



East Lyme Solar Park





Welcome

**7**o Whom It May Concern:


It is with great pleasure that GRE 314 East Lyme LLC presents to the Department of Energy and Environmental Protection this proposal for a Solar Power Purchase Agreement (“SPPA”).

Through this SPPA, GRE 314 East Lyme LLC proposes to design, install, service, maintain, monitor and own a large scale ground mounted photovoltaic solar system. All of the power produced will be delivered directly to CL&P and used by the residents and businesses within the State of Connecticut.

This proposal follows the strict guidelines presented in the December 9, 2011 RFP solicitation pursuant to Section 127 of Public Act 11-80. It contains a basic description of the system, the financial benefits, some of the SPPA terms, the economic benefits and background information on our team.

We appreciate this opportunity to respond to this exciting and forward thinking RFP. Thank you all for your time and consideration and we look forward to hearing from you soon.

Sincerely,

Michael Silvestrini, President 



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## **Management Capabilities**

See attached

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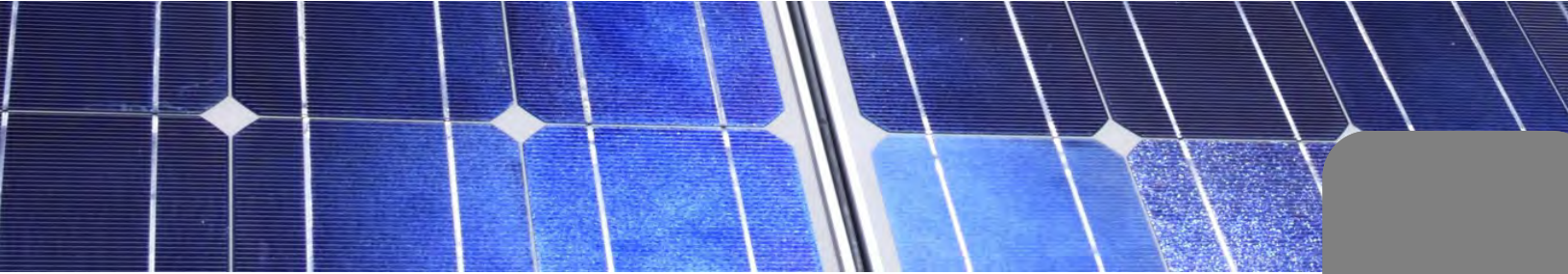


## PPA Proposal

<b>Price per Solar kWh</b>	████████████████████
<b>Term Length</b>	20 Years
<b>Term Extension</b>	5 Years (optional)
<b>System Size</b>	██████████
<b>System Production (Year 1)</b>	██████████
<b>Renewable Attributes</b>	To be owned by CL&P
<b>Incentive Programs Utilized</b>	Federal Grant in Lieu of Investment Tax Credit, MACRS (accelerated depreciation)



Springfield, MA



Annual Output

	Solar Output with 0.50% Degradation Factor	Solar Electricity Rate	Cost of Solar Power
Year	Solar kWh/Year	\$/kWh	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
Total			

December 16, 2011

CT DEEP  
10 Franklin Square  
New Britain, CT 06051

Re: GRE 314 East Lyme LLC

To whom it may concern:

Please accept this letter as confirmation that I am the sole stockholder of GH Development Inc., the entity that owns and controls that certain parcel of land at [REDACTED] in East Lyme, CT (the "Property"). At the same time, I am also a member and manager of GRE 314 East Lyme LLC, the entity that is responding to this RFP. If GRE 314 East Lyme LLC is successful in the RFP process and is awarded with the solar array project at the Property, I hereby confirm that GH Development Inc. and GRE 314 East Lyme LLC will enter into a mutually beneficial arrangement so that GRE 314 East Lyme LLC can perform upon the RFP award and construct, operate and manage the array at the Property.

Should you have any questions or concerns, please contact us for further discussion.

Very Truly Yours,



Robert A. Landino  
Sole Stockholder of GH Development Inc.





## Economic Benefits

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The proposed solar development project meets all of the Basic Requirements with this RFP and has many economic benefits that accompany it. GRE 314 East Lyme LLC has selected tried-and-true equipment manufacturers for this development, has financial partners in place and has the construction and maintenance staff to see this project reach fruition.

The selected site has been owned and vacant for many years. Originally intended for the development of residential homes, this land has sat idle since 2008. Now, solar PV has proven to be a way to revitalize this parcel, provide clean renewable power to the state of CT and create both blue-collar and white-collar jobs in the process.

A project of this size and scope will take the collective efforts from numerous parties. GRE 314 East Lyme LLC has contracted Greenskies Renewable Energy to act as their solar consultant throughout this development process. Greenskies plans to work with an engineering firm, construction management firm, numerous subcontractors and the utility company. This project is aimed at putting a substantial amount of Connecticut residents to work. With Greenskies soliciting a minimum of 3 to 5 bids for each component of this process, the competition between local businesses is sure to thrive. When looking at the overall man hours that will be dedicated this 26 month project, there is an anticipated 50,000 hours involved.

The proposed solar project will be designed by industry leading professionals in an effort to deliver a reliable and stable system. Solar pv by its very nature produces energy during the EDC's peak load hours. By producing expensive daytime electricity between 8am and 8pm this solar system will help to relieve and moderate the peak load requirements. As the system developer, we also agree to commit qualifying capacity to ISO New England, Inc.

**5-MW Solar Park  
East Lyme, CT**

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	W	T	F	S	S	M	T	W	T	F	S
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	

Task: External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Manual Task, Duration-only

Split: Manual Summary Rollup, Manual Summary

Milestone: Start-only, Finish-only, Deadline, Progress

Summary: Project Summary, External Tasks

**Construction Schedule**









Site Control

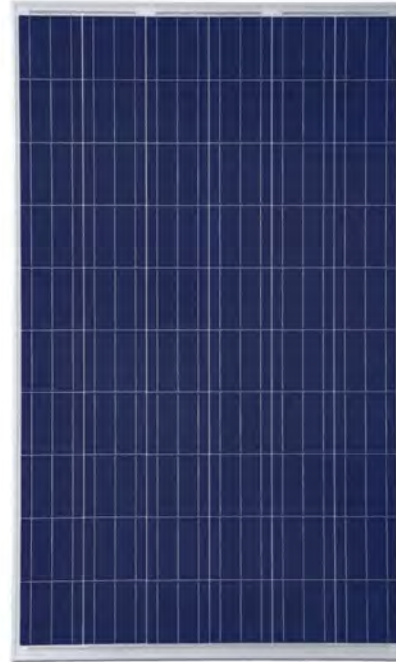




# TSM-PC05

## The Universal Solution

- Module can bear snow loads up to 5400Pa and wind loads up to 2400Pa
- Guaranteed power output (0~+3%)
- High performance under low light conditions (Cloudy days, mornings and evenings)
- Independently certified by international certification bodies\*
- Manufactured according to International Quality and Environment Management System (ISO9001, ISO14001)



Currently Trina Solar's most popular panel. Versatile and adaptable, with power output ranging from 220 to 240Wp, the TSM-PC05 is perfect for large-scale installations, particularly ground-mounted and commercial rooftop systems. Using reliable and carefully selected components that are tested at the Trina Solar Center of Excellence, this panel comes with a 25-year performance guarantee of 80% power production.

Trina Solar, **the best €/kWh** value under the sun



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Founded in 1997, Trina Solar is a vertically integrated PV manufacturer, producing everything from ingots to modules, using both mono and multicrystalline technologies. At the end of 2011, the company had a nameplate module capacity of 1.7GW. Trina Solar's wide range of products are used in residential, commercial, industrial and public utility applications throughout the world.

Only by matching an efficient cost-structure with proven performance will we, as an industry, achieve grid parity. And at Trina Solar, we have both.



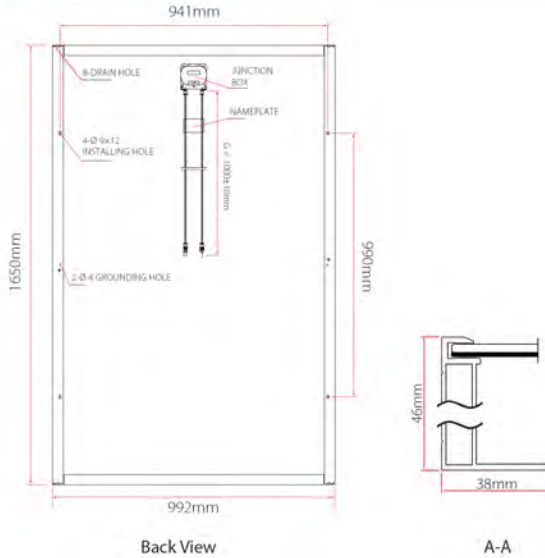
\*IEC61215, IEC61730, UL1703, TÜV Safety Class II, CE



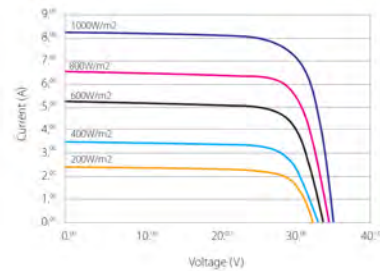


## TSM-PC05 The Universal Solution

### Dimensions of PV module TSM-PC05



### I-V Curves of PV module TSM-230PC05



Efficiency	up to 14.7%
Wattage	up to 240W
Years warranty	25

### Certification



Electrical Data @ STC	TSM-220PC05	TSM-225PC05	TSM-230PC05	TSM-235PC05	TSM-240PC05
Peak Power Watts- $P_{MAX}$ (WP)	220	225	230	235	240
Power Output Tolerance- $P_{MAX}$ (%)	0/+3	0/+3	0/+3	0/+3	0/+3
Maximum Power Voltage- $V_{MAX}$ (V)	29.0	29.4	29.8	30.1	30.4
Maximum Power Current- $I_{MP}$ (A)	7.60	7.66	7.72	7.81	7.89
Open Circuit Voltage- $V_{OC}$ (V)	36.8	36.9	37.0	37.1	37.2
Short Circuit Current- $I_{SC}$ (A)	8.15	8.20	8.26	8.31	8.37
Module Efficiency $\eta_m$ (%)	13.4	13.7	14.1	14.4	14.7

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C)

### Mechanical Data

Solar cells	Multicrystalline 156 x 156mm (6 inches)
Cells orientation	60 cells (6x10)
Module dimension	1650 x 992 x 46mm (64.95 x 39.05 x 1.81inches)
Weight	19.5kg (43.0lb)
Glass	High transparency solar glass 3.2mm (0.13inches)
Frame	Anodized aluminium alloy
J-Box	IP 65 rated
Cables/Connector	Photovoltaic Technology cable 4.0mm <sup>2</sup> (0.006inches <sup>2</sup> ), 1000mm (39.4inches), MC4

### Temperature Ratings

Nominal Operating Cell Temperature (NOCT)	47°C (±2°C)
Temperature Coefficient of $P_{MP}$	- 0.45%/°C
Temperature Coefficient of $V_{OC}$	- 0.35%/°C
Temperature Coefficient of $I_{SC}$	0.05%/°C

### Maximum Ratings

Operational Temperature	-40~+85°C
Maximum System Voltage	1000VDC
Max Series Fuse Rating	14A

### Warranty

5 years workmanship warranty
10 years warranty, 90% power output
25 years warranty, 80% power output

### Packaging Configuration

Modules per box	20 pcs
Modules per 40' container	520 pcs

**CAUTION:** READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
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**Trinasolar**  
www.trinasolar.com

TSM-LEU\_2011\_RevA

Technology



## FS System™ Product Sheet



Technology

### FS System™, Generation 6

#### Features and Benefits

- No ground alterations needed for terrain drainage such as concrete culverts for waterways
- Extremely short mounting time
- Highest level of pre-assembled parts possible
- Patent pending design in the German patent office
- Highly durable system utilizing quality raw materials
- Highly accessible for terrain maintenance
- 10 year warranty, as with all Schletter systems, optional 20 years



#### Product Enhancements from Generation 5 to Generation 6

- Fewer bolts needed for assembly
- Uses less material in production
- Improved adjustment options
- Application of GPS technology during installation considerably reduces the time needed in project planning and implementation



**The FS Series of open area mounting systems** has a proven product history throughout the world. Individual system calculations and efficient material utilization take into account the ever increasing pressure to reduce costs when planning open area systems. All verifications of structural safety are implemented consistently with an uncompromising attention to detail and compliance with current state and local codes.

Generation 6 is the cumulation of experience gathered through years of planning and manufacturing open area systems, while consistently striving for continuous product development and innovations. In order to reduce waste and assembly time in field, the highest level of in-house prefabrication is incorporated. The result is an attractive system built quickly, efficiently, and with the durability to last.



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## FS System™ Product Sheet



### FS 6H

- Six modules, horizontal positioned
- Compatible for unframed thin film modules
- Clamping at structurally optimal points
- Minimization of the installation height
- Economically efficient at sites with low wind loads



### FS 2V

- Two modules, vertical arrangement
- Works well with framed modules
- Most cost-effective arrangement for crystalline module designs
- Standard module height 1.6 m to 2 m
- Clamping at structurally optimal points



### References

For more information on specific FS power plants, please request our FS Reference List.



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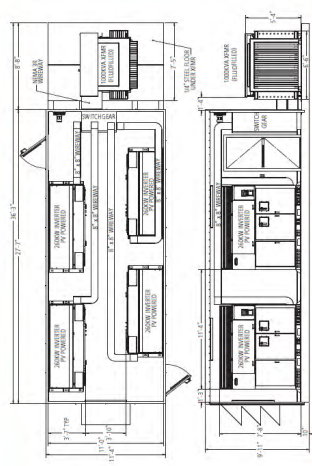




# POWERVAULT

## The Turnkey DC-to-Medium Voltage Building Block for MW-Scale Projects

The PowerVault™ from PV Powered is a fully integrated power conversion solution for MW-scale PV projects that accepts PV DC inputs and provides medium voltage AC output. The PowerVault is built around PV Powered's line of commercial inverters which offer exceptional reliability and 20+ year operating life. The PowerVault also offers industry-leading efficiency and the widest MPPT input range of any commercial inverter in the industry. This combination of reliability, long life, and maximized energy harvest makes the PowerVault the right choice to maximize return on investment in a MW-scale PV system.



**DIMENSIONS**  
Complete design documentation including  
specifications available upon request

### ELECTRICAL SPECIFICATIONS

MODEL	MV-620KW	MV-780KW	MV-880KW	MV-1040KW
Continuous Output Power (kW)	620	780	880	1040
System Weighted CEC Efficiency at 480 VAC (%)	96.8%	97%	96.9%	97%
Maximum DC Input Voltage (Voc)	600	600	600	600
DC Peak Power Tracking Range (V)	295-500	295-500	295-500	295-500
Optional DC Peak Power Tracking Range (V)	265-500	265-500	265-500	265-500
DC Input Normal Current (A)	2206	2715	3131	3700
AC Nominal Output Voltage	4.16kV - 35kV			
AC Operating Voltage Range (% of nominal)	-12% to +10%			
AC Frequency Range (Hz)	59.3 - 60.5			
AC Maximum Continuous Current (A)	28 @ 12.47kV	35 @ 12.47kV	40 @ 12.47kV	47 @ 12.47kV
Harmonic Distortion (%THD)	<3%			
Power Factor	>99			

### MECHANICAL SPECIFICATIONS

MODEL	POWERVAULT
Dimensions (H x W x D) <sup>1</sup>	9' 11" x 11' 4" x 36' 3"
Construction	Powder-coated steel base, anodized aluminum exterior walls, insulated membrane roof
Mounting	Per mount
Weight (lbs)	48,000 maximum in 1,040kW configuration
Cooling	Forced convection
Ambient Temperature Range (°C)	-30 to 45

### CONFIGURATION OPTIONS

- Inverters: Wide range of customizable subinverter fusing options
- Switchboard: Branch breakers for tracker power and other onsite power requirements
- Single Phase Load Center: Power for plug loads and other single phase convenience loads
- Medium Voltage Transformer with Integrated Medium Voltage Switch: Select AC output from 4,160V to 35kV AC, loop feed or radial feed, multiple protection and switching options
- Metering: revenue grade metering can be selected for each inverter, at the switchboard, and at the medium voltage output

### AGENCY APPROVALS

UL1741 for Inverters      UL QRNZ for Walk-in Electrical Equipment

### PERFORMANCE MONITORING

Increase uptime and reduce maintenance costs with integrated monitoring solutions from market-leading third-party partners. Revenue grade metering, string monitoring, and subinverter monitoring and control are standard. The PowerVault is installed at the factory to enable plug and play monitoring which saves on site integration costs and complexity.



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P. O. Box 7348  
Bend, OR 97708  
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www.pvpowered.com

### SYSTEM FEATURES

#### Superior Reliability

- Low inverter-parts count reduces potential failure points
- Redundant cooling system with Smart Air Management™
- Can-bus circuitboard system minimizes electronic interconnections and enables fast service
- Factory pre-wired and tested, reducing potential for field errors
- Up to four inverters for increased redundancy

#### Significant Financial Benefits

- Factory installation and wiring greatly reduce field labor
- Pre-mount skid installation reduces pad costs and simplifies conduit entry
- High efficiency and long service life maximize energy harvest every day for 20+ years
- Integrated solution reduces project engineering costs, and shortens project construction cycle
- Protected from vandalism without additional fencing or other on-site construction







## PowerVault



- Shown with (4) 260kW Commercial Inverters\***
- Separate DC in to each inverter
  - 97% CEC Efficiency
  - 265-600 Volt MPP Range
  - 10-year nationwide warranty, optional 20-yr warranty
- \*Additional inverter configurations available

### PowerVault Enclosure

- UL listed to UL QNZ for walk-in electrical equipment
- Fully assembled, pre-wired, and ready to connect
- Houses inverters, performance monitoring, distribution switchboard, and 120 VAC service panel

### Switchboard

- 1600A, 3-Phase
- Inverters are pre-wired to the switchboard and combined into single output to transformer
- Optional breakers for tracker power and other onsite loads

### Medium Voltage Step-up Transformer

- Integrated load-break switch
- Loop feed to minimize medium voltage connections to the grid
- Select from 4, 160V to 35kV AC output
- Multiple protection and switching options



### Pier Mount

- Easy access to AC and DC conduits simplifies installation
- Eliminates need to grade and level pad site and stub in conduit
- Pier-mount installation costs less than a full concrete pad

### Engineered Cooling System

- Inverter Smart Air Management™ complements integrated cooling system
- Inverter cooling air is exhausted through enclosure floor
- Enclosure heat removed using a high-efficiency exhaust fan

### Integrated Performance Monitoring

- Choose factory integrated performance monitoring from industry leaders: Drake Laboratories, Energy Reconmerce, Fat Spaniel, and DECK.
- Optional revenue-grade metering, subcombiner monitoring and string level monitoring
- Saves time and money versus field integration

# Technology



## Solar Monitoring Solutions



### FEATURES:

**Revenue Grade System Monitoring** – Utility grade, verifiable data for billing, reporting to agencies, SREC reporting, and analytics.

**Web, Kiosk, and Plasma Display Integration** – Highly customizable and visually interactive web view and optional Kiosk integration. Perfect for integration into websites, store lobbies, and large screen displays.

**Advanced Performance Monitoring** – Our powerful data center allows users to view detailed analysis of system performance. Interactive graphs bring the power to troubleshoot and benchmark systems to the user's fingertips. Our high end data gateway can record a multitude of information including: generation, load, irradiance, volts, amps, cell temperature, weather data, and wind direction / speed.

**Demand Monitoring** – Our demand monitoring package allows you to accurately monitor your facility's energy usage in fifteen minute intervals. The package is fully integrated with the standard flash view including detailed graphing capabilities. This information facilitates energy conservation by identifying high energy use periods.

**System Administration** – Our powerful administration panel allows contractors to quickly get an overview of the performance of all their systems at once (and system owners of their individual systems). Advanced notification options allow you to be notified instantly of errors, alerts and track system performance remotely.

### KEY BENEFITS:

**Customizable** – Easily configurable for customer choice of colors, project information and kiosk integration.

**Integrated Pricing** – The purchasing and installation process is simplified and streamlined. Our basic package includes flash views and contractor admin panels at no extra charge.

**Power and Beauty** – The standard DECK system is a combination of powerful commercial grade features and a stunning user interface. Perfect for public kiosks, web pages, and in-facility displays.

**Customer Service** – Custom alarms ensure installers instantly know about any performance issue. Keep connected to your customer base.





## Public Dashboard

### Sustainable Centennial : Solar

System Size: 34 kW DC  
Generating Since: July 15, 2008  
Data Updated: June 22, 2009 4:30

Monitoring

- HOME
- GRAPH
- PROJECT DETAILS
- HOW SOLAR WORKS



**CURRENT WEATHER**  
A Few Clouds

72.° F  
22.° C

Humidity: 30.82

Irradiance: 727.5 W/m<sup>2</sup>

From the SE at 8 mph

Total Energy Generated Equals

**224**

60 Watt Bulbs for 1 Year of 8 Hours/Day Use

Total Energy Generated Equals

**3125**

Gallons of Gas Saved

#### KEY MODULES:

**Energy Meters** - Display current solar generation as well as kilowatt hours generated to date.

**Historical Graph** - Display historical graphs of solar generation. Views include detailed daily views, 3 day, weekly, monthly, and yearly graphing options.

**Weather Module** - Display current weather conditions (including irradiance) on site using a compatible DECK weather station, or via the national government weather feed.

**Equivalencies** - Display the equivalent energy which would have been generated or used by other sources. Options include Gasoline, Lightbulbs, Trees, CO<sub>2</sub>, and SREC Credits.

**Customization Options** - Choose your choice of colors, equivalencies, and customizable project details pages. Customization options come standard with our core packages.



# Greenskies



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