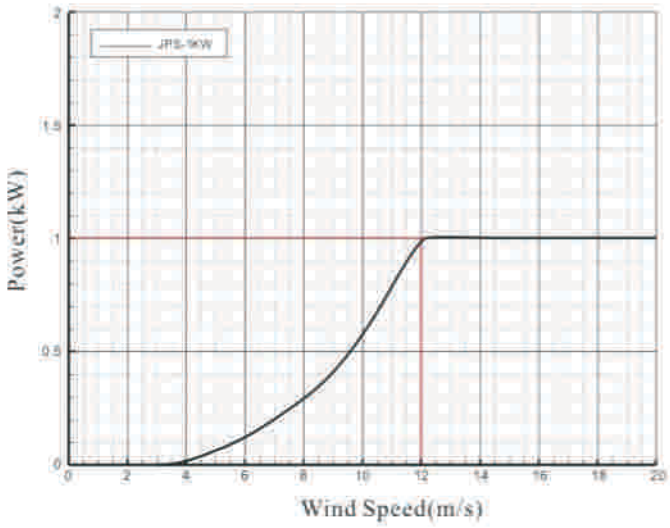


JPS-1KW Wind Turbine

General Specifications

Model Number	JPS-1KW
Shrouded Design	YES
Generators	Permanent Magnet Generator
Rated Power (W)	1KW
Voltage Output (Vdc)	24,48
Rotor Diameter (m)	1.4
Number of Blades/set	5
Start-up Wind Speed (m/s)	3
Rated Wind Speed (m/s)	12
Cut-out Wind Speed (m/s)	20
Total Dimension (mm)	1800 x 1800 x 500
Weight (kg)	50
Cascaded	YES
Yaw System	Shroud Wind Force Automatic Adjustment
Brake	Electrical

Power Curve

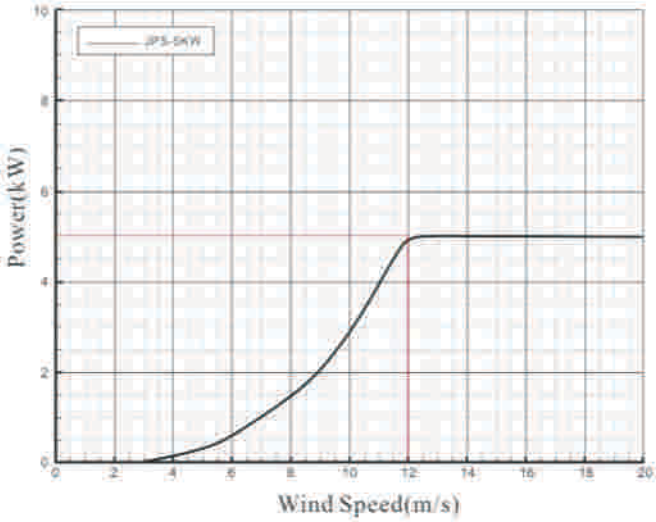


JPS-5KW Wind Turbine

General Specifications

Model Number	JPS-5KW
Shrouded Design	YES
Generators	Permanent Magnet Generator
Rated Power (W)	5KW
Voltage Output (Vdc)	115
Rotor Diameter (m)	3.0
Number of Blades/set	5
Start-up Wind Speed (m/s)	3
Rated Wind Speed (m/s)	12
Cut-out Wind Speed (m/s)	20
Total Dimension (mm)	4000 x 4000 x 1000
Weight (kg)	300
Cascaded	YES
Yaw System	Gearbox Motor Driven
Brake	Disk Brake

Power Curve

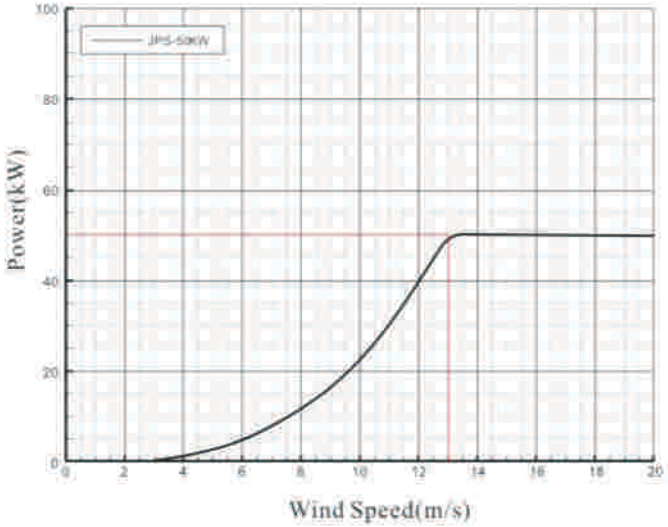


JPS-50KW Wind Turbine

General Specifications

Model Number	JPS-50KW
Shrouded Design	YES
Generators	Permanent Magnet Generator
Rated Power (W)	50KW
Voltage Output (Vdc)	690
Rotor Diameter (m)	8.9
Number of Blades/set	5
Start-up Wind Speed (m/s)	3
Rated Wind Speed (m/s)	13
Cut-out Wind Speed (m/s)	20
Total Dimension (mm)	11440 x 11440 x 2500
Weight (kg)	4000
Cascaded	YES
Yaw System	Gearbox Motor Driven
Brake	Disk Brake

Power Curve



JPT-100 Wind Turbine

- High Efficiency
- Easy to Assemble/Dismantle
- Automatic Adjustment to Wind Direction
- Streamline Rudder Design
- Lightweight

Using state-of-the-art computational Fluid Dynamics (CFD) simulation techniques, the 5-bladed JPT-100 design achieves optimal performance, and effectively transforms wind energy to produce electricity. The Permanent Magnet Generator in the system provides reliability and high efficiency output.

The JPT-100 is compact and suitable for rural area households, camping, and small battery charging needs. Light in weight and easy to assemble/dismantle, our wind turbine not only has the principal functions of energy-saving and carbon footprint-reducing, its sleek aerodynamic design, with polished finish and vivid color combination, forest green embellished with orange-red blades, is an aesthetic of fashion, design and function.

Packaging

Weight : 6kg

Size : 35.5 x 17.0 x 46.5cm

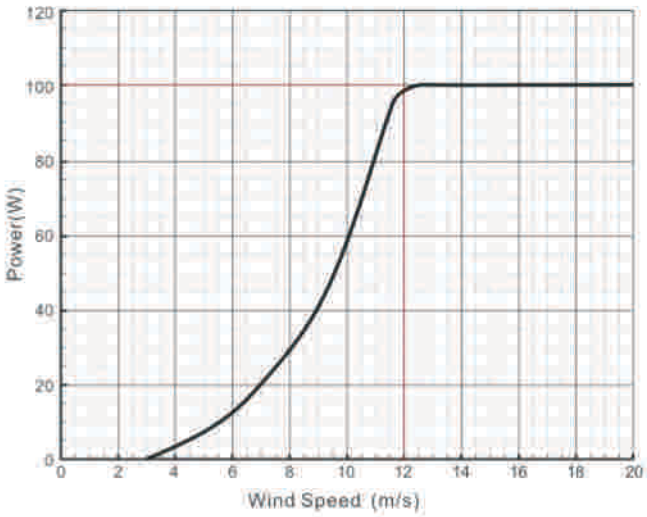
20 FT Container : 792 sets

JPT-100 Wind Turbine

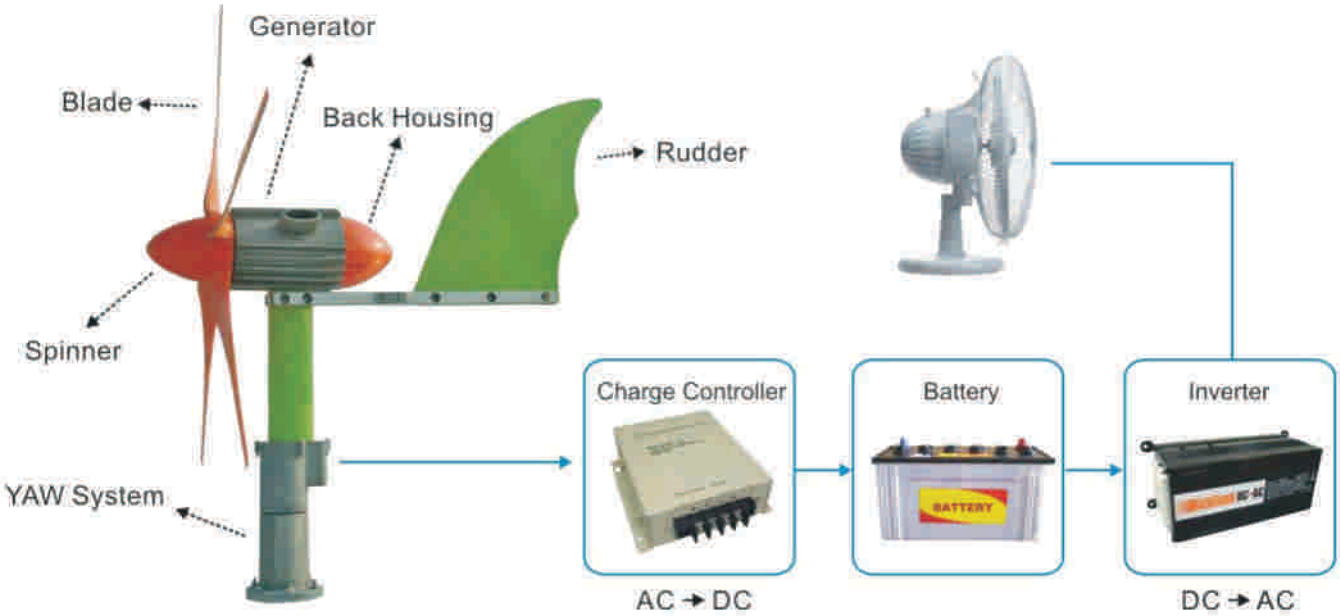
General Specifications

Model	JPT-100
Generators	Permanent Magnet Generator
Rated Power(W)	100
Voltage Output(Vdc)	12
Rotor Diameter(m)	0.68
Number of Blades/set	5
Start-up Wind Speed(m/s)	3
Rated Wind Speed(m/s)	12
Cut-out Wind Speed(m/s)	20
Dimension(mm)	725 X 648 X 680
Weight(kg)	6
YAW System	Rudder
Brake	Electrical
Safety	CE Certificate

Power Curve



Power Supply



RV-500 RV/Yacht Wind Turbine

Jetpro developed recreational vehicle and yacht wind turbines at 500W rated power. It can be automatically erected and stored using a remote controller. The leisure fun can be enhanced with no more labor installation and retraction work.

Erecting

Erection complete

Recreational Vehicle Application

Yacht Application

Accessory Description

Fan Guard Design:

To prevent bird strike or foreign object damage. It also prevents damage in case blades fall apart. The guard is an optional item, can choose front and/or rear installation. Easy installation and maintenance.

Flower Shaped Design:

The pattern can be designed per customer's desire.

Model Symbol Description

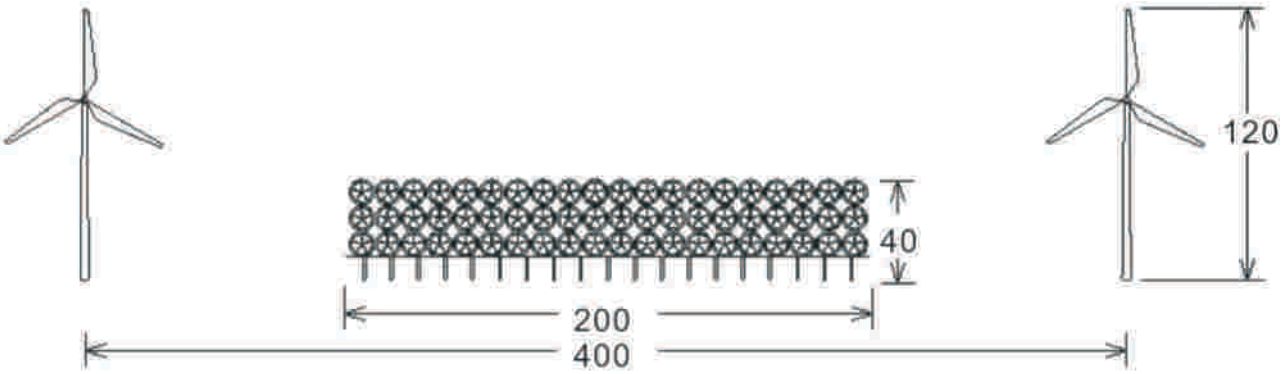
JPC : Cascaded Design
JPS : Shrouded Design
JPT : Tailed Design

Cascaded Wind Turbine Unit: Square Frame

Cascaded Wind Turbine Unit: Hexagonal Frame

Future Applications

The wind energy escaped in between 2 big wind turbines can be recovered by using cascaded wind turbines (WindWall), while big wind turbine performance will not be negatively influenced. 3MW energy can be added to existing output as the figure shows. Installation and maintenance is relatively easy compared to big wind turbines.

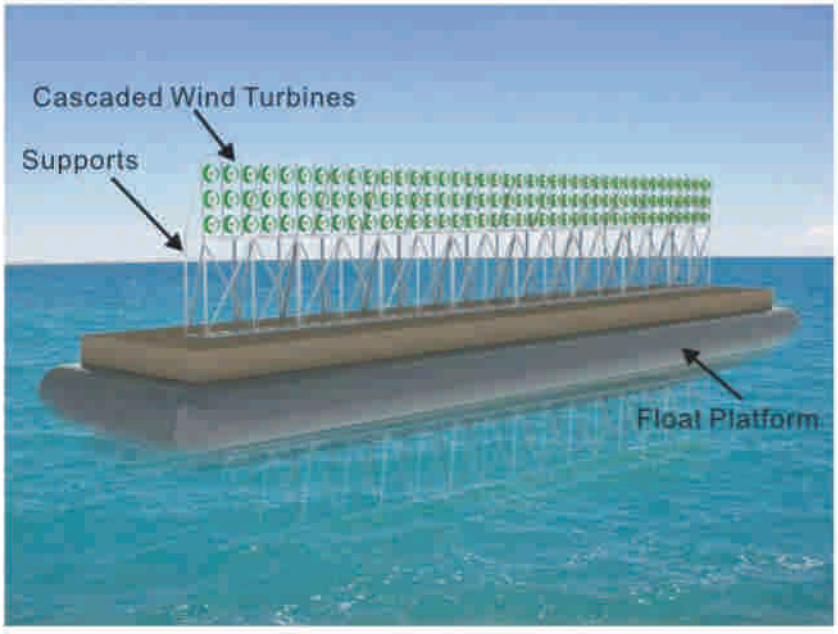


Unit:m

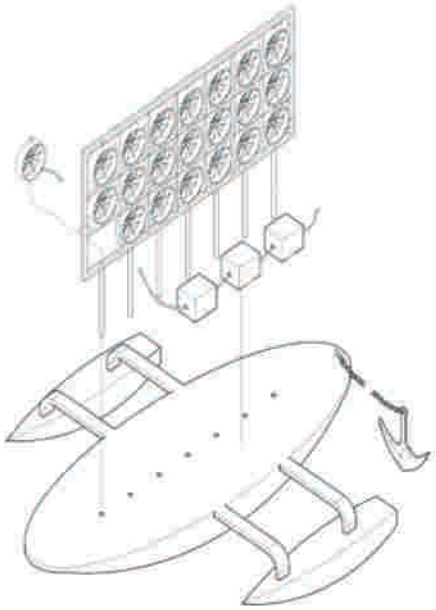
Off-shore Floating Type Cascaded Wind Turbines

Floating type WindWall design can drastically reduce the off-shore wind turbine engineering cost. The design removes the drawback of traditional high center of gravity with one-point contact of the sea bed design, and becomes more stable by lowering center of gravity. The float platform also makes the whole wind turbine system even more stable and is safe in critical environment.

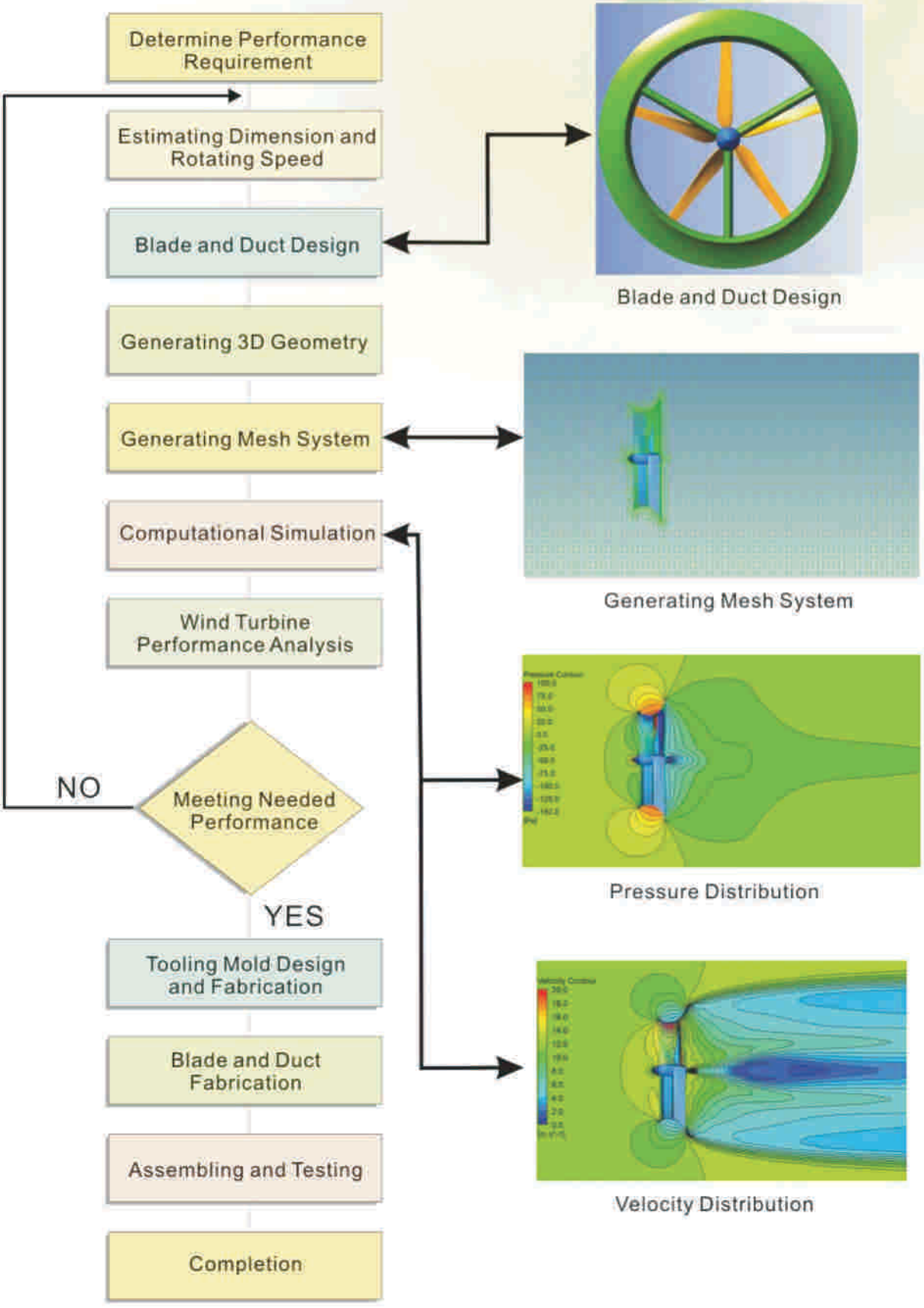
Off-shore floating type Cascaded Wind Turbines



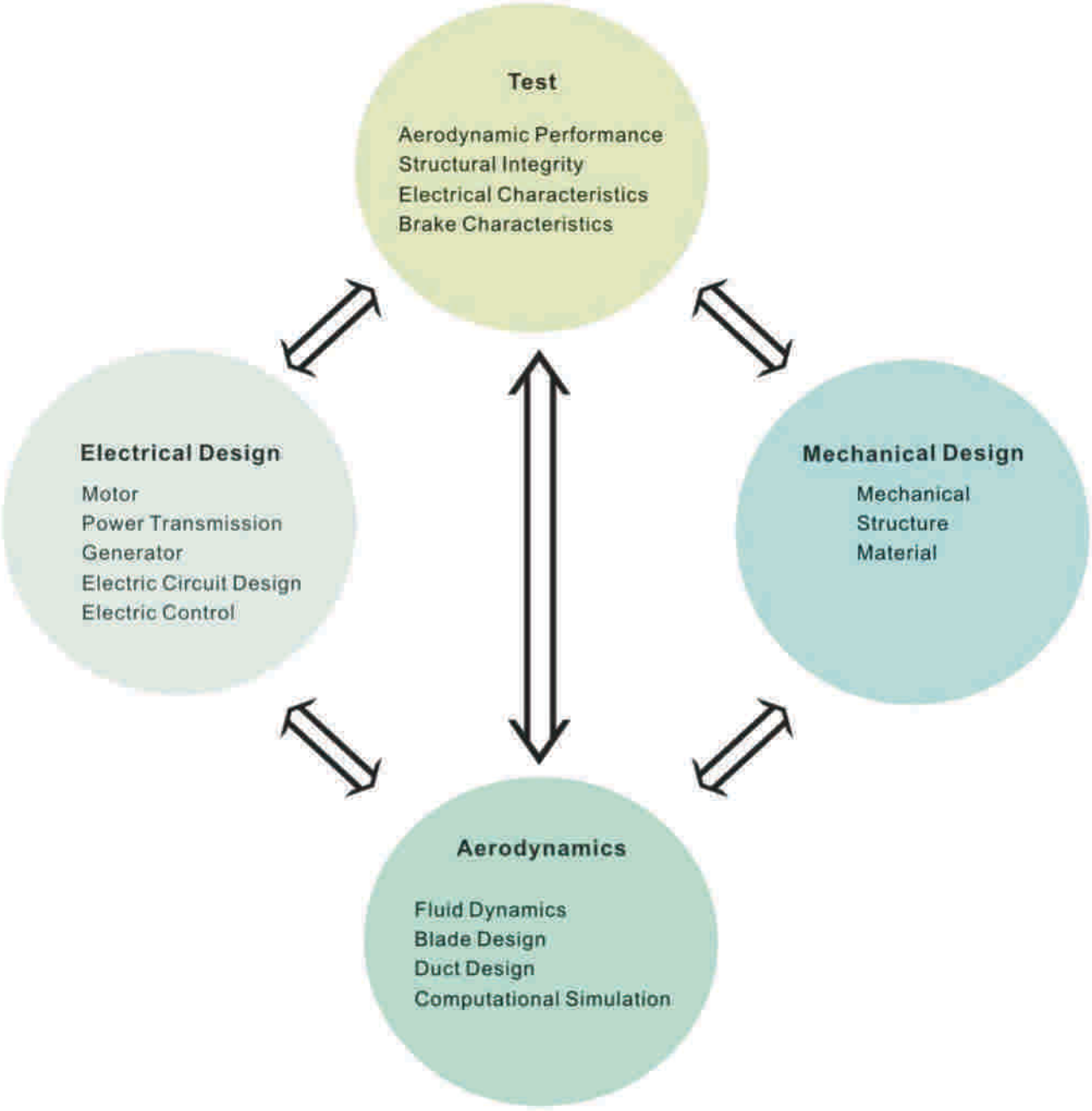
Wind Turbine Ship



Blade Design Process



Whole Design Concept

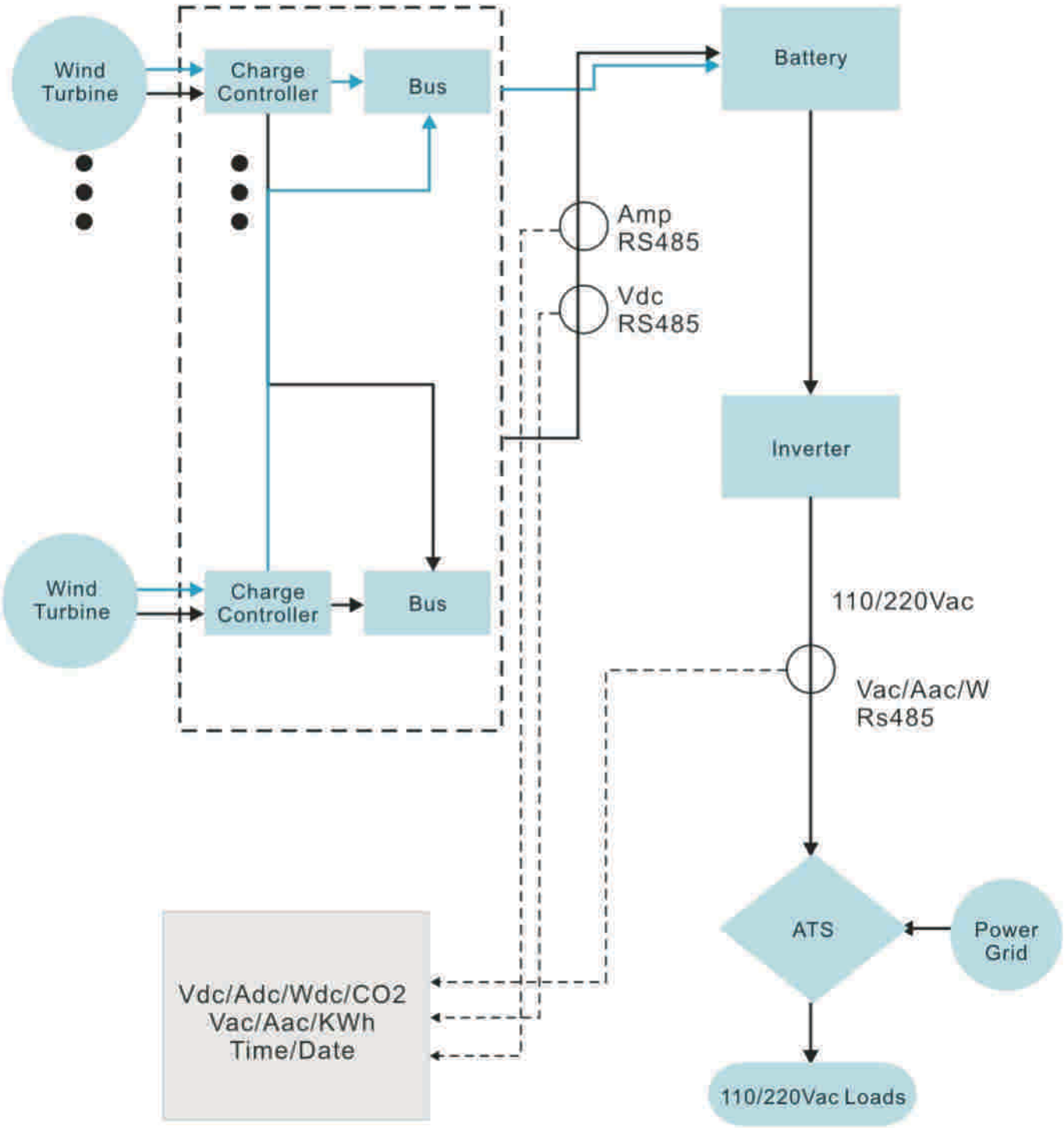


Jetpro Technology's wind turbine design evolves from aerospace technology know-how. The optimal performance is achieved through aerodynamic blade shape design and fluid dynamics simulation.

The mechanical components are designed using CAD process. The structural integrities are verified using CAE analysis. The generators are computer simulated before production. Electrical components and circuits have passed safety tests. Overall designs are achieved in most critical design conditions and in sophisticated laboratory.

Jetpro has superior design and research group, its own high tech test facility, and is devoted to wind turbine technology development. Our design process is complete and has product quality assurance.

Electric Control System



Advantages of Jetpro Wind Turbines

Our wind turbine advantage over the other small turbines:

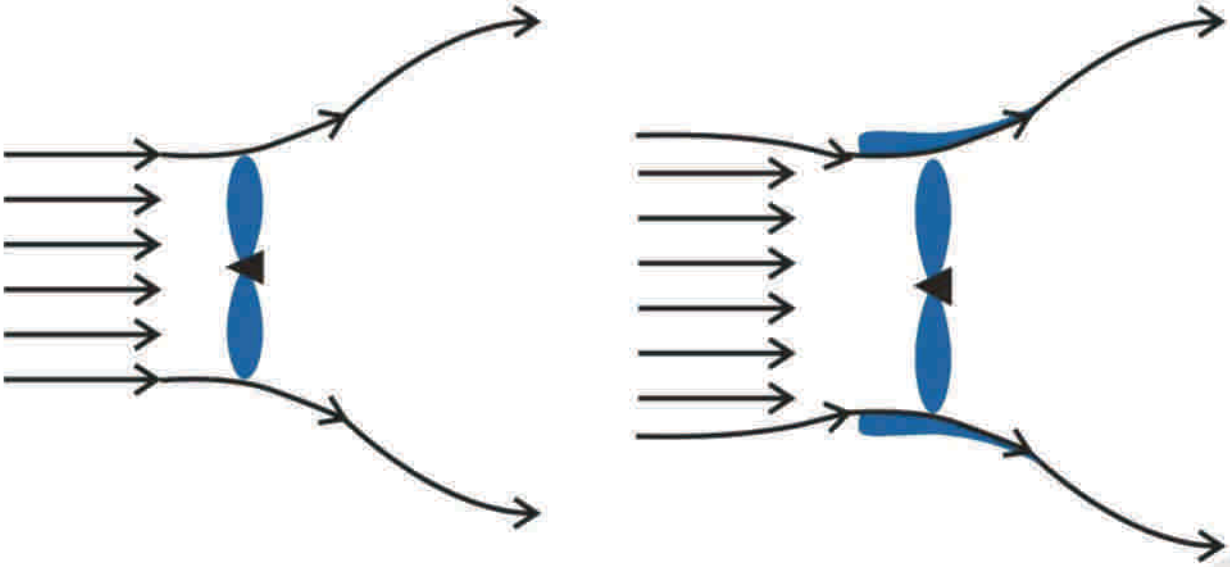
- The starting wind speed is about the same as other traditional designs, the wind energy is the same considering the same wind speed, and diameter. Under the same wind turbine size, Jetpro's wind turbine has the highest output due to higher efficiency. Our design has 45% energy conversion rate from wind energy to electricity. The traditional horizontal type design has about 25%, and the vertical design has about 15%.
- Under the same output, Jetpro's turbine is the smallest.
- Jetpro wind turbine is easy to install due to light weight and smaller size.
- Jetpro wind turbine cascaded format provides the maximum output within limited space, and with less land occupied.
- If wind turbine installed on roof top, Jetpro turbine provides lightest weight per unit foot area, since the weight is distributed, unlike traditional wind turbines, which need to reinforce the roof due to point touch and concentrated weight.
- The save of cable lines and cost is significant.
- The save of cable line paving cost from many wind turbines is significant (considering many wind turbines installed on rooftop vs Jetpro cascaded windwall).
- The transmission loss is minimum if using Jetpro windwall (less cable length used).
- Simple structure and easy of expansion to more wind turbines.
- Nice looking in appearance.
- Jetpro mobile, gen set can produce maximum power and with good mobility, to be used in rural villages, mine field, agriculture, fish farms, disaster areas, refugee camps, military, islands, outdoor activity, etc.
- Installation cost can be minimized if using cascaded format, compared to traditional wind turbines with individual pole and civil engineering work.
- Strap on to existing street light pole is possible and no need to intensify pole structure or civil engineering work, because of its light weight.
- The construction work can be much easier compared to single bigger wind turbines, considering the weight, equipment requirement, shipping, road condition, etc.The cost of installation is lower.
- The maintenace of cascaded smaller turbines can be easier than that for the bigger ones. If a small turbine is not functioning properly, it will not affect the others.
- Our design can be DIY type, easy maintenance.
- Fan guard can be installed to prevent bird impact or foreign object damage.
- Floating type (on float or boat) wind turbine provides high mobility, low installation cost on water, easy maintenance compared to traditional off-shore turbines.

Why Is The Shrouded Design Better ?

The traditional horizontal axis wind turbine design does not have a shroud. The turbine acts like an actuator disk. When air stream passes the turbine blades the flow decelerates and the stream tube expands. Its highest performance can never exceed Betz limit. Jetpro shrouded wind turbine design has a shroud with converged inlet and diverged outlet. The shape of the shroud mimics the streamline boundary of the air flow passing through the turbine. The converged inlet allows more air flow entering the turbine with accelerated speed. The diverged outlet can adjust the back pressure behind the turbine blades to a lower level. This creates higher pressure difference across the blades and thus higher torque to generate higher electricity. Other advantages of using shrouded design are:

1. Tip vortex loss is reduced and efficiency can be higher with less noise.
2. The shroud confines the sound propagation, acoustics propagates mainly through the inlet and outlet.
3. The curved shroud acts as a yawing mechanism without the use of traditional rudder, weight is reduced.

Velocity Contour Around The Wind Turbine



Traditional Horizontal Axis Wind Turbine
(efficiency ~ 25%)

Jetpro shrouded Wind Turbine
(efficiency ~ 45% based on inlet diameter,
~ 56% based on rotor diameter)

Quality Control

Salt Water Corrosion Test

Brake Test at High Wind Speed

Rain Flow Test

High Voltage Surge Test

Quality Control

Generator Power Test

Large Wind Tunnel Performance Test

Blade Low Temperature Survival Test (-25℃, 60m/s wind speed load)

Essential Examine Item

ITEM	CONTENT
1	Incoming Parts Check
2	Salt Water Corrosion Test
3	Rain Flow Test
4	High Voltage Surge Test
5	Component Temperature Mesurement
6	Generator Power Test
7	Screw Torque Test
8	Charge Controller PC Board Run-in Test
9	Brake PC Board Run-in Test
10	Brake PC Board Burn-in Test
11	Wind Turbine Burn-in Test
12	Wind Turbine Life Test in Salty Mist Environment
13	Wind Turbine Life Test in Dusty Environment
14	Wind Turbine System Life Test
15	Brake Test at High Wind Speed
16	Large Wind Tunnel Performance Test
17	Anti-UV Test
18	Blade Low Temperature Survival Test (-25℃, 60m/s wind speed load)

Quality Control

Structural Integrity Test

- Steel Tube

- Spacer

50KW Blade Test

- 700kg load to simulate 60m/s wind speed. Turbine blade weighs only 17 kg.

- T-Shaped Junction

Road Test (critical test)

Test Facility

Wind tunnels were extensively used in aerospace industry, and are now used in our wind turbine design. Jetpro engineers design our own 3 wind tunnels (small, midsize and big tunnels) to test wind turbine aerodynamic performance, structural integrity, and electrical characteristics for design verification. The wind tunnels can test wind turbines up to 4 meters in diameter.

Wind Tunnel Laboratory-Midsize Wind Tunnel

Wind Tunnel Laboratory-Large Wind Tunnel

Assembly Line

■ Assembly (1)

■ Semi-Finished Part Assembly Line

■ Assembly (2)

■ A Glance at the Assembly Line

■ Warehouse

■ Quality Inspection

Applications

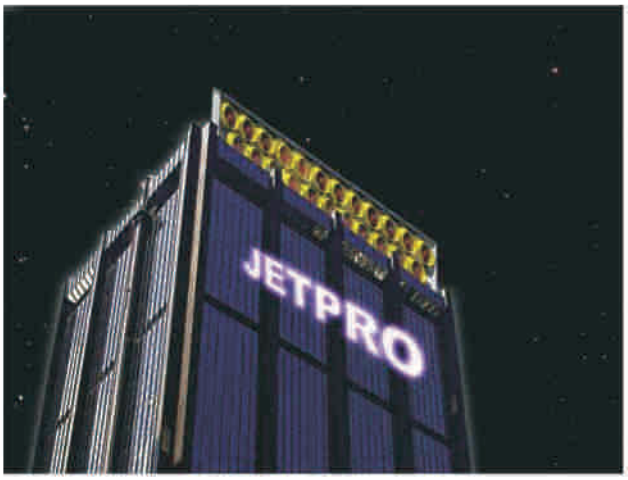
- Convenient Store Energy Saving

- Power Supply for Advertisement Billboard

- Eco-House with Wind Turbine

- Park Landscaping

- Building Lighting

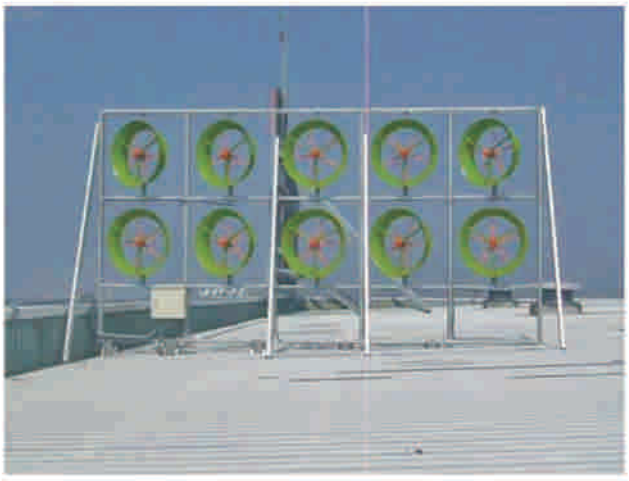


- Agriculture/Fish Farm Power

Applications

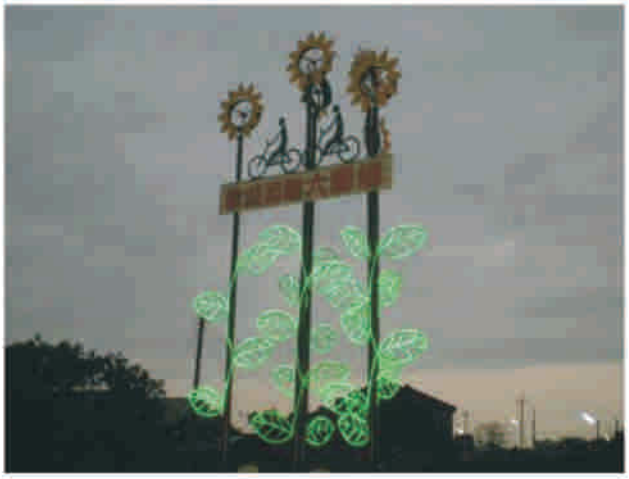
- Factory Energy Saving

- Provide Electricity for Logo Light



- Factory Energy Saving

- Township Welcome Landmark



- Factory Energy Saving

- Countryside Power Supply

Applications: Power Supply for Street Lights

■ Wind Turbine Street Light(1)

■ Wind Turbine Street Light(2)

■ Wind Turbine Street Light(3)

■ Solar/Wind Hybrid Street Light(1)

■ Solar/Wind Hybrid Street Light(2)

■ Park LED Lighting

Applications

■ Power Supply for African Family

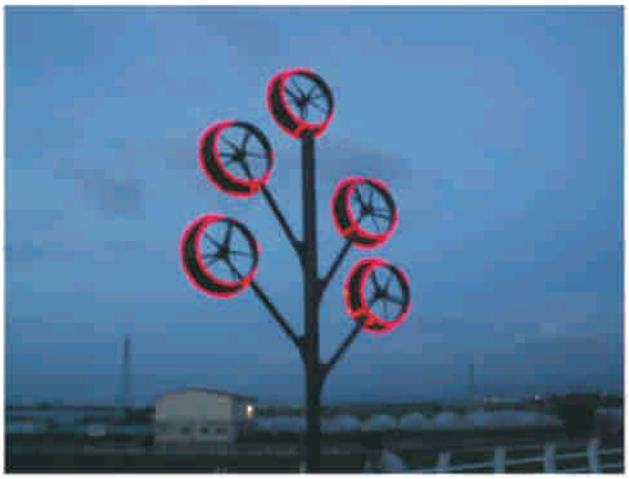
■ Park Landscaping

■ Africa Rural Village Power Supply

■ Park Landscaping

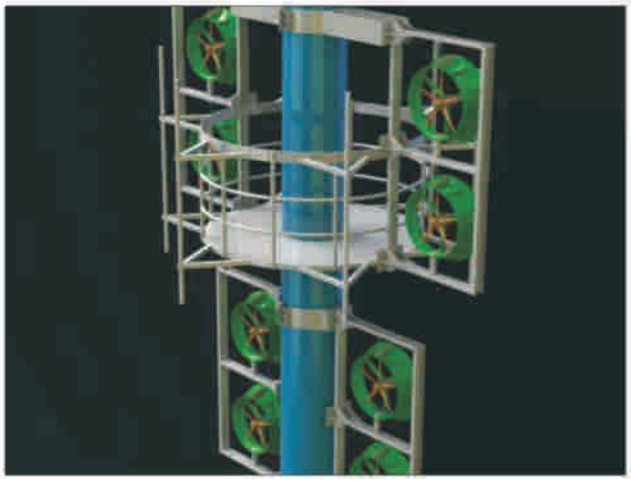
■ Agriculture Farm House Energy Saving

■ Park Landscaping



Applications

- Telecom Base Station Power Supply



- Advertisement T-bar Application

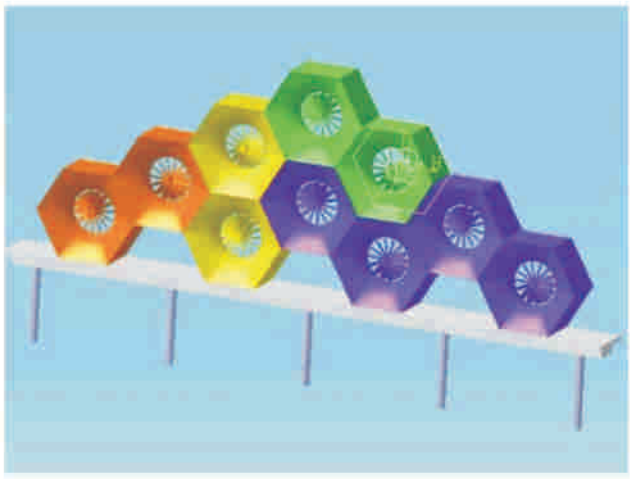
- Telecom Base Station Power Supply

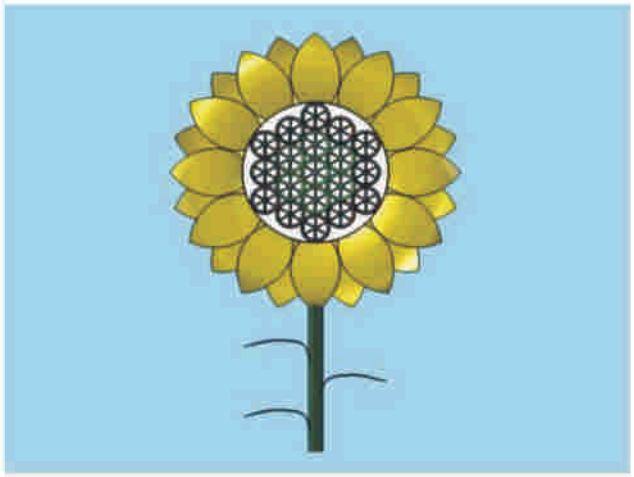
- Power for Base Station

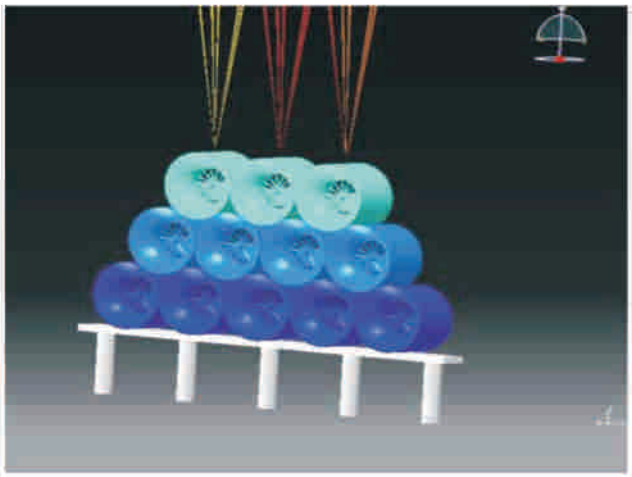
- Telecom Base Station Power Supply

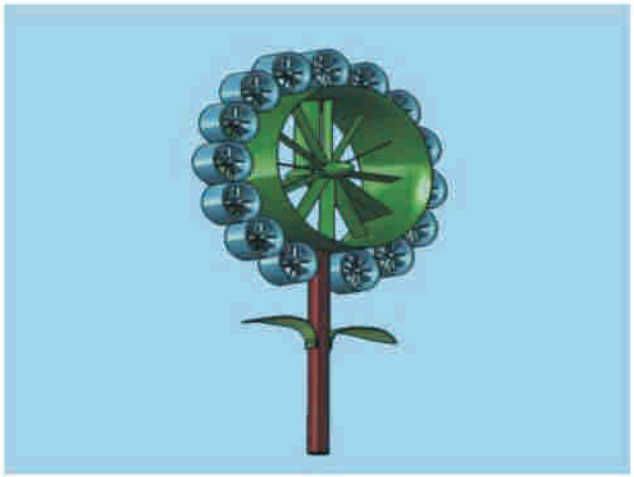
- Light Box

Applications









Agents

Asia

China	Taiwan	Hong Kong	North Korea	Japan
Vietnam	Philippines	Indonesia	Bangladesh	Pakistan
India	Malaysia	Thailand	Myanmar	Singapore
Kampuchea				

Australia

Australia	New Zealand			

North America

U.S.A.	Canada	Mexico		

Central America

Honduras	El Salvador	Panama	Guatemala	Costa Rica

South America

Peru	Colombia			

Africa

Ghana	Nigeria	Ruanda	South Africa	Malawi
Madagascar	Swaziland	Kenya	Uganda	

Europe

Germany	France	Austria		

The Russia and Eastern Europe

The Russia	Ukraine	Armenia	Lithuania	Latvia

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