



## Fall 2011 Catalog

**Click on any picture to be taken directly to that part of the website.**

**Inspiring the Thomas Edison's of the 21st Century**

**[www.PicoTurbine.com](http://www.PicoTurbine.com)**



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### **Advancing Green Energy Education for All Ages!**

**At PicoTurbine International we are passionate about the power of Renewable Energy. This is not just in terms of contributing to a healthier, greener planet. We believe that providing high-quality, affordable educational products and curriculum is a major key to empowering learners of all ages. By strengthening interpersonal relationships, providing endless hours of enjoyment and bringing families together, PicoTurbine serves as a catalyst to change education for the better.**

**Sound like a tall order? It is. But at PicoTurbine we have never been shy about taking on challenges. For over a decade, we have been working hard to bring the joys of Renewable Energy Education to:**

**Students, Hobbyists, Teachers, Non-profits, Families, Colleges, Grades K-12, Lifelong Learners**

**Our Education mission extends well beyond the great products offered by PicoTurbine. We continually participate in conferences, symposiums, and charities, all aimed at advancing Green Energy Education Worldwide.**

**Our latest development is a Free Open Source Curriculum called STEM Plus.**



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**Call us today (toll free) 1-877-731-9966 or (local) 201-420-0569 for:  
Price Quotes for Larger Orders, Educational Institution Discounts,  
Custom Kit Design, Curriculum Writing Projects, or become one  
of our World Wide Green Partners.**



**Free Open Source Curriculum Development is now underway and we will write lessons for free to all education customers.**

**Please call today for more information!**

**1-877-731-9966**

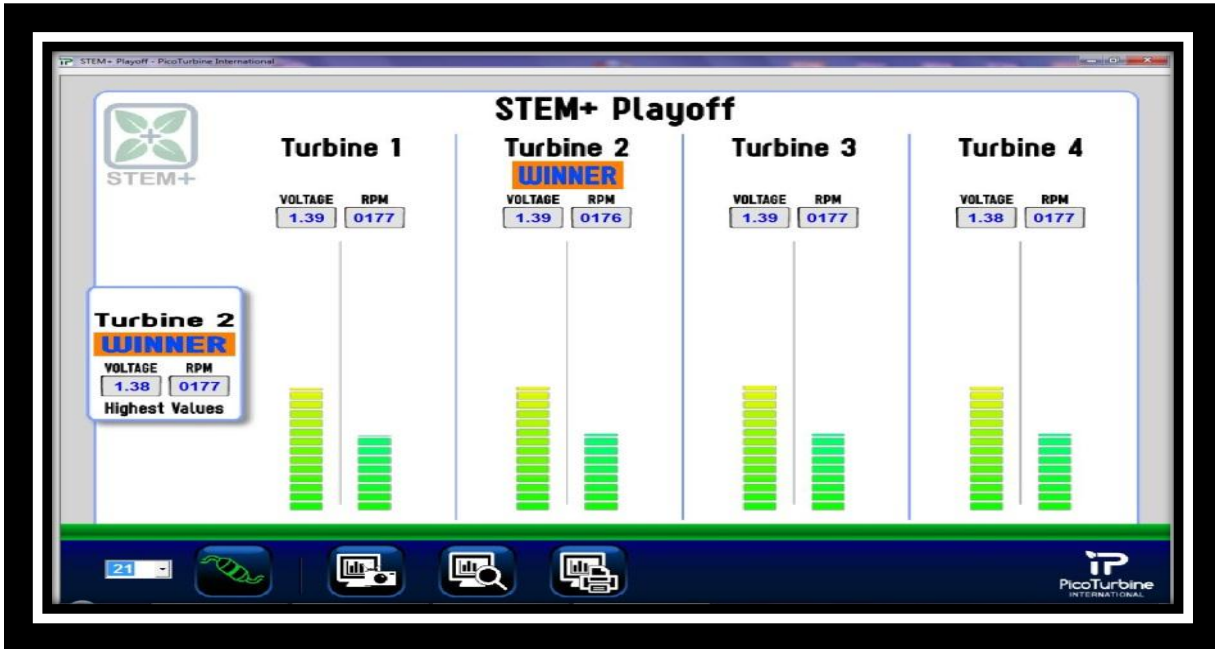


# Advancing Green Education

PicoTurbine International  
Explore our website today.



## PicoTurbine Interactive Classroom - **NEW**



### PicoTurbine STEM + Playoff

<b>MSRP</b>	\$99.95
<b>Pack</b>	10 units
<b>Weight</b>	1 lb
<b>SKU</b>	PSTEMPP
<b>Release</b>	Sept-11
<b>Age</b>	10+

The PicoTurbine STEM Plus Playoff will take learning about Wind Energy to the next level. Our new Alternator Interface allows students to prove their skills in building the most efficient Wind Turbines. The interface allows user to read voltage outputs, and RPMS in real time. You can have up to four (4) students/learners competing at once. Use hair dryers, fans, or even your lungs to power your turbine.

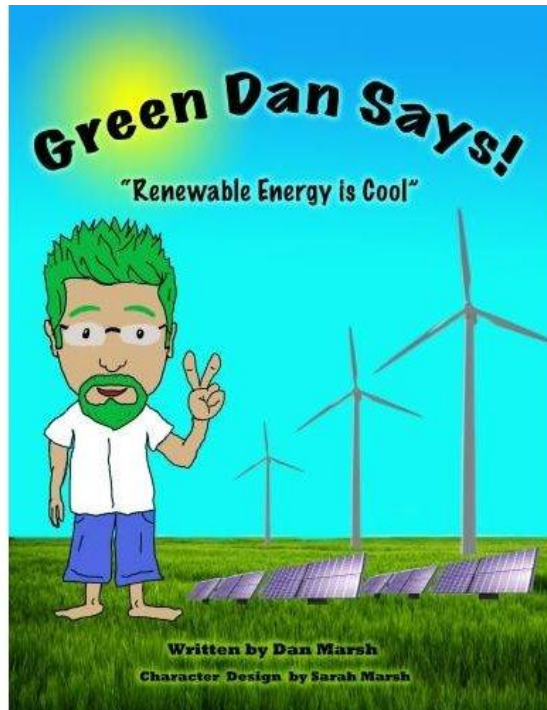
This was originally designed for our number one seller the Savonius Wind Turbine but is compatible with all Wind Turbines. Engineer your own Horizontal or Hydro Turbine and compete against each other. We guarantee you will have a blast as 100's of students and educators around the world already are.

This new product is set to redefine Renewable Energy Education in the classroom or even at home. We challenge you to become an armature engineer and take part in our goal to facilitate self-learning.

For Ages 10-Adult and can be used at any age with adult supervision. Whether used in the classroom or in your own home you will have tons of fun!

The software will allow you to: "Print your results or even capture a real time image of who is winning during a competition."

**Hours of fun and learning for everyone!**



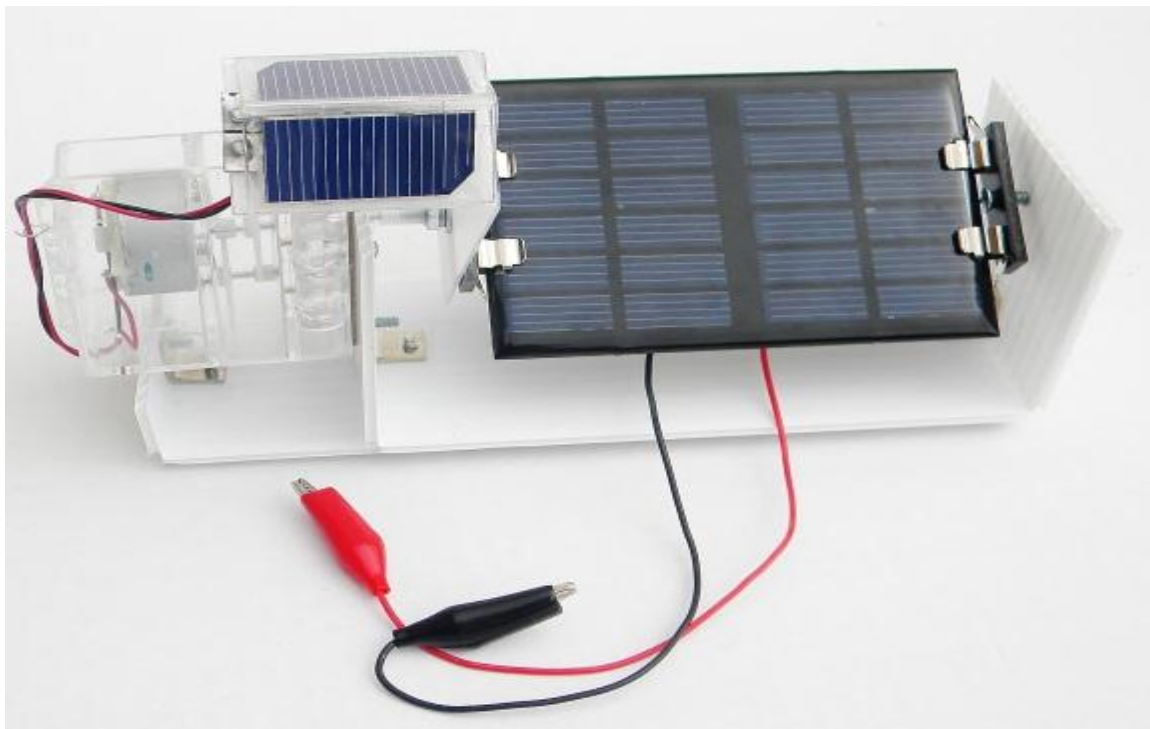
**PicoTurbine Green Dan Says!- "Renewable Energy is Cool" NEW**

<b>MSRP</b>	\$14.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	PGDS1
<b>Release</b>	May-11
<b>Age</b>	All Ages!

Green Dan Says! "Renewable Energy is Cool" is a children's book, introducing all grades visually and in story form to all the different types of renewable energy.

The pages all have beautiful full color photographs and hand colored drawings from a 4th grader. The book is very easy to read and the technologies are explained in an easy to understand manner.

**You will learn a lot about Renewable Energy. PicoTurbine guarantees it!**



### **PicoTurbine Double Wide Sun Tracker NEW**

<b>MSRP</b>	\$99.95
<b>Pack</b>	10 units
<b>Weight</b>	3.0 lbs
<b>SKU</b>	PSTV2
<b>Release</b>	Sep-11
<b>Age</b>	10+

The Double Wide Sun Tracker Kit gives users the ability to experiment with six 1.5V solar cells that have the ability to track the sun and optimize their power output. Using a state of the art light sensor, a motor repositions the solar cells to follow the strongest solar power direction. The step by step instructions make this kit ideal for hobbyists, home schooling, high schools, and college classrooms.

**Recommended for further experimentation:**  
Renewable Energy Monitor under accessories.

# Wind Turbine

" Kids may use other kits but they build and understand with yours"

Teacher - New York, NY



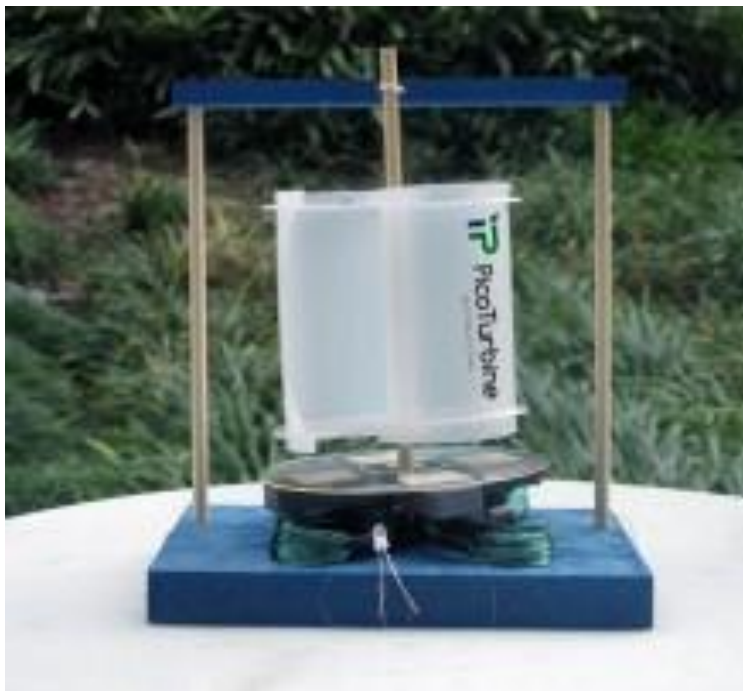
## PicoTurbine Savonius Windmill Classic

<b>MSRP</b>	\$20.00
<b>Pack</b>	25 units
<b>Weight</b>	1.4 lbs
<b>SKU</b>	PWV1
<b>Release</b>	Jan-08
<b>Age</b>	10+

PicoTurbine is the original fully functioning Savonius wind turbine kit designed by PicoTurbine International. Standing 8 inches tall, it produces between 1.7-2.5 volts, enough to light up a bicolor LED (included) that flashes red and green to show the alternating current produced. The kit can be easily built in less than one hour, less time if used as a group project. Children as young as 10 years old can build the project with some adult supervision.

This kit has been used by tens of thousands of students, home scholars, and even adult hobbyists to learn about wind power. It's been used by major universities and programs throughout the world for all ages. It's perfect for science fairs, science reports, or just plain fun!

PicoTurbine is the only kit of its kind to demonstrate the power of wind as a renewable energy resource and has upgrade that uses recycled plastic blades. The instructor guide contains classroom ideas and experiments, as well as technical notes for older students or adult experimenters.



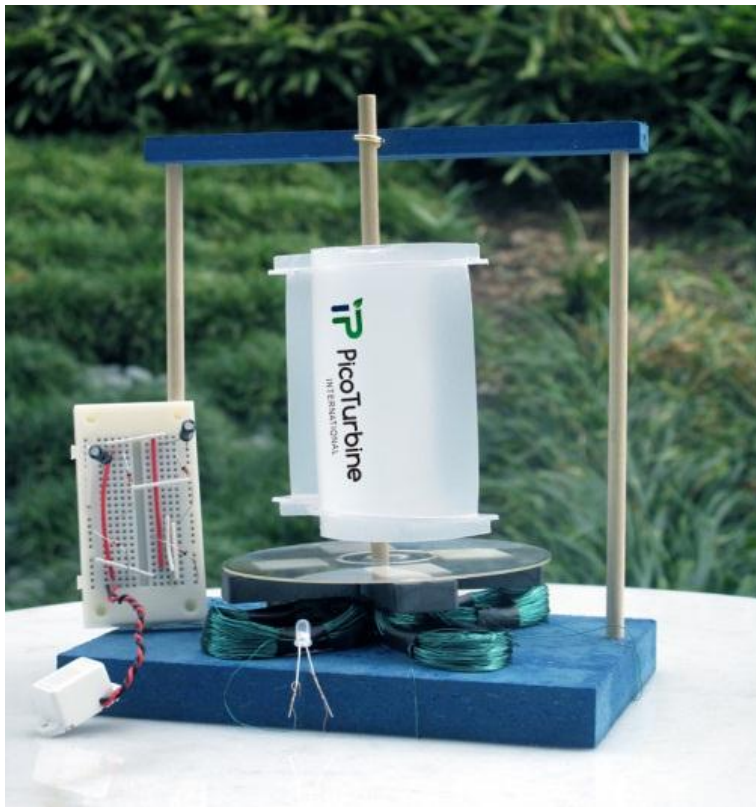
### **PicoTurbine Savonius Wind Turbine V2**

<b>MSRP</b>	\$39.95
<b>Pack</b>	25 units
<b>Weight</b>	1.6 lbs
<b>SKU</b>	PWV2
<b>Release</b>	Apr-10
<b>Age</b>	10+

PicoTurbine's Savonius Model Wind Turbine kit is a fully functioning miniature vertical windmill. At wind speeds of 12 mph it produces approximately 3.0V/50mA plus. The top and base are built from high quality craft wood and coated with premium enamel to help protect it from the elements. The kit comes with sets of recycled plastic s-foils & blades, 4 ceramic grade-five magnets, 4 pre-wound copper coils. This kit walks users through every aspect of capturing and converting wind power into electricity.

Users learn how recycled plastic S-foil wind blades (unlike horizontal wind blades) capture energy from any direction. They build step by step an alternator that uses magnetic induction to produce electrical current. The rotor distance is adjustable to the coil array allowing users to witness magnetic strength principles. The wind turbine produces alternating current that can be displayed when connected to the bi-color LED. This special LED emits alternating red and green light when voltage switches from positive to negative.

This product is ideal for science fair projects, classroom demonstrations, and at home teaching. We sell additional coils & magnets upon request, making the kit highly customizable. While this kit can be built and operated by children 10 & up, however it teaches scientific principles that may require higher education. This product was designed to work alongside high school to undergraduate science classes studying alternative energy, magnetic induction, alternating current, & aerodynamic principles.



### **PicoTurbine Savonius Wind Turbine V2 Plus**

<b>MSRP</b>	\$59.95
<b>Pack</b>	25 units
<b>Weight</b>	1.8 lbs
<b>SKU</b>	PWV2P
<b>Release</b>	Apr-10
<b>Age</b>	13+

PicoTurbine's Savonius Model Wind Turbine Plus kit is a fully functioning miniature vertical windmill that teaches students how to convert Alternating current into Direct Current. At wind speeds of 12 mph it produces approximately 3.0V/50mA and with the rectification adaptor can greatly expand its output.

The top and base are built from high quality craft wood and coated with premium enamel to help protect it from the elements. The kit comes with a set of recycled blades, recycled s-foils, 4 ceramic grade-five magnets 4 pre-wound (220)-turn copper coils and more. This windmill kit walks users through every aspect of capturing and converting wind power into electricity, building an alternator, and conversion of electricity. Most importantly users learn how S-foil wind blades that can (unlike horizontal wind blades) capture energy from any wind direction.

This full kit is accompanied with this a build it yourself rectifier. With step by step instructions students learn how to convert electricity from AC to DC using the following circuit possibilities: half wave rectifier, smoothing capacitors, full wave rectifier, and voltage doubler rectifier. The kit uses a safe solderless breadboard allowing for penalty free mistakes and countless customizable circuits.

PicoTurbine sells additional coils & magnets upon request, making the kit highly customizable. While this kit can be built and operated by children 10 and up, it teaches scientific principles that may require higher education. This product was designed to work alongside high school to undergraduate science classes studying alternative energy, magnetic induction, alternating current, aerodynamic principles, and current rectification.



### **PicoTurbine Whirlybird 3 Phase Wind Turbine**

<b>MSRP</b>	\$99.95
<b>Pack</b>	10 units
<b>Weight</b>	3.0 lbs
<b>SKU</b>	WBWK
<b>Release</b>	Sep-11
<b>Age</b>	10+

Imagine creating a 3-phase wind turbine from a common, everyday roof ventilator along with some magnets and coils of wire. That's what we've created for your study of wind technology. We chose the Whirlybird™ roof ventilator for several reasons.

First, it has great bearings that simply will not wear out under normal – and even severe – use. Without great bearings your wind turbine is always fighting friction that only serves to slow it down with the attendant loss of power. Second, it can be easily constructed with common tools and without soldering or drilling. Third, it can be used indoors and [especially] outdoors where your study of day-to-day and season-by-season wind never stops. Fourth, it produces 3-phase power just like the commercial wind turbines, which allows you to study this marvelous electrical principle first hand by using a multimeter or Renewable Energy Monitor Fifth, you will be able to modify it in order to study the effects of magnetism and how you can optimize the mechanical components to produce maximum power.

SPECS: 12 volts DC, .100 amp DC, 1.2 watts DC, 30 mph wind speed

#### **Roof Ventilator not included**

Lomanco Whirlybird™ model B1B-12 roof ventilator purchased separately at Home Depot and other home improvement outlets



### **PicoTurbine Wind Charge Plus- accessories not included**

<b>MSRP</b>	\$59.95
<b>Pack</b>	12 units
<b>Weight</b>	2.0 lbs
<b>SKU</b>	WCP1
<b>Release</b>	Jan-10
<b>Age</b>	10+

Wind Charge Plus is a powerful miniature wind turbine capable of generating 8.0V/100mA at wind speeds of 12 mph. It is perfect for teaching the fundamentals of wind power and can be used by students ages 10 and up. It comes with a full set of 3 profiled interchangeable blades allowing for power conversion optimization. It uses a 3-Phased AC Alternator similar to the commercial wind turbines. The external ports of the Wind Charge Plus make it ideal for charging batteries and powering many external devices.

#### **Product Highlights:**

- 14 inches tall
- Powerful mini wind turbine that generates electricity to charge batteries and power various electronics
- Attached weather vane for repositioning into the wind
- Power output of 8.0V/100mA at wind speeds of 12 mph
- Perfect for teaching wind power fundamentals
- For ages 10 and up

#### **Accessories not included**

**The Energy Station makes for a great add on!**



### **Wind Pitch Variable Education Kit- music module included**

<b>MSRP</b>	\$114.95
<b>Pack</b>	12 units
<b>Weight</b>	2.0 lbs
<b>SKU</b>	WPE
<b>Release</b>	Jan-10
<b>Age</b>	12+

Wind Pitch is a miniature wind turbine capable of generating 10.0V/100mA at 2000 RPM rotor speeds. It was primarily designed to evaluate the pitch (setting angle) of wind blades. There are 12 independent blade slots that can be used to display a variety of different blade configurations. This kit teaches how differing blade types and number impacts power output. The kit also demonstrates how horizontal wind turbines use stalling or reduction of rotational speed to protect from overly powerful wind speeds.

Included are three different sets of profiled blades and one set of sheet blades. The Wind Pitch uses 3-Phased AC Alternator similar to the commercial wind turbines. This kit also comes with an LED/Music Maker Module to demonstrate the power generated by wind energy. Contained inside is a complete curriculum on wind energy with easy to follow experiment manual, assembly guide, and background history on the technology and wind power generators.

Product Highlights: **Curriculum Included**

- Mini wind turbine stands about 14 inches tall
- Mini wind turbine that generates electricity to power various electronics
- Attached weather vane for repositioning into the wind
- Adjustable blade pitch for power generation optimization



### Wind Lab Basic Plus Kit- 3 Size Blades

<b>MSRP</b>	\$64.95
<b>Pack</b>	12 units
<b>Weight</b>	2.0 lbs
<b>SKU</b>	WL2
<b>Release</b>	Jan-10
<b>Age</b>	10+

Wind Lab Basic Plus is a miniature wind turbine capable of generating 8.0V/100mA at wind speeds of 12 mph. It is perfect for teaching the fundamentals of wind power and can be used by students ages 10 and up. It comes with two sets of interchangeable blades allowing for power conversion optimization. It uses a 3-Phased AC Alternator just like the commercial wind turbines. It comes with an internal gold capacitor and external LED for storing and displaying the electricity it produces. External ports allow the Wind Lab Basic Plus to power external devices.

#### Product Highlights:

- Mini wind turbine stands about 14 inches tall
- **3 Size Blades include for comparing Blade Size**
- Mini wind turbine that generates actual electricity
- Attached weather vane for repositioning into the wind
- Power output of 8.0V/100mA at wind speeds of 12 mph
- Perfect for teaching wind power fundamentals
- For ages 10 and up

# Solar Power

" Building your kits with our kids - priceless "

Mom of three- Tuscon, AZ



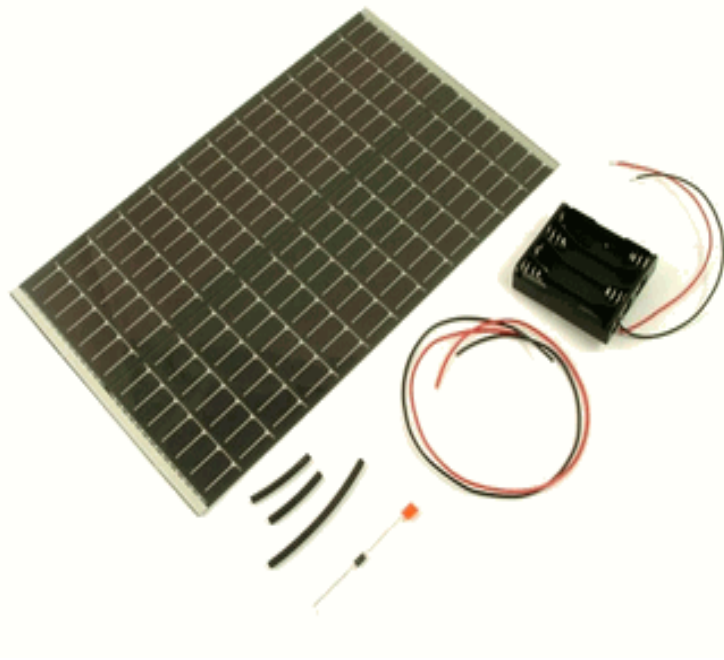
## Solar Lab 1.0 Electricity Learning Kit (9 Labs)

<b>MSRP</b>	\$49.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	AASC72
<b>Release</b>	Feb-10
<b>Age</b>	12+

This newly designed solar education kit has been created to teach students of all ages, solar cell and electrical circuitry concepts. It contains 9 step by step labs that walk users through easy to understand experiments. Each lesson teaches everything young learners will need to gain introductory knowledge on solar cells as they integrate them into various circuits.

### Product Highlights:

- Step by step manuals for using solar cells to power electronic devices
- Includes a solar powered battery charger (batteries included)
- Includes a 7-function multimeter for experimentation
- Includes high quality solar cells



### AA Solar Charger 7.2V

<b>MSRP</b>	\$39.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	AASC72
<b>Release</b>	Feb-10
<b>Age</b>	12+

This kit is a great way to introduce you to the use of solar energy. This step by step instruction manual walks users through building their very own AA battery charger. The solar panel is flexible and durable. The kit can charge NiMH and NiCd rechargeable batteries only. Some soldering required.

#### Product Highlights:

- Easy to follow instructions
- Flexible solar panel produces 7.2V/200mA
- Can charge four AA batteries at a 200mA charge rate in full sun
- 5 hours of direct sun The Sunbender Do-It-Yourself Solar Battery Charger Kits are a great way to start using solar energy and a fun way to teach kids about the energy source of the future (and the present!)



### **Basic Level Solar Education Kit**

<b>MSRP</b>	\$12.95
<b>Pack</b>	10 units
<b>Weight</b>	.4 lbs
<b>SKU</b>	1BSK
<b>Release</b>	Dec-99
<b>Age</b>	6+

This inexpensive solar kit is ideal for those on a budget. It contains everything you'll need for your solar education starter kit needs. It includes an instruction booklet to teach solar power concepts and description of easy to do experiments.



### **Intermediate Level Deluxe Solar Kit**

<b>MSRP</b>	\$39.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	AASC72
<b>Release</b>	Feb-10
<b>Age</b>	12+

This solar education kit is designed to making learning about solar energy fun and entertaining. The 3 solar cells in one frame can produce energy outputs comparable to three AA batteries. Students can learn how to connect the three different solar cells into circuits to optimally power devices such as: the motor, music box, and light bulb. The cells are very versatile and can be easily adapted to power multiple external devices. Detail instructions and explanations make learning about solar power easy for all ages.

#### **Product Highlights:**

- 3 in 1 solar cell set up (1.5V per cell)
- Includes experiments to set up circuits using different cell configurations
- Powers a light bulb, motor, and music box



### Advanced Level Solar Education Kit

<b>MSRP</b>	\$24.95
<b>Pack</b>	10 units
<b>Weight</b>	.6 lbs
<b>SKU</b>	DSK1
<b>Release</b>	Jan-00
<b>Age</b>	12+

This advanced level solar cell education kit is designed to teach series and parallel circuit concepts integrated with solar technology. It comes with 8 individual solar cells that can produce 0.4V/100mA each. The kit contains a central frame hub to connect the cells in differing configurations to optimize power outputs. The detailed instructions walk users through the basic configurations empowering them to experiment further. This device can power a motor (included), recharge batteries, and power various external devices.

#### Product Highlights:

- 8 individual solar cells (0.4V/100mA each)
- Central solar frame for connecting all 8 cells
- Detailed instructions for connecting the cells in parallel and series circuits
- Can be used to power a motor (included) or other external devices
- Highly adjustable for optimizing power output



### **Solar Power Fun Racer**

<b>MSRP</b>	\$16.95
<b>Pack</b>	10 units
<b>Weight</b>	.8 lbs
<b>SKU</b>	SSPR
<b>Release</b>	Jan-08
<b>Age</b>	9+

This beginner's kit requires little to no previous knowledge of electronics to construct and operate. The instructions walk the users through the construction process of building this easy to use solar powered racecar.

**No soldering required**



### **Solar Robot/Astronaut Robot**

<b>MSRP</b>	\$19.95
<b>Pack</b>	10 units
<b>Weight</b>	1 lb
<b>SKU</b>	SR/SAR1
<b>Release</b>	Jan-08
<b>Age</b>	9+

This beginner's kit requires little to no previous knowledge of electronics to construct and operate. The instructions walk the users through the construction process of building this easy to use solar powered robot.

Solar Astronaut:

- 105 Parts move
- Solar Cell, Gears, Shafts, Motor, Plastic Colorful body
- Powered by Solar Cell or can switch to one "AA" Battery

**No soldering required.**

# Fuel Cell

" Advancing Green Energy Education "



## Fuel Cell Solar Hybrid Car

<b>MSRP</b>	\$69.95
<b>Pack</b>	12 units
<b>Weight</b>	1 lb
<b>SKU</b>	FCCS
<b>Release</b>	Mar-08
<b>Age</b>	10+

Horizon's Fuel Cell Car Science Kit uses a reversible PEM fuel cell that combines electrolysis and power conversion into one single device. Watch as oxygen and hydrogen gases are formed in two transparent water containers. The car steers independently of the user once in operation: when the car hits a barrier, it will automatically find its way by reversing away 90 degrees. This fun science kit combines cutting-edge science, education and fun for all!



### **Advanced Level Solar Education Kit**

<b>MSRP</b>	\$89.95
<b>Pack</b>	12 units
<b>Weight</b>	1.5 lb
<b>SKU</b>	HR20
<b>Release</b>	Mar-08
<b>Age</b>	12+

This vehicle coming straight from the year 2099 is running on clean hydrogen fuel using a next generation reversible Polymer Electrolyte Membrane (PEM) fuel cell. Its new design offers a futuristic feel for what transportation could look like in the next decades. Watch as oxygen and hydrogen gases are formed in two transparent containers in the back of the vehicle. The kit's fuel cell unit combines water electrolysis and fuel cell functions into one device. The car steers independently of the user once it hits a barrier, and cool blue LED lights flash from inside the cockpit.

# Combination Kits

“ Your science kits are out of this WORLD. ”  
Student - Manassas, VA



## Renewable Energy Education Set

<b>MSRP</b>	\$219.99
<b>Pack</b>	12 units
<b>Weight</b>	5.2 lbs
<b>SKU</b>	REES
<b>Release</b>	Jan-09
<b>Age</b>	12+

The **Renewable Energy Science Education Set** is a modular experiment set designed to demonstrate the workings of a complete clean energy technology system on a miniature scale. With this kit, an entire miniature renewable energy system can be constructed on a lab-scale. This set includes a wind turbine kit, a solar photovoltaic panel, an electrolyzer, a PEM fuel cell, and hydrogen storage system encouraging users to learn the system step by step, configure the system in different ways, and visualize the workings of clean energy principles from start to finish.

**With the Renewable Energy Monitor you will be able to add on endless experiments!**



### 50 Watt Complete Hybrid Wind & Solar System

<b>MSRP</b>	\$999.95
<b>Pack</b>	1 units
<b>Weight</b>	40 lbs
<b>SKU</b>	50WCHWS
<b>Release</b>	Aug-10
<b>Age</b>	12+

Get started with solar and wind energy in one easy do-it-yourself kit. Perfect for beginners wanting to get their "feet wet" with wind and solar power. Includes 50 Watt solar panel, our 50 Watt Do-it-Yourself Mini Wind Turbine Kit, and everything else you need to build your system. Comes with easy to follow instructions.

Solar panel output: 1.2 amps

System voltage: 12V DC

Wind turbine output: Max. 2.25 amps, typical .1-2 amps

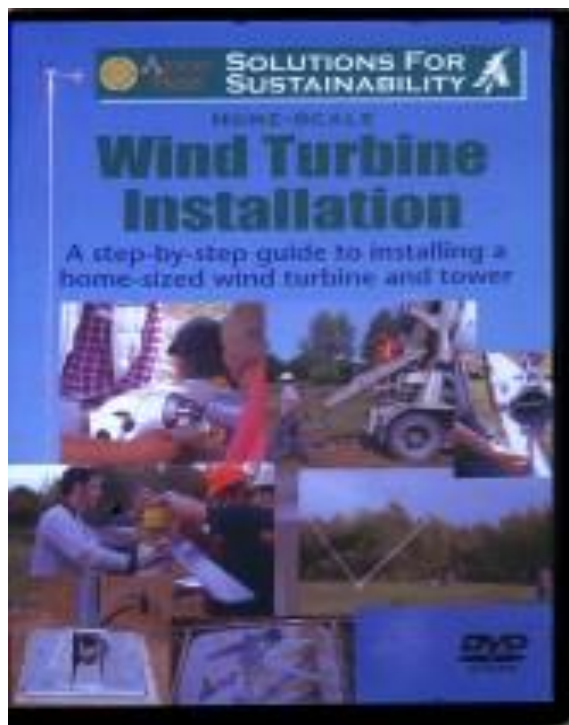
If you had 5 hours of sun per day, you would generate about 42 amp-hours per week with the 50W, 1.2 amp solar panel. This equals about 500 watt-hours per week. Whenever there is adequate wind, you will add additional amp-hours to your battery.

This hybrid wind and solar DIY kit is great for a classroom, camp or scout project.

**Pole Stand for Wind Turbine Not included**

# DVD's and Books

" A collection of green energy educational books and DVDs.. "



## Wind Turbine Installation DVD

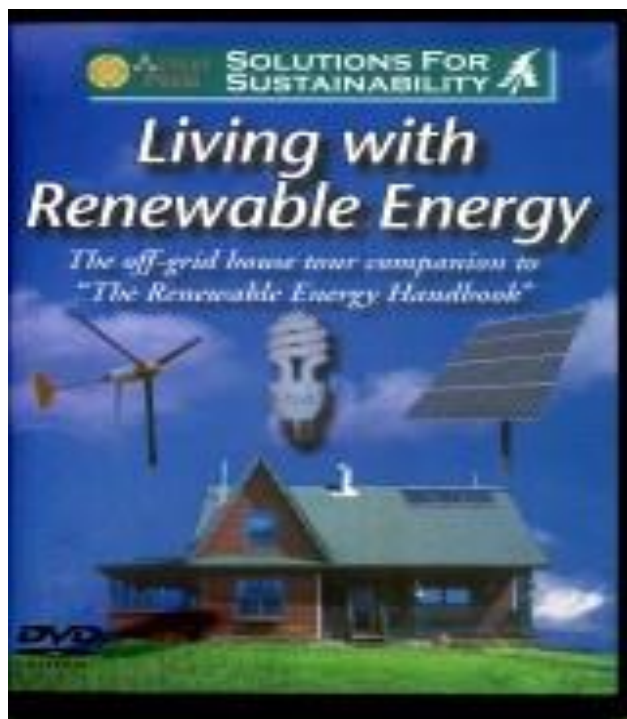
<b>MSRP</b>	\$19.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	WTI
<b>Release</b>	Jul-07
<b>Age</b>	10+

Real life installation by a family in Canada. In the summer of 2007 they installed a 1 Kilowatt wind turbine so that they had a "hybrid" system, once which has both solar and wind power.

The addition of the new wind turbine has made a huge reduction in their carbon footprint, as they rarely have to run their fossil-fuel powered generator any more, since the months with the least sun tend to have more wind. They recorded the complete installation process and have produced our "Home-Scale Wind Turbine Installation" DVD.

Using a standard tubular-steel tilt-up tower kit, common with many home sized wind turbines, the Mathers found that manuals can sometimes be confusing especially for people who learn by seeing how things work. So the DVD takes the viewer step-by-step through the entire installation process, from choosing a site, to running wire, assembling the tower and finally using a winch for the final lift. It also includes lots of tips and techniques not usually provided in the manuals, such as building re-bars cages for the anchor holes and using conduit for wire runs.

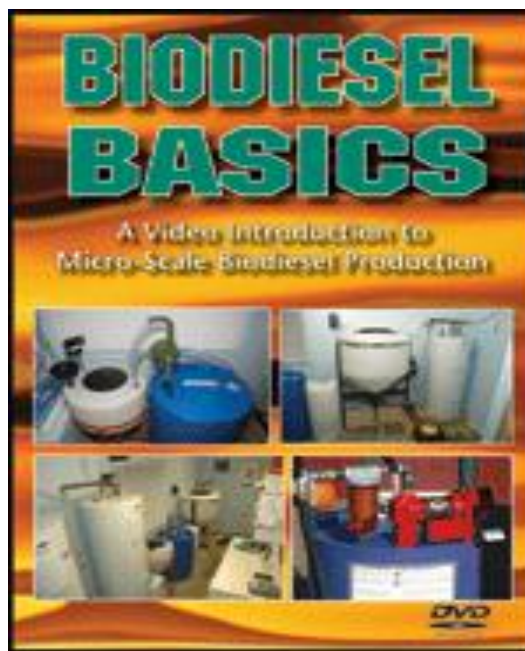
This is a must watch for anyone planning on putting a wind turbine to learn the process and the proper techniques for a safe and successful installation.



### **Living with Renewable Energy DVD**

<b>MSRP</b>	\$19.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lb
<b>SKU</b>	LWRE
<b>Release</b>	Jan-03
<b>Age</b>	10+

"Living with Renewable Energy" is the companion DVD to Bill Kemp's bestselling "The Renewable Energy Handbook." It gives a guided tour of Bill and Lorraine's off-the-electricity grid home, and shows how normal life can be while using a fraction of the energy of a typical North American home, and generating all your own power from the sun and wind.



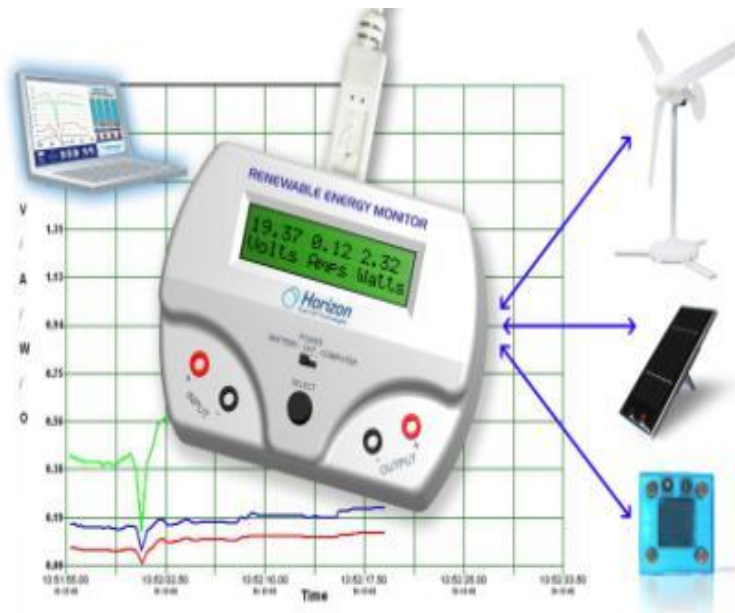
### **Bio Diesel Basics DVD**

<b>MSRP</b>	\$19.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	BDB
<b>Release</b>	Jan-03
<b>Age</b>	10+

Our biodiesel video is a one hour tour of the biodiesel production facility that Author William "Bill" Kemp set up in his garage. It takes you step-by-step through the process of turning waste vegetable oil into ASTM quality biodiesel. The emphasis in Bill's production process is safety first and producing high quality biodiesel while doing the right thing for the environment.

# Green Energy Accessories

“ Advancing Green Energy Education. ”



## The Renewable Energy Monitor

<b>MSRP</b>	\$139.99
<b>Pack</b>	12 units
<b>Weight</b>	1.55 lbs
<b>SKU</b>	REM
<b>Release</b>	Jan-10
<b>Age</b>	12+

The Renewable Energy Monitor is an educational evaluation monitoring device with measurement software for graphical display of performance characteristics on your PC. It offers a 2 line LCD screen for viewing measurements that you cycle through at the push of a button – avoiding the multimeters confusing setup and cumbersome computations. The Renewable Energy Monitor is battery operated so it can also be used with or without a computer – indoors or outdoors – where you can make direct solar and wind measurements.

Developed to allow you to avoid using the multimeters confusing setup and cumbersome computations in order to provide an immediate, graphical way for recording data directly- with no formulas and nothing to calculate. Numerous experiments and evaluation activities for hydrogen fuel cells, miniature wind turbine kits, and solar panels will now be quantifiable in real time for voltage, current, power, joules, resistance, and even RPM speed.

Compatible with any Renewable Energy clean energy educational kits!

**Works well with: Wind Pitch Education Kit, Renewable Energy Education Lab, and PicoTurbine Sun Tracker V2**



### 7 Function Digital Multimeter

<b>MSRP</b>	\$139.99
<b>Pack</b>	12 units
<b>Weight</b>	1.55 lbs
<b>SKU</b>	REM
<b>Release</b>	Jan-10
<b>Age</b>	12+

Multimeter gives you accurate digital readings for 7 functions: AC/DC voltage, DC current, resistance, transistor test, diode test, and battery test, all easily read on the large, easy-to-read LCD display. Positive set selector switch. 32" leads.

Technical Information:

- Automatic zero adjust
- 2.5x second sample time
- Over-range indicator
- Low-battery indicator
- Fuse and diode-protected circuit
- DC amps: 0-200 microns
- A-2000 microns
- A-20mA-200mA
- Resistance: 0-200-2000-20K-200K-2000K ohm
- DC voltage: 0-200mV-2000mV-20V-200V-1000V
- AC voltage: 0-200-750V

Product Highlights

Used to test:

- AC/DC Voltage: (0-200-750V)+A12
- DC Current: (0-200mV-2000mV-20V-200V-1000V)
- Resistance: (0-200-2000-20K-200K-2000K ohm)
- Amperage: (20mA-200mA)
- AC amperage (0-200 microns)



### **PicoTurbine Pre-Wound 4 Pack Coils**

<b>MSRP</b>	\$14.95
<b>Pack</b>	4 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	4WCP
<b>Release</b>	Jan-98
<b>Age</b>	10+

#### **Custom Size Coils Available Upon Request**

This is a pack of 4 open core 22 gauge copper wire coils. They consist of approximately 220 turns of enamel coated magnet wire, measure approximately 2" x 1" by 1/4" thick, weigh about 1 ounce or [28 grams] and have a resistance of approximately 8 ohms.

These coils are wound by a specialized machine and have some slight variability to them. They will save you countless hours of winding your own coils and the cost of whole spools of wire.

These are the same magnets used in the following PicoTurbine products:

- Savonius Model Wind Turbine
- Savonius Model Wind Turbine Plus
- 3-Phase Wind Turbine Kit

#### **Product Highlights:**

- 220 turn open core 22 gauge copper coils coated with enamel
- Dimensions: 2"L X 1"W by 1/4" thick per coil
- Resistance: approximately 8ohms per coil
- Weight 1oz or 28g per coil
- Sold in bundles of 4 coils



### **PicoTurbine 4 Pack Ceramic Magnets**

<b>MSRP</b>	\$4.99
<b>Pack</b>	4 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	4MG
<b>Release</b>	Jan-98
<b>Age</b>	10+

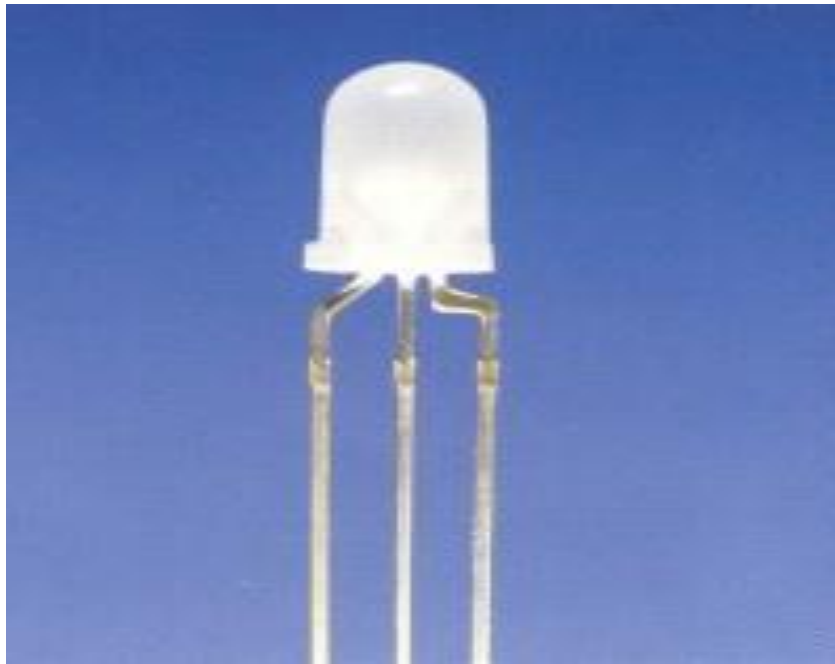
This is a pack of 4 ceramic grade 5 magnets. Each magnet measures 1.875" by 0.875" by 0.375" thick. [Approximately 47mm x 22mm x 9mm thick.] The poles are on the large opposite faces, ideal for constructing an alternator. These magnets have an intrinsic strength of 0.395 Tesla (3,950 Gauss) and are among the most cost-effective strong magnets available.

These are the same magnets used in the following PicoTurbine products:

- Savonius Model Wind Turbine
- Savonius Model Wind Turbine Plus
- 3-Phase Wind Turbine Kit

**WARNING!** These magnets are strong and can pinch your fingers if not handled carefully. Persons wearing pacemakers should not handle strong magnets.

- Bundles of 4 ceramic grade-5 magnets
- US Dimensions: 1.875" by 0.875" by 0.375" thick
- Metric Dimensions: 7mm x 22mm by 9mm thick
- Intrinsic strength of 0.395 Tesla (3,950 Gauss)



### **Bicolor LED- Green and Red**

<b>MSRP</b>	\$1.50
<b>Pack</b>	10 units
<b>Weight</b>	.05 lbs
<b>SKU</b>	LEDS
<b>Release</b>	Jan-98
<b>Age</b>	All Ages

This is the same bicolor LED we use in the PicoTurbine Educational Windmill Kit. When used they alternate between red and green depending on direction of current flow, so they are great for showing alternating current. Use these LED's to show the increase in outage of electricity. Great for experimentation, science fair projects, or other uses. Works well with .5V-10V outputs



### **Solar DC Motor**

<b>MSRP</b>	\$1.95
<b>Pack</b>	10 units
<b>Weight</b>	.05 lbs
<b>SKU</b>	SMDC
<b>Release</b>	May-11
<b>Age</b>	10+

Can be easily driven by solar panel with 1.0V DC output. Great for creating DIY Solar Kits and Experiments.



### 3 Size Solar Panels sold separately for experimentation

**.5 Volts @ 1,000mA- .50 Watt Panel**

**1.5 Volts @ 500mA- .75 Watt Panel**

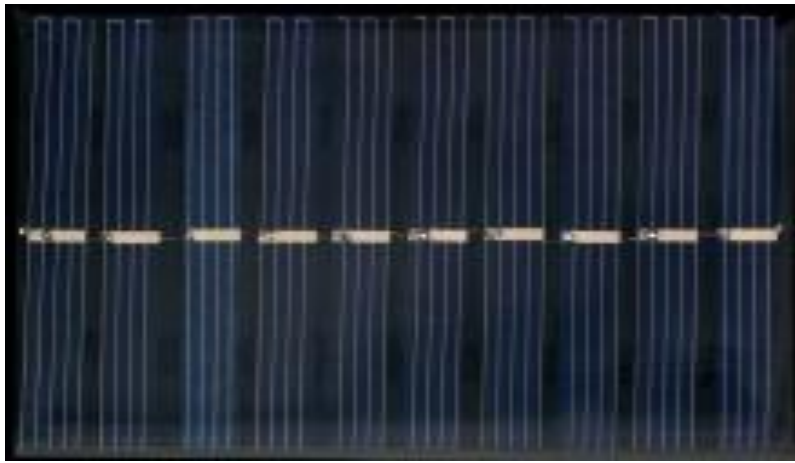
**6 Volts @ 150mA- .75 Watt Panel**

<b>MSRP</b>	\$19.95 each
<b>Pack</b>	10 units
<b>Weight</b>	.25lbs
<b>SKU</b>	50WPN, 75WPN, 90WPN
<b>Release</b>	Sept-11
<b>Age</b>	10+

Each cell comes with presoldered alligator connectors to easily hook up and power anything. Typical Applications: Solar Model Car, Solar Model Boat, Solar Kits, Solar toys, Solar Scientific Kits, Solar Experimental Kits, Solar Construction kits These can be connected in series or parallel to increase voltage or current output.

#### Details:

- US dimensions: 3X4 inches
- Metric dimensions: 82 X 90 mm
- Thickness 1 inch (3mm)
- Solar cell type polycrystalline
- Produces .50, .75, .90 Watts



### **5 V@200mA: 1Watt Solar Panel**

<b>MSRP</b>	\$24.95
<b>Pack</b>	10 units
<b>Weight</b>	.25 lbs
<b>SKU</b>	SP5V1
<b>Release</b>	Jan-10
<b>Age</b>	12+

This high quality 5 Volt Solar Panel is easily connected to electronic devices and can produce up to 1 watt. We guarantee you will be very happy with this solar panel and we recommend this for 9th grade on. Soldering is needed.

#### Details:

- US dimensions: 3X5 inches
- Metric dimensions: 82 X 128 mm
- Thickness 1 inch (2.5mm)
- Solar cell type polycrystalline
- Produces up to 1 watt



# GREEN MILE CHARITY

Green Mile Scholarships - Funding the future of green education  
Register today to participate in the 2011 Green Mile Run.



Our Non-Profit Foundation was established in late 2010 to give back to the local communities.



All donations to Green Mile Charity Foundation fund Student and Teacher Educational Outreach Programs. If you have any questions please contact <mailto:info@greenmilecharity.org> and the Green Mile Team will be happy to assist you. The button below will bring you to where you or anyone you know may make a contribution to the Green Mile Endeavour.



## PicoTurbine Ordering Process

Step 1: Please open an account.

Step 2: You can now fill your shopping cart and then fill out all pertinent information

Step 3: Choose your payment method or purchase order.

Step 4: For all regular payment methods we will process your order promptly or notify you of any delays.

Step 5: For all purchase orders you may print your invoice through your account and submit a physical copy to your Purchasing Department or Accounts Payable Department.

Step 6: We will ship all purchase orders out promptly once receiving a physical copy by fax at 1-877-577-1887 or by email at [sales@picoTurbine.com](mailto:sales@picoTurbine.com)

Please contact us today at [sales@picoTurbine.com](mailto:sales@picoTurbine.com) or at 1-877-731-9966 with questions and for assistance.