

# Park Avenue Solar Solutions, LLC

October 17, 2017

Via Hand Delivery

Town of Blandford Planning Board  
1 Russell Stage Road  
Blandford, MA 01008

TOWN OF BLANDFORD

2017 OCT 20 AM 10:24

Jane Raveler

Re: 999 kW (ac) Ground-Mounted Solar Array (North Blandford Road)

To Members of the Blandford Planning Board.

Enclosed please find the below listed documents as part of the site plan review application required for the above-referenced project.

- Site plan
- Project Description and Overview
- Technical specification sheets for major system components
- O&M Plan
- Decommissioning Plan
- Emergency Response Plan
- Interconnection Application
- Single Line Diagram
- Proof of Site Control

Please let me know if you have any questions with the attached.

Sincerely,



Kirt Mayland

# Park Avenue Solar Solutions, LLC

## Blandford Solar Project Overview and Description

The Blandford Solar Project (aka the “Project”) is to be located at approximately 103 N. Blandford Road, Blandford, MA. The proposed Project would occupy approximately 4 acres of land (the “Site”) and consist of around 1,300 kilowatts (DC) of solar modules.

The Site, currently vacant however three separate distribution and transmission lines cross it, and it surrounds a substation. The Project itself will consist of a collection of approximately 1000 solar photovoltaic (PV) modules (each approximately 3 feet by 6 feet in dimension) that are grouped into arrays tilted and facing south. These stationary arrays are strung together forming a series of rows oriented east to west. Electricity collection and distribution lines (underground) link the solar modules to a collection house with inverter and transformer equipment which in turn will transmit the electricity to the existing distribution lines along North Blandford Road. In the Site itself, lines will be placed in conduit and buried in trenches along the perimeter of the Project pursuant to the electrical code. No other utilities are need on the Site.

The principal components of the Project are solar modules. The make and model of the solar modules currently proposed by Park Avenue Solar Solutions will be most likely made by Hanwha-Q-Cells, however this is to be determined. Descriptions of these modules are attached. The solar modules will be mounted on a racking system manufactured domestically, most likely screwed into the ground. The racking system currently proposed to be used will be produced by RBI Racking and the specifications for screw system are attached. It is anticipated that the modules will be no more than 12 feet at the highest. The racking system will not move (i.e. it is fixed and not tracking). The AC power produced by the Hanwha modules will be inverted most likely by the Solectria SGI 500XT, manufactured in Lawrence, MA. The drawings and specification sheets for the inverter is attached. The power will then be “transformed” by the transformer to the appropriate voltage for the existing distribution lines.

It is anticipated that the Project will provide only positive benefits to the town, the state and the global environment. It is estimated to generate enough clean, instantaneously renewable, and emission-free energy to power hundreds of homes. The modules from which this clean electricity is produced produce no emissions, make no noise, do not move, and use no water. Further it is estimated that the proposed Project will displace approximately hundreds of thousands of pounds of CO2 annually.

The Project will also provide net revenue in the form of significant property taxes to the Town of Blandford. The Project will use no sewer, water, and not burden the roads or schools. Local contractors and maintenance personnel will also be used to the extent feasible. In short, economically, the Project will have a significant, net positive fiscal impact on the Town.

## Potential Operational Impacts of the Project (Development Impact Statement)

Operation of the Project is passive and the operational impacts of the farm on the environment, nearby residences, roads, etc. is expected to be de minimis. Below please find a summary of traffic impacts, proposed fencing, lighting, signage, utilities, noise, transformer oils, and soil impacts.

Once under construction, besides periodic maintenance, equipment replacement and monitoring of Project output via Solrenview (a web-based monitoring system), the modules and other primary components do not require direct handling. Except during the approximately 2-3 month

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construction period (weather dependent) there should be minimal impact to the traffic flow or safety of North Blandford Road. As indicated above, given the simplicity of the operations of the Project, there is little maintenance required or traffic associated. It is anticipated that beyond monthly lawn care, if necessary, and bi-annual cleaning of the modules, little or no maintenance should be required. Any maintenance or construction vehicles will be parked onsite and no permanent parking areas are contemplated currently. Attached is a proposed Operations and Maintenance Plan.

The entire operation (solar modules, collection houses and access lanes) will be fenced in order to provide for safety and security, in accordance with applicable requirements. The fence currently proposed is a 6-foot chain link fence. Inside the fence around the entire perimeter will be an approximately 15-foot wide perimeter access road. Access to the Project will be limited to Park Avenue Solar Solutions personnel or contractors, maintenance personnel, and Town emergency personnel. Coded or keyed lock boxes will be placed at each entry point/gate to the site. Local emergency personnel (police and fire) will have the codes as will Park Avenue Solar Solutions' local contractors or points of contact. A 24-hour emergency number to reach Park Avenue Solar Solutions will be placed on signage at the gates, if required by the Town.

Subject to the Fire Department's approval, the only on-site lighting Park Avenue Solar Solutions proposes to have onsite could be at the collection house and the gate entrances, and this will be in conformance with all provisions of the Zoning Bylaw. These would be for use by the Fire Department and for when any nighttime access is needed. The light switches would be in locked boxes, accessible only by emergency personnel and Park Avenue Solar Solutions employees or contractors. The lights themselves would be as low-to-the-ground as necessary and angled towards the ground.

Park Avenue Solar Solutions will also coordinate its "safety" signage in accordance with the approval of the Blandford Fire Department and in conformance with the Zoning Bylaw. Park Avenue Solar Solutions recommends that the signs along the fence should be at least 14 inches long by 10 inches high with the words, for instance, "Danger High Voltage - Keep Out" in three horizontal lines of white letters against a background field of red and black. The signs should be no more than 40 feet apart. There will be a sign at the principal entry gate identifying the owner of the Project and an emergency contact number. With respect to mandatory signs, Eversource states that the following signs be placed at the site: [a] permanent plaque or directory shall be installed at the utility revenue meter and at the Point of Common Coupling (PCC) with a warning about the generator(s) installed. If the PCC is at a pad mounted transformer, the plaque must be on the right door of the transformer. If the external utility disconnect switch is not adjacent to the utility revenue meter, a permanent plaque shall be provided at the utility revenue meter and the PCC locating the switch. If the external utility disconnect switch is not adjacent to PCC, a permanent plaque shall be provided at the PCC locating the switch. All plaques as described in NEC 705.10, 705.12 (7), 690.56, 692.4 and 705.70 shall be installed when applicable.

Beyond minor electrical demand for operation of the inverters and transformers, it is not anticipated that any utilities or public services will be needed. The primary utility connection for the solar power will be the facilities' interconnection with the distribution lines along North Blandford Road. The inverters will also be connected to telephone lines so their production can be monitored by Eversource and Park Avenue Solar Solutions remotely. The Project contains no works for the collection, transmission, treatment and disposal of sewage. There will be no discharge of contaminants into the air or into the ground or water. There will be no systems, facilities and equipment for receiving, handling, storing and processing any waste or waste-water. No sewage, waste or air contaminants will be

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generated at all as a result of the solar power generation process. There are no water withdrawals associated with the operation of the Project as planned. During the operations phase of the Project, Park Avenue Solar Solutions anticipates that it will clean the modules twice per year, if needed, with water or, if necessary, an organic cleansing agent, with water transported on small trucks.

Further, there are no anticipated negative noise impacts from the Project. Both the inverter and the transformer emit less noise than the NEMA TR1 Standard (74 dBA) and given their distance from the nearest residence and the fact that they only operate during day-time hours, it is not anticipated that there be any negative noise impacts from the Project. The solar modules do not move – they are fixed in place on the racking system – and make no noise.

There should also be limited direct impact on the land and soils from the proposed Project. The land was logged historically and the panels will only occupy approximately 4 acres of the 20-plus acre site. The PV modules are mounted above grade, allowing for grass to be propagated below and between the array tables. Further, it is being proposed that the unused portion of the land be put into a permanent conservation restriction.

Further, with respect to potential glare from the solar panels and the Project, the Project should not be readily visible to any surrounding abutters (see the attached Site Plan). Regardless, solar panels are designed to absorb sunlight rather than to reflect it, with typically 2% of incident light being reflected. Reflections from solar panels are smaller than direct sunlight or, for instance, solar reflections from water.

Glare effects due to reflection from solar panels generally (not taking into account the surrounding forest) are expected to be minimal and comparable to glass facades. Solar panels generally appear darker than glass in nearly all conditions. Typical soiling of the solar panel surface will further reduce the observed light reflection, and this also has an effect on the efficiency of the panel. Direct solar reflections will not occur when the sun is obscured by clouds.

Finally, the reflection of a glass surface is highly dependent on the angle of incidence and surface conditions. It is understood that as the angle of incidence increases, the amount of reflected light also increases. Given that the panels should be angled at around 25 degrees, they would not produce any direct reflection of the sun at ground level.

It is not believed that the panels within the Project will cause any glare concerns. In summary, the visual impacts on abutters should be minimal.

Finally, prior to commercial operation, Park Avenue Solar Solutions or an affiliate shall provide financial assurance in an amount as determined by a third-party engineer to sufficiently cover the costs to remove and decommission the Project.

# Q.PLUS L-G4.1 330-340

## Q.ANTUM SOLAR MODULE

The Q.ANTUM solar module Q.PLUS L-G4.1 with power classes up to 340 Wp is the strongest module of its type on the market globally. Powered by 72 Q CELLS solar cells Q.PLUS L-G4.1 was specially designed for large solar power plants to reduce BOS costs. Only Q CELLS offers German engineering quality with our unique triple Yield Security.



### LOW ELECTRICITY GENERATION COSTS

Higher yield per surface area and lower BOS costs thanks to higher power classes and an efficiency rate of up to 17.4 %.



### INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.



### ENDURING HIGH PERFORMANCE

Long-term yield security with Anti-PID Technology<sup>1</sup>, Hot-Spot-Protect and Traceable Quality Tra.Q™.



### LIGHT-WEIGHT QUALITY FRAME

High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (2400 Pa).



### A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance guarantee<sup>2</sup>.



Q CELLS  
YIELD SECURITY

- ✓ ANTI PID TECHNOLOGY (APT)
- ✓ HOT-SPOT PROTECT (HSP)
- ✓ TRACEABLE QUALITY (TRA.Q™)

Photon  
FIELD READINESS

Q CELLS  
Best polycrystalline  
solar module 2013  
Q.PRO-G2 235  
151 modules tested

### THE IDEAL SOLUTION FOR:



Ground-mounted  
solar power plants

Engineered in Germany

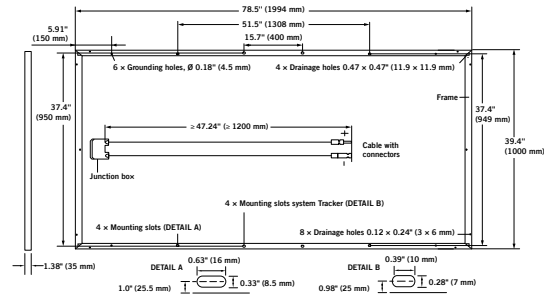
<sup>1</sup> APT test conditions: Cells at -1000V against grounded, with conductive metal foil covered module surface, 25 °C, 168h

<sup>2</sup> See data sheet on rear for further information.

Q CELLS

## MECHANICAL SPECIFICATION

<b>Format</b>	78.5 in × 39.4 in × 1.38 in (including frame) (1994 mm × 1000 mm × 35 mm)
<b>Weight</b>	52.9 lb (24 kg)
<b>Front Cover</b>	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
<b>Back Cover</b>	Composite film
<b>Frame</b>	Anodised aluminum
<b>Cell</b>	6 × 12 Q.ANTUM solar cells
<b>Junction box</b>	3.35-4.13 in × 2.36-3.15 in × 0.59-0.67 in (85-105 mm × 60-80 mm × 15-17 mm), Protection class ≥ IP67, with bypass diodes
<b>Cable</b>	4 mm <sup>2</sup> Solar cable; (+) ≥ 47.24 in (1200 mm), (-) ≥ 47.24 in (1200 mm)
<b>Connector</b>	Amphenol H4 UTX, IP68

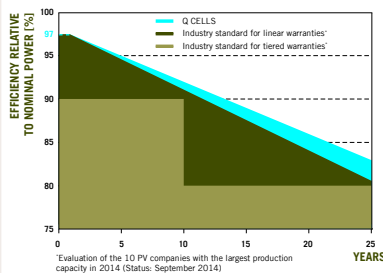


## ELECTRICAL CHARACTERISTICS

POWER CLASS			330	335	340
<b>MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC<sup>1</sup> (POWER TOLERANCE +5W / -0W)</b>					
Minimum	Power at MPP <sup>2</sup>	$P_{MPP}$ [W]	330	335	340
	Short Circuit Current*	$I_{SC}$ [A]	9.49	9.54	9.59
	Open Circuit Voltage*	$V_{OC}$ [V]	46.55	46.81	47.07
	Current at MPP*	$I_{MPP}$ [A]	8.91	8.97	9.03
	Voltage at MPP*	$V_{MPP}$ [V]	37.02	37.33	37.63
	Efficiency <sup>2</sup>	$\eta$ [%]	≥ 16.5	≥ 16.8	≥ 17.1
<b>MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NOC<sup>3</sup></b>					
Minimum	Power at MPP <sup>2</sup>	$P_{MPP}$ [W]	244.7	248.4	252.1
	Short Circuit Current*	$I_{SC}$ [A]	7.65	7.69	7.73
	Open Circuit Voltage*	$V_{OC}$ [V]	43.44	43.68	43.92
	Current at MPP*	$I_{MPP}$ [A]	6.99	7.04	7.09
	Voltage at MPP*	$V_{MPP}$ [V]	35.01	35.29	35.56

<sup>1</sup> 1000 W/m<sup>2</sup>, 25°C, spectrum AM 1.5G    <sup>2</sup> Measurement tolerances STC ±3%; NOC ±5%    <sup>3</sup> 800 W/m<sup>2</sup>, NOCT, spectrum AM 1.5G    \* typical values, actual values may differ

### Q CELLS PERFORMANCE WARRANTY

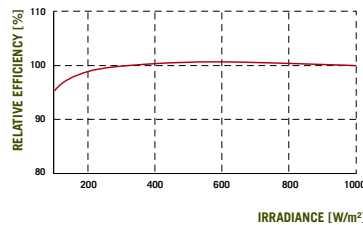


At least 97% of nominal power during first year. Thereafter max. 0.6% degradation per year.  
At least 92% of nominal power after 10 years.  
At least 83% of nominal power after 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

<sup>1</sup>Evaluation of the 10 PV companies with the largest production capacity in 2014 (Status: September 2014)

### PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000W/m<sup>2</sup>).

### TEMPERATURE COEFFICIENTS

<b>Temperature Coefficient of <math>I_{SC}</math></b>	$\alpha$ [%/K]	+0.04	<b>Temperature Coefficient of <math>V_{OC}</math></b>	$\beta$ [%/K]	-0.29
<b>Temperature Coefficient of <math>P_{MPP}</math></b>	$\gamma$ [%/K]	-0.40	<b>Normal Operating Cell Temperature</b>	<b>NOCT</b> [°F]	113 ± 5.4 (45 ± 3°C)

### PROPERTIES FOR SYSTEM DESIGN

<b>Maximum System Voltage <math>V_{SYS}</math></b>	[V]	1500 (IEC) / 1000 (UL)	<b>Safety Class</b>	II
<b>Maximum Series Fuse Rating</b>	[A DC]	15	<b>Fire Rating</b>	C / Type 1
<b>Max Load (UL)<sup>2</sup></b>	[lbs/ft <sup>2</sup> ]	75 (3600 Pa)	<b>Permitted module temperature on continuous duty</b>	-40°F up to +185°F (-40°C up to +85°C)
<b>Load Rating (UL)<sup>2</sup></b>	[lbs/ft <sup>2</sup> ]	33 (1600 Pa)	<sup>2</sup> see installation manual	

### QUALIFICATIONS AND CERTIFICATES

IEC 61215 (Ed.2); IEC 61730 (Ed.1), Application class A  
This data sheet complies with DIN EN 50380.



### PACKAGING INFORMATION

<b>Number of Modules per Pallet</b>	29
<b>Number of Pallets per 40' Container</b>	22
<b>Pallet Dimensions (L × W × H)</b>	81.3 × 45.3 × 46.9 in (2065 × 1150 × 1190 mm)
<b>Pallet Weight</b>	1671 lbs (758 kg)

**NOTE:** Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS USA Corp.

300 Spectrum Center Drive, Suite 1250, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL q-cells-usa@q-cells.com

Engineered in Germany



**SGI 225**  
**SGI 250**  
**SGI 266**  
**SGI 300**  
**SGI 500**

### FEATURES

- Compliant with NEC 2014 690.11 & 690.12 arc fault and rapid shutdown requirements when coupled with ARCCOM combiner
- 97.5% CEC efficiency
- Parallel power stages
- Fuse and breaker subcombiner options
- Modbus communications
- User-interactive LCD
- Real power curtailment

### OPTIONS

- Uptime guarantee
- Stainless steel enclosure
- Web-based monitoring
- Built-in cellular connectivity

## COMMERCIAL INVERTERS

Yaskawa - Solectria Solar's SMARTGRID 225-500 series of inverters is compliant with NEC 2014 690.11 & 690.12 arc fault and rapid shutdown requirements. This series boasts an industry leading 97.5% CEC weighted efficiency which translates into significantly greater energy production and cost savings over the lifetime of the system. The SGI line has been deployed in a large number of commercial and utility-scale PV systems across North America ranging from 200kW to multi-MW. Our customers find these to be the most cost-effective, reliable, and efficient inverters in the market. This product family offers utility options such as voltage and frequency ride through, controlled ramp rates, reactive power control, and real power curtailment. Such critical utility options, combined with unsurpassed efficiencies and the lowest nighttime tare losses in the industry, earmark the SGI series as the premier inverter for next generation large commercial systems.



SPECIFICATIONS	SGI 225	SGI 250	SGI 266	SGI 300	SGI 500	
<b>DC Input</b>						
Absolute Maximum Input Voltage	600 VDC					
Max Power Input Voltage Range (MPPT)*	300-500 VDC					
Maximum Operating Input Current	768 A	853 A	908 A	1026 A	1721 A	
Maximum PV Power	292.5 kW	325 kW	345.8 kW	390 kW	650 kW	
Strike Voltage	390 V					
<b>AC Output</b>						
Nominal Output Voltage	480 VAC, 3 $\phi$ +/PE					
AC Voltage Range	-12%/+10%					
Continuous Output Power	225 kW	250 kW	266 kW	300 kW	500 kW	
Continuous Output Current	480 VAC	271 A	301 A	320 A	360 A	602 A
	600 VAC	—	240 A	—	—	—
Maximum Backfeed Current	0 A					
Nominal Output Frequency	60 Hz					
Output Frequency Range	57-60.5 Hz					
Power Factor	Adjustable 0.9 leading / 0.9 lagging, factory set at 1					
Fault Current Contribution (1 Cycle RMS)	325.2 A	361.2 A	384 A	432 A	722 A	
Total Harmonic Distortion (THD) @ Rated Load	< 3%					
<b>Performance</b>						
Peak Efficiency	98.0%				97.9%	
CEC Efficiency (480 VAC)	97.5%				97.0%	
Tare Loss	28 W				32 W	
Ambient Temperature Range (full power)	-40°F to +122°F (-40°C to +50°C)					
Storage Temperature Range	-40°F to +158°F (-40°C to +70°C)					
Relative Humidity (non-condensing)	5-95%					
Audible Noise	< 60 dBA @ 5 m					
Safety Listings & Certifications	UL 1741/IEEE 1547, CSA C22.2#107.1, FCC part 15 B					
Maintenance Outage Factor	0.1					
Testing Agency	ETL					
<b>Mechanical</b>						
Transformer	Standard, fully-integrated					
AC Breaker/DC Disconnect	Fully-integrated					
Dimensions (H x W x D)	79 in. x 109 in. x 41 in. (2007 mm x 2769 mm x 1042 mm)					
Shading Set Back	137 in. (3480 mm) at 30° solar elevation					
Weight	5170 lbs (2346 kg)	5650 lbs (2563 kg)		6980 lbs (3167 kg)		
Enclosure Rating	Type 3R					
Enclosure Finish	Polyester powder coated steel; optional 316 stainless steel					
<b>Subcombiner Options</b>						
Fuses or Breakers	6 positions, 225-400 A				8 positions, 225-400 A	
	12 positions, 110-200 A				16 positions, 110-200 A	
Fuses Only	24 positions, 70-100 A				32 positions, 70-100 A	
<b>Communication</b>						
Data Logger Hardware	Standard, Integrated					
SolrenView™ Monitoring Service	Optional					
Optional Revenue Grade Monitoring (Integrated)	400 A				800 A	
Optional SolZone™ Sub-Array Monitoring (DC Current)	6 zones				8 zones	
Optional Cellular Communication	SolrenView AIR					
Communication Interface	RS-485 SunSpec Modbus RTU					
<b>Warranty</b>						
Standard	5 year					
Optional	10, 15, 20 year; extended service agreement; uptime guarantee					

\*At nominal AC voltage



# Park Avenue Solar Solutions, LLC

## Operations and Maintenance (O&M) Form Plan

### A. SCOPE OF SERVICES

The maintenance services for the solar photovoltaic (PV) system (System) will consist of the following:

#### I. **Completion of an annual preventative maintenance system check (Basic Preventative Maintenance (PM) Services)**

- Servicer shall perform semi-annual preventative maintenance site visits (twice per year), during which Servicer shall conduct a thorough inspection and perform basic onsite preventive and corrective maintenance of PV system equipment, including wiring, mounting systems, PV panels, inverters combiner boxes and other equipment in accordance with best industry practices, and the equipment manufacturers' recommended O&M guidelines. (This does not include washing or cleaning of PV modules).
- Servicer shall test the System, including string level open circuit voltage and DC operating amperage tests.
- Servicer shall recalibrate or replace the DAS sensors and meters in compliance with all manufacturer instructions, at least once every two years. (NOTE: The recalibration of the DAS sensors would be included as part of the PM duties; but replacement of sensors and meters would be conducted on a time & materials basis, as required).
- Servicer shall conduct inverter preventative maintenance in compliance with all manufacture's operation guidelines; clean inverter cabinet air vents; and clean and change the inverter air filters in compliance with all manufacturer's guidelines, as necessary.
- Servicer shall check the torque and re-tighten screws/bolts on the modules, racking, grounds, and inverters in compliance with all manufacture's guidelines.
- Servicer shall remove any materials (e.g., trash, bird nests, etc.) that may be found under the PV array modules obstructing air flow. This excludes any bee, hornet, or wasp nests, which may require a professional exterminator.
- Servicer shall supply, or cause to be supplied, all goods and materials, including spare parts and other basic consumables, required to operate and maintain the System. (Note: materials and equipment supplied by Servicer for this purpose will be provided on a time and materials (T&M) basis as set forth in a separate payment schedule and they are not included in the base O&M contract amount.
- Servicer will generate and deliver a complete PM Report for each site inspection, which will detail the conditions of various system components and any deficiencies found, list the basic maintenance items resolved, and include a time and materials estimate for any further (non-basic) corrective repair items that will require further attention. The reports will also contain photographs depicting site conditions, problem areas, and preventative/corrective measures taken.
- Servicer will supply an Inspection & PM report template, which provides additional detail of the specific items that may typically be evaluated and addressed under Servicer's preventative maintenance program. The reports that will be generated for the System following each site visit will be substantially similar to the template.

#### II. **Non-Basic Repairs and Coordination of Warranty Service for any Covered Equipment Failure (T&M Services)**

# Park Avenue Solar Solutions, LLC

Should the need arise, Servicer shall additionally provide technical assistance in the administration and/or execution of any repairs/replacement of PV system components covered under manufacturers' warranties (e.g. inverter, solar modules); or repair or replace any PV system components that are otherwise damaged or defective and not covered under any manufacturers' warranties. The labor, materials, and equipment provided to complete any such (non-basic) major repairs or to provide warranty administration will be supplied on a T&M basis.

### III. Completion of service and repair calls placed by SLG (T&M Services)

- Servicer will respond to both emergency and non-emergency service calls, and carry out the necessary repairs to the System and replacement of any defective/damaged parts, components and other accessories. The labor, materials, and equipment provided to complete any such (non-basic) repair calls will be supplied by Servicer on a T&M basis.
- Servicer shall also monitor Solrenview on a daily basis and will receive System-specific notifications from Solrenview . Upon receipt of a notification of an error from Solrenview, Servicer shall recommend to a course of action and carry out any work on a T&M basis.

### B. OTHER CONDITIONS

Servicer will provide maintenance services utilizing only qualified, experienced, and competent technicians. Maintenance services will be provided on all working days from 0800 to 1630, Monday to Friday. Provision of availability of service technicians on Saturdays, Sundays or other holidays will be made in case of exigency.

Activities that are supplementary to the operational portions of the System, and are not the responsibility of Servicer unless otherwise specified herein, include: grass maintenance; removal of invasive vegetation, debris and combustible materials; snow removal; monitoring for animal activity and related damage. Grass maintenance will most likely include regular mowing, within the System area and the landscaped areas outside the perimeter fence. An area on the outside of the perimeter fence will likely be mowed regularly to ensure that no woody vegetation would become established where it could cause damage to the fence or shade the solar modules. Additionally, if fencing, security and communications systems, internal lane ways, site entrance drive, collection houses, HVAC equipment, may occasionally need repairs. This work will be implemented as necessary by an individual or team properly trained to address the issue, or on a T&M basis by the Servicer.

### C. DELIVERABLES SUMMARY

1. Semi-Annual Inspection/System check.
2. Carry out preventative maintenance measures.
3. Generate site photos.
4. Provide written observations of system conditions and deficiencies.
5. Make recommendations for corrective repairs and T&M estimates to complete.
6. Carry out emergency and non-emergency corrective repairs
7. Record keeping of all maintenance documentation.

**PROJECT TYPE**

The project type is New Development.

The Site is located in the northwestern portion of Blandford on North Blandford Road. The project Site consists of approximately 11.58 acres.

The applicant proposes to construct a solar panel array occupying approximately 4.34 acres of the property with an associated driveway providing access from North Blandford Road.

**STANDARD 1: No New Untreated Discharges**

The project does not include any new untreated discharges.

**STANDARD 2: Peak Rate Attenuation**

The project has been designed such that the post-development peak rates of run-off from the project are consistent or less than pre-development rates.

**Peak Flows at Design Point #99**

<b>Storm Event</b>	<b>Existing Conditions (cfs)</b>	<b>Proposed Conditions (cfs)</b>
2 yr. storm	10.82	10.51
10 yr. storm	23.13	21.42
25 yr. storm	30.21	30.15
100 yr. storm	42.09	42.06

As shown in the tables above, the stormwater management system has been designed so that no negative impact, relative to the increase in peak runoff rates, will occur to abutting properties.

**STANDARD 3: Recharge**

This Standard is not applicable due to no new impervious surface cover.

**STANDARD 4: Water Quality**

See Standard 9 for information in regards to Long Term Pollution Prevention Plan.

**STANDARD 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)**

The project does not contain Land Uses with Higher Potential Pollutant Loads (LUHPPLs).

**STANDARD 6: Critical Areas**

The project does not require review by the Natural Heritage and Endangered Species Program due to its proximity to a critical area.

**STANDARD 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable**

The project is New Development; therefore this Standard is not applicable.

**STANDARD 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control**

Erosion control measures are shown on the attached plans. The project will be covered by a NPDES Construction General Permit and the SWPPP will be submitted prior to land disturbance.

**STANDARD 9: Operation and Maintenance Plan**

This project is a private commercial solar panel array. The project developer will be responsible for the maintenance and operation of the proposed stormwater management system.

As presented within the description of the proposed stormwater management system, several management practices have been instituted to collect, mitigate and treat stormwater runoff from the proposed development. These include the following:

- Retention of stormwater, within the proposed stormwater basin to facilitate recharge of the groundwater system and balancing of pre/post flows.
- Construction of stormwater basin with an associated outlet to mitigate pre and post peak development flows for all storm events (i.e. 2, 10, 25 and 100 year storm events).

All of the above items reflect mitigation measures to improve and maintain stormwater quality that will flow as groundwater to the existing neighboring wetland system. In order to assure proper operation of the stormwater facilities in the future, it is necessary for a stormwater maintenance program be instituted and followed.

The project developer will be the owner of the storm water system described herein and responsible for the required maintenance and operation of the storm water. The proposed maintenance procedures and scheduling is as follows:

**CONSTRUCTION COMPLETION MAINTENANCE**

Once construction grading of the basin is completed, proper stabilization of all slopes within the Site and specifically the basin is required. Hay mulch, geotextile fabric, and hydroseeding are required to prevent necessary sediment transport to the basin bottom area. Haybales or siltfence will be required at the toe of interior basin slopes to prevent siltation of the exfiltration trenches or the basin bottom until the side slopes are stabilized.

**STORMWATER BASIN MAINTENANCE**

The stormwater basin is a primary element of the Site's stormwater management program. Final treatment and infiltration of stormwater normally occurs within this mitigation structure. At a minimum, at 6 month intervals, the bottom of the basin requires inspection and removal of sediment if, during the

inspection, an accumulation of 2" or more of sediment is found at several locations within the basin. In addition, routine inspections are required after each major storm event of 1" of rainfall or more. Additionally, the operation of the drainage system should be observed at least once every six months during a major storm event to evaluate its performance and note any deficiencies that may be occurring. Included within this report are sample inspection forms that should be completed to maintain proper records of necessary observations and required maintenance.

If persistent ponding of the basin's bottom is observed during routine inspections, this may indicate a significant reduction in the available exfiltration capacity. The cause of the reduction in capacity will need to be investigated. Additional removal of sediments and the reworking of the surface sand layer may be required to restore the infiltration capacity.

Inspection of stormwater basin's outlet is required. Accumulated debris, etc., is to be removed from the vicinity of the outflow. The stormwater basin's emergency spillway shall be inspected on a regular basis. If there is evidence that an overflow event has occurred, the rip rap on the slope shall be examined to determine if repairs are required following the overflow event.

Due to the design of the interior slopes of the basin to accommodate construction equipment, it is anticipated that slope erosion should be minimal after the vegetation is established. If erosion of the slopes occurs, loam shall be replaced and standard methods used to re-establish proper vegetation cover. Fescues and reed canary grass seed mixtures, which are rapid growing and low maintenance, are recommended. Hay mulch or other suitable stabilizing techniques shall be utilized during the reseeding process.

On a bi-yearly basis the side slopes of the basin area will be mowed. The condition of the turf, the status of controlled tree growth, and evidence of differential settlement will be evaluated and if needed, corrective action will be taken. The outside toe of slope should be evaluated for evidence of ponding or leakage through the embankment. If evidence of leakage is apparent, an engineer will be engaged by the owner to evaluate the stability of the embankment and furnish recommendations regarding the structure.

## **SOURCE CONTROLS**

In the event of a spill of petroleum products or hazardous substances, certain measures must be taken and include the following:

- A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, first aid equipment) should be readily available.
- All spills shall be cleaned up immediately after discovery.
- All measures must be taken to contain and abate the spill and to prevent the discharge of the Hazardous Substance or Oil to storm water or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the Hazardous Substances.)
- In the event of a spill discharging to the stormwater system, the spill should be contained with the hooded catch basins and/or oil chambers of the water quality units. Any hazardous material

found within the catch basins or water quality units should be removed immediately by a licensed liquid waste handler.

- The owner should be familiar with the spill reporting requirements of the Massachusetts Contingency Plan (310 CMR 40.0000).

**Contact Numbers:**

**Blandford Fire Department** –      Emergency - 911  
   Office – 413-848-2874

**MADEP Emergency Response** - 1-888-304-1133

**SNOW & ICE MANAGEMENT**

- Snow should be stored in areas of the site such that any snowmelt is directed and captured by the drainage system.
- Avoid disposing of snow on top of stormwater drainage swales or ditches. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.
- Sand shall be the primary de-icing agent.
- After spring snow melt has occurred, snow storage areas should be cleaned of all trash, debris and accumulated sands.

**STORMWATER MAINTENANCE PLAN DATA SHEETS**

Enclosed within the Stormwater Maintenance Plan, is a “member roster” to clearly establish the individuals responsible for the stormwater system maintenance. Additionally, a stormwater system inspection form has been included as an example of a method to document the required inspection and maintenance of the stormwater system.

An operation and maintenance log should be maintained for the last three years. This should include inspections, repairs, replacement and disposal. For disposal, the log shall indicate the type of material and the disposal location.

**Whitman & Bingham Associates, LLC**  
*Registered Engineers and Land Surveyors*

*Stormwater Maintenance Plan*  
*Member Roster*

**Completed By:** \_\_\_\_\_ **Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Director:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Office Phone:** \_\_\_\_\_

**Responsibilities:** \_\_\_\_\_

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**Member:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Office Phone:** \_\_\_\_\_

**Responsibilities:** \_\_\_\_\_

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**Whitman & Bingham Associates, LLC**  
*Registered Engineers and Land Surveyors*

**STORMWATER POLLUTION MAINTENANCE PLAN**

**INSPECTION AND MAINTENANCE REPORT FORM**  
(To be completed at 6 Month Intervals)

**STORMWATER BASIN:**

<b>Basin ID#</b>	<b>Depth of Sediment in Basin</b>	<b>Condition of Basin Side Slopes</b>	<b>Any Evidence of Overtopping of the Embankment?</b>	<b>Condition of Outfall From Basin</b>

**MAINTENANCE REQUIRED FOR STORMWATER BASIN:**

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**TO BE PERFORMED BY:** \_\_\_\_\_ **ON OR BEFORE:** \_\_\_\_\_

**INSPECTED BY:** \_\_\_\_\_ **DATE:** \_\_\_\_\_



**STANDARD 10: Prohibition of Illicit Discharges**

This project is a solar panel array development. It is not anticipated that there will be any illicit discharges into the Town of Blandford's drainage system.

# Park Avenue Solar Solutions, LLC

## Decommissioning Plan Summary

The decommissioning plan summary (the plan) describes generally how Park Avenue Solar Solutions proposes to restore the solar farm (the “Project”) location to a clean and safe condition. This includes retiring the elements of the Project, restoring the land and managing the excess materials and waste. This plan describes the plans for decommissioning the Project and contains the following information

1. Procedures for dismantling or demolishing the facility
2. Activities related to the restoration of any land and water negatively affected by the facility
3. Procedures for managing excess materials and waste

Components of the Project have an estimated useful lifetime in excess of twenty years. When the Project ceases commercial operation, it will be dismantled, any lands and water negatively affected by the Project will be restored, and the site will be left in a safe and clean condition. It is difficult to predict precise demolition activities, procedures and technologies that may become available over time. Assumptions have been made, therefore, and some task descriptions generalized to allow for a degree of flexibility and innovation regarding dismantling/ demolition means and methods.

Following the Project’s proposed life span, the Project area will be allowed to naturalize on its own.

1. Procedures for Dismantling the Solar Farm

Decommissioning will consist primarily of dismantling and removing facilities, wiring and equipment as well as land restoration, if necessary. This section also briefly addresses procedures for the unlikely event that the project is abandoned during construction.

- a. Decommissioning After Ceasing Operation

The likely decommissioning tasks are follows:

- i. The facility is disconnected from the Eversource network according to state requirements and in accordance with Eversource procedures and policies.
    - ii. Individual PV modules or panels are disconnected and removed from the site, and shipped, to the extent possible, to recycling facilities for recycling, or for disposal.
    - iii. Electrical cables and equipment owned by Park Avenue Solar Solutions shall be removed and recycled, reused or disposed of offsite. This includes all above-ground electrical structures and wiring, inverters, combiners, low voltage switch gear and transformers and the interconnection substation equipment, if applicable.

# Park Avenue Solar Solutions, LLC

- iv. The collection houses (inverters and transformers) and their foundations (if necessary) shall be removed and recycled, re-used or disposed of off-site.
- v. All above-grade PV module array support posts and structures shall be removed and recycled or disposed of off-site.
- vi. The safety and security fencing shall be removed and recycled, re-used or disposed of off-site.
- vii. Road connections and internal lanes (and their sub-base materials) used for the project, drainage structures, etc. may be removed, depending on the wishes of the landowner.
- viii. The site could be converted to other uses in accordance with applicable land use regulations and the landowner's wishes.

- b. Decommissioning During Construction. It is unlikely that the facility will have to be dismantled during construction. Should this occur, similar procedures as outlined above and throughout the rest of this report (regarding decommissioning after ceasing operations) would be followed.

## 2. Restoration of Lands/Water Negatively affected by the Solar Farm

Following decommissioning the site will be restored, to the extent possible, to pre-Project conditions in accordance with local land use laws or regulations and pursuant to the landowner's desires. During decommissioning it is unlikely that there will be any loss of harm to surrounding trees outside of the cleared area. To minimize any potential disruption or direct or indirect loss to surrounding trees and vegetation, small machinery will be utilized to remove the fencing. Further, as long as proper sediment control strategies are implemented, it is not anticipated that decommissioning will have negative effects on any wetlands.

## 3. Procedures for Managing Excess Materials and Waster During Decommissioning

As indicated above, the Project will consist of numerous materials that are potentially recyclable, including glass, semiconductor material, steel, and wiring. After operations have ceased and the Project is no longer generating power, the component parts after having been dismantled will ideally be recycled or re-used following decommissioning. Beyond the project components, it is not anticipated there will be additional materials or waste as part of decommissioning.

## 4. Miscellaneous

- a. Park Avenue Solar Solutions will provide written notice to the Town Manager, the Fire Department, and Eversource, among others, that it is commencing with decommissioning. Given the relative lack of risk involved in dismantling the Project, it is not anticipated that emergency situations (fire, spills of operating fluids, etc.) will

# Park Avenue Solar Solutions, LLC

take place. Nevertheless, Park Avenue Solar Solutions may prepare a detailed emergency response and communications plan prior to decommissioning in coordination with local and municipal authorities prior to the start of any decommissioning activity. Such plan could detail communication procedures including a list of relevant emergency contact numbers for Park Avenue Solar Solutions and local fire, police and medical agencies, directions to the nearest hospital, and evacuation procedures for each type of emergency. During decommissioning, among other things, signage will be posted listing emergency contact numbers for Park Avenue Solar Solutions along with the agencies referenced above. Prior to the commencement of decommissioning, a fire response plan may be implemented. This will include the notification of appropriate emergency personnel, including the Town Fire Department, to be contacted if a fire occurs at the site. Similarly, a spill response plan may also be formulated prior to decommissioning. Spills of operating fluids (gasoline, diesel fuel, lubricants) are possible from construction equipment and vehicles.

- b. All work will be further carried out in consultation with the Department of Environmental Protection.

# Park Avenue Solar Solutions, LLC

## EMERGENCY RESPONSE AND COMMUNICATIONS PLAN

This Emergency Response and Communications Plan (Plan) outlines the general procedures followed for all emergency situations and incidents that could occur as a result of the operation and decommissioning phases due to natural causes, equipment failure or by human error at the proposed solar photovoltaic project. ("Project"). Shortly after commercial operation, Park Avenue Solar Solutions an affiliate or assign ("Park Avenue Solar Solutions") will meet with the local emergency service personnel (fire, police, and EMS) to review and discuss the operation and decommissioning processes, including unique equipment, the overall process, as well as schedule/phasing. Any hazardous materials that may be present during each phase will be discussed. Ongoing communication between town officials and police, fire, and emergency services officials, will help assure adequate levels of protection. Based on relevant experience and professional judgment, Park Avenue Solar Solutions believes that the following types of hazards (most of which are incidental due to infrequent maintenance/construction activities) have the potential to occur at the Project site:

- Fire
- Worker accidents, including falls and electrocution
- Medical conditions/emergencies
- Lightning strikes
- Excavation cave-ins
- Spills of Hazardous Materials, including:
  - Gasoline
  - Diesel
  - Hydraulic oil
  - Lubricating oil and grease
  - Cleaning solvents

Park Avenue Solar Solutions is committed to protecting the community, personal property, and the environment in adherence to all applicable local, state and federal emergency response laws and regulations.

### Emergency Contact Information

Park Avenue Solar Solutions personnel, including a specified Emergency Response Coordinator, will be available to the Project and may be utilized to assist during emergency situations and/or provide first aid as needed. For all emergency services including hospital, fire etc. call 911. During operation of the facility, a phone number where a Park Avenue Solar Solutions representative can be reached 24 hours a day will be established and provided to local emergency personnel along with the location of the nearest hospital.

### Internal Alerting

The following procedures will be prescribed for internal reporting of emergencies:

- Once notified by local emergency service personnel, the Emergency Response Coordinator will notify any on-site personnel, including any visitors, of the nature of the emergency via telephone.
- The Emergency Response Coordinator will specify the location for the first responders, if they are not already present onsite. A designated employee or contractor will meet the emergency response personnel at the access road of the emergency.

# Park Avenue Solar Solutions, LLC

- The Emergency Response Coordinator will notify local emergency personnel, if not already present, of the emergency using the contact information to be provided.
- The Emergency Response Coordinator will identify any need for security measures at the Project area during the emergency and will designate one person to implement.
- When any person, identifies an emergency situation, or the potential for an emergency situation, and reports it to the Emergency Response Coordinator or his/her designee, the Emergency Response Coordinator will then activate the Plan.

## External Alerting

The following procedures will be prescribed to for external reporting of emergencies:

- If immediate emergency response assistance is required, the Emergency Response Coordinator or his designee will call 9-1-1.
- A member of management or the Emergency Response Coordinator or his/her designee are the only persons authorized to speak on Park Avenue Solar Solutions' behalf to outside agencies (police, fire department, medical services etc.) during an emergency situation.
- In the event of a spill of a hazardous material in excess of reportable limits, the spill must be reported to the Department of Environmental Protection or relevant federal authority

## Emergency Response Procedures

Medical Emergency or Personnel Injury:

- Provide First Aid to all injured employees or contractors regardless of severity.
- First Aid kits will be maintained in the office trailers onsite. First Aid kits are to be inspected and restocked as needed following usage.
- Call 911 if the injury is serious and needs immediate medical treatment.
- For local emergency response assistance, a designated employee or contractor will meet the emergency responders at the access road of the tower site and direct them to the location of the emergency/injured employee.
- The designated employee or contractor should have a hand held orange safety flag to use to get the attention of the responding emergency services.
- Regular inspection of fire extinguishers, if required by the local fire department, at all facility locations where they are installed.

## Fire

If a fire exists at a Project facility, personnel or contractors will be instructed to:

1. Shutdown the facility.
2. Restrict the area.
3. Request assistance from fire fighting personnel, if needed, in controlling the fire.
4. If local emergency response personnel are required, have an employee go to the access road of incident site, to meet emergency personnel and direct them to the fire.
5. Employee should have a hand held orange safety flag to use to get the attention of the responding emergency services.

# Park Avenue Solar Solutions, LLC

## Chemical Spill/Release

Cautionary labeling will be provided for any hazardous chemicals and the associated Material Safety Data Sheets (MSDSs) will be provided accordingly.

1. The MSDSs for all hazardous materials on the Project area are to be provided to local fire departments and emergency service providers upon request
2. Small spills should be cleaned up immediately by using absorbent materials such as hay, sand, socks or pads.
3. If the spill is of such magnitude that it cannot be contained, the Emergency Response Coordinator will contact the appropriate authority for assistance.
4. Personnel and contractors will be instructed to report all spills, regardless of severity, to the Emergency Response Coordinator.

## Site Restoration/Remediation

If any accident or incident at the Project area necessitates site restoration or remediation, the restoration/remediation will be conducted according to applicable federal, state and local requirements.

## Incident Report

After every accident or incident, the Emergency Response Coordinator or designee will conduct a post incident evaluation to determine the following:

1. Suitability of the organization's structure, equipment, communication plans/system, adequacy of training, alarm systems, security, spill containment and recovery procedures, monitoring, etc.
2. If any of the above are found to be inadequate, then the Emergency Response Coordinator will make necessary changes.

## Safety Training

On-site training for local emergency personnel may be given, at their request, by the Emergency Response Coordinator or their designees regarding the content, requirements, and appropriate actions to comply with the provisions of the Plan.

The training will occur:

1. At the Project area
2. When there are changes to the plan;
3. At the request of local emergency personnel;
4. When Emergency Response Coordinator determines.

## Recording of Responders Complaints

1. Any and all complaints from responders will be kept in both a log book and an electronic log.
2. Names, address, telephone numbers, the date and time of all responders issuing a complaint will be logged.
3. The nature of the responder's complaint will be logged.

# **Park Avenue Solar Solutions, LLC**

4. Assurance will be provided to all responders that complaint has been mitigated and will not reoccur.



**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

**Generating Facility Expedited/Standard Process  
Interconnection Application**

**Contact Information:**

Date Prepared: 2/12/17

Legal Name and address of Interconnecting Customer

Interconnecting Customer (print): Altus Power America, Inc Contact Person: Kirt Mayland

Mailing Address: 102 Greenwich Avenue

City: Greenwich State: CT Zip Code: 06830

Telephone (Daytime): 646-302-3639 (Evening): 646-302-3639

Facsimile Number: 860-760-6993 E-Mail Address: kmayland@reservoirroadholdings.com

Customer name (if Customer is not Interconnecting Customer) \_\_\_\_\_

Customer email: \_\_\_\_\_ Customer telephone: \_\_\_\_\_

Customer Mailing Address:

\_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Landowner name (if neither Interconnecting Customer nor Customer):

Mr. Chester Kellogg

Landowner email: susievi@aol.com Landowner telephone: 413 329 0385

Landowner Mailing Address:

PO Box 378

City: Southampton State: MA Zip Code: 01073

**Alternative Contact Information**

(e.g., system installation contractor or coordinating company, if appropriate):

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Ownership (include % ownership by any electric utility): \_\_\_\_\_

Site Control? (Y/N) Y

Issued by: Craig Hallstrom  
President

Filed: May 13, 2015  
Effective: June 1, 2015

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

Will Facility be constructed on a single parcel of land? (Y/N) Y

Authorized/Proposed generation capacity already exists (check all that apply):

On Current Account  On Same Legal Parcel of Land  In Same Building/Structure

If any apply, include existing generation capacity on design diagrams, and provide

Application Number(s): \_\_\_\_\_

Confidentiality Statement: "I agree to allow information regarding the processing of my application (without my name and address) to be reviewed by the Massachusetts DG Working Group that is exploring ways to further expedite future interconnections." Yes \_\_\_\_\_ No X

Group Study Agreement: "I understand and agree if my project becomes part of a Group Study, the Company is authorized to share my contact information and project details with other parties that are also involved in the Group Study."

**Generating Facility Information**

*Please provide all Pre-Application Reports (either mandatory or optional) as attachments. This is mandatory for systems greater than or equal to 500 kW.*

Address of Facility: 103 N. Blandford Road

City: Blandford State: MA Zip Code: 01008

Electric Distribution Company:  
Eversource

Account Number: \_\_\_\_\_

Meter Number: \_\_\_\_\_

System Design Capacity: Nominal 999 (kW) 999 (kVA)

Maximum 999 (kW) 999 (kVA)

For Solar PV provide the DC-STC rating: 1,295.8(kW<sub>DC</sub>)

Type of Generating Unit: Synchronous \_\_\_\_\_ Induction \_\_\_\_\_ Inverter X

Manufacturer: Solectria Model: SGL 500 and SGL 499

Prime Mover:  Fuel Cell  Reciprocating Engine  Gas Turbine  Steam Turbine  
 Microturbine  Photovoltaic Other \_\_\_\_\_

Issued by: Craig Hallstrom  
President

Filed: May 13, 2015  
Effective: June 1, 2015

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

Energy Source:  Solar  Wind  Hydro  Diesel  Natural Gas  Fuel Oil  
Other \_\_\_\_\_ (Please Specify)

For Solar PV provide the DC-STC rating: 1,295.8(kW)

IEEE 1547.1 (UL 1741) Listed? Yes YES No \_\_\_\_\_

1) Generating Unit Type 1

Manufacturer: Solectria Model Name and Number: SGI 500

Quantity: One

Single    or Three X Phase

AC Rating: Nominal: 500 (kW) 500 (kVA) 690 (AC Volts)

Maximum: 500 (kW) 500 (kVA) 690 (AC Volts)

2) Generating Unit Type 2 (if applicable)

Manufacturer: Solectria Model Name and Number: SGI 499

Quantity: One

Single    or Three X Phase

AC Rating: Nominal: 499 (kW) 499 (kVA) 690 (AC Volts)

Maximum: 499 (kW) 499 (kVA) 690 (AC Volts)

3) Generating Unit Type 3 (if applicable)

Manufacturer: \_\_\_\_\_ Model Name and Number: \_\_\_\_\_

Quantity: \_\_\_\_\_

Single    or Three    Phase

AC Rating: Nominal: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA) \_\_\_\_\_ (AC Volts)

Maximum: \_\_\_\_\_ (kW) \_\_\_\_\_ (kVA) \_\_\_\_\_ (AC Volts)

Need an air quality permit from DEP? Yes \_\_\_\_\_ No X Not Sure \_\_\_\_\_

If "yes", have you applied for it? Yes \_\_\_\_\_ No \_\_\_\_\_

Issued by: Craig Hallstrom  
President

Filed: May 13, 2015  
Effective: June 1, 2015

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

Planning to Export Power? Yes X No \_\_\_\_\_ A Cogeneration Facility? Yes \_\_\_\_\_ No \_\_\_\_\_

Anticipated Export Power Purchaser: Eversource or net metering

Export Form? Simultaneous Purchase/Sale \_\_\_\_\_ Net Purchase/Sale X Net Metering X  
Other (Specify) Depending on the timing and the new DOER program, this will either be a PPA with Eversource or a net metered project

*If net metering, please refer to Schedule Z of the Standards for Interconnection of Distributed Generation. Please note that if under the public cap, all off-takers must be a Municipality or Other Governmental Entity (as defined in 220 C.M.R. 18.02) and therefore be certified by the DPU.*

Est. Install Date: 8/17 Est. In-Service Date: 12/17 Agreement Needed By: 5/17

**Application Process**

I am opting to forego the Expedited Process. Please review this application under the Standard Process. Yes X No \_\_\_\_\_

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true:

Interconnecting Customer Signature: [Signature] Title: Representative Date: 2.12.17

The information provided in this application is complete:

Company Signature: [Signature] Title: Representative Date: 2.12.17

**Generating Facility Technical Detail**

Information on components of the generating facility that are currently Listed

	Equipment Type	Manufacturer	Model	National Standard
1.	<u>Inverter</u>	<u>Solectria</u>	<u>SGI 500 and SGI 499</u>	<u>IEEE 1547 UL 1741</u>
2.	<u>PV Module</u>	<u>Q-Cells</u>	<u>TBD</u>	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____

Total Number of Generating Units in Facility? 2

Generator Unit Power Factor Rating: >.99

Max Adjustable Leading Power Factor? 0 Max Adjustable Lagging Power Factor? 0

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President

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Effective: June 1, 2015

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

**Generator Characteristic Data (for all inverter-based machines)**

Max Design Fault Contribution Current? <3% THD Instantaneous x or RMS?       

Harmonics Characteristics: <3% per IEEE 519

Start-up power requirements: 10 kW

**Generator Characteristic Data (for all rotating machines)**

Rotating Frequency:        (rpm) Neutral Grounding Resistor (If Applicable):       

**Additional Information for Synchronous Generating Units**

Synchronous Reactance, Xd:        (PU) Transient Reactance, X'd:        (PU)

Subtransient Reactance, X'd:        (PU) Neg Sequence Reactance, X2:        (PU)

Zero Sequence Reactance, Xo:        (PU) kVA Base:       

Field Voltage:        (Volts) Field Current:         
(Amps)

**Additional information for Induction Generating Units**

Rotor Resistance, Rr:        Stator Resistance, Rs:       

Rotor Reactance, Xr:        Stator Reactance, Xs:       

Magnetizing Reactance, Xm:        Short Circuit Reactance, Xd'':       

Exciting Current:        Temperature Rise:       

Frame Size:       

Total Rotating Inertia, H:        Per Unit on kVA Base:       

Reactive Power Required In Vars (No Load):       

Reactive Power Required In Vars (Full Load):       

**Additional information for Induction Generating Units that are started by motoring**

Motoring Power:        (kW) Design Letter:       

**Interconnection Equipment Technical Detail**

Date:       

Will a transformer be used between the generator and the point of interconnection?

Yes x No       

Will the transformer be provided by Interconnecting Customer? Yes x No       

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President

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Effective: June 1, 2015

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

**Transformer Data (if applicable, for Interconnecting Customer-Owned Transformer):**

Nameplate Rating: 1000 (kVA) Single      or Three x Phase

Transformer Impedance: 5.75 (%) on a 1000 kVA Base

If Three Phase:

Transformer Primary: 1247(Volts)      Delta      Wye      Wye Grounded      Other

Transformer Secondary: 690 (Volts)      Delta      Wye      Wye Grounded      Other

**Transformer Fuse Data (if applicable, for Interconnecting Customer-Owned Fuse):**

(Attach copy of fuse manufacturer's Minimum Melt & Total Clearing Time-Current Curves)

Manufacturer:                      Type:                      Size:              Speed:             

**Interconnecting Circuit Breaker (if applicable):**

Manufacturer: G&W Type: Viper Load Rating: 400 (Amps)

Interrupting Rating: 12500 (Amps) Trip Speed: 4 (Cycles)

**Interconnection Protective Relays (if applicable):**

(If microprocessor-controlled)

List of Functions and Adjustable Setpoints for the protective equipment or software:

	Setpoint Function	Minimum	Maximum
1.	<u>Phase Inst/Def Time Overcurrent 50PIP</u>	<u>0.05A</u>	<u>20A</u>
2.	<u>Voltage Element 27PIP &amp; 59PIP</u>	<u>12.5V</u>	<u>300V</u>
3.	<u>Phase time Overcurrent 51pp</u>	<u>0.10A</u>	<u>3.20A</u>
4.	<u>Frequency Element 81D1P</u>	<u>40.00HZ</u>	<u>65.00 HZ</u>
5.	<u>  </u>	<u>                    </u>	<u>                    </u>
6.	<u>  </u>	<u>                    </u>	<u>                    </u>

(If discrete components)

(Enclose copy of any proposed Time-Overcurrent Coordination Curves)

Manufacturer:              Type:              Style/Catalog No.:              Proposed Setting:             

Manufacturer:              Type:              Style/Catalog No.:              Proposed Setting:             

Manufacturer:              Type:              Style/Catalog No.:              Proposed Setting:

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

**Current Transformer Data (if applicable):**

(Enclose copy of Manufacturer's Excitation & Ratio Correction Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

**Potential Transformer Data (if applicable):**

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Accuracy Class: \_\_\_\_\_ Proposed Ratio Connection: \_\_\_\_\_

**STANDARDS FOR INTERCONNECTION OF DISTRIBUTED GENERATION**

**General Technical Detail**

Date: 2.12.17

Enclose 3 copies, or send 1 electronic copy, of site electrical One-Line Diagram showing the configuration of all generating facility equipment, current and potential circuits, and protection and control schemes with a Massachusetts registered professional engineer (PE) stamp. Enclose 3 copies, or send 1 electronic copy, of any applicable site documentation that indicates the precise physical location of the proposed generating facility (e.g., USGS topographic map or other diagram or documentation).

Proposed Location of Protective Interface Equipment on Property:  
(Include Address if Different from Application Address)  
See attached Site Plan

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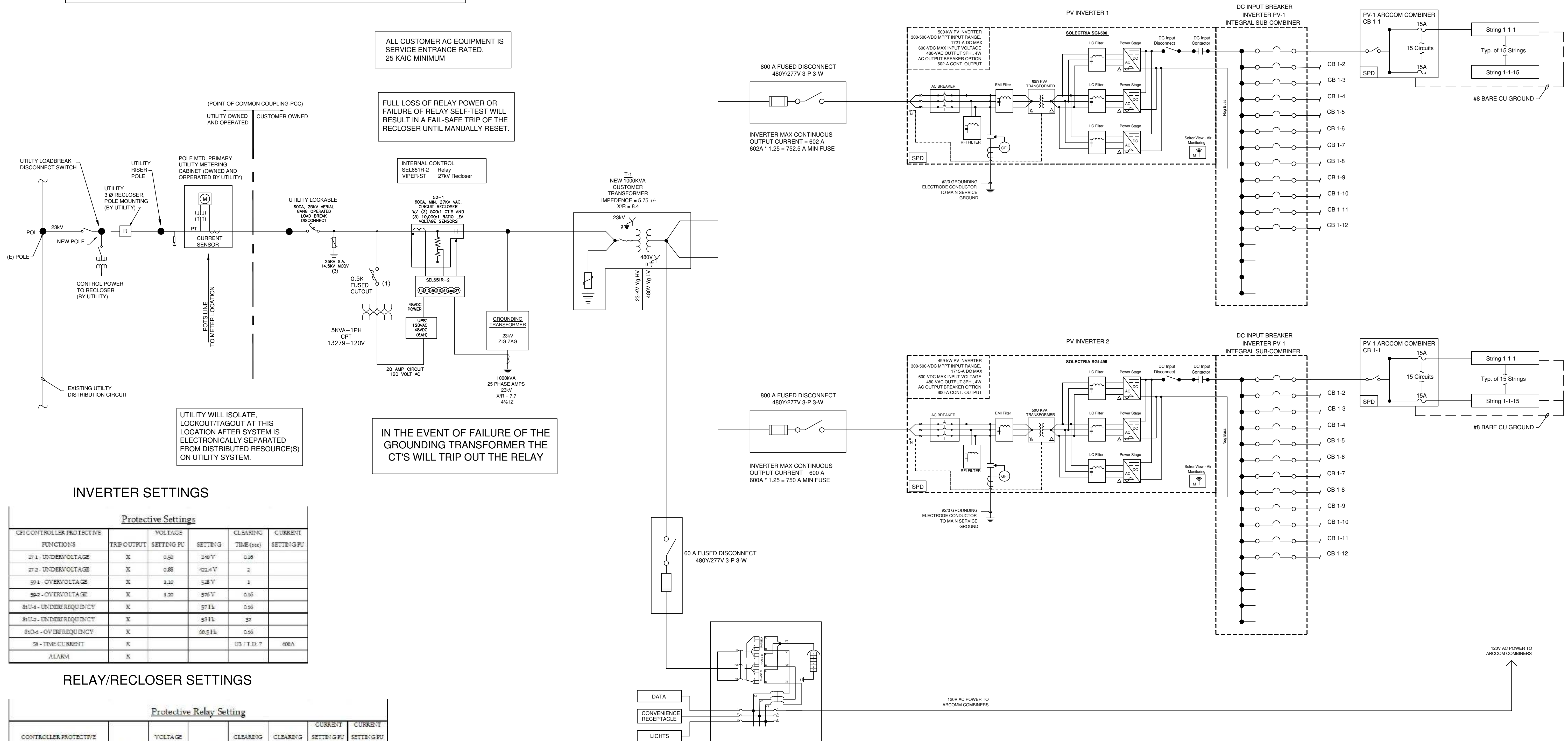
Enclose copy of any applicable site documentation that describes and details the operation of the protection and control schemes.

Enclose copies of applicable schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).

When mailing application fee checks, please enclose a copy of this signed interconnection application form with the payment. Please enclose any other information pertinent to this Facility.



SYSTEM SIZE = 1,295,800 W DC  
999,000 W AC



ALL CUSTOMER AC EQUIPMENT IS SERVICE ENTRANCE RATED. 25 KAIC MINIMUM

FULL LOSS OF RELAY POWER OR FAILURE OF RELAY SELF-TEST WILL RESULT IN A FAIL-SAFE TRIP OF THE RECLOSER UNTIL MANUALLY RESET.

UTILITY WILL ISOLATE, LOCKOUT/TAGOUT AT THIS LOCATION AFTER SYSTEM IS ELECTRONICALLY SEPARATED FROM DISTRIBUTED RESOURCE(S) ON UTILITY SYSTEM.

IN THE EVENT OF FAILURE OF THE GROUNDING TRANSFORMER THE CT'S WILL TRIP OUT THE RELAY

INVERTER SETTINGS

Protective Settings						
CFI CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	CLEARING TIME (sec)	CURRENT SETTING PU	
27-1 - UNDERVOLTAGE	X	0.50	240 V	0.50		
27-2 - UNDERVOLTAGE	X	0.85	424 V	2		
59-1 - OVERVOLTAGE	X	1.10	528 V	1		
59-2 - OVERVOLTAGE	X	1.30	576 V	0.50		
81U-1 - UNDERFREQUENCY	X		57 Hz	0.50		
81U-2 - UNDERFREQUENCY	X		58 Hz	30		
81O-1 - OVERFREQUENCY	X		60.5 Hz	0.50		
81O-2 - OVERFREQUENCY	X		61 Hz	3		
51 - TIME CURRENT	X			U3 / T.D. 7	0.075	37.5
51C - OVER CURRENT (PHASE)	X	0.85	4.57	U3 / T.D. 1	0.020	9.9
51NC - OVER CURRENT (RESIDUAL)	X	0.85	4.57	U3 / T.D. 3	0.015	9
ALARM	X					

RELAY/RECLOSER SETTINGS

Protective Relay Setting							
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	CLEARING TIME (sec)	CLEARING TIME (cycle)	CURRENT SETTING PU SECONDARY	CURRENT SETTING PU PRIMARY
27P-1 - UNDERVOLTAGE	X	0.50	0.50	0.10	9.5		
27P-2 - UNDERVOLTAGE	X	0.85	1.17	2	120		
59P-1 - OVERVOLTAGE	X	1.10	1.48	1	50		
59P-2 - OVERVOLTAGE	X	1.30	1.59	0.10	9.5		
81U-1 - UNDERFREQUENCY	X		57	0.10	9.5		
81U-2 - UNDERFREQUENCY	X		58	30	1020		
81O-1 - OVERFREQUENCY	X		60.5	0.10	9.5		
81O-2 - OVERFREQUENCY	X		61	0.05	3		
51 - TIME CURRENT	X			U3 / T.D. 7		0.075	37.5
51C - OVER CURRENT (PHASE)	X	0.85	4.57	U3 / T.D. 1		0.020	9.9
51NC - OVER CURRENT (RESIDUAL)	X	0.85	4.57	U3 / T.D. 3		0.015	9
ALARM (OUT20)	FAIL-SAFE		POWER LOSS	2	120		
79 - RECLUSING		SENSE GRID STABILITY		300	30000		
Primary Voltage (L-L)	23	kV	23000	Volt			
Primary Voltage (L-G)	13.279	kV	13279	Volt			
VT Ratio	10000	1					
CT Ratio	500	1					
Rated Current	25	Amper					

CANADIAN SOLAR 310W MODULES  
1 SOLECTRIA SGI 500 INVERTER  
1 SOLECTRIA SGI 499 INVERTER

CUSTOMER METERING  
CUSTOMER METERING INTERNAL TO SUB-DISCONNECTS LOCUS OR EQUAL CONNECTED TO MONITORING SYSTEM. - REVENUE GRADE -

INVERTER 1-2  
PV Modules = 310 Watts STC  
2090 Modules per Inverter = 647,900 watts STC  
190 strings of 11 PV Modules

ARC DESIGN  
SALEM COUNTY OFFICE  
409 NORTH MAIN STREET  
ELMER, NJ 08318  
(856) 712-2166 FAX: (856) 358-1511

PROPOSED PHOTO-VOLTAIC ARRAY  
HOUSATONIC SOLAR 1, LLC.  
43 RESERVOIR ROAD  
LAKEVILLE, CT 06039  
SITE: 103 N. BLANDFORD RD, BLANDFORD, MA 01008

JAMES A. CLANCY  
MA REG. LICENSE # 46775  
Professional Engineer  
Professional Electrical Engineer

REVISIONS	
DATE	COMMENT

JOB #  
DRWN RCA  
CHKD JAC  
SCALE AS NOTED  
DATE 02-07-2017

August 1, 2017

Via Electronic Mail

Mr. Chester Kellogg  
PO Box 622  
Worthington, MA 01098  
susievi@aol.com

Re: North Blandford Road, Blandford, MA

Dear Mr. Kellogg:

Please let this letter agreement (the "Agreement") set forth the terms pursuant to which we will purchase the above-referenced property. This Agreement supersedes the Agreement by and between Housatonic Solar 1, LLC and Mr. Chester Kellogg executed on January 30, 2017.

1. Buyer. Housatonic Solar 1, LLC and/or assigns
2. Seller. Mr. Chester Kellogg and all other owners of record
3. Property. That certain real property, consisting of approximately 19.88 acres, being in the Town of Blandford, County of Hampden, Commonwealth of Massachusetts as depicted or described on Exhibit "A" hereto within the purple outline together with all improvements located thereon and all rights and appurtenances associated therewith such as development rights, water rights, mineral rights, etc. (collectively the "Property").
4. Purchase Price. The Purchase Price for the Property shall be one hundred and ten thousand dollars ~~(USD\$100,000)~~ Real estate taxes, rents (if any), utility costs and municipal charges will be allocated between the parties as of the date of Closing. Further, if Buyer is able to develop the western half of the Property for battery storage, etc. (located approximately in the area with the "W" on it on Exhibit A) it shall pay Seller an additional seventy-five thousand dollars (USD ~~\$75,000~~) upon commencement of construction of such project, such covenant to survive Closing. Also, if the final interconnection costs from Eversource (pursuant to and including the Detailed Study) total below three hundred thousand dollars (USD\$300,000), the Purchase Price shall increase by every dollar below three hundred thousand dollars (USD\$300,000), to a maximum Purchase Price of One Hundred Forty Thousand Dollars (~~USD\$140,000~~). CK SK  
OR ANY  
STRUCTURE  
DKM
5. Condition of the Property. The Property will be sold in AS-IS condition subject to Buyer's inspection rights and customary disclosures and representations by Seller to be included in the Agreement of Sale.
6. Information. Promptly after execution hereof, Seller shall provide to Buyer copies of all information, if any, currently in Seller's possession or readily obtainable by Seller, pertaining to the Property including, but not limited to (in electronic form if available): all permits, surveys (CAD or AUTO CAD versions), plans, geologic studies, environmental studies, site plans, pasts or current development proposals, etc. (together the "Seller's Information"). It is expressly agreed between Buyer and Seller that Seller shall have no obligation to prepare any new materials to satisfy its obligations under this paragraph.

43 Reservoir Road, Lakeville, CT 06039 646-302-3639  
kmayland@reservoirroadholdings.com

## HOUSATONIC SOLAR 1, LLC

7. **Approvals.** Seller and Buyer acknowledge and agree that Buyer will need to obtain numerous approvals, incentives, and permits to allow for the development of the Property, possibly including, but not limited to construction/building permits, electrical permits, special permits, site plan review permits, conservation commission orders of condition, Department of Environmental Protection orders or permits, utility permits and any other permit, action or approval with respect to the Project (as defined below) or the Property etc. (the "Approvals"). Accordingly, Seller's execution of this Agreement hereto shall be evidence of Seller's authorization for, and consent to, Buyer submitting on behalf of Seller and/or Buyer all necessary applications and other materials necessary to obtain the Approvals. If necessary, Seller shall promptly execute, and reasonably support and join in any applications to any governmental or other bodies for any approvals reasonably deemed necessary or desirable by Buyer.
8. **Buyer's Due Diligence.** At all reasonable times following execution of this Agreement, Buyer and/or its agents and representatives shall be entitled to enter upon the Property and to perform such due diligence investigations as it deems necessary relating to the Property (including geotechnical, soil and environmental testing), review the Seller's information and prepare development plans for the Seller's proposed project. Following execution of this Agreement, Buyer agrees to make commercially reasonable efforts to pursue all interconnection rights and all local and state permits necessary for construction and commercial operation of the solar photovoltaic project (the "Project").
9. **Option Payments.** On May 1, 2017, Buyer made a one-time payment of two thousand dollars (\$2,000) to Seller. On August 1, 2017, Buyer shall commence to make monthly payments to the Seller (due on the first of each month) in the amount of five hundred dollars (\$500) (each such payment and the \$2,000 payment are hereinafter referred to as an "Option Payment"). The Option Payments shall be non-refundable to Buyer however shall be credited against the Purchase Price at Closing. The Buyer shall continue to make the Option Payments to Seller until Closing or the earlier termination of this Agreement or the Agreement of Sale.
10. **Term/Termination.** If Buyer either (i) in its sole and unfettered discretion determines that the results of any of its due diligence investigations, the Seller's Information or the development plans are, or will be, unacceptable or unsatisfactory, for purchase, operation or development of the Property in the manner contemplated by Buyer on terms and conditions acceptable to the Buyer in its sole and unfettered discretion, or (ii) is unable to obtain the Approvals or determines at any time in its sole and unfettered discretion that it will be unable or unlikely to obtain the Approvals then Buyer may terminate this Agreement or the Agreement of Sale by written notice to the Seller on or before July 30, 2018 (this period is referred to as the "Buyer's Due Diligence Period"), in which event neither party shall have any further liability to the other. The Buyer's Due Diligence Period may be extended at the written request of Buyer for an additional 180 days with Seller's consent, such consent not to be unreasonably withheld, if the Project is delayed for reasons outside of Buyer's control.

However, regardless of the above, Buyer shall make best efforts to submit the its proposed solar project into the SMART solar program being developed by the Massachusetts of Department of Energy Resources. If Buyer is awarded a contract with Eversource as a result of entering into the

## HOUSATONIC SOLAR 1, LLC

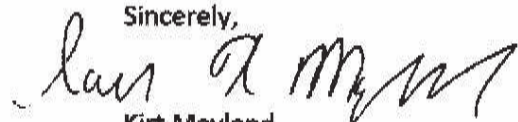
SMART program, Closing shall take place within thirty (30) days of such final, unconditional award.

If Buyer fails to make an Option Payment to Seller following ten (10) business days of the dates listed above (the "Event of Default"), Seller shall have the right to terminate this Agreement or the Agreement of Sale by written notice via certified mail (return receipt requested) to Buyer to the address listed on this Agreement, however, Buyer shall have 15 business days after written notice to make such payment and cure the Event of Default.

11. **Title.** Seller shall, at Closing, convey by a registrable Transfer/Deed of Land, good, marketable title to the Property, free and clear of all leases (except as may otherwise be agreed to between Buyer and Seller), liens, mortgages, easements, covenants, claims, pledges, restrictions, and other encumbrances excepting only those which Buyer approves in accordance with the Agreement of Sale.
12. **Closing.** Closing shall occur within thirty (30) days after all conditions precedent as set forth in the Agreement of Sale, (including receipt of the Approvals as set forth herein) have been either fully satisfied or waived.
13. **Agreement of Sale.** Buyer and Seller agree this Agreement is binding and sets forth the general business terms upon which the parties have agreed. Buyer and Seller further agree that, upon request from either Buyer or Seller, they shall negotiate exclusively and in good faith with each other in order to reach a mutually acceptable Agreement of Purchase and Sale ("Agreement of Sale") reflecting the points contained herein together with such other covenants, conditions, and representations as are typically incorporated into an Agreement of Sale for a transaction of this nature.

To confirm that this Agreement contains terms acceptable to the Seller, please have one copy of this Agreement executed where indicated below and return it to me at your earliest convenience. We look forward to working with you on this project.

Sincerely,



Kirt Mayland  
Manager

The undersigned hereby certify that they have the authority to negotiate, execute and enter into this Agreement and hereby affirms the Seller's agreement with the terms set forth herein.

Accepted and agreed this 1<sup>st</sup> day of August, 2017

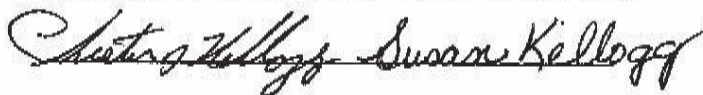
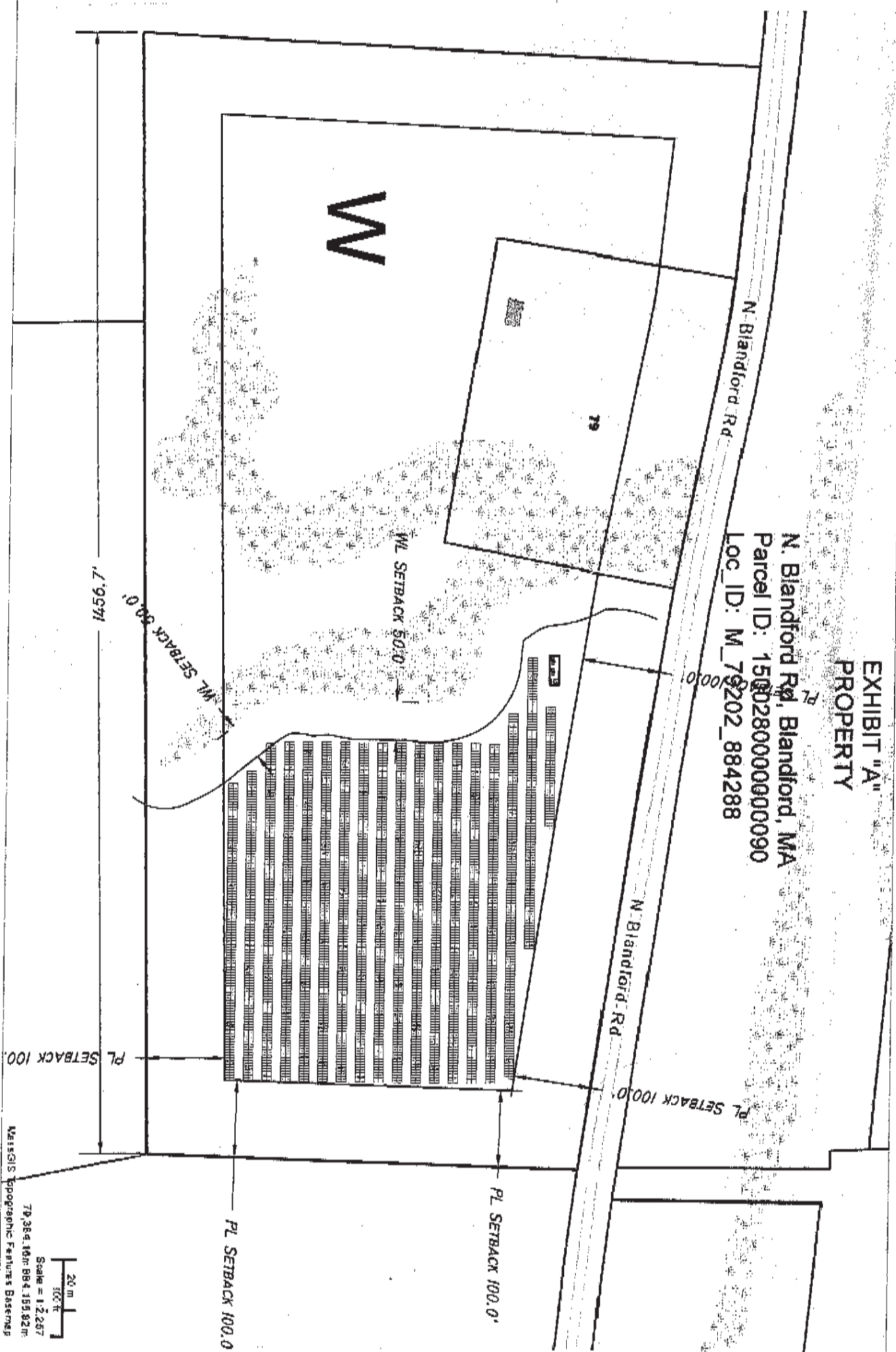


EXHIBIT "A"  
PROPERTY

N. Blandford Rd, Blandford, MA  
Parcel ID: 15000280000000090  
Loc ID: M\_79202\_884288



1,957.7

WL SETBACK 30.0'

WL SETBACK 50.0'

100.0

N. Blandford Rd

PL SETBACK 100.0'

PL SETBACK 100.0'

PL SETBACK 100.0'

PL SETBACK 100

20 m  
 100 ft  
 Scale = 1:2,257  
 79,384,140; 884,155,82 m  
 NAD83/IGS1 Topographic Features BaseMap