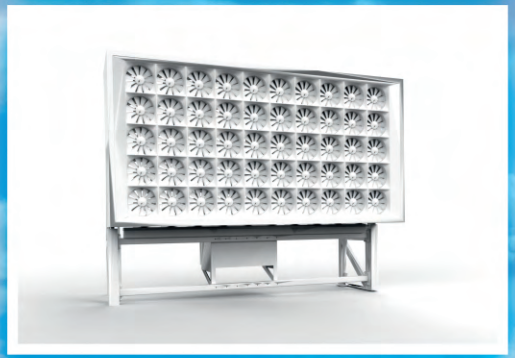
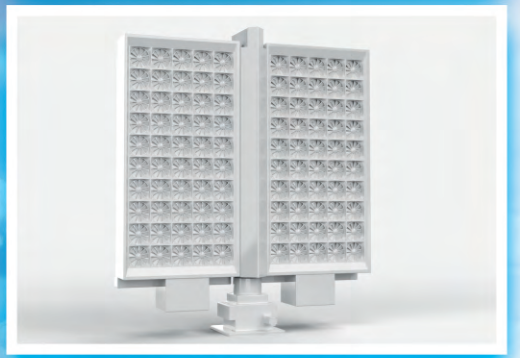




Exceptionally powerful
modular design
micro wind turbines

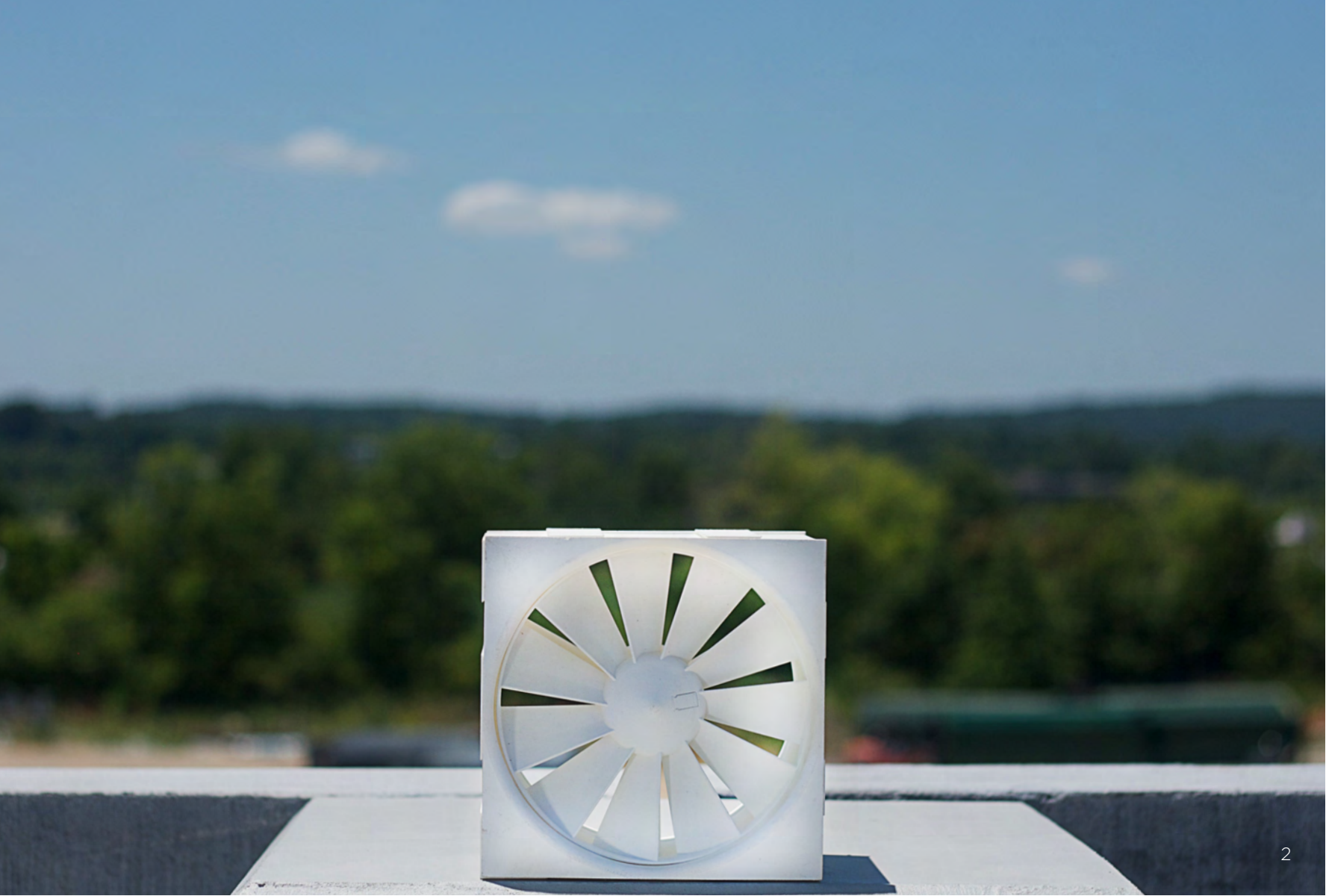
inex
renewables

Going with the wind...

AMERICANWIND®
PARTNER

MISSION STATEMENT

Founded in 2012 after the severe tornado outbreak across North Alabama, our founder Robert Yost saw a need for a small, renewable energy source that could be used in populated residential areas. This is why American Wind was founded. We are an Original Equipment Manufacturer (OEM) of micro wind turbines. We see ourselves changing the wind turbine industry and peoples lives. Making clean, renewable, safe power affordable and putting it in the hands of everyday people and large corporations alike. The way the iPod revolutionized how we listen to music is the same way the MicroCube can revolutionize the energy industry.



OUR PRODUCTS


MICROCUBE™


WINDWALL™


ADVANCED
WINDWALL™

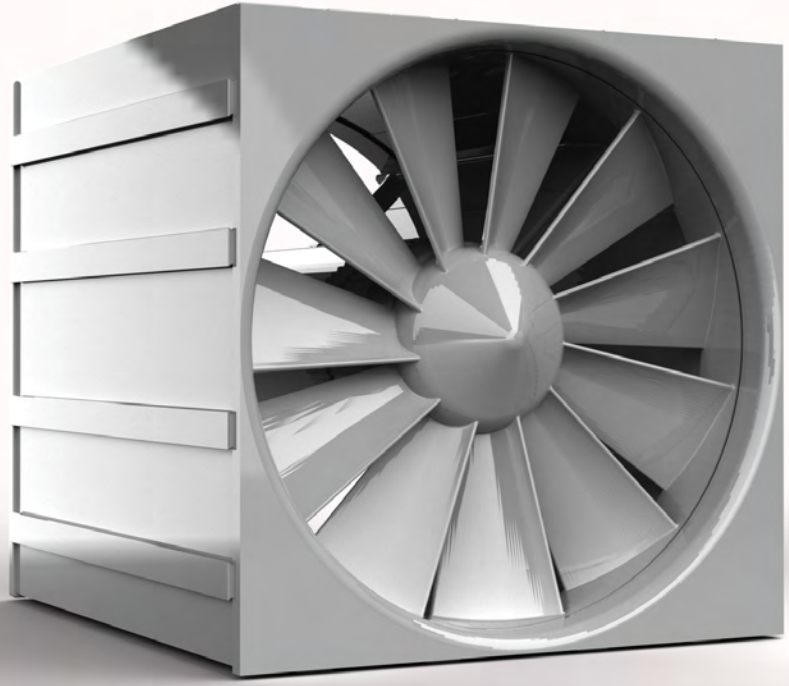

MICROSPHERE™

MICROCUBE™

The MicroCube is a micro wind turbine primarily in the shape of a cube. It was developed to fill a need that lagging legacy technology created. Unlike traditional turbines we did not make the MicroCube bigger, instead we made it smaller. By making it smaller we reduced losses in energy production. But to make it smaller we had to recreate the alternator as we know it. We developed a first of its kind alternator, which is what powers this unique wind turbine. With its 11 air foils we capture more energy out of the wind than any other turbine ever created.

Specifications

Max output	:	1kW
Max Voltage	:	180v DC
Max Amperage	:	6amp
Size	:	9.125in^3
Weight	:	9lbs
Cut in speed	:	1.5mph
Max wind speed	:	100mph
Temperature	:	375° F - 0° F
Material make up	:	GF Plastic / CFR Polymer / Ultem / Stainless steel / Copper / Ceramic / Neodymium



MICROSPHERE

Like the MicroCube™, the MicroSphere is also a 1kW max power wind turbine. But the difference comes in that the MicroSphere was made to be a stand alone unit. With its circuit board built into the case and its rugged tail system, the MicroSphere is a stand alone unit that can be both portable or stationary. This unit is ideal for: portable power, tiny homes, war fighter support, camping, tailgating or anything else you might need small amounts of power for.

Specifications

Max output	:	1kW
Max Voltage	:	180v DC
Max Amperage	:	6amp
Size	:	$14in^3$
Weight	:	9lbs
Cut in speed	:	1.5mph
Max wind speed	:	100mph
Temperature	:	375° F - 0° F
Material make up	:	GF Plastic / CFR Polymer / Ultem / Stainless steel / Copper / Ceramic / Neodymium

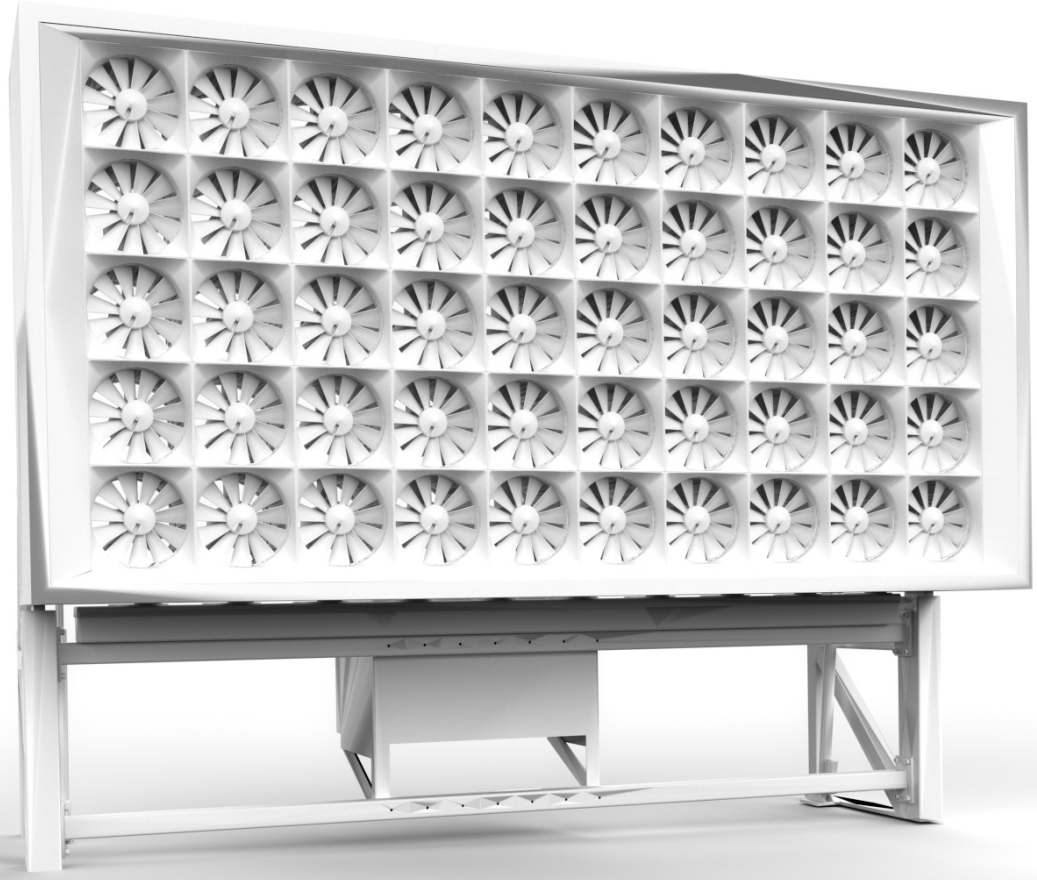
WINDWALL

The WindWall was made as a larger power solution than the MicroCube. The WindWall is 50 MicroCube's arranged into a larger array the size of a sheet of plywood. This allows for greater power output without increasing the mechanical loss of the wind turbine system. Being a fixed directional wind turbine system, it is best used in places where you have fixed wind directions. Some but not all of these areas include : Ocean Front Property, River fronts, Large Buildings or simply any area where you generally have fixed wind directions.

Specifications

Max output	:	50kW
Max Voltage	:	Variable AC/DC[1]
Max Amperage	:	Variable AC/DC[1]
Size	:	96in x 48in 36in
Weight	:	500lbs[2]
Cut in speed	:	1.5mph
Max wind speed	:	100mph
Temperature	:	375° F - 0° F
Material make up	:	GF Plastic / CFR Polymer / Ultem / Stainless steel / Copper / Ceramic / Neodymium

Note: (1) Voltage and amperage is variable with set up of control boxes. Due to the nature of the windwall technology, we can link the wind turbines together parallel or serial to increase voltage or amperage. (2) Estimated Weight.



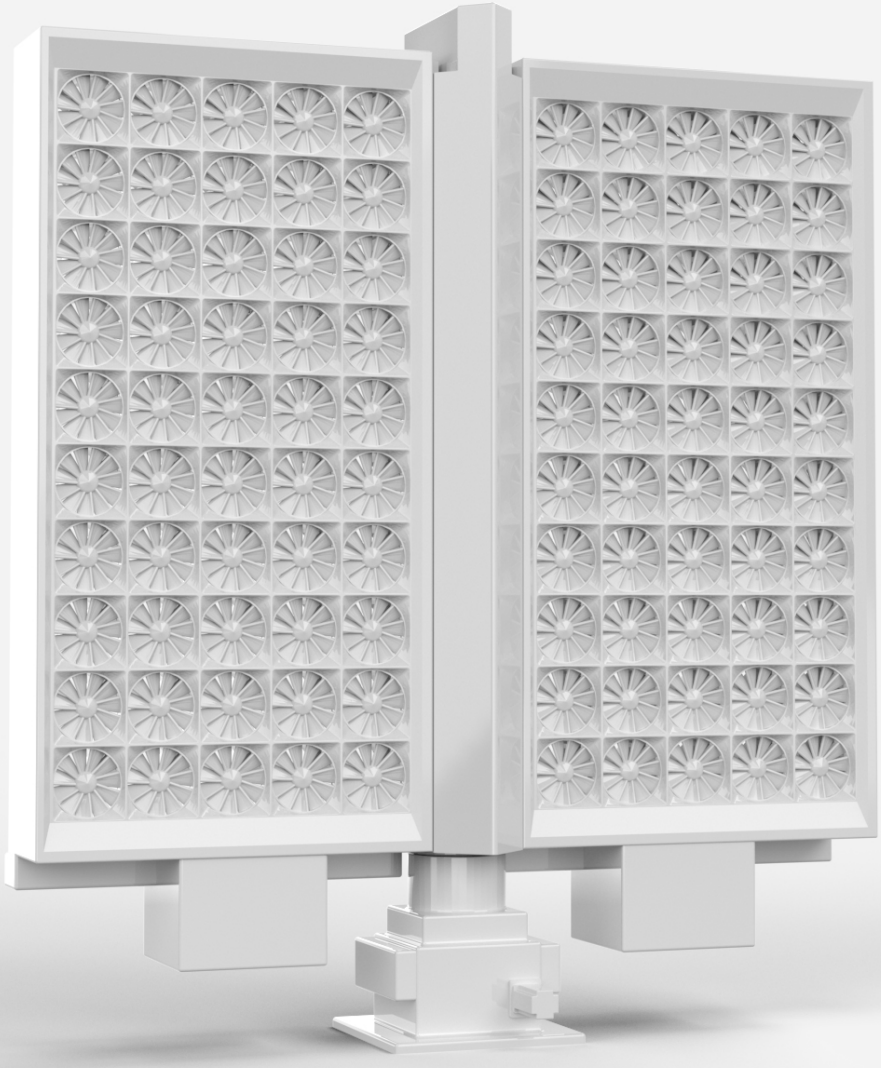
ADVANCED WINDWALL

Our most advanced wind turbine system producing 100kW at max power. The Advanced WindWall (AWW) is a revolution in the wind turbine market, not because of its power output or its size but both. The AWW much like the standard WindWall is an array of MicroCubes but contains 100units that sits on a base that has a worm geared motor to keep the turbines turned into the wind at all times. This is extremely important as the AWW has a cut in speed of just 1.5mph.

Specifications

Max output	:	100kW
Max Voltage	:	Variable AC/DC[1]
Max Amperage	:	Variable Ac/DC[1]
Size	:	120in x 96in x 24in
Weight	:	900lbs[2]
Cut in speed	:	1.5mph
Max wind speed	:	100mph
Temperature	:	375° F - 0° F
Material make up	:	GF Plastic / CFR Polymer / Ultem / Stainless steel / Copper / Ceramic / Neodymium

**Note: (1) Voltage and amperage is variable with set up of control boxes. Due to the nature of the windwall technology we can link the wind turbines together parallel or serial to increase voltage or amperage. (2) Estimated Weight.*



ADVANTAGES

Size
Volume
Wind Speed
Sound
Drag
Enviromental
Wildlife Friendly

SIZE

All one kilowatt micro wind turbines have one thing in common, they are not micro. This is where American Wind, Inc and our products come into play, when we say micro, we mean it. The MicroCube™, MicroSphere and WindWall are significantly smaller than traditional wind turbines. Traditional turbines are measured in feet or meters. Our products are so small we have to measure in centimeters and inches.

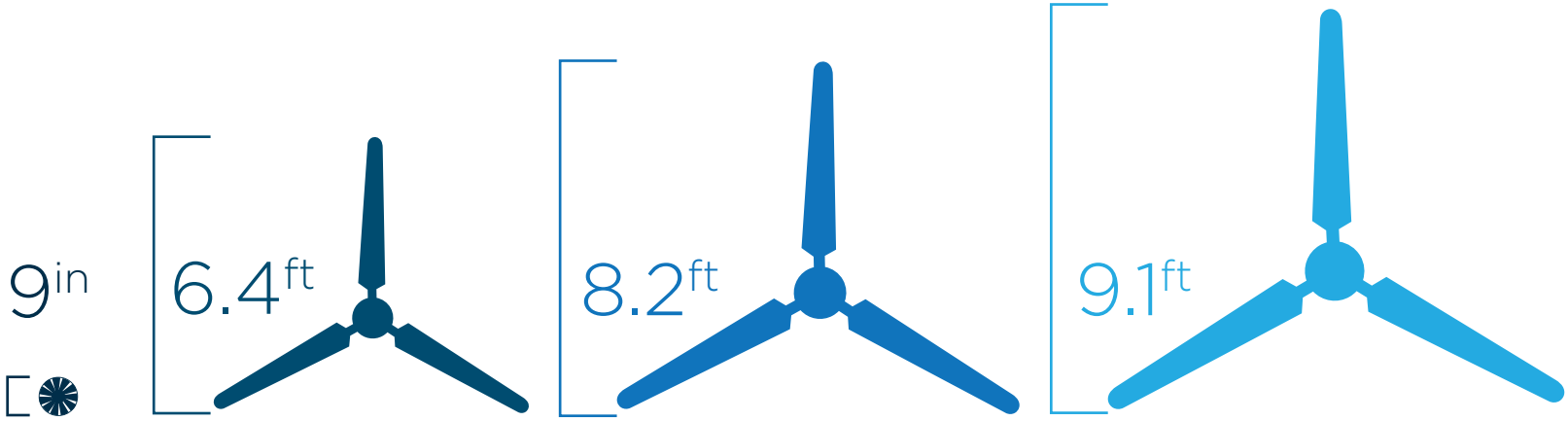
9in MicroCube 1kW™

6.4ft Nova New Energy 1kW turbine

8.2ft Bergey XL.1 1kW

9.1ft SAIAM 1kW turbine

The marking in indicates inches. The marking ft indicates feet.



This is a scale representation of the MicroCube™ to other 1kW turbines. This does not represent all 1kW wind turbines.

SIZE

When comparing renewable energy systems of 100kW max output a vast difference becomes apparent. With the exception of American Wind Inc's Advanced WindWall, 100kW systems are not small. The infrastructure and space needs of these older technologies become limiting in their application. However, that is not the case with American Wind Inc's products. We believe that saving space while supplying equivalent energy is one of the greatest advantages we hold.

Note: On the following page is a representation of a 100kW wind turbine, 100kW solar farm, 100kW Advanced Wind Wall and a six foot tall male.

This is a scale representation of the Advanced WindWall, 100kW Wind turbine and 100kW solar farm.

VOLUME

Traditional turbines lose up to 97% of energy out of the wind before they ever start to generate power. This is not a marketing statement but a mathematical fact. The design of traditional turbines means that the volume of air passing between the blades while they rotate is a loss in energy. This is another area where we take advantage of our unique design. The MicroCube™ covers 95% of the surface area of the wind. This directly translates into a 3,170% gain in efficiency.

Volume of wind not captured

97% LOST ENERGY

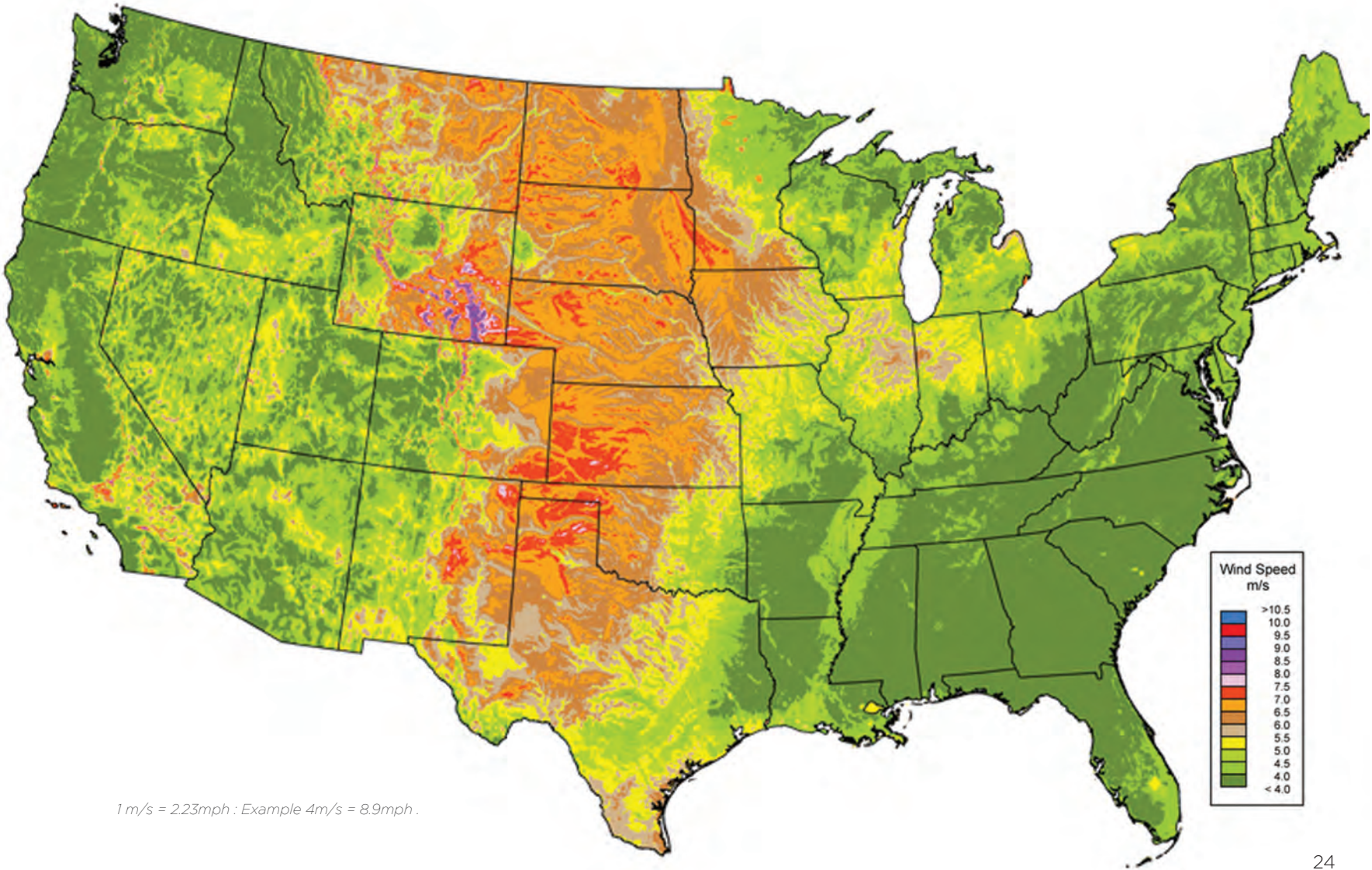
WIND SPEED

Our greatest advantage, is the ability to work in wind speeds far lower than traditional wind turbines. Low wind speeds are typically a plague to wind turbines. This is why you see traditional turbines with structures standing thirty meters or higher. They need these structures because the higher wind speeds are above thirty meters. If a traditional wind turbine gets into a situation where the average wind speed is three to five miles per hour they simply can not gather enough energy out of the wind. This is where we come in. The Micro-Cube works in just a slight breeze.

WIND SPEED

With the U.S. National average wind speed being around 4.7 mph (under thirty meters), most wind turbines fail to operate. Our Products do not share this problem. With an operational floor of 1.5mph wind speed, our products are operational 93% of the time. While max power is not achieved in these low wind speeds, the power output ensures you have a constant return on your investment.

The following illustration is a map of wind speeds under 30m.
This map was supplied by NREL (National Renewable Energy Laboratories).



1 m/s = 2.23mph : Example 4m/s = 8.9mph .

WIND SPEED

Generating power in slow wind speeds is what we are all about. No wind turbine makes maximum power in wind speeds under 15mph but our difference is that we make power in all wind speeds. This means having a constant power output.

Indicates avg. wind speeds in 70% of U.S. 30m>

Indicates avg. wind speeds in 30% of U.S 30m>

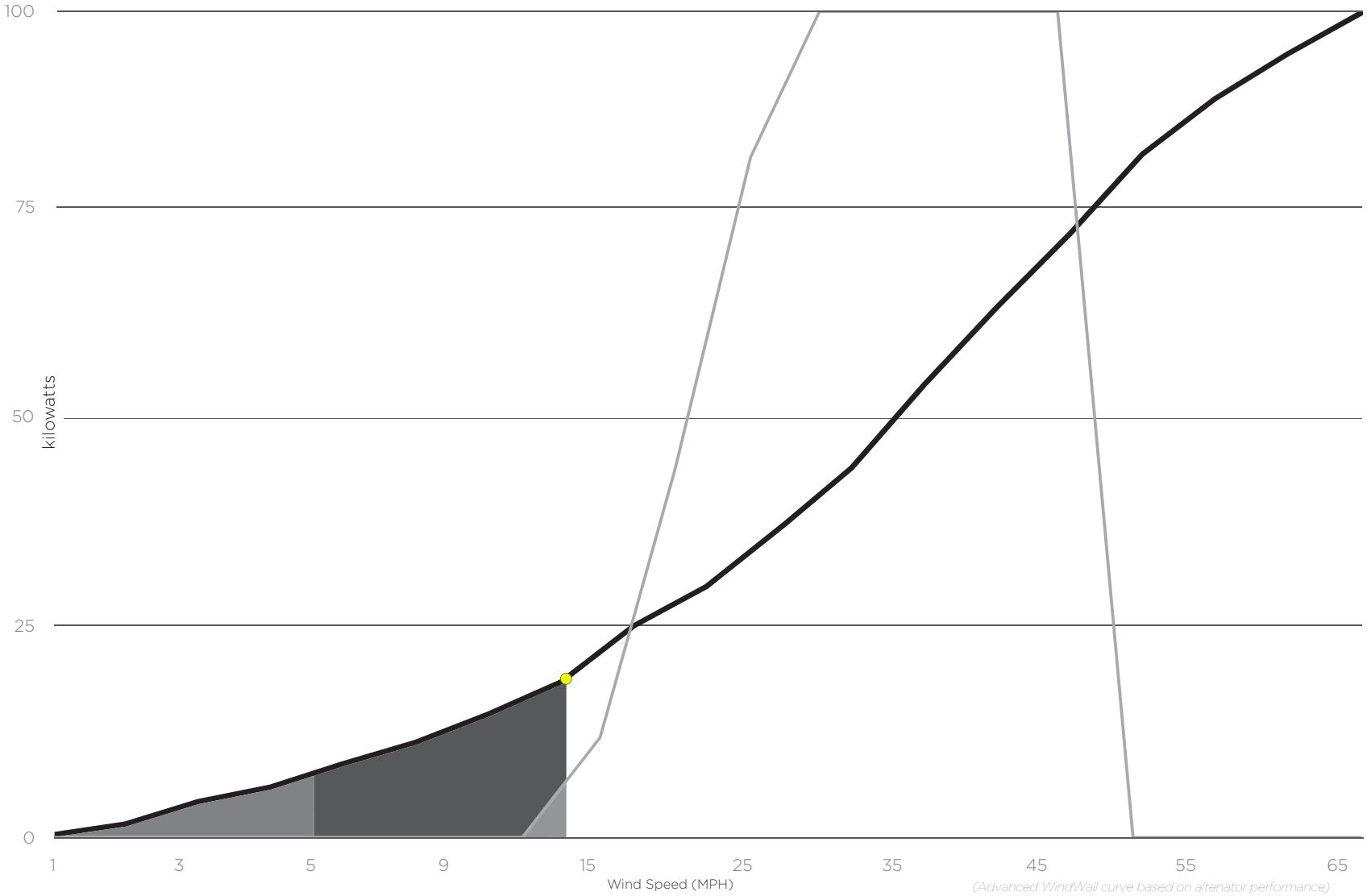
Indicates avg. wind speeds in 30% of U.S 30m>

Indicates avg. wind speeds in Capetown, South Africa*

Indicates Traditional 100kw Wind Turbine Power Output

Indicates Advanced Wind Wall Power Output

*(*per WindGuru.cz - avg 13mph)*


100
75
50
25
0
kilowatts
1
3
5
9
15
25
35
45
55
65
Wind Speed (MPH)
(Advanced WindWall curve based on altenator performance)

SOUND

Shhh... Do you hear that? Thats about 40 dB, the sound level of a library. A normal conversation between two people, 60 dB. The traffic on the street outside, 70 dB. That large wind turbine powering your house, 105 dB. Did you notice that traditional turbines are 300yds plus away from residential and business real estate? That's because 105 dB is as loud as a lawn-mower, you couldn't hear yourself think if they were any closer. That is where the MicroCube differs. With a sound level of just 44 dB you can barely hear them function. Now that is not 44dB from 300yds away but standing right next to it.

DRAG

Something we hear all the time when talking about our automotive applications is drag. During our testing we showed a very low drag coefficient similar to modern cars. At 100mph wind speeds, our turbine only produces 10 pounds of force. This is equivalent to sticking your hand out the window.

ENVIRONMENTAL

An advantage of our turbines is that they are very environmentally friendly. Where some green technologies use corrosive or harmful materials in their design the MicroCube is made mainly of recyclable material. So even though it has a lifespan of nearly 30yrs you can recycle most of the plastic at the end of its life or simply do a core exchange and let the turbine continue to produce power for another 30 yrs.

WILDLIFE FRIENDLY

A problem with traditional turbines is that while they are environmentally friendly, they are not a friend to wildlife. Traditional turbines kill hundreds of bats and other flying animals a year. Because of this many have to have wild life detection systems which cause their own problems. When these detection systems shut the turbines down one to three megawatts drop off the grid instantly. Another major threat to wildlife is the deforestation caused by the installation of large turbines. To install a traditional wind turbine in wooded areas; the installation company must destroy a large area of the natural habitat for local wildlife. The MicroCube doesn't have any of these problems and they will not harm wildlife, they never have to be shut off and if one is damaged you only lose at maximum one kilowatt. This means no wildlife is harmed and no significant loss of power due to animal interference. Keeping the wildlife in the air, in their habitat and the lights on at your house at the same time.

THE COMPETITION

It's all in the numbers and when you stack up our competition next to us, they simply do not compare. The following chart is a direct comparison of the MicroCube™ with three other popular 1kW wind turbines, one 450w wind turbine and the most popular 7.5kW wind turbine.

1 kilowatt Turbines:
MircoCube™
Aeolos-V (Vertical Wind Turbine)
KrestrelWind e300
Bergey 1kW

450 watt Turbine:
Primus Wind Power 450w

7.5 kilowatt Turbine:
Bergey 7.5kW


EXCEL

Spec Comparison

	MicroCube		Aeolos-V		Primus Wind Power		KrestrelWind e300		Bergey 1kW		Bergey 7.5 kW	
Cut in Speed (mph)	1.5		3.4		5		5.5		5.6		7.5	
Furling Wind Speed (mph)	N/A		N/A		33		N/A		29		30	
Rated WATTs	1000		1000		450		1000		1000		7,500	
Rated Output kW	1		1		0.45		1		1		7.5	
Diameter of blades (ft)	0.75		6.6		3.83		9.84		8.2		23	
Area of Wind Turbine (SqFt)	0.56		60.72		14		97.12		67.24		529	
Nominal Power Watts / mph	1000	65	1400	32	450	30	1000	33	1000	30	7500	27

Comparison Number of MicroCubes within the same Area and/or Price as Competitors

	MicroCube	Aeolos-V	Primus Wind Power	KrestrelWind e300	Bergey 1kW	Bergey 7.5 kW
Area Comparison	1	108	25	173	120	945
Area Output (kW)	1.0	108	25	173	120	944
Area (kWh @ 30 mph)	N/A	49	11	69	48	254
MWh per yr for Total Area	N/A	437	101	611	421	3,820
Price	$2,850	$3,100	$1,649	$3,249	$4,595	$25,770
Price per watt	$2.85	$3.10	$3.66	$3.25	$4.60	$3.44
Price per kW	$2,850	$3,100	$3,664	$3,249	$4,595	$3,436
Extra "Hidden" Costs	N/A	$5,950	$2,975	$5,950	$5,950	$9,824
Total Cost	$2,850	$9,050	$4,624	$9,199	$10,545	$35,594
Price Per Watt (w/Hidden Costs)	$2.85	$9.05	$4.62	$9.20	$10.55	$4.75
MircoCubes for price	1	3.18	1.85	3.23	3.70	11.13

Graph reads as follows. " In the area the blades cover you can stack 108 MicroCubes™. In the area of the blade cover you can get 49kWh with the MicroCubes™ ".

Maximum Potential kWh per year at Specific Wind Speeds (mph)

	MicroCube	Aeolos-V	Primus Wind Power	KrestrelWind e300	Bergey 1kW	Bergey 7.5 kW
3mph	403	0	0	0	0	0
5mph	675	0	0	0	0	0
11 mph	976	1314	11	69	48	254
Maximum Speed	8760	8760	3942	8760	8760	65,700

Return on Investment (years) based upon $0.22 kWh

@11mph	$325.70	$289.08	$144.54	$269.81	$235.12	$1,349.04
@ 5mph*	$148.39	$298.08	$0	$0	$3.85	$0
@ 3 mph*	$88.65	$0	$0	$0	$0	$0
Years Payback @ 11mph	8.8	10.72	2.5	12	19.5	19.1
Years Payback @ 5mph	19.2	N/A	N/A	N/A	N/A	N/A
Max Wind Speed @ Max Power ($)	$1,927.20	$1,927.20	Unknown	$1,927.20	$1,927.20	$14,454.00
Max Wind Speed Payback in Years	1.5	4.7	Unknown	4.8	5.5	2.2

** Note : These wind speeds are avg wind speeds for most of the United States.*

MARKETS

Versatility is built into the design of the our products. This is something that no other wind turbine can say. Because of this versatility our products fit into many different vertical markets.

Automotive

Heavy Transportation

Local Transportation

Rail Transportation

Boats

Recreational Vehicles

Urban/ Suburban Housing

Multi-Story Buildings

Light/Power Transmission poles

Air Conditioning Units

Bicycles/Motorcycles

Portable Towers

War Fighter Support

Auxiliary Aircraft Power

Cell Phone/ Radio Towers

Humanitarian Support

CREATING A GRID

There is a simple solution to creating a grid in areas that do not have power. But, there are two problems. The areas without power need power immediately. It takes time to build a grid. We have developed a two part solution to this problem. First you install our Advanced WindWall at the site where you need power now. These Advanced WindWalls are outfitted with battery storage built directly into the tower. This allows for constant power no matter the wind speed. The second part of the solution is to start building your grid. Then as you get to areas where the Advanced WindWalls are you simply hook them into the grid. You use each of the Advanced WindWalls and their battery systems to load balance, sharing all of their power amongst the entire grid. This means areas with less wind are having their batteries charged by areas with higher wind or even solar panels you have attached to the grid. This ensures no matter the weather conditions power is always there.

TRANSMISSION LINE LOSS

The technical losses are due to energy dissipated in the conductors, equipment used for transmission line, transformer, sub transmission line and distribution line and magnetic losses in transformers. Technical losses are normally 22.5%, and directly depend on the network characteristics and the mode of operation, The major amount of losses in power system is primary and secondary distribution lines. While transmission and sub-transmission lines account for only about 30% of total losses.

MONITORING CONTROL SYSTEM

Monitoring of your energy systems should be a vital part of your day to day operations. When you monitor you energy system you can see where the wasted energy is. Making your business more productive and energy efficient, this in-turn saves you money. Also with our monitoring system you will be able to pin point how much power every single turbine is producing. This can help you plan your power output and production schedules.


220kV
110kV
56.4 MW
27.5 MVAr
56.7 MW
27.9 MVAr
0.0 MW
0.0 MVAr
AT
38.5kV
110kV
0.0
0.00
0.0

TOTAL ENERGY SOLUTION

Most people reading this would never imagine that a business that developed a revolutionary wind turbine would advocate for a total energy solution including solar. We know that even though our start speed is 1.5mph wind speeds that there are times when you have zero wind. There are many times when you have zero solar. A solution that combines state of the art wind turbines with a small back up of solar power ensures 100% coverage, day or night, storming or calm.

SUMMARY

Smaller in size
More efficient
Lower start speed
Quieter
Less drag
Environmentally friendly
Wildlife Friendly
Portable

Versatile
Faster ROI
Better than all direct competitors
Patented Alternator
Patented Wind Turbine Design
Alternating Current (AC)

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Social Media:

Facebook- www.facebook.com/AmericanWindInc/

Twitter: @awturbines

Instagram: @awturbines

GUIDE

Measurement Conversions

in - cm	1 = 2.54
ft - m	1 = 0.305
yds - m	1 = 0.9144
lbs - kg	1 = 0.4536
lbs - st	1 = 0.0714
F - C	32 = 0
mph - m/s	1 = 0.305

Currency Conversions

To find the current conversions visit www.xe.com/currencyconverter/

Aberviations

F	Fahrenheit
C	Celcius
lbs	Pounds
kg	Kilogram
ft	Feet
in	Inches
mph	Miles per Hour
m/s	Meters per Second
yds	Yards
DC	Direct Current
AC	Alternating Current
Amp	Amperage
V	Volt

Aberviations Expanded

kW	Kilowatt
w	Watt
U.S	United States of America
yrs	years
dB	Decibels

inex renewables

AMERICANWIND®
PARTNER

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