REQUEST FOR PROPOSALS FOR
RENEWABLE ENERGY PROJECTS

PREPARED FOR

PROVIDENCE WATER SUPPLY BOARD

JUNE 25, 2018

AMERESCO
Green • Clean • Sustainable

PREPARED FOR

PROVIDENCE WATER SUPPLY BOARD

June 25, 2018

PROVIDENCE WATER

REQUEST FOR QUALIFICATIONS FOR

RENEWABLE ENERGY PROJECTS

PRESENTED BY

Ameresco, Inc.
111 Speen Street
Framingham, MA 01701
T: (508) 661.2200 • F: (508) 661.2201

AMERESCO
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BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

BID FORM 1: Bidders Blank

1. Bids must meet the attached specifications. Any exceptions or modifications must be noted and fully explained.
2. Bidder's responses must be in ink or typewritten, and all blanks on the bid form should be completed.
3. The price or prices proposed should be stated both in **WRITING** and in **FIGURES**, and any proposal not so stated may be rejected. **Contracts exceeding twelve months must specify annual costs for each year.**
4. Bids **SHOULD BE TOTALED** so that the final cost is clearly stated (unless submitting a unit price bid), however **each item should be priced individually**. Do not group items. Awards may be made on the basis of ***total*** bid or by ***individual items***.
5. All bids **MUST BE SIGNED IN INK**.

Name of Bidder (Firm or Individual): Ameresco, Inc.

Contact Name: Kleo Taliadouros

Business Address: 111 Speen Street, Suite 410, Framingham, MA 01701

Business Phone #: 508 661 2263

Agrees to bid on (Items(s) to be bid): Solar Photovoltaic

If company is based in a state *other than Rhode Island*, list name and contact information for a local agent for service of process: National Registered Agents, Inc. 450 Veterans Highway, Suite 7A, East Providence, RI 02914

Please visit http://www.naics.com/search/ and identify the NAICS Code(s) for items being bid on. Enter the NAICS code(s) here or in parentheses next to each item listed immediately above: 237130

Delivery Date (when applicable): June 2020

Name of Surety Company (if applicable): Western Surety Company

Total Amount in Writing*: Unit Price Bid

Total Amount in Figures*: Unit Price Bid

If you are submitting a unit price bid please insert "Unit Price Bid."

Use additional pages if necessary for additional bidding details.

Signature of Representative

Joseph P. DeManche, Executive Vice President

Title

BIDDER'S BLANK ATTACHMENT 1

Providence Water Supply Board Renewable Energy Projects

Photovoltaic Project(s) Purchased or PPA

1) **Unit Price per kWh**. Please state the amount of the proposed unit price per kWh of electricity for the first year of the proposed ground mounted PV Project(s).

In Figures $ 0.0759 /kWh
In Words seven point five nine cents per kWh

2) **Escalation Factor.** Please provide a yearly escalation factor to be applied to the Unit Price per kWh after the first year.

Percentage 2 %

3) **Guaranteed kWh/Year.** Please state the guaranteed kWh for the first year of the proposed ground mounted PV Project(s).

In Figures - Our guarantee is 90%, 3-yr rolling; Guantee period 1 is 22,940,216 kWh
In Words - Gurantee period 1 is twenty-two million, nine hundred forty & two hundred sixteen kWh

4) **Date of Commercial Operation (Permission to Operate by National Grid).** Please provide the anticipated date of commercial operation of the ground mounted PV Project(s). **Please note PW reserves the right to cancel the project should the anticipated date not be met.**

Date June 30, 2020

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

BID FORM 2: Certification of Bidder
(Non-Discrimination/Hiring)

Upon behalf of Ameresco, Inc. (Firm or Individual Bidding),

I, Joseph P. DeManche (Name of Person Making Certification),

being its Executive Vice President (Title or "Self"), hereby certify that:

1. Bidder does not unlawfully discriminate on the basis of race, color, national origin, gender, sexual orientation and/or religion in its business and hiring practices.
2. All of Bidder's employees have been hired in compliance with all applicable federal, state and local laws, rules and regulations.

I affirm by signing below that I am duly authorized on behalf of Bidder, on this 22 day of June 20 18 .

Signature of Representative

Joseph P. DeManche, Executive Vice President
Printed Name

AMERESCO
Green • Clean • Sustainable

111 Speen Street, Suite 410
Framingham, MA 01701

P: 508 661 2200
F: 508 661 2201

ameresco.com

June 25, 2018

Mr. Gary Marino
Principal Engineer - Project Manager Engineering
Providence Water Supply Board
125 Dupont Drive
Providence, MA 02907

RE: Transmittal Letter and Proposal Summary
Renewable Energy Projects

Dear Mr. Marino:

In response to the Water Supply Board's ("PWSB") Request for Proposals ("RFP") for Renewable Energy Projects, Ameresco, Inc. is pleased to submit our Proposal to install, own, operate, and maintain a solar photovoltaic installation ("System") at PWSB's Baldwin/DECA site in Johnston, RI.

Ameresco Brings Solutions to Build 100% of Contracted Solar PV Projects

Ameresco provides customized solar PV solutions to our customers across the Northeast. We have built 100% of the projects we have been contracted.

We understand PWSB's objective to procure 110% of its maximum current electric usage from a renewable energy project located on available PWSB land and owned by a third party renewable energy developer.

Ameresco has evaluated all of the PWSB-owned sites that are included in the RFP for permitting and interconnection feasibility to determine the best candidates for solar PV systems that will meet PWSB's electric load requirements while providing the greatest energy savings to the Agency. We have selected the Baldwin/DECA site as the most optimal site for solar development.

Our Proposal

We propose the following solar energy system which is designed to maximize the financial benefits to PWSB. ***6,703 kW DC Solar PV System***

- 8.539 million kWh in its first operating year
- Over 238 million kWh over the 25-year PPA term
- 90% generation guarantee on a 3-year rolling basis, for the 25-year term
- $3M Payment & Performance, Operations & Maintenance, and Decommissioning Bond
- PPA rate of **0.0759/kWh with an annual 2% escalation**
- No capital expenditure required by PWSB
- Ameresco acknowledges the following Addenda 1-3 issued by PWSB.

Please note that we have also selected Joslin Farm as an alternative for a similar system with similar capacity, should local permitting or other obstacles preclude us from building the proposed capacity on the Baldwin site. **Our proposed PPA rate applies to a system on either of the two sites.**

We have not provided an EPC price to construct the project under PWSB ownership. If PWSB desires, we would be glad to provide such proposal upon request.

Benefits of Working with Ameresco

Ameresco (NYSE: AMRC, Fed Tax ID#04-3512838) is the country's largest independent energy services company, and has significant experience in developing, constructing and operating energy projects for school Towns, municipalities, government agencies, hospitals, universities, and other large, complex organizations. Our reputation, qualifications, experience, and financial strength will support PWSB in its stated goal of siting a solar energy system for the benefit of its rate payers, the environment, and reducing reliance on foreign sources of energy, as shown by the following:

- **$5 billion in constructed energy projects. 160 MW of constructed solar PV Projects.**

Ameresco has engineered and constructed more than $5 billion of energy services projects in North America. We have 160 MW of solar PV projects in operation with an additional 27 MW of projects in construction. Our projects are located at schools, landfills, parking canopies, parking garages, airports, highways, and large land areas. We financed and currently own and operate more than 100MW of these solar PV projects across all Ameresco divisions.

- **Local Presence & Significant New England Experience**

Ameresco's headquarters are in Framingham, MA approximately 1 hour away from Johnston or Scituate, and we have a large local presence in Massachusetts and neighboring states. Ameresco's Solar PV group has built over 90 landfill, rooftop, ground mount, and canopy projects locally for municipalities, public schools, Towns, universities, private schools, state agencies, and other private corporations.

- **Proven ability to complete projects under tight deadlines –**

Ameresco has under one roof the required project development, legal, engineering, construction management and financing resources to design, finance, permit and construct this large solar PV under a tight deadline thus enabling PWSB to start accumulating significant energy savings at the shortest time possible from project award.

- **100% construction and operation of contracted projects**

Ameresco has built 100% of the solar projects under contract. We have the in-house expertise to design, permit, construct, own, and operate PV facilities. We have no barriers to construction financing. Construction for the project can begin as soon as all permits are issued and contracts executed, and we already have financing for our long term solar agreements in place.

- **Profitable, financially strong, publicly traded company**

Ameresco is a financially strong, profitable public company (AMRC) with 2017 revenues of $717 million. We maintain a $87 million credit facility and a $1.4 billion bonding capacity through two corporate providers, both with an AM Best Rating of "A Excellent". PWSB can count on Ameresco to complete the System and remain in business to operate and maintain the System throughout its lifetime. Partnering with Ameresco, PWSB can rest assured that the projects will be completed, and that Ameresco, as a diversified and viable energy company, will be in business in the long term to operate and maintain the solar PV systems throughout the 25 years contractual term.

Should you have any questions or require additional information regarding our proposal, please do not hesitate to contact me at 508-661-2263 or at ktaliadouros@ameresco.com.

Sincerely,

Kleo T. Taliadouros
Director - Development

SECTION 1: QUALIFICATIONS

1. Description of the respondent's qualifications and experience developing similar projects, including the total megawatts of solar, wind, and/or hydroelectric energy systems installed and in full generation as of the date of submittal and their location. Solar and Wind Proposers must have experience developing three (3) Rhode Island projects one MW or larger. Hydro Proposers shall demonstrate that they have experience with engineering and regulatory licensing of hydropower projects through the Federal Energy Regulatory Commission (FERC).

PROJECT TEAM QUALIFICATIONS

Ameresco possesses the skills required to complete this project including licensed professional engineers, North American Board of Certified Energy Practitioners (NABCEP), certified and licensed master electricians, and certified energy managers. These resources are all in our Framingham Headquarters office, less than one hour's drive from the two proposed Project Sites in Scituate and Johnston, Rhode Island.

Ameresco's Solar PV Grid-Tie group is comprised of experienced knowledgeable individuals who are responsible for the development, design, execution and operation and maintenance of our solar PV systems. The collective technical and economic expertise of the team has been built and demonstrated on multiple rooftop and ground mount PV projects in New England. We also have an in-house financing team that works directly with our project teams to develop effective financing solutions for our solar projects.

The graphic below provides an overview of the Solar PV Grid-Tie team that implements solar PV projects for our customers and select projects that this team has worked together. An organizational chart showing the project team for Providence Water Supply Board's solar project is provided below.

AMERESCO MANAGES ALL ASPECTS OF THE PROJECT

Ameresco will be fully responsible for all aspects of the development and implementation of the proposed System on the PWSB's land, including the following:

- **Ameresco will develop, design, construct and operate and maintain the System**, providing a single point of responsibility for customer satisfaction, and to develop a successful project. This includes the negotiation of the lease with PWSB and all related contracts.
- **Ameresco manages and supervises all work by subcontractors**. All subcontractors are required by Ameresco to fully comply with the insurance, bonding, and other requirements of this RFP. Whenever Ameresco employs a subcontractor to perform a service required by the contract or to supply materials and equipment for use on the

contract, we require the subcontractor to perform at the same standards that we are required to deliver.

- **Ameresco is fully responsible for the quality and workmanship of its subcontractors**. Each Ameresco subcontract contains the same flow-down clauses and includes the requirements that are in our contract with the District. Ameresco inspects all goods delivered and services performed to assure compliance with our engineering designs.

Ameresco's team leader for the entire proposal and throughout the life of the project is:

Kleo Taliadouros, Director of Development – Eastern Region
111 Speen Street, Suite 410
Framingham, MA 01701

Phone: 508-661-2263
Fax: 508-598-3330
Email: ktaliadouros@ameresco.com

Mr. Kleo Taliadouros has 30 years of experience in the energy and environmental fields. He is responsible for the entire life cycle of the project, from opportunity origination and initial concept development through to operation. Mr. Taliadouros manages client-Ameresco relationship, conducts technical and economic feasibility analysis, and oversees all aspects of project development including permitting, design management support, construction management, commissioning, and operational support.

Mr. Taliadouros has extensive energy project development experience in Rhode Island with clients including the Community College of Rhode Island, Rhode Island College and the Town of Barrington. In addition, he was the team leader for the development and construction of PWSB's 667kW DC rooftop solar project on its new headquarters facility at 125 Dupont Drive in Providence, RI.

Mr. Taliadouros holds a Bachelor's degree from Northeastern University and a Master of Business Administration in Finance from Suffolk University.

During the development of the project, including this proposal, Kleo will be supported by Geri Kantor, and other members of the Solar PV-Grid Tie team.

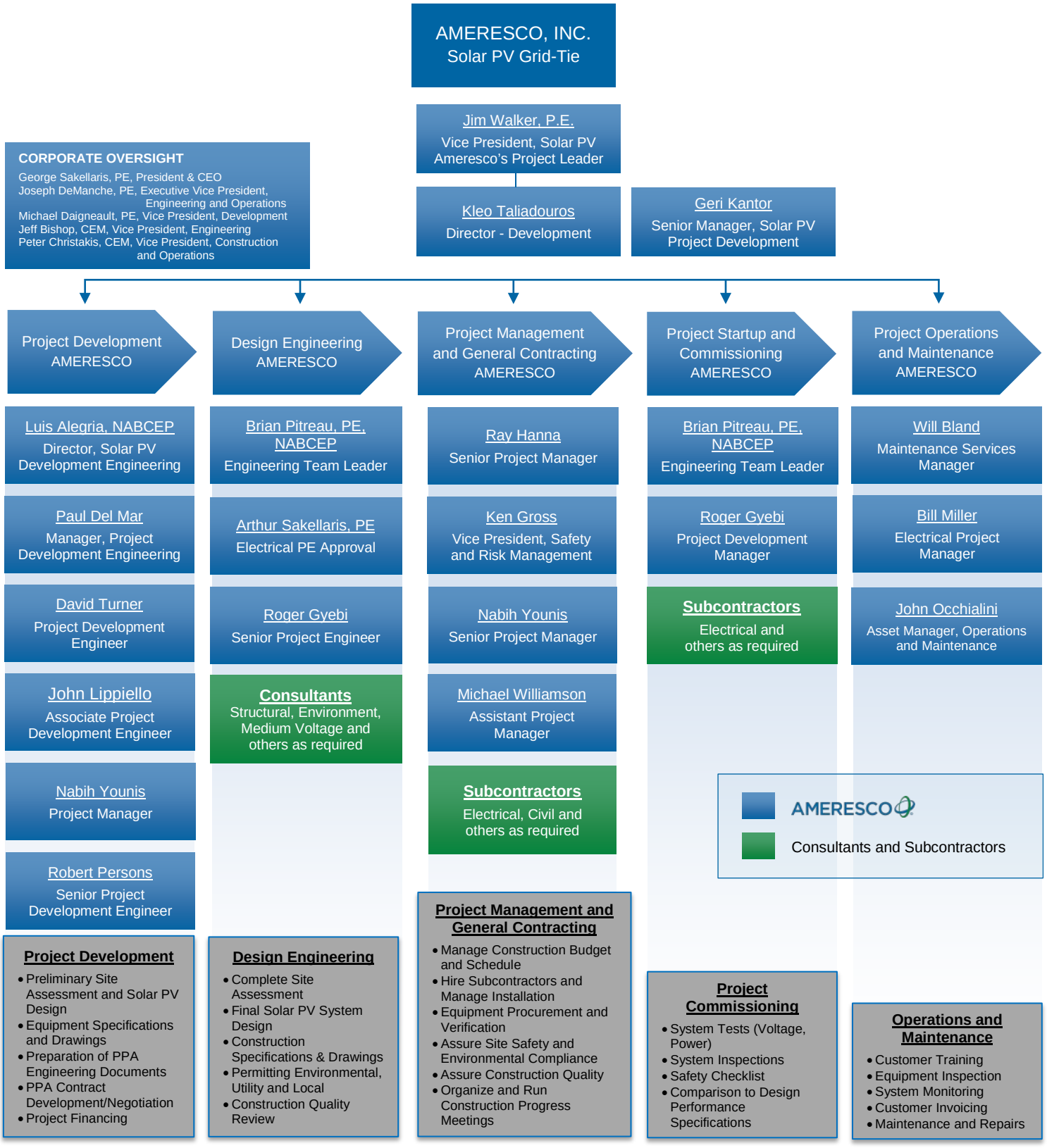
Geri Kantor, Senior Project Development Manager, Solar PV
111 Speen Street, Suite 410
Framingham, MA 01701

Phone: 508-598-3069
Fax: 508-598-3369
Email: gkantor@ameresco.com

Ms. Kantor has developed more than 25 MW of ground-mount, landfill, canopy and rooftop solar PV projects for public entities and private customers in Massachusetts, Minnesota, Rhode Island, New Jersey, and New Hampshire. Her expertise in the development, permitting, design and construction of commercial-scale solar PV projects, includes power purchase (PPA) and engineer, procure, construct (EPC) agreement development and negotiation, and environmental, state and local permitting. She manages the sale of Solar Renewable Energy Certificates from the full project portfolio for the Solar PV Grid-Tie group. Prior to joining Ameresco in 2014, she spent a decade working in corporate sustainability, greenhouse gas reduction, energy conservation, and wholesale energy procurement.

Ms. Kantor holds a Bachelor's Degree from the University of Minnesota and a Master of Environmental Management and a Master of International Relations from Yale University.

PROJECT TEAM ORGANIZATIONAL CHART



DEMONSTRATED SOLAR PROJECT EXPERIENCE

Ameresco has installed 167 MW DC of solar PV projects across the United States and Canada, 72 MW of which are located in the Eastern United States, primarily in Massachusetts. Of the 72MW of projects developed in the Eastern region, we currently manage Operations and Maintenance for 60MW with our in-house O&M personnel.

In December 2017, we completed, and are currently operating and maintaining a 667 kW DC solar PV project for the Providence Water Supply Board in Providence, RI.

RHODE ISLAND PROJECTS IN DEVELOPMENT

- **Tiverton, Rhode Island:** 12 MW solar PV project on a 70-acre parcel containing 50 acres of usable land in Tiverton, RI. The project is currently in the permitting process.
- **North Kingstown, Rhode Island**: 2.7 MW solar PV project located in North Kingstown, RI. The project is currently in the permitting process.
- **Smithfield, Rhode Island:** 3 MW solar PV project on private land is currently in the permitting process.

The table below summarizes all of Ameresco's completed and in construction Solar PV systems to date.

Table 6.1. Summary Table of Past Systems

Solar PV Projects Developed by Ameresco's Regions	Completed (kW-DC)	Completed (Number of Installations)	In Construction (kW-DC)	Awarded (kW-DC)
East USA	71,989	123	7,456	46,066
West USA	54,967	181	25,351	29,153
Federal USA	31,713	16	9,750	58,804
Canada	6,524	57	0	1,000
Ameresco Solar (Off-Grid)	2,543	7	0	0
Total	**167,736**	**384**	**42,557**	**135,023**
Total Completed/ In Construction (kW-DC)		**210,292**		

A complete list of projects completed in the Eastern region is below:

Table 6.2 Completed Solar Projects – Eastern Region

Project	Size kW DC	Location	Financing	COD (mmm-yy)	Installation Type
Providence Water Supply Board	667	Providence, RI	EPC	Dec-17	Rooftop
Town of Groton, MA	2,932	Groton, MA	PPA	Jun-16	Landfill
City of Pittsfield, MA	2,915	Pittsfield, MA	PPA	Jan-17	Landfill
MassDOT Phase 1a	2,537	Various in MA	PPA	Sep-15	Ground Mounted
City of Newton Rumford Landfill	2,500	Newton, MA	PPA	Jun-17	Landfill
Town of Weston, MA	2,347	Weston, MA	PPA	Mar-16	Landfill

City of Waltham, Phase II	1,738	Waltham, MA	PPA, Grant	Dec-11	Roof Mounted
Town of Acton, MA	1,592	Acton, MA	PPA	Dec-13	Landfill
City of Lowell, MA, Phase II	1,502	Lowell, MA	PPA	Dec-13	Landfill
Town of Sudbury, MA	1,502	Sudbury, MA	PPA	Dec-13	Landfill
Braintree MA Electric Light Department	1,300	Braintree, MA	PPA	Dec-14	Landfill
City of Newton Phase 2 Roof/Canopy	1,278	Newton, MA	PPA	Jan-17	Roof and Parking Canopy
Town of Ashland, MA	1,257	Ashland, MA	PPA	Feb-17	Canopy and Landfill
Town of Wayland, MA	1,166	Wayland, MA	PPA	Jan-17	Roof and Parking Canopy
Town of Lexington, MA	1,110	Lexington, MA	PPA	Dec-14	Roof Mounted
Town of Natick Phase IV	761	Natick, MA	PPA	Jun-17	Roof Mounted
Town of Arlington, MA	719	Arlington, MA	PPA	Oct-15	Roof Mounted
Town of Easton, MA	712	Easton, MA	PPA	Feb-17	Roof Mounted
City of Newton	686	Newton, MA	PPA	Dec-13	Roof Mounted
Braintree Electric Light Department Phase 2 - Braintree High School	664	Braintree, MA	PPA	Jan-16	Rooftop
Town of Westwood	635	Westwood, MA	PPA	Apr-17	Roof
City of Fall River	576	Fall River, MA	PPA	Dec-11	Roof Mounted
Town of Natick, Phase II	522	Natick, MA	PPA	Dec-11	Roof Mounted
City of Newburyport	502	Newburyport, MA	PPA	Sep-09	Roof Mounted
West Newbury, MA	440	West Newbury, MA	PPA	Nov-15	Ground Mounted
City of Hutchinson, MN	400	Hutchinson, MN	TELP	Dec-15	Landfill
Massport - Logan International Airport	370	Boston, MA	PPA, Grant	Dec-11	Roof Mounted
City of Lowell, Phase I	348	Lowell, MA	PPA	Nov-10	Roof Mounted
Town of Natick, Phase III	311	Natick, MA	PPA	Dec-12	Roof Mounted
City of Melrose	301	Melrose, MA	PPA	Dec-13	Roof Mounted
Walnut Hill School	235	Natick, MA	PPA	Feb-16	Roof and Carport
City of Englewood, CO	219	Englewood, CO	PPA	Dec-10	Roof Mounted
Town of Natick, Phase I	213	Natick, MA	PPA, Grant	Dec-11	Roof Mounted
City of Waltham, Phase I	193	Waltham, MA	PPA	Dec-11	Roof Mounted
Milton Academy	192	Milton, MA	PPA	Aug-12	Roof Mounted
Weston, MA Phase 2	167	Weston, MA	PPA	Jul-17	Rooftop
Bridgewater State University	103	Bridgewater, MA	PPA, Grant	May-11	Roof Mounted
Mt. Wachusetts Community College	97	Gardner, MA	Turnkey	Dec-09	Roof Mounted
Canton Housing Authority	51	Canton, MA	PPA, Grant	Dec-11	Roof Mounted
City of Revere	47	Revere, MA	ESPC	Dec-09	Roof Mounted
Cambridge Housing Authority	46	Cambridge, MA	ESPC	Dec-11	Roof Mounted

Worcester State University	41	Worcester, MA	PPA, Grant	Oct-11	Roof Mounted
Brockton Transit Authority	20	Brockton, MA	Turnkey	Dec-09	Roof Mounted
Town of Saugus, MA	1,655	Saugus, MA	PPA	Sep-17	Landfill
MassDOT Phase 1b	1,292	Various in MA	PPA	Aug-17	Ground Mounted
Mathworks	315	Natick, MA	EPC	May-17	Rooftop
Town of Lenox, MA	810	Lenox, MA	PPA	Dec-17	Landfill
MS Walker Solar	645	Dedham, MA	EPC	Dec-17	Roof Mounted
City of Northampton, MA	3,322	Northampton, MA	PPA	Nov-17	Landfill
Town of Stockbridge Landfill	898	Stockbridge, MA	PPA	Feb-18	Landfill
MassDOT Phase 2 - Hopkinton	541	Hopkinton, MA	PPA	Feb-18	Parking Canopy, Rooftop
Town of Bethel, CT	954	Bethel, CT	PPA	Dec-17	Landfill
Readington NJ	1,117	Readington, NJ	PPA	Jan-18	Rooftop and Ground Mounted
Fisher Road Solar I	6,000	Dartmouth, MA	PPA	May-14	Ground Mounted
Blue Wave Mendon and Hopedale, MA	6,900	Sturbridge, MA	Community Solar	Jun-17	Ground Mounted
Blue Wave Sturbridge, MA	2,300	Sturbridge, MA	Community Solar	Jun-17	Ground Mounted
Partners Healthcare Assembly Row Solar PV	1,249	Somerville, MA	PPA	Feb-17	Garage Canopy
New Hampshire Electric Cooperative (NHEC)	2,592	Moultonborough, NH	EPC	Dec-17	Ground Mounted
New Castle County	127	New Castle County, MD	ESPC	Feb-11	Ground Mounted
National Grid, Solar Phase III EPC - Athol	207	Athol, MA	EPC	Nov-18	Landfill
Eversource Group 2 EPC - Hampden	4,885	Hampden, MA	EPC	Mar-18	Ground Mounted

SOLAR PV EDUCATIONAL CURRICULUM

As a City of Providence Agency, PWSB's proposed solar PV project could contribute in enhancing the educational experience of the City of Providence Public Schools students.

For that purpose, Ameresco will prepare and structure a Solar PV Educational Program. The goal of this program is to educate students about the environmental benefits of using renewable energy, the history of solar PV, the science behind the technology, and the theory used in system design. After acquiring this knowledge base, student will be better able to understand and analyze data from their system's data acquisition system (DAS).

The Ameresco Solar PV Educational Program is meant to provide teachers with a database of teaching materials which includes all the necessary background and technical information as well as a compilation of lesson plans. Lessons are categorized by grade level for elementary school,

middle school, and high school to ensure that lessons are catered to the appropriate grade level. Teachers are free to pick and choose the topics and lessons that are appropriate for their class and need not use all the materials provided.

The curriculum consists of fifteen (15) Solar PV Topics meant to guide students through an understanding of solar PV from an introduction in renewable energy to the analysis of actual data. Each Solar PV Topic consists of "Topic Information" which contains the necessary background information needed to teach the topic and a set of lesson plans divided by grade level. All lesson plans were obtained from a variety of school districts and solar educational programs.

The relevancy of the topics discussed here is far-reaching and extends past the subject of solar energy into every math, science, and social studies classroom. The topics of power, energy, thermodynamics, electronics, the scientific method, economics, and history are valuable to any student. As part of these lessons, students will be encouraged to pass on the information they learn to the public at town and school events and, of course, have fun!

2. Description of the respondent's resources (financial and logistical) to successfully complete the project. (ie: detail experience completing transactions with proposed financing partners, tax equity, and municipal net metering projects).

Our finance team maintains strong relationships with a diverse set of financial institutions. Ameresco has put in place an independent, transparent, replicable bidding process to determine the right financing partner for each project. We work with lenders every day that provide competitive interest rates, interest rate locks, and have an in-depth understanding of energy-related projects. Based on experience, including Ameresco's unparalleled track record of completing projects on budget and on schedule, and current market information, there is a high level of interest for financing Ameresco energy projects among the current pool of investors in the financing market, as well as possible new entrants to the financing market. Ameresco will collaborate with the customer to evaluate all financial options. We work transparently to evaluate the pros and cons of these options with their associated economic impacts.

Ameresco has arranged financing for over $2.5 billion in energy projects including Power Purchase Agreements through tax equity Partnership Flips and Sale-Leasebacks. We have also helped secure financing for our customers from Tax Exempt Lease Purchases, Qualified Energy Conservation Bonds, and Clean Renewable Energy Bonds.

Ameresco has experience implementing a variety of financing structures, examples demonstrating our capabilities include:

- Tax exempt lease financing for municipalities, hospitals, housing authorities, and universities totaling over $615 million, including $32.4 million tax exempt lease financing for a $64 million project at a large university in Chicago, IL

- $17.5 million tax exempt lease financing for the State of Hawaii to implement 28 separate ECMs including solar PV across 6 islands
- $23.3 million taxable lease purchase Qualified Energy Conservation Bond (QECB) for the Metropolitan Airports Commission (MAC) in Minnesota for the largest solar project in the state. Ameresco collected unused allocations from area municipalities and worked with the State to reallocate this federal financing incentive back to the MAC
- Non-recourse project finance debt of $127 million for $245 million of renewable energy facilities throughout the country including both biogas and solar facilities
- Successful refinancing of five (5) ESPC task orders concurrently with the financing of a second phase of ECM implementation
- Non-recourse project financing of $58 million landfill gas to energy facilities throughout the country
- $29 million Certificates of Participation financing for a housing authority in the State of California
- $4.66 million TELP for the Kentucky Community and Technical College System
- Successful procurement of two investors to purchase six solar facilities valued at $35 million located in the Commonwealth of Massachusetts
- Deployment of a $50 million sale leaseback facility for financing solar projects developed, constructed, and owned by Ameresco across the US
- Sale and assignment of receivables totaling approximately $1.03 billion from 65 Federal Energy Savings Performance Contracts
- Structuring and securing financing for the single largest Federal Renewable Energy Savings Performance Contract to date ($195 million in 2009 plus $39 million Phase II modification in 2014)
- $22.8 million municipal advanced refunding of two separate outstanding series of Certificates of Participation for a Virginia school district in which Ameresco served as initial lessor
- $13 million financing for a city in Tennessee (private label) in which Ameresco served as initial lessor
- $24.6 million financing of two separate series of Certificates of Participation, one of which was rated AA- by S&P, for a school district in the Commonwealth of Virginia
- $6.8 million TELP financing for a housing authority located in the organized territory of the U.S. Virgin Islands
- $14.5 million TELP financing for a university in South Carolina
- $13.9 million TELP financing for a housing authority in the Commonwealth of Massachusetts.
- $59 million Certificates of Participation financing for a housing authority in the Commonwealth of Massachusetts
- $10 million capital lease for the Commonwealth of Kentucky

3. A description of the three (3) most recent Rhode Island projects similar in scope and design. For each project, provide: the name and phone number of a contact for whom the work was performed with personal knowledge of the project and the month and year when the project was initially scheduled for completion and the actual date it was completed; and the name of the staff member(s) who participated in each of the three projects identified above and their role in the project.

PROVIDENCE WATER SUPPLY BOARD – ROOFTOP

PROJECT NAME AND LOCATION	**CENTRAL OPERATIONS FACILITY: 125 DUPONT DRIVE, PROVIDENCE, RI 02907**
Contact: Name: Address: Email Address: Telephone Number	Gary Marino Principal Engineer 552 Academy Avenue Providence, RI 02908 gmarino@provwater.com (401) 521-6300 Ext. 7232
Project Dates - Start and Completion	July 2017 to January 2018
Project Size	667 KW DC
Projected Annual Electricity Generation	786,705 kWh

This 667kW roof-mounted project was built at the Central Operations Facility of the Providence Water Board. The solar installation is net-metered, with generated electricity providing credits to the Providence Water Board's current electric costs. Ameresco provided engineering, design, procurement, construction, and commissioning.

Staff Members Involved in Project: Kleo Taliadouros, Geri Kantor, David Turner, Luis Alegria, Ray Hanna, Nabih Younis, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

FISHER ROAD SOLAR I

PROJECT NAME AND LOCATION	FISHER ROAD SOLAR
Contact: Name: Address: Telephone Number	Philip DeMoranville Property Owner 54 Precinct Street 508-636-5771
Project Dates - Start and Completion	November 2013 – June 2014
Project Size	6000 kW-dc
Projected Annual Electricity Generation	7.5 million kWh

In August 2013, Ameresco was approached by the original developer of this solar PV project with the option of purchase. With the impending deadlines from the DOER, the developer was unable to secure the construction financing needed to complete 50% of the construction by the end of the year. Ameresco efficiently evaluated the feasibility of the project and executed purchase agreements in October 2013.

- Ameresco's largest solar PV installation and is located in NSTAR service territory
- This project was able to meet all DOER deadlines to secure position in SREC-I
- The net metering credits for this project are purchased by the Town of Carver and Silverlake Regional School District

Staff Members Involved in Project: Luis Alegria, Ray Hanna, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

*"Our Energy Division at Pacolet Milliken has two goals – to work with **best-in-class partners** and to invest in **high quality**, long-term renewable energy generation, and we have found both in this solar energy facility."*

Rick Webel
President of Pacolet Milliken (finance partner for this project)

GROTON ELECTRIC LIGHT DEPARTMENT – GROTON LANDFILL

PROJECT NAME AND LOCATION	GELD - TOWN OF GROTON LANDFILL 600 COW POND BROOK RD, GROTON, MA 01450
Contact: Name: Address: Email Address: Telephone Number	Kevin Kelly Manager, GELD 23 Station Avenue, Groton, MA 01450 kpkelly@grotonelectric.org 978-448-1150
Project Dates - Start and Completion	May 2015 to June 2016
Project Size	2.93 MW DC
Projected Annual Electricity Generation	3.79 million kWh

This 2.9 MW landfill and ground mount project was built on the Town of Groton capped landfill for the local municipal utility, GELD. The solar installation will supply the more than 10,000 residents of the Town with renewable energy for the next 25 years. During construction, this project required special fencing to keep Blandings turtles out of the work site, as required by the Massachusetts Natural Heritage and Endangered Species program. Another construction challenge included a storm at sea which resulted in the loss of several pallets of solar modules during shipping, however close coordination with our module manufacturer enabled the replacement of the lost modules with ultimately no delay to the project completion date. The solar PV system began commercial operation in June 2016.

Staff Members Involved in Project: Geri Kantor, David Turner, Luis Alegria, Ray Hanna, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

PROJECT NAME AND LOCATION	MA DOT HIGHWAY SOLAR – PHASE 1A MULTIPLE LOCATIONS - MA
Contact: Name: Address: Email Address: Telephone Number	Hongyan (Lily) Oliver Massachusetts Department of Transportation 10 Park Plaza, Suite 4150, Boston, MA 02116 Hongyan.oliver@state.ma.us 857-368-9025
Project Dates - Start and Completion	October 2014 to August 2015
Project Size	2.45 MW DC
Projected Annual Electricity Generation	3.19 million kWh

The Massachusetts Department of Transportation selected Ameresco from a competitive procurement on an innovative solar PV project using excess MassDOT land along Massachusetts state highways. Through this public-private partnership, MassDOT is expected to save $15 million over the 20-year project life, and zero up-front capital was required from MassDOT. The DOT will also receive lease revenue for each of the individual sites. Phase 1A of the project was completed in August 2015 and includes a total of 2.45 MW of solar PV.

MassDOT also asked Ameresco to complete a Phase 1B project (ground mounts) and a Phase 2 project (parking canopy and roof of new building) to meet the SREC II deadline set by the DOER. Phase 1b was completed in June 2017 is in the process of interconnecting to the utility.

Staff Members Involved in Project: Luis Alegria, Hanna, Mike Williamson, Nabih Younis, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

TOWN OF WESTON, MA LANDFILL

PROJECT NAME AND LOCATION	TOWN OF WESTON LANDFILL 195 CHURCH STREET, WESTON, MA
Contact: Name: Address: Email Address: Telephone Number	Donna VanderClock Town of Weston - Town Manager P.O. Box 378, Weston, MA 02493 Vanderclock.d@westonmass.org 781-786-5020
Project Dates – Start and Completion	Construction Winter 2015; Operational since April 2016
Project Size	2,267 kW
Projected Annual Electricity Generation	2.9 M kWh

The Town of Weston, Massachusetts selected Ameresco to use the Town of Weston landfill for a solar PV project. The 2.267 MW DC facility is a ballasted solar PV system that sits on top of the landfill cap to protect landfill's cap integrity. The facility was installed in coordination with on-going transfer station operations without any impact on those operations, and no delays to the solar project.

Staff Members Involved in Project: Geri Kantor, David Turner, Luis Alegria, Ray Hanna, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

CITY OF NORTHAMPTON, MA LANDFILL

PROJECT NAME AND LOCATION	CITY OF NORTHAMPTON LANDFILL 170 GLENDALE ROAD, NORTHAMPTON, MA
Contact: Name: Address: Email Address: Telephone Number	Chris Mason City of Northampton – Energy and Sustainability Officer 210 Main Street, Northampton, MA 01060 cmason@northamptonma.gov 413-587-1055
Project Dates – Start and Completion	Construction Fall/Winter 2016-2017; Operational since October 2017
PPA Size	3,174 kW
Projected Annual Electricity Generation	4.1 M kWh

The City of Northampton, Massachusetts selected Ameresco to use the City's Glendale Road landfill for a solar PV project. The 3.174 MW DC facility is a ballasted solar PV system that sits on top of the landfill cap to protect landfill's cap integrity. The facility includes a ground mount component on adjacent land, and was installed in coordination with on-going transfer station and landfill gas operations without any impact on those operations, and no delays to the solar project.

Staff Members Involved in Project: Geri Kantor, David Turner, Luis Alegria, Ray Hanna, Mike Williamson, Nabih Younis, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

CITY OF NEWTON, MA RUMFORD LANDFILL

PROJECT NAME AND LOCATION	CITY OF NEWTON, MA RUMFORD LANDFILL
Contact: Name: Address: Email Address: Telephone Number	Bill Ferguson, Energy Project Manager 1000 Commonwealth Ave Newton Centre, MA 02459 wferguson@newtonma.gov 857-404-4929
Project Dates – Start and Completion	October 2016-May 2017
PPA Size	3,174 kW
Projected Annual Electricity Generation	4.1 M kWh

In late 2015, Ameresco was awarded the 2.17 MW DC Newton Rumford landfill project. This closed and capped landfill was still an active DPW operations site that had been used for storage of street excavate, street sweepings and as a compost operation. As part of the preparation of the site for solar PV, Ameresco processed, reused or disposed of more than 70,000 cubic yards of on-site material, which added four to five months to a typical solar PV site preparation timeline. The existence of the material further complicated the solar PV design, as we worked closely with the DEP and the Town's engineering firm to develop at least five iterations of a grading plan that would accommodate continued DPW operations at the site, maximize the area available for the solar PV array, and minimize the cost associated with the processing and disposal of the existing on-site material.

This 2.17 MW DC project is comprised of nearly 6,700 325W solar panels and 47 string inverters for an AC capacity of 1.67 MW. The project reached mechanical completion in April, nearly two weeks ahead of the May 8th deadline and was in operation by July 2017.

The aerial photo of the site shown in this section was taken at approximately 90% completion.

Staff Members Involved in Project: Geri Kantor, David Turner, Ray Hanna, Luis Alegria, Mike Williamson, Nabih Younis, Brian Pitreau, Roger Gyebi, Will Bland, Bill Miller, John Occhialini

4. The contact person authorized to respond to questions and clarifications. Include telephone, FAX numbers and e-mail address.

The individual authorized to respond to questions and clarifications on this proposal is **Kleo Taliadouros**, Director – Business Development.

Phone: 508-661-2263

Email: KTaliadouros@Ameresco.com

5. Developer must have and maintain and office in New England.

Ameresco's corporate headquarters is located at 111 Speen Street Suite 410, Framingham, MA 01701.

6. Provide percentages planned for this project as noted below:

- What percentage of In-house project development capability?
- What percentage of In-house engineering design capability?
- What percentage of In-house construction management capability?
- What percentage of In-house operations & maintenance capability?

Ameresco is the lead and sole source developer for all our solar PV projects and we perform **100% in-house** the following tasks:

Project Development - Our project leaders stay with the project from development through operation

Engineering Design – dedicated team of design Professional Engineers design the project and manage the required Interconnection to LDC process.

Equipment Procurement – we have established relationships with Tier I equipment manufacturers

Construction Financing - we fund our own construction, and have established and strong project financing partners

Construction Management – our dedicated construction management team manages the

Operations and Maintenance - we own and operate our systems with our in-house staff

We subcontract**:**

- Environmental and Civil Engineering/Permitting
- Medium voltage engineering
- Electrical installation

Ameresco will work with our consultant, **PARE Corporation**, to coordinate all environmental permitting and civil engineering activities and submittals as required by State Law and Town of Johnston or Town of Scituate by-laws.

PARE Corporation's qualifications are provided on the following pages

PARE CORPORATION

Engineers | Scientists | Planners

Pare Corporation was founded in 1970 with one goal in mind — providing consistently superior service to our clients. Over the years, we have expanded both our capabilities and our staff to address the ever-changing complexities and challenges of projects in both the public and private sectors.

Today, we provide a diverse array of in-house services. By combining the resources of our experienced professional staff, and staying at the forefront of emerging technologies, we maintain a track record of solid accomplishment and are able to handle projects of any size with efficient, responsive service.

As a multidisciplinary firm of engineers, planners, environmental and wetland scientists, GIS specialists, and regulatory permitting specialists, our clients depend on us to help them work through the anxieties of the design and permitting process while sharing their sense of urgency.

Pare at a Glance

- 48 Years in Business
- 90+ Employees
- 41 Professional Engineers (Registrations in RI, MA, CT, ME, NH, VT NY, PA, OH, NJ, DE, MD, VA, GA, FL, MI, NV, CA, and ON, Canada)
- USGBC LEED-Accredited Professionals
- ISI Envision Sustainability Professionals
- Licensed Site Professionals (LSP)
- Professional Wetland Scientists
- Registered Geologists
- NICET Resident Construction Observers

Primary Markets

- *State, Municipal, and Site Infrastructure — Transportation, Water, Wastewater, Solid Waste*
- *K-12 and Higher Education*
- *Pharmaceutical and Biotechnology*
- *Dam Owners and Marine Facilities*
- *Industrial, Corporate, Institutional, and Commercial*
- *Public Buildings and Housing*

8 Blackstone Valley Place
Lincoln, RI 02865
(401) 334-4100

10 Lincoln Rd., Suite 210
Foxboro, MA 02035
(508) 543-1755

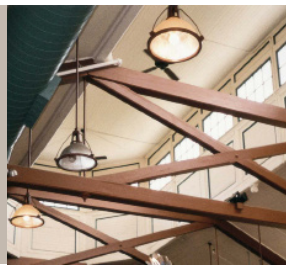
parecorp.com

PLANNING AND SITE / CIVIL

Feasibility Studies and Master Planning
Land Development and Site Design
Sustainable Design / LEED Assistance
Municipal Planning Services
Park and Recreation Planning
Sustainable Energy Development
Grading / Drainage / Utility Layout

STRUCTURAL

Building Design and Rehabilitation
Condition Surveys / Inspection
Parking Decks, Specialty Structures
Foundation Design, Historic Structures
Demolition Plans
Pre- and Post-Construction Inspections



ENVIRONMENTAL

Water Supply / Wastewater
Stormwater BMPs
Environmental Site Assessments
Site Remediation, Hazardous Waste
Hydrology and Hydraulics
Solid Waste / Resource Recovery

GEOTECHNICAL / DAM

Subsurface Investigations
Foundations and Retaining Walls
Slope Stability and Ground Stabilization
Dam Inspections, Design, Rehabilitation, and Removal
Emergency Action Plans / O&M Manuals

TRANSPORTATION

Multimodal Transportation Planning
Highways and Roadways
Bridge Design & Inspections
Parking / Traffic Studies and ITS
Bicycle and Multi-Use Facilities
Streetscape Design
Railroads and Airports

WATERFRONT / MARINE

Piers / Docks / Wharves
Seawalls / Bulkheads
Ferry Docks & Terminals
Structural Analyses & Underwater Inspections
Port Planning / Marinas
Dredging / Coastal Studies

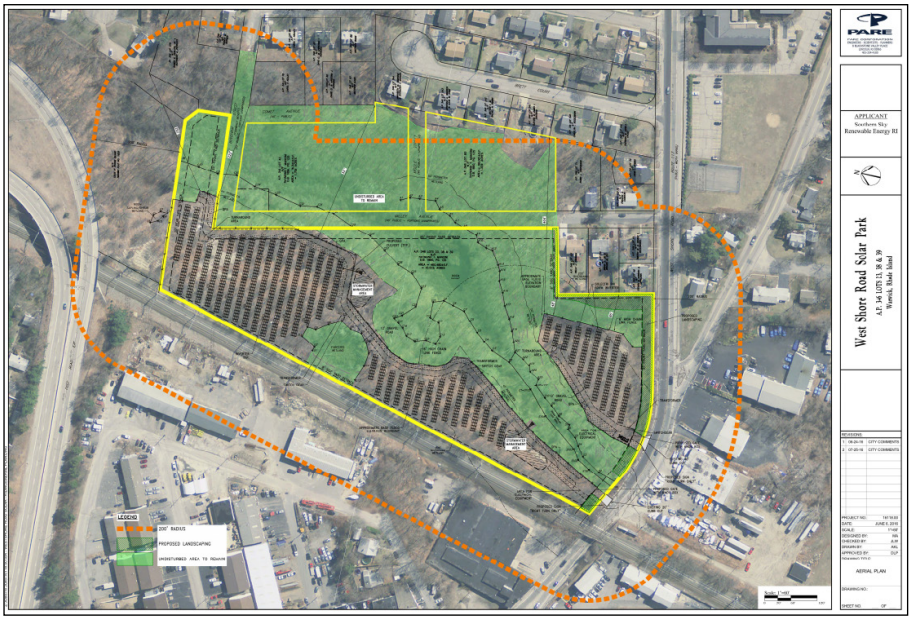
PERMITTING & SUPPORT SERVICES

Coastal & Inland Wetlands
Delineations / Mitigation / Restoration
Water / Groundwater
Regulatory Agency Coordination
LSP Services / CAD
Geographic Information Systems (GIS)
Construction-Phase Services

SOLAR ENERGY DEVELOPMENT SERVICES

Pare Corporation provides a full range of engineering, planning, permitting, and design expertise for the solar energy industry. Services provided range from due diligence, feasibility studies, permitting, and design documents to full construction observation. Pare conducts site layout, grading, drainage and utility design. Our in-house structural engineers assess structural components to support rooftop solar arrays. Our experience working with landfills and brownfields allows Pare to effectively design and permit solar installations on landfill and brownfield sites. Regardless of the project size, Pare recognizes overall project success is highly dependent on sequencing, scheduling, and regulatory compliance. Our ability to meet the needs of our clients is reinforced by the firm's full-service, in-house capabilities.

Pare professionals have presented to state permitting agencies, local Planning and Zoning Boards, environmental permitting agencies, and stakeholder/community forums to obtain the needed approvals to bring a variety of solar projects from concept to fruition.



REPRESENTATIVE SERVICES:

- **Due Diligence and Feasibility Studies**
- **Project planning**
- **Site, structural, and landfill design by Professional Engineers**
- **Stormwater management including low-impact development**
- **Preparation of site layout, grading, drainage, and utility plans**
- **Federal, state and municipal permitting**
- **Project management from conceptualization to commissioning**
- **Environmental Site Assessments and wetland permitting**
- **Seismic and wind loading analyses**
- **Geotechnical investigations**

SECTION 2: PROJECT DESCRIPTION

Describe the renewable energy systems being proposed including equipment specifications and warranties, nameplate capacity and estimated capacity factor, renewable energy production, number and type of units, generators, inverters, and description of how all project requirements are met.

OUR APPROACH

Ameresco evaluated all of the PWSB-owned sites that are included in the RFP, for permitting and interconnection feasibility to determine the best candidates for solar PV systems that will meet PWSB's electric load requirements while providing the greatest energy savings to the Agency. PARE Corporation assisted Ameresco with its evaluation in screening the sites for permitting and construction feasibility and upon award it will continue to support Ameresco with permitting and construction activities.

Baldwin/DECA Site

We selected, the Baldwin/DECA site (Site #3) as the most optimal site for solar development, due to the available physical area to install the entire solar capacity needed to supply all the requested electricity generation at one contiguous location, as well as due to the currently available capacity in the nearest feeder. Feeder capacity is a key evaluation criterion, as limited capacity indicates a real potential for high interconnection costs. The Baldwin site can potentially host a 6,703 kW DC (4980 kW AC) PV system that will produce 8,539,000 kWh in Year 1 of its operation.

Although, the Baldwin site includes several acres classified as wetlands (according to RIGIS) that may present permitting challenges we believe that site has sufficient usable land area to accommodate the proposed system. During project development activities, wetlands will be field-delineated to confirm that the site has the required usable land area.

Joslin Farm

As an alternative, Ameresco has also selected Joslin Farm (Site #2) as an alternative if local permitting or other obstacles preclude us from building the proposed capacity on the Baldwin site.

Our matrix evaluating the benefits and drawbacks of Baldwin and Joslin Farm is below.

However, please note that our proposed PPA rate applies to a system on either of the two sites.

Site	Feeder/Substation	Distance to Interconnection Point	Wetlands	Tree Clearing	Grading	Permitting
Option 1: Baldwin	Only 117 kW DG on Feeder so currently available capacity for proposed 6.7 MW project,	Approximately 1,700 ft of overhead line to point of Interconnection required NGrid also needs to extend their 3-phase another 2,904 feet, and they will include this in the stipulated interconnection costs	Wetlands present, but RIGIS not accurate. Wetlands delineation will perfomed confirm Overhead line will be routed above the existing road. Due to existing road should not have to apply for Significant Alteration Permit	6.15 acres of tree clearing mostly to prevent shading, but also to provide additional room for array.	Minor grading after tree removal	Johnston Bylaws do not reference solar. Expect Planning Board review and Zoning Board review for Special Use Permit
Option 2: Joslin Farm	4490 kW DG on Feeder Possible upgrades to feeder or substation, and perhaps DTT and 3V0	2,939 feet of overhead line to point of Interconnection required Line is before POC so Ameresco will build it rather than NGrid, which should be less expensive per linear foot	No wetlands on areas with proposed arrays, but wetlands are near area under proposed overhead line. Overhead line will be routed above the existing road. Due to existing road should not have to apply for Significant Alteration Permit	0.24 acres of tree clearing to prevent shading and to keep array in a more regular shape to reduce build costs	No grading	Scituate Bylaws do not reference solar. Expect Planning Board review only; do not expect Zoning Board review.

PERMITTING

State Permits

Either location should qualify as an insignificant alteration of wetlands because the projects avoid disturbance within the biological wetlands subject to Rhode Island Department of Environmental Management (RIDEM) jurisdiction. To confirm, PARE will perform wetlands delineation and will submit a Request to Verify Delineated Edge of Wetlands in accordance with RIDEM rules. We will submit a Request for Preliminary Determination for an insignificant alteration permit.

Local Permits

Major Land Development permitting will be required for either location. PARE will prepare the submissions for Master, Preliminary and Final Plans. Either location will require a Special Use Permit from the Zoning Board but no zoning variances are required. Either location will require stormwater management design and related permits for construction, as well as building and electrical permits.

DESIGN

Ameresco's preliminary designs on the proposed two sites is based on:

- Site visits to the proposed premises on May 3 and June 13, 2018
- Long-term weather/solar data analysis using PVSyst
- Site evaluations by our environmental, civil, and electrical subcontractors, and
- Engineering design and evaluation by our in-house engineers.

The following equipment types and configurations were selected to maximize the performance of each system.

PROPOSED GROUND-MOUNT SYSTEM INSTALLATION DETAILS

The table below specifies the equipment for the solar PV project on the Baldwin and Joslin sites. It also specifies the capacity factor and modeled Year 1 renewable energy generation. A system layout below shows the proposed locations of all modules, inverters, transformers, medium voltage equipment, and interconnection points.

Manufacturer's specification sheets for materials can be found in **Appendix B.** (equipment/materials subject to change).

PROVIDENCE WATER SUPPLY BOARD - GROUND MOUNT SYSTEM

Design	DC Capacity (kW)	AC Capacity (kW)	Inverter Type	Inverter (Qty) Model-kW	Racking Manufacturer	Racking Design	Tilt Angle	kWh in Year 1	kWh/ kWp/ Year
Baldwin	6,703.3	4980	String	(30) Solectria XGI 166 – 1500V	Pile Driven	9-wide x 2-high Portrait	15°	8,539,000	1,273.9
Joslin	6,546.78	5146	String	(31) Solectria XGI 166 – 1500V	Pile Driven	9-wide x 2-high Portrait	20°	8,540,000	1,305.1

SYSTEM INSTALLATION: DESIGN BENEFITS

Ameresco's design objectives are always a) to lower the system installation costs for a given size of constructed solar PV capacity (expressed as $/watt) and b) to increase the alternating current (AC) electricity generation output for the same generation capacity (expressed as kWh(AC)/kW(DC)).

For the PWSB project, the design choices that best achieved these objectives were the inverter and racking selection as follows:

- **Inverters**: Ameresco will provide Solectria XGI 1500V 166kW string inverters for the PV system. This inverter option was chosen as the most cost-effective means of complying with 2017 NEC requirements including rapid shutdown and arc fault detection. The selected inverters provide three-phase, 600-Volt output for economic power delivery to transformers. String inverters are selected for system installation to provide the optimal DC to AC conversion ratio for the proposed system capacity on the available land area. This design decision results in an optimized project option with a lower installation cost and lower PPA payment for PWSB.
- **Racking:** Ameresco is proposing a SolarFlex Rack mounting system (or similar) with 2x9 (2 panels high by 9 panels wide) galvanized steel racks with the panels installed in portrait configuration. Each rack is supported by two steel piles driven into the ground. This racking solution allows for increased winter generation output as the panels are elevated off the ground for snow with the lowest point on the south edge of the panels not less than 2.5 feet above the ground.

OTHER PROPOSED DESIGN ELEMENTS

Additional design elements include:

- **Installation Type**: Pile driven ground mount, 2x9 portrait racks, 2 posts per rack.
- **Installation Area**: Covering 17.8 acres. Slope between 0 – 10 degrees
- **Additional Fill**: Not expected.
- **Ground Preparation**: Minor grading, addition of gravel access roads as shown in the layout drawing, and seeding with a grass/clover mix following PV installation
- **DC System Voltage:** 1500 VDC
- **Azimuth:** 180 degrees
- **Module Orientation**: Portrait, 2x9, 15-degree tilt to maximize installed capacity and generation (20-degree tilt for Joslin)
- **Module Size**: 72-cell, 370W monocrystalline
- **String Size**: 27-module
- **Interconnection Point**: Three phase line on Pine Hill Road (or Trunk Hill Road for Josline)

- **Insolation Data**: For our PVSyst (found in **Appendix C**) analysis, we are using insolation data from TF Green Airport near Providence

We will install a 7-foot chain link fence around the solar installation with two access gates to provide site security and limit access to authorized personnel only.

EQUIPMENT SELECTION

Ameresco has exclusively installed modules from Tier I module manufacturers for our projects under Power Purchase Agreements, Energy Management Services Agreements, and Leases. Ameresco only sources from Tier I suppliers to ensure the quality of the product as well as the longevity of the manufacturer to ensure the warranty can be upheld for the duration of its term. With our solar experience, we recommend one of the following manufacturers, all of which we have used on past projects:

- **Solar Modules:** Canadian Solar, JA Solar, Jinko Solar, Yingli Solar, Hanwha SolarOne, or Hyundai Solar
- **Inverters:** Advanced Energy, Solectria, or PowerOne
- **Mounting System**: Terrasmart, SolarFlex Rack, RBI, DCE, or OMCO
- **Data Acquisition System**: Draker Laboratories, PowerDash, or AlsoEnergy

Ameresco is vendor neutral. At this point Ameresco has not made a commitment or guarantee to use any specific equipment manufacturer for the Providence Water Supply Board project, however Ameresco has assumed certain equipment manufacturers in the proposed system designs. Cut sheets for these pieces of equipment can be found in **Appendix B**. Prior to construction, Ameresco will select the Tier 1 manufacturer and procure the equipment that provides the most cost effective and highest quality solar PV system to be installed at the specific site.

EQUIPMENT WARRANTIES

The following table summarizes the specific warranties as examples of components we propose to use for this project. In Ameresco's experience, all active warranties are transferrable should the ownership of the system change.

Equipment	Manufacturer	Warranty Provisions
Modules	JA Solar, Hyundai Solar, or similar	• During the first year, JA Solar guarantees the actual power output of the module will be no less than 97% of the labeled power output. • From year 2 to year 24, the actual annual power decline will be no more than 0.7%; by the end of year 25, the actual power output will be no less than 80% of the labeled power output
Inverter	Solectria or similar	• Standard 5-year warranty • Warranty extensions to 10, 15 and 20 years for all (XGI-1500) inverters.
Racking	Solar FlexRack, or similar	Warranty for products' durability for a period of twenty (20) years after the date the Project is Substantially Completed.
DAS	Draker	Standard 5-year warranty on hardware features.

RENEWABLE ENERGY GENERATION AND GUARANTEE

Ameresco modeled the system generation using industry-leading software known as PVSyst and insolation data from TF Green Airport.

Ameresco proposes a 90%, 3-Year rolling guarantee for system generation. We note that PWSB requests that any shortfall be made up using renewable generation from another project. This is not a practical solution to a shortfall because application of net metering credits to an account is through the National Grid Schedule B. While a Schedule B could be revised once to provide credits to PWSB, and be revised back, there is no mechanism to direct a specific number of kWh to PWSB (rather it is a percentage of system generation). Moreover, there would be a several-month time lag between the shortfall and its resolution.

Ameresco proposes a shortfall payment, calculated as the delta between the average value of the C-06 net metering credit for the three years of the Measurement Period with the shortfall, minus the average value of the PPA rate for the three years of the Measurement Period with the shortfall.

A sample calculation for a 52,500 kWh shortfall in Measurement Period 3 is shown below.

Operating Year in Measurement Period 3	PPA Rate	Average PPA Rate for Measurement Period	Net Metering Credit	Average Net Metering Credit for Measurement Period	Shortfall Payment Rate (Avg. NMC-Avg. PPA)	Shortfall Payment (Shortfall Payment Rate x 52,500 kWh)
3	$0.0868	$0.0887	$0.1538	$0.1569	$0.0681	$3,577.53
4	$0.0887		$0.1569			
5	$0.0907		$0.1600			

The modeled and guaranteed generation for each year of the 25-Year PPA Term for the Baldwin site is shown on the following page.

Providence Water - Baldwin				
Guaranteed Electricity Output (kWh)				
Estimated First Year Solar PV Production		8,539,000		
Guarantee Percentage		90%		
Annual System Degradation Factor		0.5%		
Contract Year	***Annual Expected Production (kWh)*** *(Prior Year's kWh x 0.995)*	***Minumum Annual Production (kWh)*** *(Column B x 90%)*	***Measurement Period*** *(3-Year Rolling Basis)*	***Guaranteed Electricity Output (kWh)***
1	8,539,000	7,685,100		-
2	8,496,305	7,646,675		-
3	8,453,823	7,608,441	***1***	22,940,216
4	8,411,554	7,570,399	***2***	22,825,515
5	8,369,497	7,532,547	***3***	22,711,387
6	8,327,649	7,494,884	***4***	22,597,830
7	8,286,011	7,457,410	***5***	22,484,841
8	8,244,581	7,420,123	***6***	22,372,417
9	8,203,358	7,383,022	***7***	22,260,555
10	8,162,341	7,346,107	***8***	22,149,252
11	8,121,529	7,309,376	***9***	22,038,506
12	8,080,922	7,272,830	***10***	21,928,313
13	8,040,517	7,236,465	***11***	21,818,671
14	8,000,315	7,200,283	***12***	21,709,578
15	7,960,313	7,164,282	***13***	21,601,030
16	7,920,511	7,128,460	***14***	21,493,025
17	7,880,909	7,092,818	***15***	21,385,560
18	7,841,504	7,057,354	***16***	21,278,632
19	7,802,297	7,022,067	***17***	21,172,239
20	7,763,285	6,986,957	***18***	21,066,378
21	7,724,469	6,952,022	***19***	20,961,046
22	7,685,847	6,917,262	***20***	20,856,241
23	7,647,417	6,882,676	***21***	20,751,959
24	7,609,180	6,848,262	***22***	20,648,200
25	7,571,134	6,814,021	***23***	20,544,959

Ameresco may supply real-time and web-based access to the production and status of the projects while in operation. Reporting content and format will be customized to meet Providence Water's preferences. Using information from the data acquisition system, we will compare the actual production of the solar PV system to the estimated PV system production to confirm that the system is operating as expected.

The data acquisition system is composed of the following elements:

- Electricity Meter: Ameresco will install a revenue-grade electricity meter to measure the electricity generation from the solar PV array for billing purposes. We will use industry-standard, quality-approved meters.
- Weather Station: We will install a weather station to measure solar irradiance and panel temperature. This data is used by Ameresco to monitor actual electricity output against predicted output, adjusted by available sunlight.
- Supervisory control and data acquisition system (SCADA): We will also install a SCADA to control the solar plant and to record and monitor the fifteen-minute electricity data (kW and KWh) and weather data. This data and the reports will be available to the customer via the Internet.

Ameresco records generation performance monthly and prepares bills for the customer reflecting the total electricity generated (kWh) and the applicable PPA electricity (kWh) billing rate. This generation data matches the reported and verified electricity production delivered to the utility and can be viewed by our customers using a dashboard.

CONSTRUCTION APPROACH

Over the past 17 years, Ameresco has successfully designed and managed projects ranging in size from $100,000 to over $700 million across North America. Ameresco's design approach is to perform all low voltage (<1000V) design and engineering with our **in-house solar PV engineers**. We subcontract medium voltage design. Our design experience includes the challenges of working on the air side at Terminal A at Boston Logan Airport and the environmental and civil engineering challenges of a landfill.

Our in-house construction and project management teams will coordinate all implementation efforts with PWSB's facilities management, maintenance, safety and security personnel by fostering ongoing and close communication designed to ensure the right people have all the right information for the successful and timely construction of the proposed solar array.

System delivery will be overseen by a Senior Project Manager (SPM) who will manage all aspects of implementation. This **dedicated, in-house staff member** will serve as the single

point of contact during the construction phase, including equipment procurement and subcontractor selection and management. The SPM is also responsible for construction permitting and regulatory compliance by Ameresco and its subcontractors. Ameresco is well-versed in developing and constructing projects in accordance with the applicable state and federal safety, environmental and other regulations.

Ameresco will maintain onsite presence from initial site walks through construction, interconnection, and commissioning to ensure trades install the systems safely, efficiently, and in accordance with design specifications. Once the array has reached its Commercial Operation Date (COD), ongoing production assurance will be provided through a sophisticated remote monitoring system and operations and maintenance (O&M) plan. We have designed a comprehensive approach to construction management to ensure that we provide a project that achieves operational objectives with the highest level of safety at the lowest possible cost.

Ameresco has zero recordable safety violations on any of its solar installations.

SOLAR PV OPERATION AND MAINTENANCE

To date, Ameresco, as a solar PV system owner, has maintained the majority of our solar PV projects with in-house personnel. Our Framingham, MA headquarters office will be the primary service center for all O&M staff required to maintain the proposed project. The staff works diligently to ensure that any concerns are addressed quickly to minimize any downtime of the systems. For each project, an Operations Project Manager will be assigned responsibility for all operations and maintenance activities required at that site. This person will communicate with Providence Water Supply Board as needed for safe and continuous operation of the system.

It will be critical to maintain solar PV system operations without inference or disruption of the normal operations of the host facility. At construction completion, Ameresco will present Providence Water Supply Board with sets of record drawings for the completed installation. Although Ameresco will be responsible for ongoing operations of the equipment, we will train the PWSB's maintenance personnel on the equipment that has been installed, where it is located and how it interfaces with the utility grid. We will also train staff on the actions to take in the event of an emergency.

Continuous monitoring and analytics as well as the annual preventive maintenance program are the tools that will be used in the effort to maintain complete functionality of the system. Included in these services are the following:

- Ongoing operational monitoring of the system, alarm analysis and appropriate service response as and when required.
- Perform an Annual Preventative Maintenance (PM) Inspection

- Record inspection results on Maintenance Checklist documents highlighting any deficiencies.
- Review PM inspection documents and develop a corrective action plan for any deficiencies noted during the PM inspection and perform any required repairs in a timely manner.
- Utilize monitoring and PM program to ensure that the system/equipment is functioning correctly and operating as intended.
- Perform regular reviews of current O&M practices to ensure efficient procedures are in place and program is in compliance with all safety, electrical code and contractual requirements.
- Regularly review current, past, and/or reoccurring problems with equipment/system especially those affecting system production. Perform root cause analysis and develop corrective action plan(s).

SOLAR O&M SCOPE OF SERVICES

SERVICE SCHEDULE	
Service Description	**Frequency**
Active Daily Monitoring and Alert Management	
o **Production analytics***	
o Power Generation	Daily
o Predicted Power	Daily
o Irradiance vs. kW	Daily
o PV string level analytics	Daily
o **Plant alert management***	

o Device reporting alarms	Daily
o Inverter fault code alarms	Daily
o Irradiance vs. kW alarms	Daily
o Monthly performance alarms	Monthly
o Weather related alarms	Daily
o **Monthly plant reports***	
o Relevant metrics with preceding month	Monthly
o Relevant metrics with preceding year	Monthly
o Plant alarm summary	Monthly
o Corrective action summary	Monthly
**** Analysis, alerts, and reports may vary and are dependent on monitoring system data available at each plant site.***	
Annual Preventative Maintenance Reporting	
REPORT DELIVERY TO SYSTEM OWNER	Frequency
o Overall system analysis	Annual
o Annual Month by Month PV Production Report (a menu of reports available from monitoring system can be provided and included upon request)	Annual
o I-V Curve Trace Report of representative strings throughout system with performance ratios given at the string level (strings analyzed via monitoring system as possibly underperforming will also be tested)	Annual
o System visual inspection	Annual
o Thermal image scans of all readily available electrical gear	Annual

o Thermal image scans of a representative amount of array modules	Annual
o Itemized list of prescribed corrective maintenance items with supporting images	Annual
o Verification of monitoring system function including array sensors and firmware upgrades if necessary	Annual
Annual Preventative Maintenance Site Visit	
INVERTER AREA	Frequency
o Thermal image scans of all readily available PV related gear	Annual
o Voltage readings of AC and DC at inverter	Annual
o Cleaning interior of inverter and cleaning of inverter filters with compressed air	Annual
o All readily available terminations checked for torque	Annual
o Representative Photos	Annual
o Perform Manufacturers Annual Preventive Maintenance Requirements check list	Annual
ELECTRICAL INTERCONNECTION	
o Visual and thermal image scan of this area where possible without shutdown to building or creating an unsafe work environment	Annual
CONDUIT RUNS	
o Visual inspection of PV system conduit runs	Annual
o Spot check conduit coupler, connector, straps, and strut for integrity	Annual

ARRAY LOCATION(S)	
Visual scan of entire array with focus to individual module level noting	
o Broken module glass	Annual
Racking damage	Annual
o Loose racking and module clamps	Annual
o Debris around or under array	Annual
o Ground bushings	Annual
Racking grounding	Annual
o Module grounding	Annual
o Combiner box grounding	Annual
o Module clamp torques	Annual
o *DC string level testing*	
o I-V Curve Trace on representative or suspected problem strings	Annual
String level Predicted vs. Measured	Annual
o Pmax (W)	Annual
o Vmp (V)	Annual
o Imp (A)	Annual
o Voc (V)	Annual
o Isc (A)	Annual
o Fuse continuity	Annual

o All string terminations checked for torque	Annual
o All combined output terminations checked for torque	Annual
o Irradiance and cell temperatures taken during testing	Annual
o **MONITORING System Components**	
o Inspect data acquisition components ensure software upgrades if necessary and available are current	Annual
o Readily accessible array location sensors checked for function and calibration	Annual

AMERESCO Operations & Maintenance Personnel

	Name –Title	Office Phone	Cell Phone	E-mail
1	**Will Bland – *Maintenance Services Manager***	**(508) 598-3013**	**(603) 817-8007**	**wbland@ameresco.com**
2	**John Occhialini – Asset Manager**		**(781) 690-3800**	**jocchialini@ameresco.com**
3	**William Miller- *Electrical Project Manager***	**(508) 661-2297**	**(508) 494-8654**	**bmiller@ameresco.com**
5	**Don LaDue – *Operations Technician***	**(207) 438-9120**	**(603) 343-3640**	**dladue@ameresco.com**
6	**Brian Anderson- *Lead Operations Controls Specialist***		**(508) 308-6329**	**banderson@ameresco.com**
7	**Michael Beaulieau – *Operations Controls Technician***		**(860) 294-2309**	**mbeaulieau@ameresco.com**
8	**Pete Christakis- *Vice President of Construction and Operations***	**(508) 598-3028**	**(508)-308-5710**	**pchristakis@ameresco.com**

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SECTION 3: PROJECT LOCATION

Identify the proposed project locations including proximity to local grid and capability of the local grid to accept the generated power. Project sites must be located on sites owned by PW and within National Grid's service area.

We have completed more than 14 MW of projects connecting to the National Grid ("NGrid") distribution system in Massachusetts and Rhode Island. We therefore have extensive experience working with NGrid in negotiating and executing Interconnection Service Agreements and moving through the construction process to interconnection. We have been able to maintain a positive working relationship with the NGrid team while working through numerous issues on many projects.

The establishment of a clear line of communication with NGrid and a single point of contact at Ameresco is critical to providing transparency on all potential delays or changes to the project. Ameresco has employed this practice with all of our solar PV installations, including those with NGrid, and as a result has expeditiously overcome the following challenges without delay to date of commercial operation of the project:

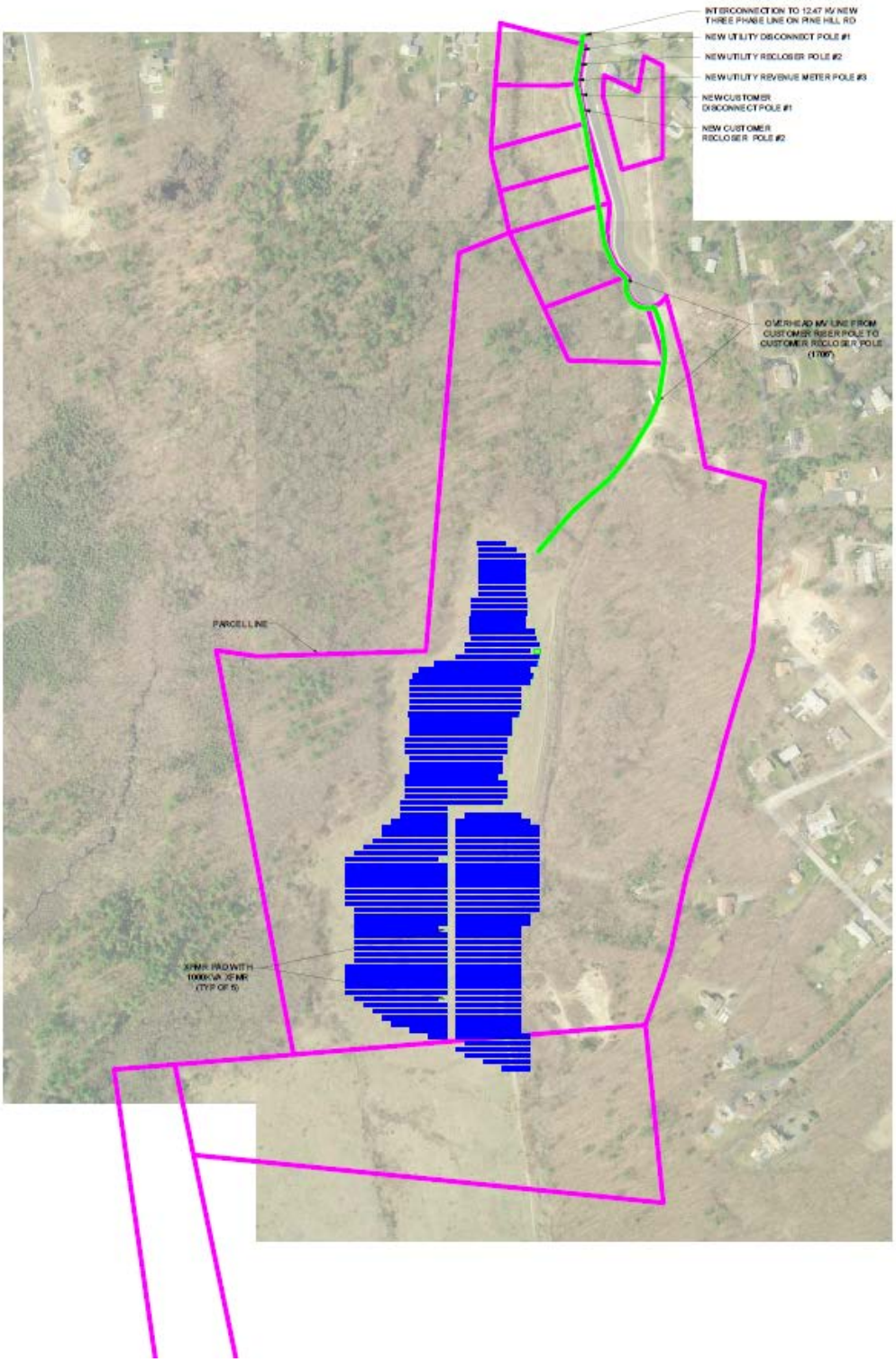
- Relocating a utility meter to allow for a code compliant installation while meeting utility standards
- Working with utility Relay and Protection Engineers to ensure that the solar installations will not adversely affect neighboring customers including:
- Providing non-standard power factors at the inverter level based on utility calculations
- Providing Remote Terminal Units to allow the utility to monitor system status
- Tailoring relay settings to address unique utility needs and situations
- Performing fault current calculations to ensure additional current from solar array will not damage equipment, especially in difficult facilities (such as an airport)
- Facilitating conversations with inverter manufacturers and the utility to help the utility better understand how the equipment will and will not affect customer facilities and power quality.
- Working with utilities to accelerate their schedules to meet the needs of our customers based on each site's needs

BALDWIN INTERCONNECTION

The selected primary site for our proposed solar PV system is the Baldwin/DECA site. The site plan is shown on the following page (the pink lines are parcel lines) and the preliminary layout is in Appendix A. We will use the majority of the available parcel land area (though the preliminary layout is subject to change after wetlands delineation and survey is complete). We have maintained a 25-foot setback from the parcel line and we keep the limit of work outside of the 50-foot wetlands perimeter.

The proposed point of interconnection is the National Grid three-phase line 0.55 miles to the north on Pine Hill Road. Ameresco will build 1,706 feet of medium voltage overhead line to the Point of Interconnection on Pine Hill Road. National Grid will also need to extend their 3-phase line by 2,904 feet.

The feeder currently has 177 kW of distributed generation according to the National Grid pre-application report we received in response to our inquiry. While we must submit an interconnection report to National Grid and await its Interconnection Study results for information on actual interconnection requirements costs, the existing available capacity on the feeder is promising and we have estimated our interconnection accordingly. We have assumed that an impact study will be required.

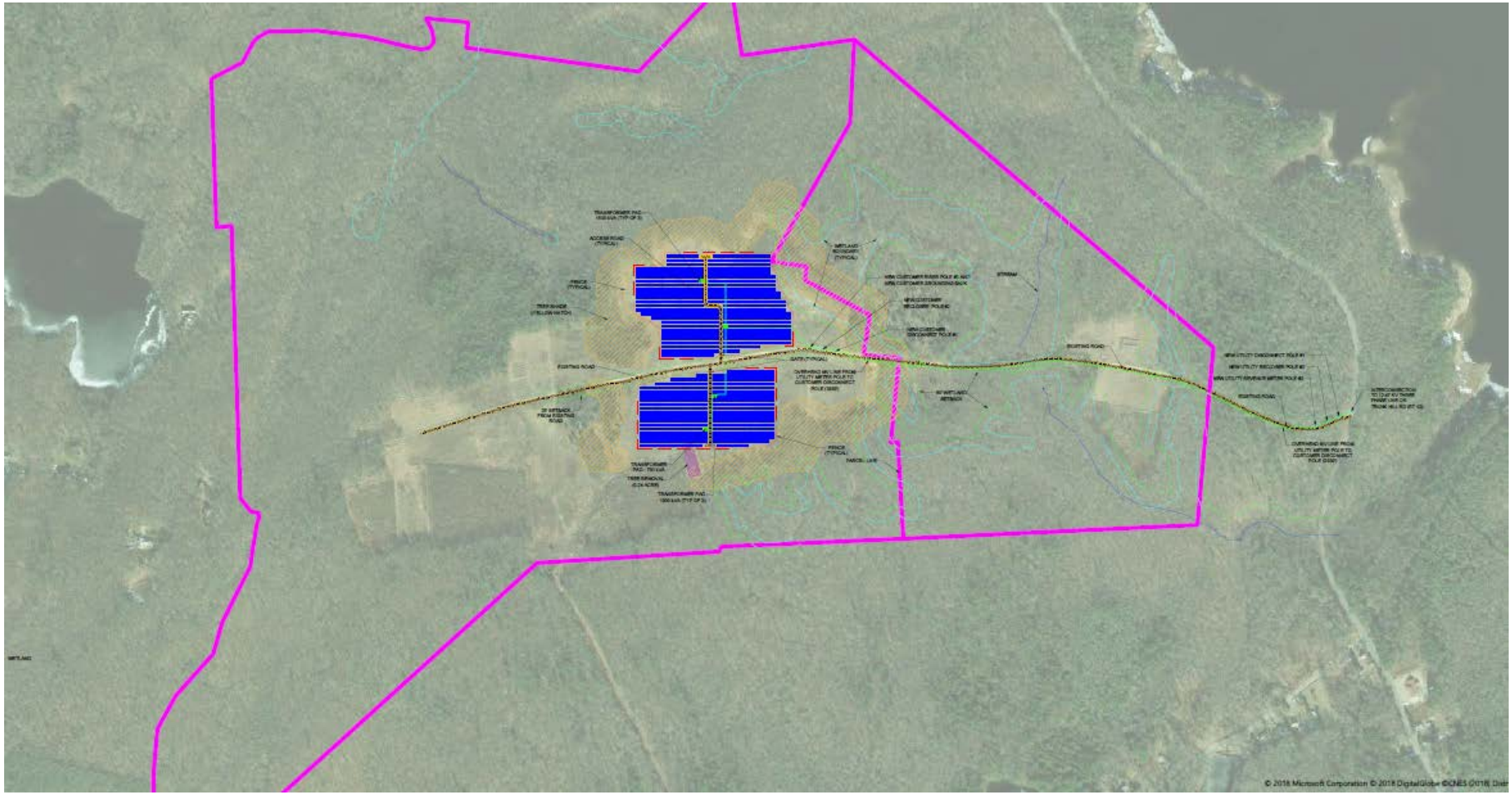


JOSLIN INTERCONNECTION

The Joslin site plan is shown on the following page (the pink lines are parcel lines) and the preliminary layout is in Appendix A. We will use the east side of the parcel land area (though the preliminary layout is subject to change after wetlands delineation and survey is complete). We have maintained a 25-foot setback from the parcel line and we keep the limit of work outside of the 50-foot wetlands perimeter.

The proposed point of interconnection is the National Grid three-phase line to the east on Trunk Hill Road (Route 12). Ameresco will build 2,939 feet of medium voltage overhead line to the Point of Interconnection on Trunk Hill Road.

The feeder currently has 4.49MW of pending and existing distributed generation on the 12.47KV feeder according to the National Grid pre-application report we received in response to our inquiry. While we must submit an interconnection report to National Grid and await its Interconnection Study results for information on actual interconnection requirements costs, we have estimated our interconnection accordingly. We have assumed that an impact study will be required.



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SECTION 4: PROJECT COSTS

Include in the proposal the total cost of the projects. Include cost of system design, installation, all applicable permitting and certification costs, and grid interconnect costs.

Ameresco is submitting a PPA proposal. Our PPA price encompasses all project costs, including design and permitting, bonding, site preparation and system installation as well as grid interconnection costs.

We have not provided an EPC price to construct the project under PWSB ownership. If PWSB desires, we would be glad to provide such proposal upon request.

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SECTION 5: FINANCIAL EVALUATION

The proposal must include the project financial analysis calculated over a 25 year life of the project and must specify the final cost of the project in $/kWh of electricity supplies. The analysis must include all costs and fees, including but not limited to design and construction, equipment costs, service contracts, warranty and maintenance fees, annual escalation fees, permitting fees, bonding costs for decommissioning and maintenance during the 25 year life expectancy of the project. The financial analysis also must not include the projected cost for financing equipment.

Up to $16.3 million in Benefit to Providence Water over the 25-Year Term. This is based on our proposed $0.0759/kWh PPA Rate, and a 2% annual escalation. The PPA rate also includes the cost of the required $3M bond for 25 years.

The cash flow analysis on the following page shows the annual benefit to PWSB for a 6.7 MW DC, 25-Year, virtually net metered project at the Baldwin site. As this is for a Power Purchase Agreement, no capital expenditure is required by PWSB.

Ameresco's price proposal is predicated on several assumptions noted below. The cost for the required $3 million bond for Payment & Performance, Operations & Maintenance, and Decommissioning is expressed as a PPA rate adder, to clearly indicate it's impact on the PPA rate. The bond is annually-renewable.

Our assumptions include:

- Virtual net metering at the C-06 rate, which is the rate for the new solar PV generation meter, calculated at $0.1478/kWh in Year 1, and a 2% annual escalation
- Class I RECs will be owned by Ameresco
- Federal Investment Tax Credit, accelerated and bonus depreciation owned by Ameresco
- Prevailing wage rates
- Construction start no later than the end of 2019 to secure the 30% ITC
- $1 annual land lease payment to Providence Water Supply Board
- Estimated property tax $5,000/MW AC in accordance with the Rhode Island legislation for property tax for solar PV systems; the tax adder shown in the table will be adjusted up or down according to the actual tax assessed

- Up to 8,500 MWh in Year 1 or 110% of annual consumption as requested. Guaranteed generation is shown in Section 2: Project Description, for the Baldwin site.
- 0.5% annual degradation factor

Summary of Project Benefits - 25-Year PPA - Providence Water Supply Board - Baldwin Ground Mount													
Contract Year	kWh Produced	Net Metering Credit Rate ($/kWh)	Ameresco Electricity Price ($/kWh)	Tax Adder ($/kWh)	Bond Adder ($/kWh)	Ameresco Total PPA Rate ($/kWh)	Rate Savings ($/kWh)	Net Metering Credit Value ($)	Net Benefit ($)	PPA Payment ($)	Annual Electricity Savings ($)	Lease Payments ($)	Total Annual Benefit ($)
1	8,539,000 kWh	$0.1478	$0.0759	$0.0029	$0.0070	$0.0858	$0.0620	1,262,150	1,262,150	(733,010)	529,139	1	529,140
2	8,496,305 kWh	$0.1508	$0.0774	$0.0029	$0.0071	$0.0874	$0.0634	1,280,956	1,280,956	(742,667)	538,289	1	538,290
3	8,453,823 kWh	$0.1538	$0.0790	$0.0029	$0.0071	$0.0890	$0.0648	1,300,042	1,300,042	(752,468)	547,574	1	547,575
4	8,411,554 kWh	$0.1569	$0.0805	$0.0030	$0.0071	$0.0906	$0.0662	1,319,412	1,319,412	(762,414)	556,998	1	556,999
5	8,369,497 kWh	$0.1600	$0.0822	$0.0030	$0.0072	$0.0923	$0.0677	1,339,072	1,339,072	(772,509)	566,562	1	566,563
6	8,327,649 kWh	$0.1632	$0.0838	$0.0030	$0.0072	$0.0940	$0.0692	1,359,024	1,359,024	(782,755)	576,269	1	576,270
7	8,286,011 kWh	$0.1665	$0.0855	$0.0030	$0.0072	$0.0957	$0.0707	1,379,273	1,379,273	(793,153)	586,121	1	586,122
8	8,244,581 kWh	$0.1698	$0.0872	$0.0030	$0.0073	$0.0975	$0.0723	1,399,825	1,399,825	(803,706)	596,119	1	596,120
9	8,203,358 kWh	$0.1732	$0.0889	$0.0030	$0.0073	$0.0993	$0.0739	1,420,682	1,420,682	(814,416)	606,266	1	606,267
10	8,162,341 kWh	$0.1766	$0.0907	$0.0031	$0.0074	$0.1011	$0.0755	1,441,850	1,441,850	(825,286)	616,564	1	616,565
11	8,121,529 kWh	$0.1802	$0.0925	$0.0031	$0.0074	$0.1030	$0.0772	1,463,334	1,463,334	(836,318)	627,016	1	627,017
12	8,080,922 kWh	$0.1838	$0.0944	$0.0031	$0.0074	$0.1049	$0.0789	1,485,137	1,485,137	(847,514)	637,624	1	637,625
13	8,040,517 kWh	$0.1875	$0.0963	$0.0031	$0.0075	$0.1068	$0.0806	1,507,266	1,507,266	(858,877)	648,389	1	648,390
14	8,000,315 kWh	$0.1912	$0.0982	$0.0031	$0.0075	$0.1088	$0.0824	1,529,724	1,529,724	(870,409)	659,315	1	659,316
15	7,960,313 kWh	$0.1950	$0.1001	$0.0031	$0.0075	$0.1108	$0.0842	1,552,517	1,552,517	(882,113)	670,404	1	670,405
16	7,920,511 kWh	$0.1989	$0.1022	$0.0031	$0.0076	$0.1129	$0.0861	1,575,650	1,575,650	(893,991)	681,658	1	681,659
17	7,880,909 kWh	$0.2029	$0.1042	$0.0032	$0.0076	$0.1150	$0.0879	1,599,127	1,599,127	(906,047)	693,080	1	693,081
18	7,841,504 kWh	$0.2070	$0.1063	$0.0032	$0.0077	$0.1171	$0.0899	1,622,954	1,622,954	(918,282)	704,672	1	704,673
19	7,802,297 kWh	$0.2111	$0.1084	$0.0032	$0.0077	$0.1193	$0.0918	1,647,136	1,647,136	(930,699)	716,436	1	716,437
20	7,763,285 kWh	$0.2153	$0.1106	$0.0032	$0.0077	$0.1215	$0.0938	1,671,678	1,671,678	(943,302)	728,376	1	728,377
21	7,724,469 kWh	$0.2196	$0.1128	$0.0032	$0.0078	$0.1238	$0.0959	1,696,586	1,696,586	(956,092)	740,494	1	740,495
22	7,685,847 kWh	$0.2240	$0.1150	$0.0032	$0.0078	$0.1261	$0.0979	1,721,865	1,721,865	(969,073)	752,792	1	752,793
23	7,647,417 kWh	$0.2285	$0.1173	$0.0033	$0.0078	$0.1284	$0.1001	1,747,521	1,747,521	(982,247)	765,274	1	765,275
24	7,609,180 kWh	$0.2331	$0.1197	$0.0033	$0.0079	$0.1308	$0.1022	1,773,559	1,773,559	(995,617)	777,942	1	777,943
25	7,571,134 kWh	$0.2377	$0.1221	$0.0033	$0.0079	$0.1333	$0.1044	1,799,985	1,799,985	(1,009,187)	790,798	1	790,799
Total	**201,144,269 kWh**								**$37,896,323**	**($21,582,150)**	**$16,314,172**	**$25**	**$16,314,197**

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SECTION 6: PROJECT SCHEDULE

A project schedule shall be included in the proposal describing the time frame necessary to complete the project and all project milestones, including but not limited to system design, interconnect application filing, permitting, construction/installation, grid interconnection, and start-up.

All proposals must include the developer's price in $/kWh for the renewable electricity over an assumed 25 year life of the project, as well as a promised amount of renewable generation annually. The quality of the renewable project must be of an adequately high standard to meet the promised generation $/kWh and proposed schedule as well as other applicable requirements. Failure to meet these requirements will result in the collection of Liquidated Damages as stated in the **Information to Bidders** page.

PRELIMINARY PROJECT SCHEDULE

The project milestones below are approximate based on our experience building projects of similar size and requirements. The schedule is also intended to account for winter weather.

Ameresco will expedite the schedule by beginning contract-level design and submitting the interconnection application to National Grid, in parallel with contract negotiation.

Please note that National Grid will provide its own schedule for any upgrade work required, and this schedule is not governed by tariff. This schedule is not under Ameresco's control, although we will work to expedite it with constant communication with the utility. Winter storm duty may extend their construction work time frame. Similarly, state and local permitting authorities have a significant amount of time for review and approval, and as such the permitting timeframe may be longer than we anticipate in the milestone schedule below.

- Award & Contract Negotiation: August - October 2018
- Design Period: October – November 2018
- Completion of Balance of System Design: December 2018
- Permitting (variable): November 2018 – April 2019
- Secure System Equipment and Assets: May - July 2019
- Installation: August - December 2019
- LDC Interconnection: November 2019 – March 2020
- Substantial Completion: March 2020
- System Commissioning/Testing: April - May 2020
- Delivery of Closeout Documentation: June 2020

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FINANCIAL ASSURANCE

Ameresco's Financial Assurance is provided on the following page.

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Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:

(Name, legal status and address)

Ameresco, Inc.
111 Speen Street, Suite 410
Framingham, MA 01701

SURETY:

(Name, legal status and principal place of business)

Western Surety Company
333 S. Wabash Ave 41st Floor
Chicago, IL 60604

OWNER:
(Name, legal status and address)
Board of Contract and Supply
City of Providence, Rhode Island
City Hall, Room 311
25 Dorrance Street

BOND AMOUNT: $ Fifty Thousand and 00/100 dollars ($50,000.00)

PROJECT:
(Name, location or address, and Project number, if any)
Renewable Energy Projects

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 25th day of June, 2018

(Witness)

Ameresco, Inc.
(Principal) *(Seal)*

(Title) VP Finance

(Witness)

Western Surety Company
(Surety) *(Seal)*

(Title) Richard F. Caruso, Attorney-in-Fact

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Gregory D Juwa, Richard F Caruso, James J Axon, Michael F Carney, Wilder Parks Jr, Michael T Gilbert, Adam W DeSanctis, Christine B Gallagher, Bryan F Juwa, Paul A Patalano, David A Boutiette, Rebecca Shanley, Jonathan E Duggan, Individually

of Woburn, MA, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 18th day of May, 2017.

WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

State of South Dakota
County of Minnehaha } ss

On this 18th day of May, 2017, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires

June 23, 2021

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

J. Mohr, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 25th day of June, 2018.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Form F4280-7-2012

Authorizing By-Law

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

APPENDIX A: SOLAR PV LAYOUTS

Solar PV Layouts are provided on the following pages.

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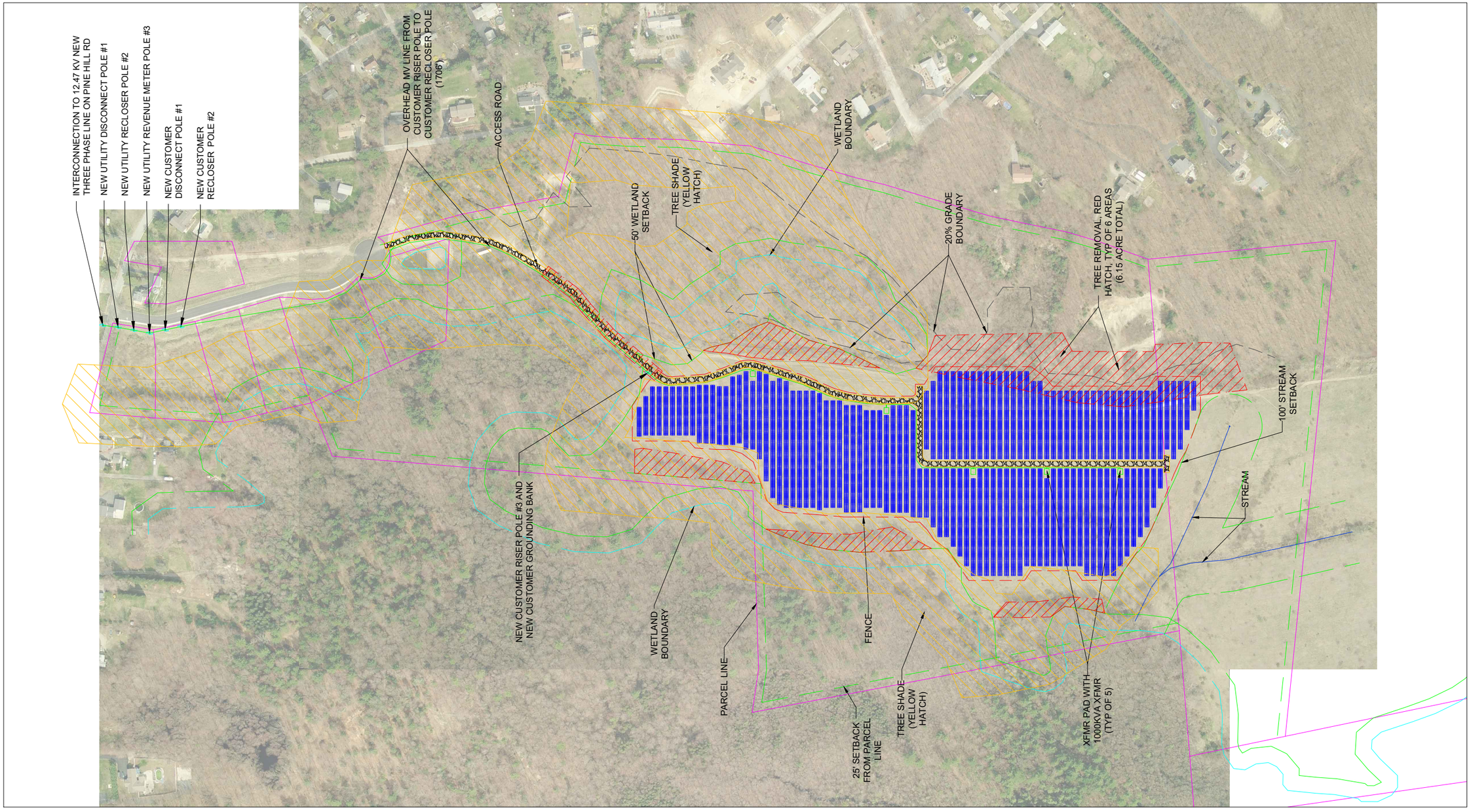
NOT FOR CONSTRUCTION

POWER TABLE														
ARRAY				MOUNT			INVERTER					TRANSFORMER		
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC	TYPE	QTY	RATING
NORTH ARRAY	18,117	JKM370M-72-V	6,703.29	180	15	PILE DRIVEN	SOLECTRIA XGI 1500	166	30	98.0%	4,980	PAD MOUNT	5	1,000
TOTAL	**18,117**		**6,703.29**								**4,980**			

NOTES:

1. SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST FROM 7:30AM TO 4:30PM, FEBRUARY 21ST FROM 9AM TO 3PM, AND DECEMBER 21ST AT NOON, TAKING INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
2. SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.
3. GROUND SNOW LOAD = XX PSF, BASIC WIND SPEED = XXX MPH (RISK CATEGORY XXX), EXPOSURE TYPE X.



PROVIDENCE WATER PROPERTY #3 - BALDWIN / DECA - OVERALL ARRAY LAYOUT

SCALE: 1"=150' WHEN PRINTED 36" x 24"

1" = 150'

0 150 300 450 600 750 900

N

SCALE: 1" = 150' WHEN PRINTED 36" x 24"
DRAWN BY: SMC
CHECKED BY:
DATE: 5-31-18
REVISIONS:

PROPERTY #3 - BALDWIN / DECA SOLAR PV
11 PINE HILL ROAD
JOHNSTON, RI

GROUNDMOUNT PV ARRAY
6703.29 kWp DC STC PV ARRAY (4980 kW AC)

PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
111 Speen Street, Suite 410
Framingham, Massachusetts 01701
(508) 661-2200

E-100

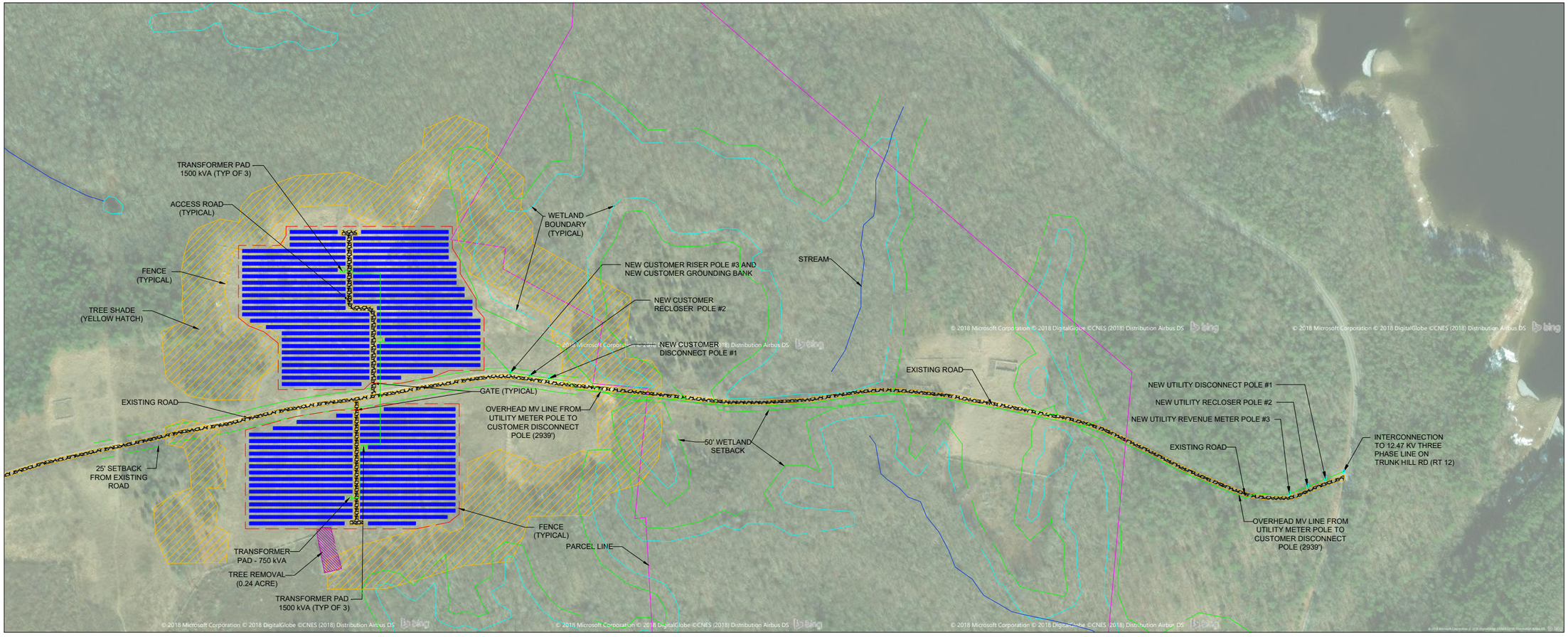
NOT FOR CONSTRUCTION

NOTES:

1. SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST FROM 7:30AM TO 4:30PM, FEBRUARY 21ST FROM 9AM TO 3PM, AND DECEMBER 21ST AT NOON, TAKING INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
2. SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.
3. GROUND SNOW LOAD = XX PSF, BASIC WIND SPEED = XXX MPH (RISK CATEGORY XXX), EXPOSURE TYPE X.

POWER TABLE

ARRAY				MOUNT			INVERTER					TRANSFORMER		
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC	TYPE	QTY	RATING
NORTH ARRAY	10,188	JINKO JKM370M-72-V	3,769.56	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	18	98.0%	2,988	PAD MOUNT	2	1500 KVA
SOUTH ARRAY	7,506	JINKO JKM370M-72-V	2,777.22	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	13	98.0%	2,158	PAD MOUNT	1 1	1,500 KVA 750 KVA
TOTAL	**17,694**		**6,546.78**								**5,146**			



PROVIDENCE WATER JOSLIN - OVERALL ARRAY LAYOUT

SCALE: 1"=200' WHEN PRINTED 36" x 24"

1" = 200'
0 200 400 600 800 1000 1200

N

SCALE: 1" = 200' WHEN PRINTED 36" x 24"
DRAWN BY: SMC
CHECKED BY:
DATE: 6-18-18
REVISIONS:

PW JOSLIN PV
FIELD HILL ROAD
SCITUATE, RI

GROUNDMOUNT PV ARRAY
6546.78 kWp DC STC PV ARRAY (5146 kW AC)

PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
111 Speen Street, Suite 410
Framingham, Massachusetts 01701
(508) 661-2200

E-100

POWER TABLE

ARRAY				MOUNT			INVERTER					TRANSFORMER		
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC	TYPE	QTY	RATING
NORTH ARRAY	10,188	JINKO JKM370M-72-V	3,769.56	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	18	98.0%	2,988	PAD MOUNT	2	1500 KVA
SOUTH ARRAY	7,506	JINKO JKM370M-72-V	2,777.22	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	13	98.0%	2,158	PAD MOUNT	1 1	1,500 KVA 750 KVA
TOTAL	**17,694**		**6,546.78**								**5,146**			

NOT FOR CONSTRUCTION

NOTES:

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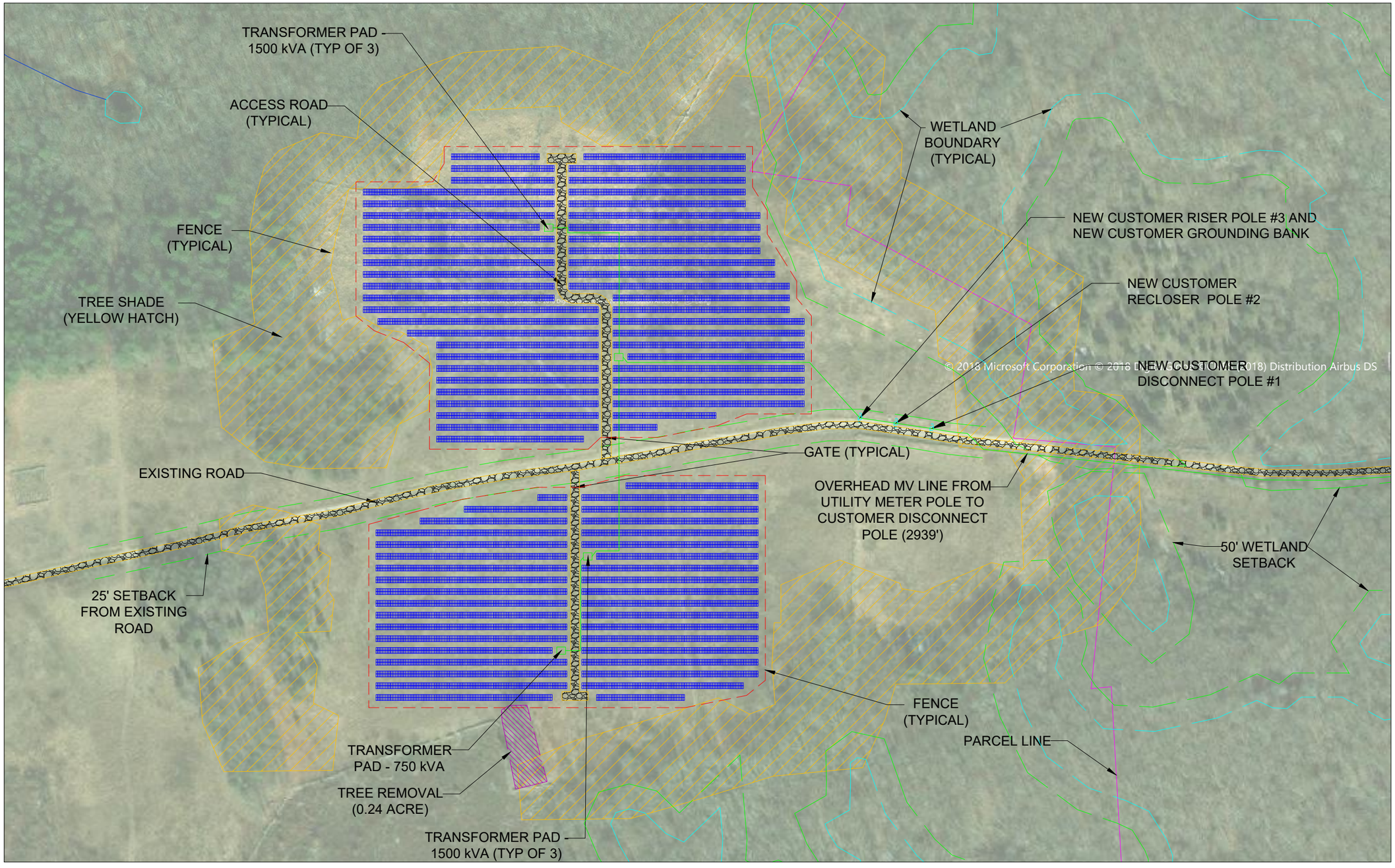

PROVIDENCE WATER JOSLIN - ARRAY DETAIL

SCALE: 1"=100' WHEN PRINTED 36" x 24"

1" = 100'
0 100 200 300 400 500 600

N

SCALE: 1" = 100' WHEN PRINTED 36" x 24"
DRAWN BY: SMC
CHECKED BY:
DATE: 6-18-18
REVISIONS:

PW JOSLIN PV
FIELD HILL ROAD
SCITUATE, RI

GROUNDMOUNT PV ARRAY
6546.78 kWp DC STC PV ARRAY (5146 kW AC)

PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
111 Speen Street, Suite 410
Framingham, Massachusetts 01701
(508) 661-2200

E-101

POWER TABLE														
ARRAY				MOUNT			INVERTER					TRANSFORMER		
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC	TYPE	QTY	RATING
NORTH ARRAY	10,188	JINKO JKM370M-72-V	3,769.56	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	18	98.0%	2,988	PAD MOUNT	2	1500 KVA
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TOTAL	**17,694**		**6,546.78**								**5,146**			

NOT FOR CONSTRUCTION

NOTES:

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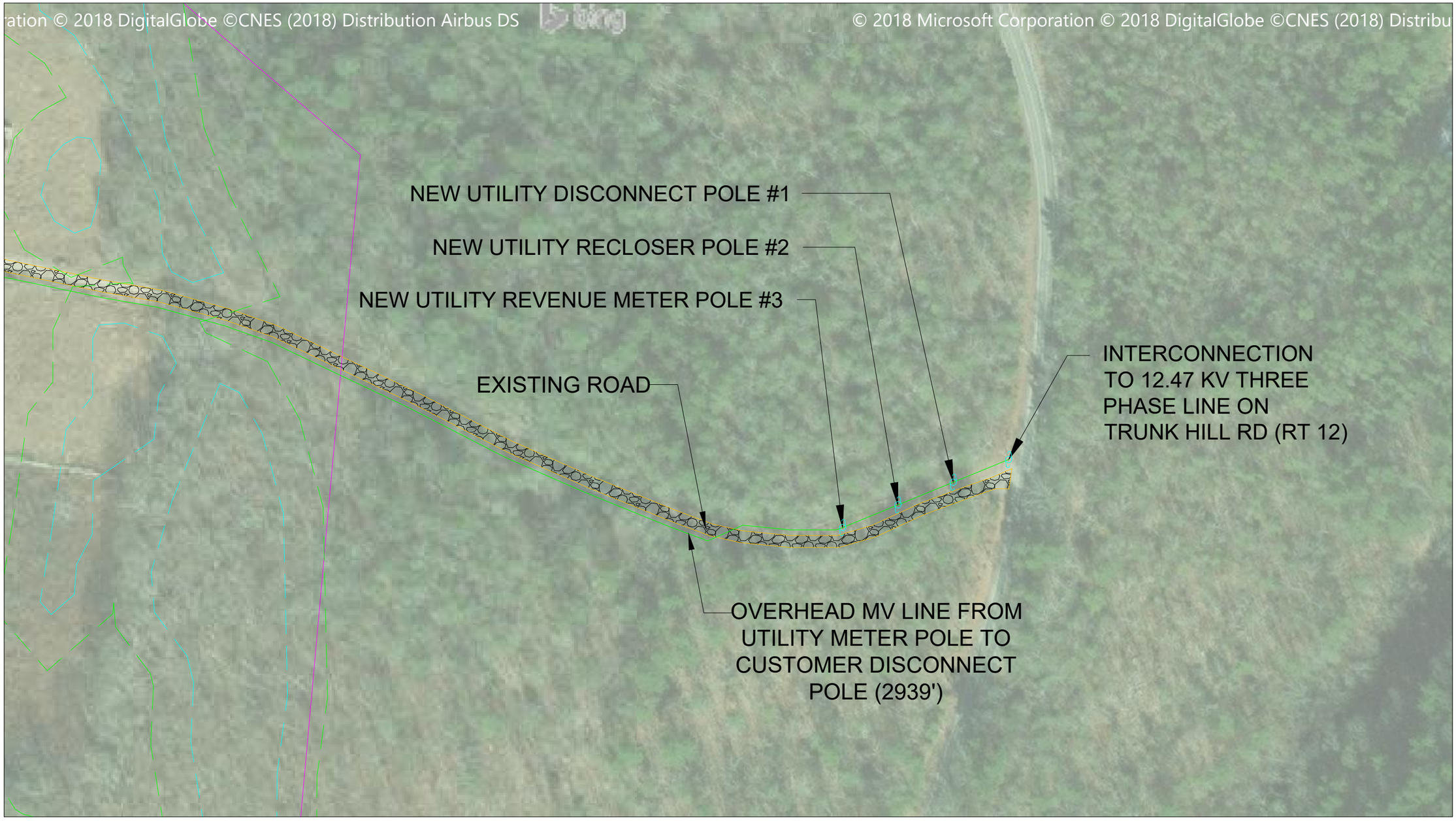


PROVIDENCE WATER JOSLIN - INTERCONNECTION DETAIL

SCALE: 1"=60' WHEN PRINTED 36" x 24"

1" = 60'

0 60 120 180 240 300 360

N

SCALE: 1" = 60' WHEN PRINTED 36" x 24"
DRAWN BY: SMC
CHECKED BY:
DATE: 6-18-18
REVISIONS:

PW JOSLIN PV
FIELD HILL ROAD
SCITUATE, RI

GROUNDMOUNT PV ARRAY
6546.78 kWp DC STC PV ARRAY (5146 kW AC)

PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
111 Speen Street, Suite 410
Framingham, Massachusetts 01701
(508) 661-2200

E-102

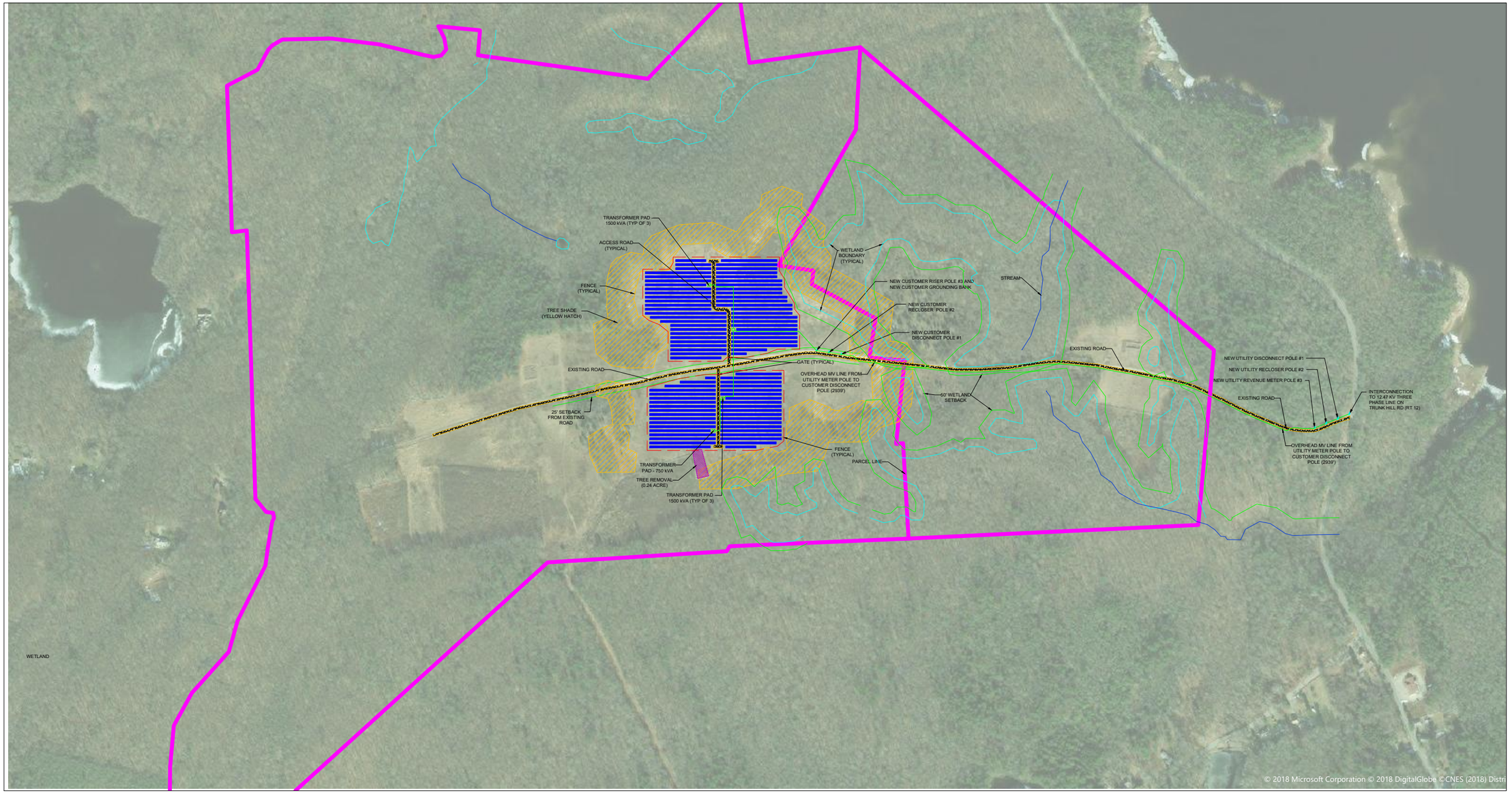
NOT FOR CONSTRUCTION

NOTES:

1. SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST FROM 7:30AM TO 4:30PM, FEBRUARY 21ST FROM 9AM TO 3PM, AND DECEMBER 21ST AT NOON, TAKING INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
2. SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.
3. GROUND SNOW LOAD = XX PSF, BASIC WIND SPEED = XXX MPH (RISK CATEGORY XXX), EXPOSURE TYPE X.

POWER TABLE

ARRAY				MOUNT			INVERTER					TRANSFORMER		
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC	TYPE	QTY	RATING
NORTH ARRAY	10,188	JINKO JKM370M-72-V	3,769.56	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	18	98.0%	2,988	PAD MOUNT	2	1500 KVA
SOUTH ARRAY	7,506	JINKO JKM370M-72-V	2,777.22	180	20	PILE DRIVEN	SOLECTRIA XGI 1500	166	13	98.0%	2,158	PAD MOUNT	1 1	1,500 KVA 750 KVA
TOTAL	**17,694**		**6,546.78**								**5,146**			



PROVIDENCE WATER JOSLIN - OVERALL ARRAY LAYOUT

SCALE: 1"=300' WHEN PRINTED 36" x 24"

1" = 300'

0 300 600 900 1200 1500 1800

N

SCALE: 1" = 300' WHEN PRINTED 36" x 24"
DRAWN BY: SMC
CHECKED BY:
DATE: 6-18-18
REVISIONS:

PW JOSLIN PV
FIELD HILL ROAD
SCITUATE, RI

GROUNDMOUNT PV ARRAY
6546.78 kWp DC STC PV ARRAY (5146 kW AC)

PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
111 Speen Street, Suite 410
Framingham, Massachusetts 01701
(508) 661-2200

E-103

APPENDIX B: CUT SHEETS

Equipment Cut Sheets are provided on the following pages.

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YASKAWA

SOLECTRIA XGI 1500

Premium 3-Ph Transformerless Utility-Scale Inverters

Features

- Made in the USA with global components
- Buy American Act (BAA) compliant
- Four models: 125kW/125kVA, 125kW/150kVA, 150kW/166kVA, 166kW/166kVA
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SA
- Robust, dependable and built to last
- Lowest O&M and installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades

Options

- Attachable string combiner for distributed architecture
- Plug & play MC4 or H4 connectors for the attachable string combiner
- Web-based monitoring
- Extended warranty

MADE IN THE USA

With U.S. and Global Components

Yaskawa Solectria Solar's XGI 1500 utility-scale string inverters are designed for high reliability and built of the highest quality components that are tested and proven to last beyond their warranty. The XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL 1741 standards for safety. The virtual HMI allows users to connect wirelessly to the inverters using a smart phone or tablet, to accelerate commissioning. The XGI 1500 inverters are the most powerful 1500VDC string inverters in the PV market, and engineered for both distributed and centralized system architecture. Designed and engineered in Lawrence, MA, the XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. The all new XGI 1500 inverters are Made in the USA with global components, and are compliant with the Buy American Act.

SOLECTRIA SOLAR

SOLECTRIA XGI 1500

Specifications

	XGI 1500-125/125	XGI 1500-125/150	XGI 1500-150/166	XGI 1500-166/166
DC Input				
Absolute Maximum Input Voltage	1500 VDC	1500 VDC	1500 VDC	1500 VDC
Maximum Power Input Voltage Range (MPPT)	860-1250 VDC	860-1250 VDC	860-1250 VDC	860-1250 VDC
Operating Voltage Range (MPPT)	860-1450 VDC	860-1450 VDC	860-1450 VDC	860-1450 VDC
Number of MPP Trackers	1 MPPT	1 MPPT	1 MPPT	1 MPPT
Maximum Operating Input Current	147.6 A	147.6 A	177.1 A	196.0 A
Maximum Operating PV Power	127 kW	127 kW	152 kW	169 kW
Maximum DC/AC Ratio	1.5	1.5	1.5	1.5
Maximum Rated PV Input (at 1.5 DC/AC Ratio)	188 kWdc	188 kWdc	225 kW	250 kW
Attachable String Combiner (Optional, engineered for use with XGI 1500 inverters)				
Maximum Number of DC Inputs	18		24	
Fuse Rating Options	15 A, 20 A, 25 A, 30 A		15 A, 20 A, 25 A, 30 A	
Fuse Configuration Options	Both polarities fused (NEC 2014), Positive polarity fused (NEC 2017)			
PV Connector Options	Amphenol H4, Multi-Contact MC4			
DC Disconnect	Isolated by use of integrated 2-Pole DC Disconnect on the XGI 1500 inverter			
Dimensions and Weight	Height: 29.5 in. (749 mm) | Width: 15.1 in. (385 mm) | Depth: 12 in. (305 mm) | Weight: 30 lbs (13.6 kg)			
AC Output				
Nominal Output Voltage	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph
AC Voltage Range	-12% to +10%	-12% to +10%	-12% to +10%	-12% to +10%
Continuous Real Output Power	125 kW	125 kW	150 kW	166 kW
Continuous Apparent Output Power	125 kVA	150 kVA	166 kVA	166 kVA
Maximum Output Current	120 A	144 A	160 A	160 A
Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
Power Factor (Unity default)	+/- 0.85 Adjustable	+/- 0.85 Adjustable	+/- 0.85 Adjustable	+/- 0.85 Adjustable
Total Harmonic Distortion (THD) @ Rated Load	<3%	<3%	<3%	<3%
Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
Fault Current Contribution (1 cycle RMS)	144 A	173 A	192 A	192 A
Efficiency				
Peak Efficiency	98.8%	98.8%	98.8%	98.7%
CEC (pending) Average Efficiency	98.5%	98.5%	98.5%	98.5%
Tare Loss	<1 W	<1 W	<1 W	<1 W
Temperature				
Ambient Temperature Range	-40°F to 140°F (-40C to 60C)		-40°F to 140°F (-40C to 60C)	
De-Rating Temperature	122°F (50C)		113°F (45C)	
Storage Temperature Range	-40°F to 167°F (-40C to 75C)		-40°F to 167°F (-40C to 75C)	
Relative Humidity (non-condensing)	0 - 95%		0 - 95%	
Operating Altitude	9,840 ft (3 km)		9,840 ft (3 km)	
Communications				
Advanced Graphical User Interface	WiFi			
Communication Interface	RJ-45 Ethernet			
Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
Web-Based Monitoring	Optional			
Firmware Updates	Remote and Local			
Testing & Certifications (pending)				
Safety Listings & Certifications	UL 1741, IEEE 1547, UL 1998			
Advanced Grid Support Functionality	Rule 21, UL 1741SA			
Testing Agency	ETL			
FCC Compliance	FCC Part 15, Class A			
Warranty				
Standard and Options	5 Years Standard; Options for 10, 15 and 20 Years			
Enclosure				
Acoustic Noise Rating	55 dBA @ 1 m			
DC Disconnect	Integrated 2-Pole 250 A DC Disconnect			
Mounting Angle	Vertical only			
Dimensions	Height: 29.5 in. (750 mm) | Width: 38.4 in. (975 mm) | Depth: 15.1 in. (384 mm)			
Weight	230 lbs (104 kg)			
Enclosure Rating and Finish	Type 4X, Polyester Powder-Coated Aluminum			

Specifications subject to change.

SOLECTRIA SOLAR

Yaskawa Solectria Solar
360 Merrimack Street
Lawrence, MA 01843
solectria.com

1-978-683-9700
Email: inverters@solectria.com

DOCR-070730-F | March 2018

YASKAWA

DRAKER
A BlueNRGY Group Ltd. Company
WE KNOW SOLAR

DRAKER PV2000™

BASE STATION PRODUCT SPECIFICATIONS

DATALOGGER

- Manufacturer Model: Campbell Scientific CR1000
- Local Data Storage: 4MB
- Automatic data transfer to Loggernet server on 15 minute intervals
- Analog inputs with surge protection

COMMUNICATION

- Two serial ports RS-485 with optical isolation surge protection
- Ethernet switch standard (single mode and multimode fiber port option)
- Monitoring up to 112 devices (approximate number of monitored devices per base station varies, based on monitoring points per device)
- Instrument power ports (for optional all-in-one weather station
- Local data interface for on-site diagnostics
- Modbus slave for local data acquisition by third party products
- Optional cellular modem

ELECTRICAL

- Input Voltage: 90-264 VAC
- Input Frequency: 47-63 Hz
- Power Consumption: 60W max.
- Power Supply: 60W, 90 to 265VAC, 1Ø, 50/60Hz

MECHANICAL

- Enclosure Dimensions (HxWxD): 18in x 16in x 10in (45.7cm x 40.6cm x 25.4cm)
- Weight: approx. 30lbs (12.7kg)

ENVIRONMENTAL

- Storage Temperature Range: -40°C to +70°C (-40°F to 158°F)
- Operating Temperature Range: -25°C to +50°C (-13°F to 122°F)
- Relative Humidity: <95%, non-condensing
- NEMA 4x enclosure (IP66 rating)

OPTIONAL INSTRUMENTATION

- RS485 reference cells - up to 3 instruments with remote power supply
- Ref cell remote power supply and junction box
- All-in-one weather station (ambient, relative humidity, barometric pressure, wind speed/direction, precipitation)
- Cell temp sensor (up to 2)
- Pyranometers (up to 3)
- Ambient temperature sensor
- Wind speed and direction sensor

Draker V7™ Software

MONITORING AND DATA ANALYTICS TO OPTIMIZE PV PERFORMANCE

Draker's NEW! V7 Software is a robust asset management platform that provides actionable intelligence for efficient management of PV portfolios. Our best-in-class solution has been comprehensively retooled to ensure that you can access performance insights anytime, anywhere.

PROJECT AND PORTFOLIO-LEVEL INSIGHT

- Compare project performance across geographic areas, technology types and O&M contracts
- Receive early indications of under-performing assets through machine-based diagnostics
- Monitor and track efficiency across all energy generation stages of a PV project

INDUSTRY-LEADING ANALYTICS AND REPORTING

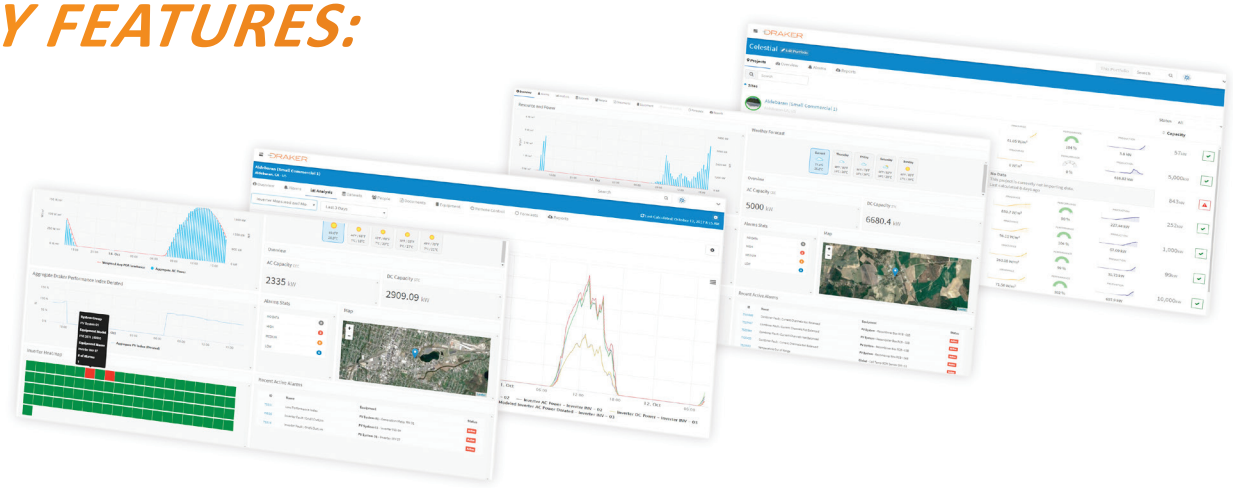
- Review comprehensive performance and financial reporting for individual sites and portfolios
- Pinpoint deviations from modeled output and risks to your long-term investments

REDUCE O&M COSTS

- Quantify and locate plant issues and array impairments with precision and specificity
- Review constant financial assessment of all impairments, with prioritized O&M action

MAXIMIZE PERFORMANCE. **MINIMIZE DOWNTIME.** **EXECUTE EFFICIENTLY.**

KEY FEATURES:



RESPONSIVE, MOBILE-FRIENDLY DESIGN

- New at-a-glance performance table shows real-time output of your entire portfolio
- Deploy maintenance personnel directly to point of the array requiring attention

INTELLIGENT ALARMS INFORM YOU OF PORTFOLIO RISKS

- Flexible alarm filters and informative and contextual alarm logs let you zero in on specific issues
- New optional alarm grouping allows quick visibility into related issues

CUSTOM CHARTING AND ADVANCED REPORTING TOOLS

- Build and save customized charts or quickly view preset graphs
- Export data in a variety of formats quickly and easily

Power[IT] Liquid Filled Three Phase Padmounted Transformers

45-3750 kVA

Industrial[IT]
enabled

ABB

Introduction to ABB

ABB is a global leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering their environmental impact.

Distribution Transformers

ABB Distribution Transformers provide the most complete line of padmounted transformers to meet the applications of any distribution system. We are a dominant force in the industry. We lead the way with the introduction of new products and services for the ever-changing distribution transformer industry.

We can offer cost-effective solutions for power distribution. We support our industry with a commitment to product development. We utilize the latest manufacturing technology to maintain state-of-the-art quality and productivity. Large vertical integration allows us to ship high quality products in the shortest possible production cycle. We are in alliances with major utilities and businesses around the world providing products and services to meet all their needs.

ABB will continue to build on a heritage of quality, customer satisfaction and technology, and capitalize on its resources, to maintain its position as the number one supplier of transformers in the industry.

Industrial^{IT}

Industrial^{IT} is the ABB name for our commitment to real-time integrated solutions for power, automation, and information.

Our Quality Policy

Total customer satisfaction through continual process improvement.

Our Values

Our values guide us in how we go about meeting our vision and mission.

Customer Success – We seek to provide solutions for mutual competitive advantage. We set the highest standards for quality, meet delivery commitments and provide high value.

Quality Excellence – We want to be recognized as a company that exceeds our customers' expectations.

ABB Quality Strategy

Start with a focus on the customer.

Measure what is important.

Define a benchmark for "highest standard for quality."

Have a means to dramatically improve performance against the benchmark.

Three Phase Padmounted Transformers

The ABB MTR is an oil-filled, three-phase, commercial padmounted distribution transformer specifically designed for servicing such underground distribution loads as shopping centers, schools, institutions and industrial plants. It is available in both live front and dead front construction, for radial or loop feed applications, with or without taps.

ABB MTR meets the following industry standards:

ANSI C57.12.00
ANSI C57.12.22
ANSI C57.12.26
ANSI C57.12.28
ANSI C57.12.29
ANSI C57.12.70
ANSI C57.12.80
ANSI C57.12.90
ANSI C57.91
NEMA TR1
WUG 2.13 Rev. 4

Ratings:

- 45 through 3750 kVA
- 65° C average winding rise
- 60 hertz standard, 50 hertz optional

45-1500 kVA

- High voltages: 4160 Grd Y/2400 through 34,500 Grd Y/19,920 for Grounded Wye systems; 2400 through 34,500 for Delta systems; various dual high voltages

2000-3750 kVA

- High voltages: 7200 Grd Y/4160 through 34,500 Grd Y/19,920 for Grounded Wye systems; 4160 through 34,500 for Delta systems; various dual high voltages
- Taps: All voltages are available with or without taps
- Insulation classes: 35 kV, 150 kV BIL and below

45-1500 kVA

- Low voltages: 208Y/120, 216Y/125, 460Y/265, 480Y/277, 480Δ, 240Δ and 240Δ with 120 volt mid-tap in one phase; (4160Y/2400, 4160Δ, 2400Δ , 2400/4160Y/2400 for 500 kVA and larger)

2000-3750 kVA

- Low voltages: 460Y/265, 480Y/277, 480Δ, 4160Y/2400, 2400Δ, 2400/4160Y/2400

Standard Features:

1. Four lifting lugs.
2. Bolted-on terminal compartment (18" or 24" deep depending on KVA) with removable front sill.
3. Hinged, lift-off cabinet doors.
4. Interlocked penta-head bolt/padlock handle operates a cam assembly which is part of the 3-point door latching mechanism. (A hex-head bolt is available.)
5. For live front construction, externally clamped high voltage porcelain bushings with a single eyebolt, clamp-type connector (accommodates #6 AWG solid to 250 MCM stranded conductors).
6. For dead front construction, externally clamped high voltage bushing wells for loadbreak or non-loadbreak inserts.
7. Lightning arrester mounting pads (live front only).
8. Tank ground pads (1 in HV, 1 in LV).
9. Steel high/low voltage compartment barrier.
10. One 1/2" penta-head bolt must be removed from the flange formed on the steel high/low barrier before the HV door can be opened (1/2" hex-head bolt available as an option).
11. Externally clamped low voltage bushings with threaded copper stud for full load current below 2100 amps. Externally clamped integral low voltage bushings for current above 2100 amps. NEMA spades provided per ANSI hole requirements.
12. Nameplate.
13. Fill plug and self-actuating pressure relief device.
14. Drain plug.
15. Removable neutral ground strap.
16. Five-legged core/coil assembly.
17. Handhole cover bolted onto tank top (protected by weathercover).
18. Panel-type coolers.
19. NEMA safety labels.
20. The paint finish process applies a durable, corrosion resistant finish to the product. The finish meets or exceeds all the performance requirements of ANSI C57.12.28. The multi-step process includes an epoxy primer uniformly applied by cationic electrodeposition and a urethane top coat.

Optional Features:

Primary Termination

- Externally-clamped bushing wells with loadbreak or non-loadbreak inserts.
- Integral loadbreak bushings.

Secondary Termination

- Externally-clamped bushings with NEMA 6-hole, 8-hole, 10-hole, or 12-hole spades.
- Spade supports are available. They are provided for 8-hole spades and larger when the current is 1400 amps or greater.

Primary Switching

- LBOR oil switch: one for radial, two for loop feed.
- Externally-operated tap changer.
- Externally-operated dual voltage switch.
- Externally-operated delta-wye switch.

Overcurrent Protection

- Internal primary protective links.
- Bayonet-type expulsion fuses.
- Drawout, loadbreak current limiting fuses, with or without interlocking transformer switch.
- Secondary oil circuit breaker.
- Internal, partial-range current limiting fuses.

Overvoltage Protection

- Distribution class, metal oxide arresters, 3-36 kV.
- Distribution class, valve-type lightning arresters, 3-27 kV.

Construction Options

- 18", 24" and 30" deep terminal cabinet.
- Drain valve and sampling device.
- Mounting plate for CT's or PT's.
- Interphase barriers.
- Molded case external secondary breaker.
- Substation Accessories – Oil gauge, thermometer, drain valve and sampler, pressure-vacuum gauge provision.
- Weathercover.
  - Transformers may feature an optional weathercover over the cabinet which is hinged to allow clearance for replacement of the bayonet-type fuses.
  - The weathercover can be lifted easily into place and secured with a single supporting arm.
  - The weathercover requires no additional holddown hardware.

Some optional features are not available on larger kVA units.

Live Front, Radial Feed

ANSI Fig. 1, 2, and 3 (C57.12.22)

KVA	A	B	C	D	E	Wt.	Gal. of Oil
75	54.5	56	44.8	44.8	56	2280	115
112	54.5	56	44.8	44.8	56	2400	115
150	54.5	56	44.8	44.8	56	2700	125
225	54.5	56	49.8	46.8	56	3350	150
300	54.5	60	50.8	46.8	56	3650	165
500	58.5	66	58.8	48.8	56	5200	200
750	66.5	81	60.8	50.8	66	7100	270
1000	66.5	84	62.8	52.8	66	7900	320
1500	66.5	86	66.8	54.8	66	9700	390
2000	70.5	92	68.8	58.8	70	12800	430
2500	70.5	98	70.8	58.8	70	14100	500
3000	Contact Factory						
3750	Contact Factory						

Design Dimensions:

Approximate weights and dimensions: Dimensions are in inches, weights are in pounds. Dimensions may change to meet the customer spec.

Dead Front, Radial Feed

ANSI Fig. 1, 3, and 4 (C57.12.26)

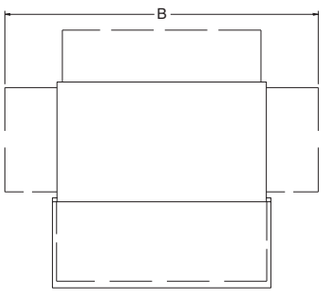
KVA	A	B	C	D	E	Wt.	Gal. of Oil
75	46.5	62	44.8	44.8	62	2350	115
112	46.5	62	44.8	44.8	62	2450	115
150	46.5	62	44.8	44.8	62	2700	125
225	46.5	62	49.8	46.8	62	3400	150
300	46.5	62	50.8	46.8	62	3700	165
500	54.5	66	58.8	48.8	62	5400	200
750	58.5	81	60.8	50.8	66	7100	270
1000	66.5	84	62.8	52.8	66	7900	320
1500	66.5	86	66.8	54.8	66	9700	390
2000	70.5	92	68.8	58.8	70	12800	430
2500	70.5	98	70.8	58.8	70	14100	500
3000	Contact Factory						
3750	Contact Factory						

Dead Front, Loop Feed

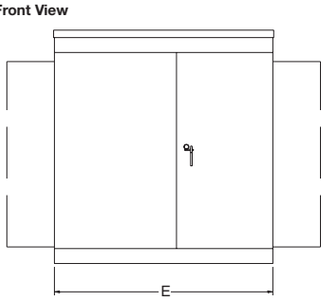
ANSI Fig. 2, 3, and 4 (C57.12.26)

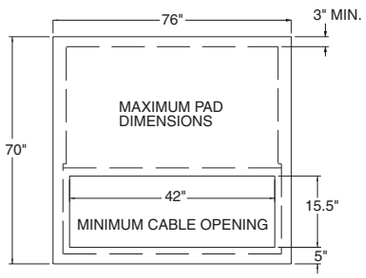
KVA	A	B	C	D	E	Wt.	Gal. of Oil
75	54.5	66	44.8	44.8	66	2400	120
112	54.5	66	44.8	44.8	66	2500	120
150	54.5	66	44.8	44.8	66	2800	130
225	54.5	66	49.8	46.8	66	3500	160
300	54.5	66	50.8	46.8	66	3800	170
500	54.5	68	58.8	48.8	66	5600	200
750	66.5	82	60.8	50.8	70	7400	270
1000	66.5	86	62.8	52.8	70	8200	320
1500	66.5	88	66.8	54.8	70	10300	390
2000	70.5	92	68.8	58.8	70	12800	430
2500	70.5	98	70.8	58.8	70	14100	500
3000	Contact Factory						
3750	Contact Factory						

Top View

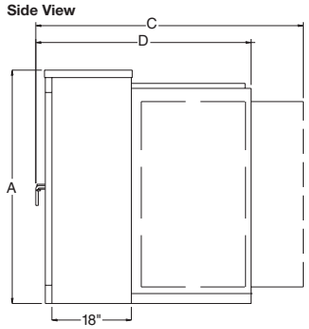


Front View





Side View



Fliptop Cabinet Design

We offer a fliptop air enclosure for three phase padmounted transformers. It is designed to improve operation and to better withstand its outdoor environment. New manufacturing equipment has allowed ABB to fabricate a "fliptop" cabinet design to better serve the needs of our customers. Material choices consist of both carbon steel and stainless steel.

The improvement features of the new cabinet design include:

- One piece "sloped" cabinet weather cover. The cabinet weather cover has a four degree sloped surface to shed all moisture to the rear of the transformer.
- Both the handhole weather cover and the full tank weather cover have a four degree sloped surface to shed water. The full tank weather cover option extends beyond the rear of the transformer to insure all moisture is directed away from the top of the tank.
- The cabinet weather cover support arm is free floating and locks into place automatically. This allows the linemen to use both hands when raising the cover. No reaching into the compartment is necessary to secure the cover in place.
- The cabinet weather cover can be rotated beyond center or easily removed for better access into the the cabinet compartment. The capability of "pulling" cables from above was a feature requested by utilities.

Support Arm Locking Mechanism

- The interface between the sidewalls and the cabinet weather cover has been redesigned to better receive the weather cover when closed. This new interface minimizes surface contact to prevent the rubbing of paint.

Sloped Tank and Cabinet Weather Cover

This cabinet design has successfully passed all industry tamper resistance requirements. Using Guidelines for Testing Enclosure Integrity, the design passed pry tests, pull tests, wire probe tests, deflection tests, and the operation test. The tests performed confirm that the cabinet meets the tamper resistance requirements of ANSI C57.12.28 at both 0 and 15 psig, as well as ANSI C57.12.22.1989 and ANSI C57.12.26.1992 demonstrating sufficient strength to withstand an internal static pressure of 7 psig without permanent distortion and 15 psig without rupturing or displacing components of the transformer or affecting cabinet security.

MTP Mini-Three Phase Padmounted Transformer

The Mini-Three Phase Padmounted Transformer (MTP) is designed for the needs of utility customers to reduce costs and improve aesthetics. The design is easier to handle, install and maintain. The discreet profile of the MTP is ideal for commercial applications such as banks, stores and restaurants.

The MTP features a hood and removable sill instead of doors. The design allows easy access for installation and maintenance of the transformer.

The ABB MTP meets the following industry standards:

ANSI C57.12.00	NEMA TR-1
ANSI C57.12.26	ANSI C57.12.28
ANSI C57.12.29	WUG 2.13, Rev. 4
ANSI C57.12.70	ANSI C57.91
ANSI C57.12.80	ANSI C57.12.90

Ratings @ 65° C Rise:

KVA: 45-150 kVA
HV: 4160GY/2400 through 24940Y/14400VΔ at 95 BIL spacing only, 2400Δ through 14400Δ at 95 BIL spacing only
BIL: 60, 75, 95 kV
LV: 208Y/120, 216Y/125, 460Y/265, 480Y/277, 480Δ, 240Δ and 240Δ with 120 volt mid-tap in one phase
60 hertz standard, 50 hertz optional

Standard Features:

1. A flip-top hood and heavy duty 3/8", removable stainless steel hinge pins provide safe and durable service.
2. A recessed locking assembly with padlock provisions and a penta-head locking bolt is standard for tamper-resistant operation. A hex-head locking bolt is available.
3. All tanks are constructed of heavy gauge steel. Tank seams are welded and each unit is pressure tested and inspected for leaks prior to shipment.
4. The front sill latches with the flip-top hood, is attached on the side of the tank and is removable.
5. The high voltage universal bushing wells are externally clamped and removable. A parking stand between the bushing wells is provided for attachment of bushing accessories.
6. Externally clamped low voltage bushings.
7. Loop or radial feed, dead front only for high voltage configurations. Loop pattern will be loop "V" with minimum dimensions per ANSI C57.12.26, Fig. 2 at 8.3/14.4 kV. Radial pattern will be either horizontal with minimum dimensions per ANSI C57.12.26, Fig. 1 or a non-ANSI slant pattern.
8. Standard low voltage pattern is the staggered arrangement per ANSI C57.12.26, Fig. 4a with minimum dimensions.
9. Cabinet depth is standardized to be 19 inches.
10. Tamper-resistant design that exceeds ANSI C57.12.28.
11. NEMA safety labels.
12. Nameplate.
13. Five legged core/coil assembly.
14. The paint finish process applies a durable, corrosion resistant finish to the product. The finish meets or exceeds all the performance requirements of ANSI C57.12.28. The multi-step process includes an epoxy primer uniformly applied by cationic electrodeposition and a urethane top coat.

Optional Accessories:

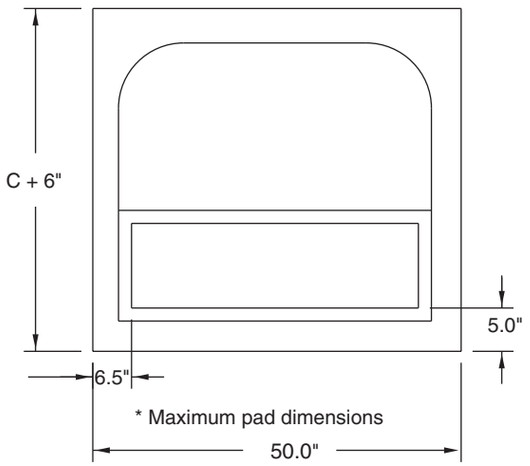
1. Standard fusing is bayonet with or without under oil partial range current limiting fusing.
2. Taps or delta x wye or dual voltage are available, but not combined with each other.
3. One loadbreak oil switch is possible.
4. A live HO bushing is possible in the high voltage compartment.
5. A high-low barrier will be either metal or glasspoly.
6. Stainless steel designs, including the Mini-Skirt, are available.
7. Full range general-purpose current limiting fuses in dry well canisters will only be available in radial units with single fuse application.
8. Special slant low voltage pattern available upon request. This feature allows more space to mount metering current transformers.
9. Substation accessories available (normally in the low voltage compartment).

Minimum/Maximum Design Dimensions
(Actual dimensions will vary according to voltage, loss evaluation, and accessories.)

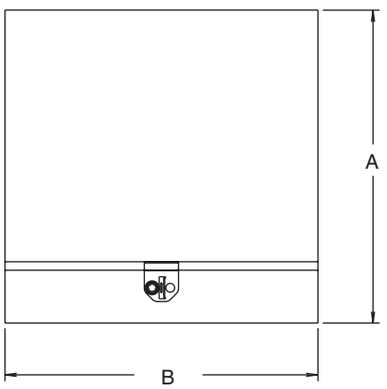
MTP	A	B	C	D	Wt.
Min.	36	44	51.5	19.25	1750
Max.	42	44	57.5	19.25	2500

Design Dimensions:
Physical data is approximate and is based on single voltage units with or without taps, with standard 19.25" cable compartment depth. Dimensions are in inches. Weights are in pounds. Dimensions may change to meet specific customer requirements.

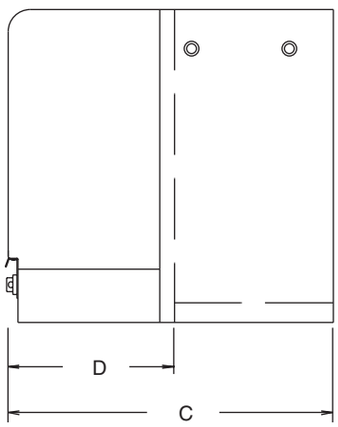
Recommended Pad Dimensions



Front View



Side View



Distribution Transformer Testing

The ABB commitment to manufacture quality distribution transformers is backed by a series of transformer tests used to verify conformance to performance characteristics outlined in the latest revisions of ANSI C57.12.00 and ANSI C57.12.90. These identified tests are also part of the Quality System which is audited semi-annually by DET NOSKE VERITAS (DNV) to ISO Standards.

Testing Program

Factory tests are performed on a transformer to confirm that it is properly designed and constructed to carry rated load and that it will withstand the conditions it will be exposed to in service.

Each transformer manufactured by ABB must undergo a series of tests.

1. Polarity, Phase-Relation, and Ratio
2. Demag Test
3. Applied Voltage Test of the HV
4. Applied Voltage Test of the LV
5. Induced Voltage Test
6. No-Load (Excitation) Loss and Excitation Current
7. Impedance Voltage and Load Loss
8. Full Wave Impulse
9. Continuity Check

Test Facilities

The multi-station, automated test facilities are operated by process control computers. Required interaction with test floor personnel is minimal with the computers initiating and monitoring each test, and then analyzing the test results feedback. The computers are programmed to conduct tests according to ANSI standards, and according to the ratings of each transformer style, the test floor computers will initiate appropriate test setups, compare results with established ANSI standard limits, and determine acceptance for each tested unit.

The test results for each unit are recorded and stored on computer files for access and analysis.

Polarity, Phase-Relation, and Ratio Tests

These tests verify proper phase-relation (three phase), ratio, and polarity (single phase) of the transformer under test. To pass, a unit must demonstrate the proper polarity or phase-relation and have a turns ratio within one-half of one percent of the nominal voltage ratio.

Demag Test

Some transformers require the Demag Test to remove any residual magnetism in preparation for an impulse test. It also serves as a no-load exciting current test. A transformer passes this test if the exciting current does not exceed the limit specified for the design of the transformer.

Applied Voltage Test of the HV

This test checks the dielectric integrity of insulation structures between the high voltage and low voltage, and between the high voltage and ground. A pass/fail decision is made by monitoring the test current intensity. If the resulting current is larger than specified normal leakage and capacitive currents, the unit is rejected. This test is omitted for transformers with a permanently grounded high voltage winding.

Applied Voltage Test of LV

This dielectric test is similar to the Applied Voltage test of the high voltage circuitry except that the integrity of insulation structures between the low voltage and the high voltage, and between the low voltage and ground is checked. A pass-fail decision is made by monitoring the test current intensity. If the resulting current is larger than specified normal leakage and capacitive current, the unit is rejected.

Induced Voltage Test

The principal purpose of this test is to verify the dielectric strength of turn to turn, layer to layer, phase to phase, and other insulation structures within the transformer windings by inducing an overvoltage condition (at higher than normal frequency to avoid saturation of the core). The test current is monitored, and if it exceeds limits specified for each transformer, the unit is rejected.

No-Load Loss and Excitation Current

This test measures the no-load (excitation) loss and the transformer exciting current with rated voltage applied. If the exciting current and/or the no-load loss exceed the limits specified, the transformer is rejected.

Impedance Voltage and Load Loss

This test measures the load loss and the impedance voltage at rated current. The load loss and the impedance voltage must be within specified limits.

Full Wave Impulse

The impulse test is one of several tests designed to verify the dielectric strength of the many insulation structures within the distribution transformer against line voltage surges. It is performed to comply with ANSI standards and for quality assurance. The change in the ANSI standard in 1993 required all manufacturers to install fault detection sensitive enough to detect a single turn short.

Continuity Check

This test is performed on all transformers to verify transformer circuit and component integrity. This test is performed with an ohmmeter to verify that the internal wiring is correct.

The transformer's nameplate is compared to manufacturing information for style, serial number, kVA, HV rating, LV rating, tap voltages, impedance, conductor materials and coil BIL rating. The bushings, electrical accessories, and fuses are verified.

Special Tests

Some tests are performed at the option of the customer.

Sound Testing

ANSI standards define the required sound levels for transformer but some customers specify reduced sound levels. The sound generated by a transformer is affected by the core geometry, flux density, tank design, and the quality of assembly of all the transformer components into a completed unit. Sound tests are made with the unit powered at 100% and 110% of rated voltage under no-load conditions.

Temperature Tests

Core losses and coil losses are the primary sources of heating within the transformer. Our transformers are guaranteed to have an average coil winding temperature of no more than 65° C rise over ambient air temperature when operated at rated voltage and load conditions.

The temperature test is performed to determine the thermal characteristics of the transformer and to verify that they are within design limits.

Calibration

Test equipment is calibrated on a scheduled basis by trained technicians. Calibration records are maintained in accordance with the Quality System procedures. These are audited semi-annually by DNV in accordance with ISO Standards.

Short Circuit Withstand Capabilities

Distribution transformers are subjected to external short circuits on the secondary side. Such external faults can develop on the service line, in the house wiring or in connected loads due to numerous environmental reasons. These faults can be line-to-ground, double line-to-ground or line-to-line.

To meet these operating conditions, the American National Standard Institute (ANSI) has set standards concerning short circuit withstand capability. These standards require that distribution transformers shall be designed and constructed to withstand the mechanical and thermal stresses produced by these external short circuits.

The current standards relating to short circuit strength are ANSI C57.12.00 which sets the short circuit withstand requirements for distribution transformers and ANSI C57.12.90 which provides procedures for short circuit testing.

For distribution transformers, the magnitude of the short circuit current, the numbers of short-circuit tests and the duration of each short circuit test are defined by ANSI standards as follows.

A. Magnitude

Category	Single Phase kVA	Three Phase kVA	Withstand Capability*
I	5-25	15-75	40
	37.5-100	112.5-300	35
	167-500	500	25
II		750-2500	$1/Z_{T**}$

*Base current (Symmetrical) per unit for all distribution transformers with secondary rated 600 V and below.
**The short circuit current will be limited by the transformer impedance only.

B. Number of Tests
Each phase of the transformer shall be subjected to a total of six tests, four with symmetrical fault currents and two with asymmetrical fault currents.

C. Duration of Short Circuit Tests
When short circuit tests are performed the duration of each test shall be 0.25 s except that one test satisfying the symmetrical current requirement shall be made for a longer duration on distribution transformers. The duration of the long test in each case shall be as follows:

Category I:
$T=1250/I^2$

Where T is the duration in seconds,

And $I=I_{sc}/I_R$=symmetrical short circuit current, in multiples of normal base current except I shall not exceed the maximum symmetrical current magnitudes listed in A.

Where $I_{sc}=I_R/Z_T$=symmetrical short circuit current, in rms amperes

I_R=rated current on the given tap connection, in rms amperes

Z_T=transformer impedance on the given tap connection in per unit on the same apparent power base as I_R

Category II:
$T=1.0$ second

Criteria of Satisfactory Performance
According to ANSI Standards a unit is considered to have passed the test if it passes a visual inspection and dielectric tests. Recommended additional checks include examination of wave shape of terminal voltage and current, leakage impedance measurement and excitation current test. (Refer to ANSI C57.12.90.)

The standard allows the following variations in the leakage impedance:

Z_T (Per Units)	Percentage Variation
0.0299 or less	22.5-500 (Z_T)
0.0300 or more	7.5

Z_T=per unit impedance of the transformer

Paint Finish Process

ABB utilizes a multi-step process to apply a corrosion resistant finish to transformers. The materials and processes used are designed to protect against the effects of abrasion, sunlight, rural and industrial atmospheres, and humidity. Each carefully controlled process step has a specific purpose, and each step builds on the previous steps to form the complete protection system that ensures that our transformers meet ANSI functional paint specification guidelines.

Paint Process Procedure

Transformer parts receive the following steps of surface preparation prior to painting.

1. Shotblast: All parts are centrifugally blast cleaned to remove welding by-products and provide a uniform surface profile for better, more consistent adhesion and corrosion protection.
2. Alkaline wash cleaner: Removes mill oils, drawing oils, and shop soils that could interfere with good adhesion.
3. Water rinse.
4. Zinc phosphate coating: Provides a firm anchor for good paint adhesion and provides resistance to underfilm corrosion should the paint film be damaged, exposing bare metal.
5. Water rinse.
6. Deionized water rinse: Removes any ionic contamination to prepare for first application of paint.

This entire cleaning and pretreating process is automatic and conveyorized with all chemicals applied by spray.

The pretreatment system combines the latest in cleaning technology such as DI rinses and zinc phosphate over shotblasting in a tried and true format to provide the best possible pretreatment before paint is applied.

One of the keys to effectiveness of the ABB paint finish system is the primer. The green epoxy primer is applied by cationic electrodeposition – a dip process in which positively charged primer particles are attracted to grounded parts (cathodes). This method applies a very uniform, pinhole-free coating which penetrates and thoroughly coats all parts. This is a highly effective process for coating parts with difficult geometry. The process utilizes practically 100% of the primer paint, and since the primer is water borne OSHA and EPA emission standards are met. The primer is free of lead and chrome. After rinsing, parts are cured in an oven in preparation for the next step.

After the transformer is assembled, a final coating of two-component urethane paint is spray applied for color and additional film build. The final coat provides the weatherability necessary to protect the unit from sunlight and maintain its appearance.

Summary

The ABB paint system utilizes advanced techniques and materials to provide a superior finish system on pad-mounted distribution transformers. Each step in the process is specifically designed to maximize finish performance while minimizing waste to provide the best possible combination of performance and cost.

Paint Finish Specifications and Test Results

Parameter	Test Method	Specification	Typical ABB Value
Total exterior film build	Elcometer 256NF	3.0 mil min.	3.5 mils
Salt fog 1500 hrs.	ASTM B117	6 rating per ASTM D1654, no blisters	7 rating per ASTM D1654, no blisters
Adhesion	ASTM D3359 Method A or B	100%	100%
Humidity 1000 hrs.	ASTM D4585 @45c	No blisters, 1 pencil hardness	No blisters, no softening
Impact, 80 InLb	ASTM D2794/ ASTM B117	No red rust after 24 hrs.	No red rust after 24 hrs.
Oil resistance	Immerse in 100c Oil for 72 hrs.	No loss of adhesion, no blisters	No loss of adhesion, no blisters
QUV, 500 hrs.	ASTM G53/D523	50% loss of gloss, no cracks, no crazing	40% loss of gloss, no cracks, no crazing
Abrasion, 3000 cycles	ASTM D4060 24 hrs.	No red rust after 24 hrs.	No red rust after
Gravelometer, 60 PSI	ASTM 3170/ SAE J400	After 24 hrs. red rust in chips to not exceed 4B rating	No red rust in chips
QUV/SCAB, 15 cycles	ASTM G53	6 rating per ASTM D1654, no blisters	7 rating per ASTM D1654, no blisters
Paint meets or exceeds ANSI C57.12.28, C57.12.29 and EEMAC Y1-2, Canadian Standard.			

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THE FLEXRACK SERIES G3-X

SOLAR FLEXRACK™
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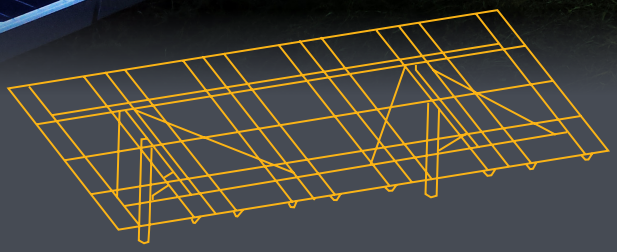
156 FlexRack Series G3P-X racks
1.9MW Nixon Farms Project | West Friendship, MD



+ TURN-KEY SERVICES

We're here for you because we care about your projects. From engineering to installation, you can also leverage our expert turn-key services on any job from start to finish.

Contact us to see how our team of project engineers, field techs, geologists and other specialists can help make sure your next project is a success.

Easy assembly

The series G3-X Ground Rack features similar-sized hardware and requires only standard tools and equipment for assembly. The system is easily staged on the jobsite and can be assembled in the field by crews of any skill. The G3-X is third-party verified for speed of installation by Industrial Time Study Institute, Inc.

Seamless flexibility

The unique design of the series G3-X makes it a perfect fit for nearly any installation. Multiple pre-drilled holes, slot to slot connections, and generous construction tolerances make the G3-X a flexible and adaptable model on the jobsite. The G3-X also can accommodate up to 20% slope in the E/W direction.

Intelligent design

The series G3-X is value-engineered by our professional team of best-in-class engineers to optimize materials and limit components to create a cost-effective solution. Lateral bracing is used to stabilize and square the racks creating a durable system that prevents spacing issues during installation. The horizontal rails of the G3-X system can be set in place with no hardware during initial placement to be easily adjusted in the field.

Tested for reliability

All Solar FlexRack systems, including the G3-X, are thoroughly tested to maintain the stability and longevity needed for any successful project. Testing includes: wind tunnel testing (including dynamic effects,) structural load testing, and conductivity testing (UL 2703 Issue 2 compliant).

Bankability

Solar FlexRack is a product of Northern States Metals, a full service manufacturer with over 40 years of experience. With close to 1GW of installed capacity Solar FlexRack has the experience and sustainability to be a reliable partner for your next successful solar project. The G3-X series also comes standard with a 20 year warranty.

Experience the Flex

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MATERIALS	
Hardware	Mounting hardware is Magni 560 coated standard. Stainless available upon request.
Racking Structure	G 90 galvanized steel standard. Higher coatings available for high corrosion areas
Foundations	Hot Dipped Galvanized
DESIGN	
Orientation	Landscape or Portrait
Tilt Angle	5° - 45° (custom tilts can be accommodated)
Adjustability	20% E/W Landscape, 20% E/W Portrait
Wind Speed	Any
Snow Load	Any
Module Accommodation	Any 60 or 72 cell framed module along with any frameless module
Module Mounting Type	Direct bolt to vertical rails (bonded connection)
Foundation Accommodation	W-Section, SmartPost, Round Post, Helical Pier, Ballast
Warranty	20 Years
CERTIFICATIONS AND TESTING	
UL Compliance	UL 2703 (Issue 2) compliant.
Wind Tunnel Testing	CPP third party testing laboratory
Structural Connection Testing	Accutek Testing Laboratory
Code Compliance	Racks are designed using local environmental loads (wind, snow, and seismic) per the governing and/or local building codes
Finite Element Modeling	Risa 3D
Engineering	PE stamped drawings and calculations
SERVICES	
Geotechnical Engineering	Field investigation and engineering, laboratory testing, engineering analysis, push/pull tests, foundation design
Structural/Civil Engineering	Preliminary investigation, engineering, layout
Installation	Foundation, racking, module, and module pre-wiring

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Eagle PERC 72M

350-370 Watt

MONO PERC MODULE

*1500V Available

Positive power tolerance of 0~+3%

PERC

(5BB)

KEY FEATURES

Innovative Solar Cells
Five busbar monocrystalline cell technology improves module efficiency

High Voltage
UL and IEC 1500V certified; lowers BOS costs and yields better LCOE

High Efficiency
Higher module conversion efficiency (up to 19.08%) due to Passivated Emmiter Rear Contact (PERC) technology

PID Free
World's 1st PID-Free module

Low-Light Performance
Advanced glass technology improves light absorption and retention

Strength and Durability
Certified for high snow (5400Pa) and wind (2400Pa) loads

Weather Resistance
Certified for salt mist and ammonia resistance

LINEAR PERFORMANCE WARRANTY

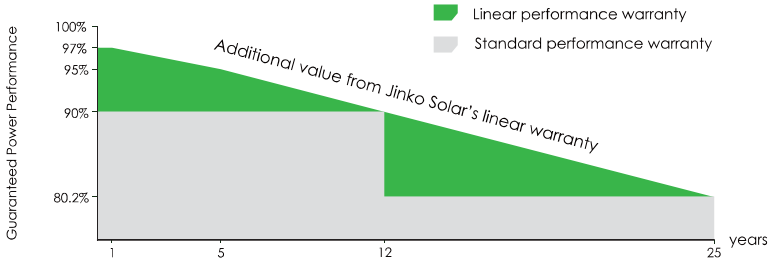
10 Year Product Warranty • 25 Year Linear Power Warranty

- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- OHSAS18001 Occupational Health & Safety Standards

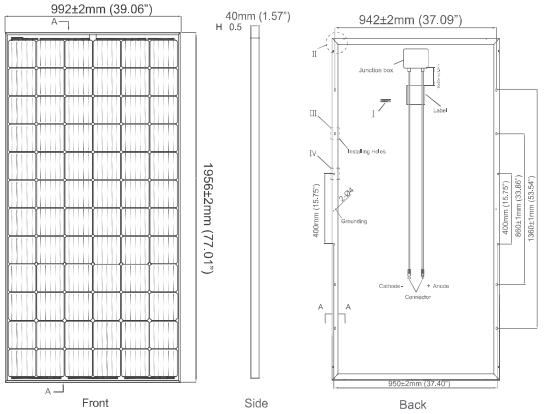
Nomenclature:

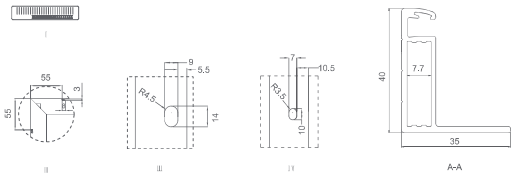
JKM365M - 72 - V

Code	Certification
null	1000V
V	1500V



Engineering Drawings



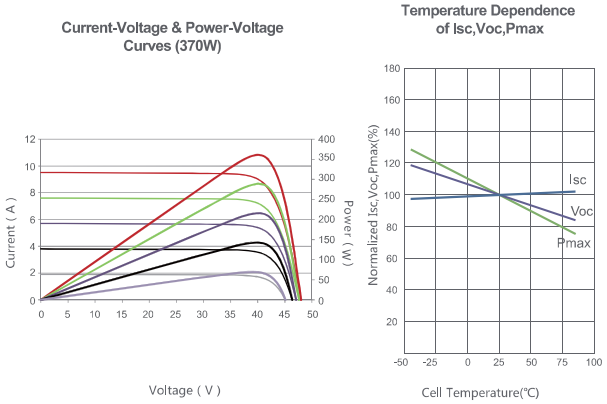


Packaging Configurations

(Two boxes=One Pallet)

26 pcs/box, 52 pcs/pallet, 624 pcs/40'HQ Container

Electrical Performance & Temperature Dependence



Mechanical Characteristics

Cell Type	Monocrystalline PERC 156×156mm (6 inch)
No. of Cells	72 (6×12)
Dimensions	1956x992x40mm (77.01x39.06x1.57 inch)
Weight	26.5 kg (58.4 lbs.)
Front Glass	4.0mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP67 Rated
Output Cables	12 AWG, Length: 1200mm (47.24 inch)
Fire Type	Type 1

SPECIFICATIONS

Module Type	JKM350M-72-V		JKM355M-72-V		JKM360M-72-V		JKM365M-72-V		JKM370M-72-V	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	350Wp	262Wp	355Wp	266Wp	360Wp	270Wp	365Wp	274Wp	370Wp	278Wp
Maximum Power Voltage (Vmp)	39.1V	37.2V	39.3V	37.5V	39.5V	37.7V	39.7V	37.9V	39.9V	38.1V
Maximum Power Current (Imp)	8.94A	7.05A	9.04A	7.09A	9.12A	7.17A	9.20A	7.24A	9.28A	7.30A
Open-circuit Voltage (Voc)	47.5V	46.0V	47.8V	46.2V	48.0V	46.5V	48.2V	46.8V	48.5V	47.0V
Short-circuit Current (Isc)	9.38A	7.46A	9.45A	7.54A	9.51A	7.61A	9.57A	7.68A	9.61A	7.75A
Module Efficiency STC (%)	18.01%		18.31%		18.57%		18.82%		19.08%	
Operating Temperature (℃)	-40℃~+85℃									
Maximum System Voltage	1500VDC (UL and IEC)									
Maximum Series Fuse Rating	20A									
Power Tolerance	0~+3%									
Temperature Coefficients of Pmax	-0.39%/℃									
Temperature Coefficients of Voc	-0.29%/℃									
Temperature Coefficients of Isc	0.048%/℃									
Nominal Operating Cell Temperature (NOCT)	45±2℃									

*STC: Irradiance 1000W/m² Cell Temperature 25°C AM=1.5

NOCT: Irradiance 800W/m² Ambient Temperature 20°C AM=1.5 Wind Speed 1m/s

* Power measurement tolerance: ± 3%

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

APPENDIX C: PV SYST

PV Syst reports are provided on the following pages.

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Grid-Connected System: Simulation parameters

Project : **Woonsocket PV**

Geographical Site	**Providence T F Green State Ar**		Country	**United States**
Situation	Latitude	41.72° N	Longitude	-71.43° W
Time defined as	Legal Time	Time zone UT-5	Altitude	16 m
	Albedo	0.20		
Meteo data:	**Providence T F Green State Ar**	NREL NSRD : TMY3 - TMY		

Simulation variant : **Baldwin 6.75 MW Ground Mount @ 15 deg tilt - 2.5 H Ratio**

Simulation date 18/06/18 18h02

Simulation parameters

Collector Plane Orientation	Tilt	15°	Azimuth	0°
41 Sheds	Pitch	6.36 m	Collector width	3.95 m
Inactive band	Top	0.02 m	Bottom	0.02 m
Shading limit angle	Gamma	22.14 °	Occupation Ratio	62.1 %
Shadings electrical effect	Cell size	15.6cm	Strings in width	2

Models used	Transposition	Perez	Diffuse	Imported
Horizon	Average Height	5.3°		
Near Shadings	Mutual shadings of sheds	Electrical effect		

PV Array Characteristics

PV module	Si-mono	Model	**JKM 370M-72-V**	
Original PVsyst database		Manufacturer	Jinkosolar	
Number of PV modules		In series	27 modules	In parallel 671 strings
Total number of PV modules		Nb. modules	18117	Unit Nom. Power 370 Wp
Array global power		Nominal (STC)	**6703 kWp**	At operating cond. 6078 kWp (50°C)
Array operating characteristics (50°C)		U mpp	986 V	I mpp 6162 A
Total area		Module area	**35153 m²**	Cell area 30962 m²

Inverter	Model	**XGI 1500-166 Preliminary 10-15-17**		
Custom parameters definition	Manufacturer	Yaskawa Solectria Solar		
Characteristics	Operating Voltage	860-1350 V	Unit Nom. Power	166 kWac
Inverter pack	Nb. of inverters	30 units	Total Power	4980 kWac

PV Array loss factors

Array Soiling Losses

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
15.5%	12.3%	8.6%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.8%	9.5%

Thermal Loss factor	Uc (const)	29.0 W/m²K	Uv (wind)	0.0 W/m²K / m/s
Wiring Ohmic Loss	Global array res.	2.7 mOhm	Loss Fraction	1.5 % at STC
LID - Light Induced Degradation			Loss Fraction	1.5 %
Module Quality Loss			Loss Fraction	-0.8 %
Module Mismatch Losses			Loss Fraction	1.0 % at MPP

Grid-Connected System: Simulation parameters (continued)

Incidence effect (IAM): User defined IAM profile

0°	25°	40°	50°	60°	70°	75°	80°	90°
1.000	1.000	1.000	1.000	0.998	0.957	0.896	0.755	0.000

System loss factors

AC wire loss inverter to transfo	Inverter voltage	600 Vac tri		
	Wires: 3x10000.0 mm²	433 m	Loss Fraction	1.5 % at STC
External transformer	Iron loss (24H connexion)	6628 W	Loss Fraction	0.1 % at STC
	Resistive/Inductive losses	0.5 mOhm	Loss Fraction	1.0 % at STC
Unavailability of the system	3.6 days, 3 periods		Time fraction	1.0 %

User's needs : Unlimited load (grid)

Grid-Connected System: Horizon definition

Project : **Woonsocket PV**

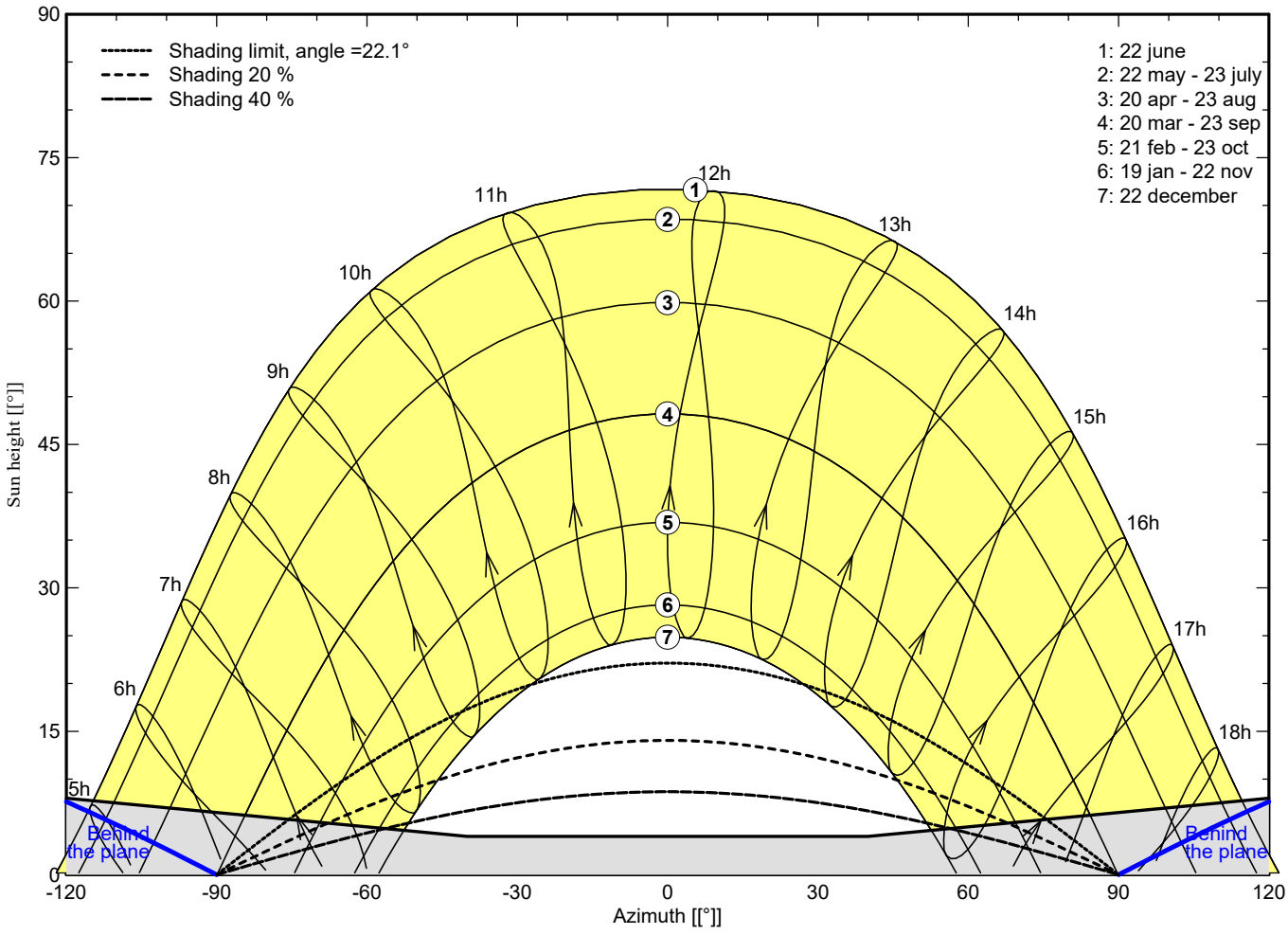
Simulation variant : **Baldwin 6.75 MW Ground Mount @ 15 deg tilt - 2.5 H Ratio**

Main system parameters	System type	**Grid-Connected**		
Horizon	Average Height	5.3°		
PV Field Orientation	Sheds disposition, tilt	15°	azimuth	0°
PV modules	Model	JKM 370M-72-V	Pnom	370 Wp
PV Array	Nb. of modules	18117	Pnom total	**6703 kWp**
Inverter		XGI 1500-166 Preliminary 10-15-17	Pnom	166 kW ac
Inverter pack	Nb. of units	30.0	Pnom total	**4980 kW ac**
User's needs	Unlimited load (grid)			

Horizon	Average Height	5.3°	Diffuse Factor	0.99
	Albedo Factor	100 %	Albedo Fraction	0.79

Height [°]	8.0	4.0	4.0	8.0
Azimuth [°]	-120	-40	40	120

Horizon line at Providence T F Green State Ar



Grid-Connected System: Main results

Project : **Woonsocket PV**

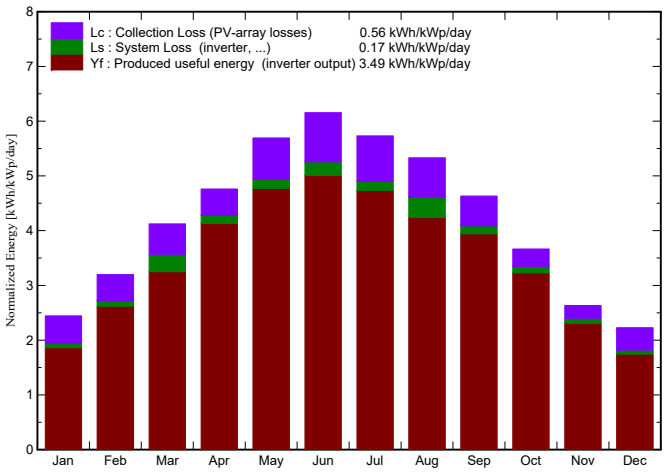
Simulation variant : **Baldwin 6.75 MW Ground Mount @ 15 deg tilt - 2.5 H Ratio**

Main system parameters	System type	**Grid-Connected**		
Horizon	Average Height	5.3°		
PV Field Orientation	Sheds disposition, tilt	15°	azimuth	0°
PV modules	Model	JKM 370M-72-V	Pnom	370 Wp
PV Array	Nb. of modules	18117	Pnom total	**6703 kWp**
Inverter		XGI 1500-166 Preliminary 10-15-17	Pnom	166 kW ac
Inverter pack	Nb. of units	30.0	Pnom total	**4980 kW ac**
User's needs	Unlimited load (grid)			

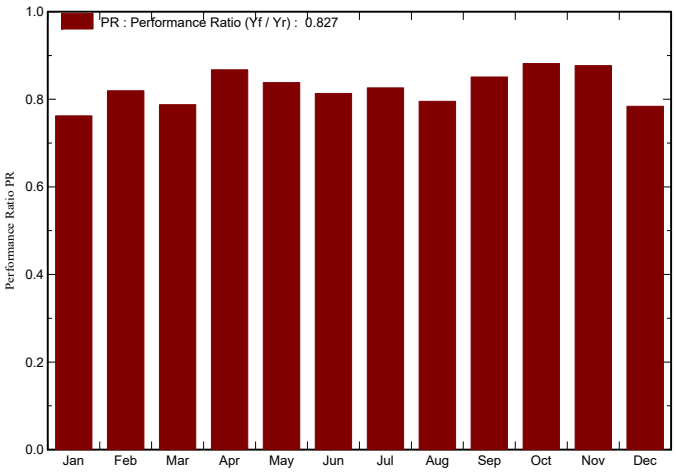
Main simulation results

System Production	**Produced Energy**	**8539 MWh/year**	Specific prod.	1274 kWh/kWp/year
	Performance Ratio PR	82.68 %		

Normalized productions (per installed kWp): Nominal power 6703 kWp



Performance Ratio PR



Baldwin 6.75 MW Ground Mount @ 15 deg tilt - 2.5 H Ratio

Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray MWh	E_Grid MWh	PR
January	57.8	31.12	-1.59	75.7	61.1	403	387	0.762
February	73.1	37.83	0.15	89.5	75.8	510	492	0.820
March	111.0	48.47	3.81	127.9	113.8	741	675	0.788
April	132.7	62.94	8.47	142.8	137.2	861	830	0.868
May	172.1	85.17	15.12	176.5	169.7	1027	992	0.838
June	182.6	80.81	19.21	184.6	177.9	1057	1007	0.813
July	174.5	84.25	23.27	177.7	171.0	1018	984	0.826
August	157.7	77.81	21.57	165.2	158.9	959	881	0.795
September	124.1	57.12	18.30	139.0	133.8	822	793	0.851
October	93.4	41.55	11.90	113.6	109.1	696	671	0.881
November	61.2	30.81	5.85	79.0	74.7	482	464	0.877
December	49.8	24.73	-0.50	69.0	58.8	378	363	0.784
Year	1390.0	662.61	10.52	1540.6	1441.7	8954	8539	0.827

Legends:

GlobHor	Horizontal global irradiation	GlobEff	Effective Global, corr. for IAM and shadings
DiffHor	Horizontal diffuse irradiation	EArray	Effective energy at the output of the array
T Amb	Ambient Temperature	E_Grid	Energy injected into grid
GlobInc	Global incident in coll. plane	PR	Performance Ratio

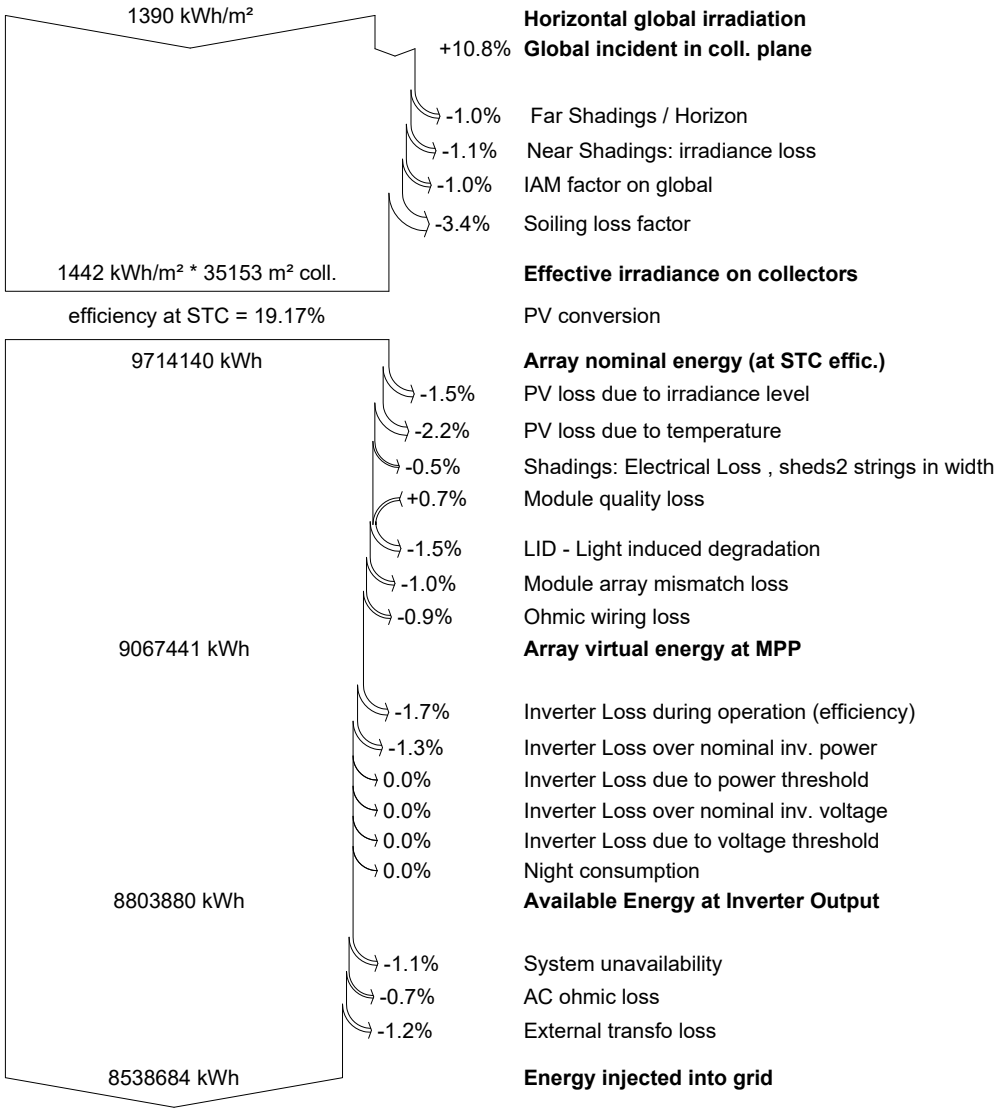
Grid-Connected System: Loss diagram

Project : **Woonsocket PV**

Simulation variant : **Baldwin 6.75 MW Ground Mount @ 15 deg tilt - 2.5 H Ratio**

Main system parameters	System type	**Grid-Connected**		
Horizon	Average Height	5.3°		
PV Field Orientation	Sheds disposition, tilt	15°	azimuth	0°
PV modules	Model	JKM 370M-72-V	Pnom	370 Wp
PV Array	Nb. of modules	18117	Pnom total	**6703 kWp**
Inverter		XGI 1500-166 Preliminary 10-15-17	Pnom	166 kW ac
Inverter pack	Nb. of units	30.0	Pnom total	**4980 kW ac**
User's needs	Unlimited load (grid)			

Loss diagram over the whole year



Grid-Connected System: Simulation parameters

Project : **Woonsocket PV**

Geographical Site	**Providence T F Green State Ar**		Country	**United States**
Situation	Latitude	41.72° N	Longitude	-71.43° W
Time defined as	Legal Time	Time zone UT-5	Altitude	16 m
	Albedo	0.20		
Meteo data:	**Providence T F Green State Ar**	NREL NSRD : TMY3 - TMY		

Simulation variant : **Joslin 6.55 MW Ground Mount @ 20 Deg 2.75 height ratio**

Simulation date 18/06/18 15h22

Simulation parameters

Collector Plane Orientation	Tilt	20°	Azimuth	0°
19 Sheds	Pitch	7.42 m	Collector width	3.95 m
Inactive band	Top	0.02 m	Bottom	0.02 m
Shading limit angle	Gamma	20.21 °	Occupation Ratio	53.2 %
Shadings electrical effect	Cell size	15.6cm	Strings in width	2

Models used	Transposition	Perez	Diffuse	Imported
Horizon	Average Height	5.3°		
Near Shadings	Mutual shadings of sheds	Electrical effect		

PV Array Characteristics

PV module	Si-mono	Model	**JKM 370M-72-V**	
Original PVsyst database		Manufacturer	Jinkosolar	
Number of PV modules		In series	27 modules	In parallel 655 strings
Total number of PV modules		Nb. modules	17685	Unit Nom. Power 370 Wp
Array global power		Nominal (STC)	**6543 kWp**	At operating cond. 5933 kWp (50°C)
Array operating characteristics (50°C)		U mpp	986 V	I mpp 6015 A
Total area		Module area	**34315 m²**	Cell area 30224 m²

Inverter	Model	**XGI 1500-166 Preliminary 10-15-17**		
Custom parameters definition	Manufacturer	Yaskawa Solectria Solar		
Characteristics	Operating Voltage	860-1350 V	Unit Nom. Power	166 kWac
Inverter pack	Nb. of inverters	31 units	Total Power	5146 kWac

PV Array loss factors

Array Soiling Losses

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
15.5%	12.3%	8.6%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.8%	9.5%

Thermal Loss factor	Uc (const)	29.0 W/m²K	Uv (wind)	0.0 W/m²K / m/s
Wiring Ohmic Loss	Global array res.	2.8 mOhm	Loss Fraction	1.5 % at STC
LID - Light Induced Degradation			Loss Fraction	1.5 %
Module Quality Loss			Loss Fraction	-0.8 %
Module Mismatch Losses			Loss Fraction	1.0 % at MPP

Grid-Connected System: Simulation parameters (continued)

Incidence effect (IAM): User defined IAM profile

0°	25°	40°	50°	60°	70°	75°	80°	90°
1.000	1.000	1.000	1.000	0.998	0.957	0.896	0.755	0.000

System loss factors

AC wire loss inverter to transfo	Inverter voltage	600 Vac tri		
	Wires: 3x10000.0 mm²	444 m	Loss Fraction	1.5 % at STC
External transformer	Iron loss (24H connexion)	6470 W	Loss Fraction	0.1 % at STC
	Resistive/Inductive losses	0.6 mOhm	Loss Fraction	1.0 % at STC
Unavailability of the system	3.6 days, 3 periods		Time fraction	1.0 %

User's needs : Unlimited load (grid)

Grid-Connected System: Horizon definition

Project : **Woonsocket PV**

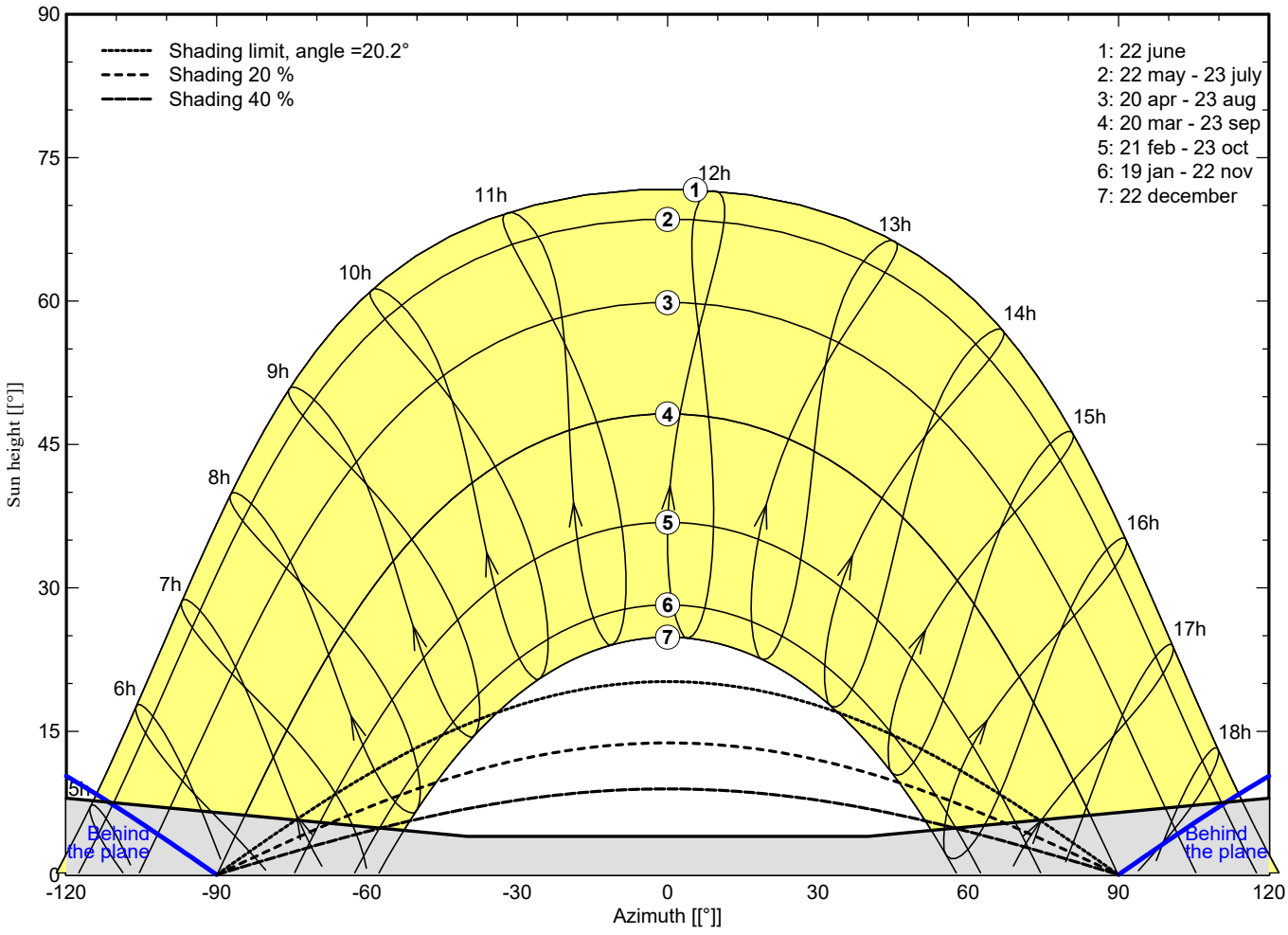
Simulation variant : **Joslin 6.55 MW Ground Mount @ 20 Deg 2.75 height ratio**

Main system parameters	System type	**Grid-Connected**		
Horizon	Average Height	5.3°		
PV Field Orientation	Sheds disposition, tilt	20°	azimuth	0°
PV modules	Model	JKM 370M-72-V	Pnom	370 Wp
PV Array	Nb. of modules	17685	Pnom total	**6543 kWp**
Inverter		XGI 1500-166 Preliminary 10-15-17	Pnom	166 kW ac
Inverter pack	Nb. of units	31.0	Pnom total	**5146 kW ac**
User's needs	Unlimited load (grid)			

Horizon	Average Height	5.3°	Diffuse Factor	0.98
	Albedo Factor	100 %	Albedo Fraction	0.79

Height [°]	8.0	4.0	4.0	8.0
Azimuth [°]	-120	-40	40	120

Horizon line at Providence T F Green State Ar



Grid-Connected System: Main results

Project : **Woonsocket PV**

Simulation variant : **Joslin 6.55 MW Ground Mount @ 20 Deg 2.75 height ratio**

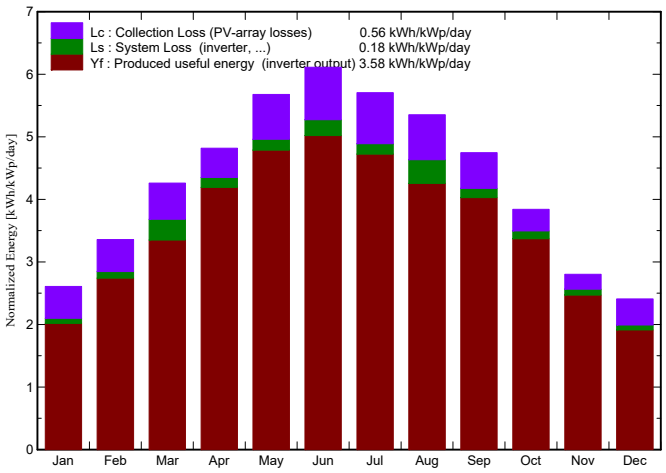
Main system parameters	System type	**Grid-Connected**			
Horizon	Average Height	5.3°			
PV Field Orientation	Sheds disposition, tilt	20°	azimuth	0°	
PV modules	Model	JKM 370M-72-V	Pnom	370 Wp	
PV Array	Nb. of modules	17685	Pnom total	**6543 kWp**	
Inverter	XGI 1500-166 Preliminary 10-15-17		Pnom	166 kW ac	
Inverter pack	Nb. of units	31.0	Pnom total	**5146 kW ac**	
User's needs	Unlimited load (grid)				

Main simulation results

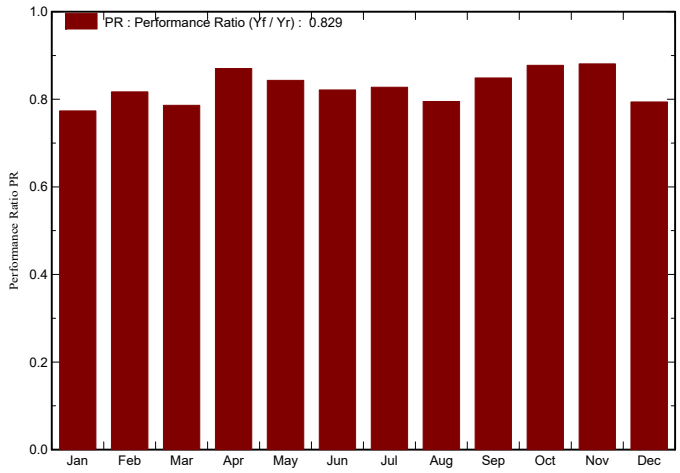
System Production

Produced Energy	**8540 MWh/year**	Specific prod.	1305 kWh/kWp/year
Performance Ratio PR	82.92 %		

Normalized productions (per installed kWp): Nominal power 6543 kWp



Performance Ratio PR



Joslin 6.55 MW Ground Mount @ 20 Deg 2.75 height ratio

Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray MWh	E_Grid MWh	PR
January	57.8	31.12	-1.59	80.9	65.2	426	409.4	0.774
February	73.1	37.83	0.15	94.0	79.4	522	502.4	0.817
March	111.0	48.47	3.81	132.0	117.1	747	679.3	0.786
April	132.7	62.94	8.47	144.5	138.3	854	823.1	0.870
May	172.1	85.17	15.12	176.0	168.4	1006	971.2	0.843
June	182.6	80.81	19.21	183.3	175.8	1035	985.3	0.821
July	174.5	84.25	23.27	176.9	169.4	992	958.0	0.828
August	157.7	77.81	21.57	165.9	158.8	940	863.1	0.795
September	124.1	57.12	18.30	142.4	136.5	820	790.7	0.849
October	93.4	41.55	11.90	119.1	114.1	709	683.8	0.877
November	61.2	30.81	5.85	84.1	79.4	504	485.0	0.881
December	49.8	24.73	-0.50	74.7	63.7	404	388.1	0.794
Year	1390.0	662.61	10.52	1573.9	1466.0	8958	8539.5	0.829

Legends:

GlobHor	Horizontal global irradiation	GlobEff	Effective Global, corr. for IAM and shadings
DiffHor	Horizontal diffuse irradiation	EArray	Effective energy at the output of the array
T Amb	Ambient Temperature	E_Grid	Energy injected into grid
GlobInc	Global incident in coll. plane	PR	Performance Ratio

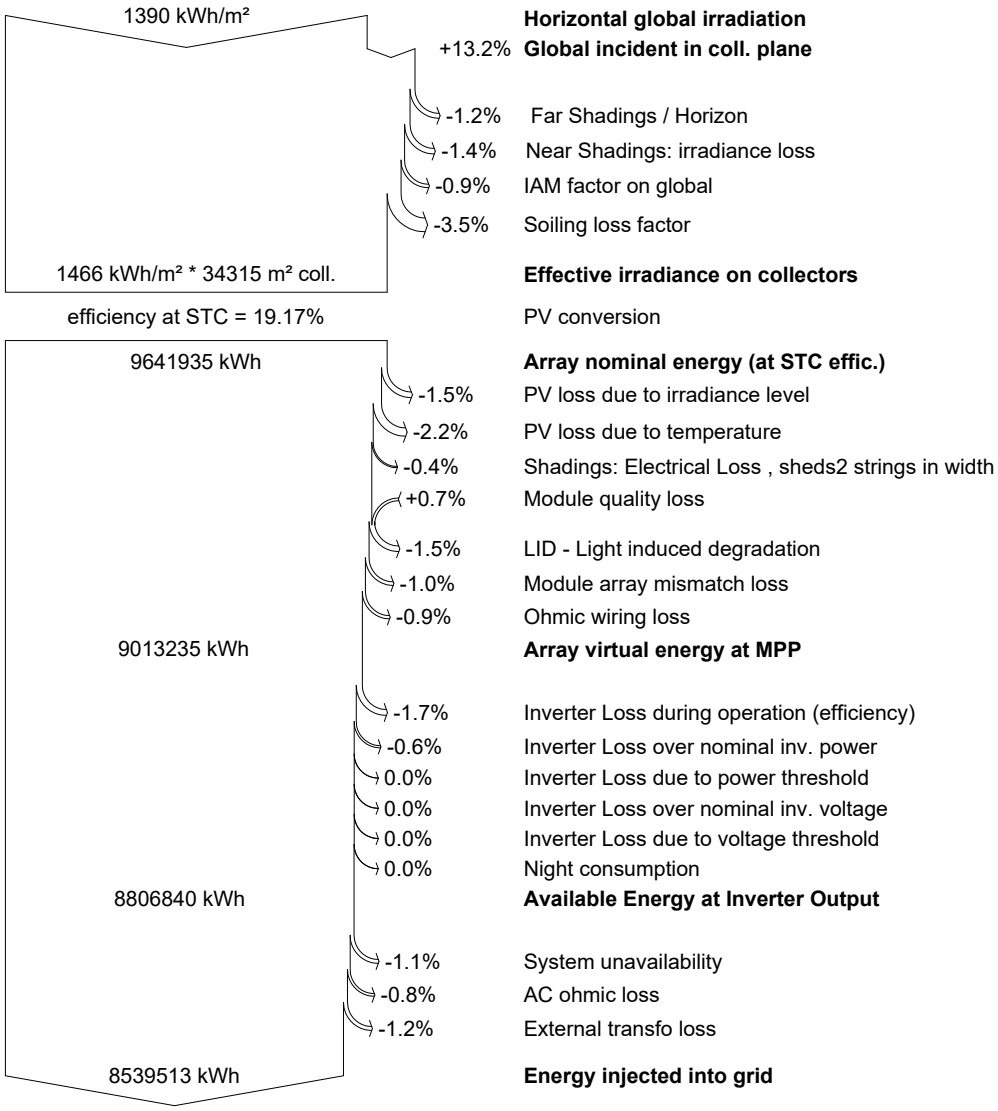
Grid-Connected System: Loss diagram

Project : **Woonsocket PV**

Simulation variant : **Joslin 6.55 MW Ground Mount @ 20 Deg 2.75 height ratio**

Main system parameters	System type	**Grid-Connected**		
Horizon	Average Height	5.3°		
PV Field Orientation	Sheds disposition, tilt	20°	azimuth	0°
PV modules	Model	JKM 370M-72-V	Pnom	370 Wp
PV Array	Nb. of modules	17685	Pnom total	**6543 kWp**
Inverter		XGI 1500-166 Preliminary 10-15-17	Pnom	166 kW ac
Inverter pack	Nb. of units	31.0	Pnom total	**5146 kW ac**
User's needs	Unlimited load (grid)			

Loss diagram over the whole year



APPENDIX D: RESUMES

Project team resumes are provided on the following pages.

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KLEO T. TALIADOUROS

DIRECTOR – DEVELOPMENT

EDUCATION

Suffolk University
M.B.A., Finance

Northeastern University
B.A., Chemistry

LICENSES & CERTIFICATIONS

State of Massachusetts, Licensed Site Professional (LSP)

PROFESSIONAL AFFILIATIONS

American Wind Energy Association (AWEA)

Northeast Energy and Commerce Association (NECA)

National Brownfield Association (NBA)

PROJECT ROLE

Mr. Kleo Taliadouros has 30 years of experience in the environmental and energy fields. He works as the Director of Development in the Energy Efficiency group. Prior to that, we worked as Director of Renewables in the Renewable Energy group. Mr. Taliadouros is focused on energy savings performance projects in the tax-exempt market sector as well as commercial and industrial sector. In his previous renewable energy capacity, Mr. Taliadouros has also developed renewable energy projects including solar, wind, biogas, and biomass.

He is responsible for the entire life cycle of the project, from opportunity origination and initial concept development through to operation. Mr. Taliadouros manages client-Ameresco relationship, conducts technical and economic feasibility analysis, and oversees all aspects of project development including permitting, design management support, construction management, commissioning, and operational support.

PROJECT EXPERIENCE

City of Portland, Maine **$9.4M**
Primary measures included: Lighting Systems Improvements, Lighting Controls, Boiler Plant Upgrades, New Energy Management Systems, Laundry Plant Measures, Pipe and Equipment Insulation, Water Conservation, Domestic Water Heater Measures, Solar Water Heaters, Walk-in Cooler Controls, Building Envelop Measures, Solar Photovoltaic System, and Variable Volume Pumping Measures.

University of Maine, Gentile Hall Preque Isle Campus and Fort Kent Campus
Primary measures included: Lighting Systems and Control Improvements, Energy Management System, Water Conservation, Variable Frequency Drives, Solar Hot Water System, Pool Cover, Vending Machines Controls, Chlorine Generator, infiltration Reductions, Boiler Replacement , Steam Trap Replacement, Kitchen Appliances Replacement, Kitchen Exhaust Controls Steam to Hot Water Conversion, Air handling Units Replacement.

Rhode Island College **$7.5M**
City of Providence, RI
Energy Savings Performance Contract for entire college campus

Brigham & Women's Hospital **$2.1M**
Boston, MA
Engineer, procure, construct (EPC) energy conservation measures including; LED Lighting, Energy Management Systems (EMS) and Variable Frequency Drives (VFD)

KLEO T. TALIADOUROS
DIRECTOR – DEVELOPMENT

PROFESSIONAL EXPERIENCE

Ameresco, 2007 - present
Director - Renewables
Director – Energy Efficiency

AMEC Earth & Environmental, Inc., 2003 – 2007
Senior Program Manager

TRC – Exit Strategy, 2000 – 2003
Senior Project Director

ENSR Int'l, 1995 - 2000
Program Manager

ATC Environmental, Inc., 1990 – 1995
Environmental Dept. Mgr.

PROJECT EXPERIENCE (CONTINUED)

Community College of Rhode Island(CCR) **$15M**
Rhode Island, Warwick, Lincoln, Providence and Newport Campuses
Primary measures included: Lighting Systems Improvements, Lighting Controls and Daylighting, Upgrade Existing Energy Management Systems to Open Protocol, Expand Energy Management Systems for Zone Control, Boiler Plant Upgrades, Replacement of Electric Kitchen Equipment with Gas, Replacement of Existing Cooling Tower, Remove Existing Abandoned Cooling Tower, Convert Once-Through Refrigeration Coolers, Kitchen Refrigerator Improvements, Computer Load Management, Vending Machine Controls, Premium Efficiency Motor Upgrades, Demand Controlled Ventilation, Weatherization Improvements, Install Energy Efficient Transformers, Electric Heat Conversion, High Efficiency Domestic Hot Water (DHW) Heaters, Kitchen Hood Controls, Pipe Insulation, Power Factor Correction, Cooling Tower Sewer Abatement, Water Conservation, VAV System Improvements, HVAC Replacements and Modifications, and Variable Frequency Drives.

1.08 MW- Solar Photovoltaic Power Purchase Agreement (PPA)
Town of Natick, Natick, MA
Primary measures included: Solar PV systems were installed on the roof-tops of several Natick public schools. The Town of Natick purchases the generated electricity at a discount to the utility's rates, under as 20 year PPA.

700 KW - Solar Photovoltaic Power Purchase Agreement (PPA)
Town of Natick, Natick, MA
Primary measures included: Solar PV systems were installed on the roof-tops of several Natick public schools. The Town of Natick purchases the generated electricity at a discount to the utility's rates, under as 20 year PPA

1.9 MW Solar Photovoltaic Power Purchase Agreement (PPA)
City of Waltham, Waltham, MA
Primary measures included: Solar PV systems were installed on the roof-tops of several Waltham public schools and the Waltham Municipal Center. The City of Waltham purchases the generated electricity at a discount to the utility's rates under as 20 year PPA.

Ameresco Colchester 1, LLC **$24M**
Primary measures included: Development of 10MW Wind Energy Project under the Ontario Power Authority Standard Offer Program.

GERI E. KANTOR, B.E.P., LEED GA

SENIOR MANAGER – SOLAR PROJECT DEVELOPMENT PV GRID TIE

EDUCATION

Master of Environmental Management
Yale University

M.A. Internal Relations
Yale University

BS Genetics & Cell Biology
University of Minnesota

LICENSES & CERTIFICATIONS

Business Energy Professional

LEED Green Associate

Greenhouse Gas Management Institute Certificates in GHG Inventories & GHG Offset Projects

PROFESSIONAL AFFILIATIONS

Association of Energy Engineers

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2014 - Present
Project Development Manager

Harvard University
2010 - 2014
Energy & Greenhouse Gas Analytics Manager

People 4 Earth
2009 - 2010
Sustainability Manager

RiskMetrics Group
2006 – 2009
Environmental, Social & Governance Analyst

PROJECT ROLE

Ms. Kantor is responsible for the development and implementation of commercial solar PV projects for Ameresco's solar PV grid-tie group. She analyzes the technical, regulatory and financial feasibility of development opportunities, and drives the solar PV development process from proposal through award, contract execution, permitting, and hand-off to construction.

Ms. Kantor has expertise in the development, permitting, design and construction of commercial-scale solar PV projects, including power purchase agreement development and negotiation, and environmental, state and local permitting. She manages the sale of Solar Renewable Energy Certificates for the Solar PV Grid-Tie group. Prior to joining Ameresco, she spent a decade working in corporate sustainability, greenhouse gas reduction, energy conservation, and wholesale energy procurement.

PROJECT EXPERIENCE

Town of Braintree, High School Rooftop Solar PV	**0.6 MW**
Town of Arlington Municipal Rooftop Solar PV	**0.7 MW**
Town of Weston, MA Landfill Solar PV	**2.3 MW**
Hutchinson, MN Landfill Solar PV	**0.4 MW**
Groton Electric Light Department, Groton, MA Landfill Solar PV	**2.9 MW**
Town of Saugus, MA Landfill Solar PV	**1.7 MW**
City of Northampton, MA Landfill Solar PV	**3.3 MW**
Town of Natick, Phase 2, MA Rooftop Solar PV	**0.7 MW**
Town of Newton, Phase 2, MA Rooftop, Canopy & Landfill Solar PV	**3.5 MW**

JAMES J. WALKER, PE

VICE PRESIDENT, SOLAR PV GRID-TIE PROJECTS

EDUCATION

M.B.A Massachusetts Institute of Technology (MIT)

University of Massachusetts, Amherst
B.S. Mechanical Engineering
Magna Cum Laude
Tau Beta Pi Engineering Honor Society

LICENSES & CERTIFICATIONS

Registered Professional Engineer (PE)
Massachusetts

PROFESSIONAL AFFILIATIONS

Airport Cooperative Research Program. Board Review Member. Guidebook for Energy Facilities Compatibility with Airports and Airspace.

Treasurer and Officer, Board of Directors, M.I.T. Enterprise Forum of Cambridge – Six Years

Acton Economic Industrial Development Corporation – Past Board Member

AWARDS

2006 Presidential Citation from the MIT Association of Alumni and Alumnae for creating and co-founding the Ignite Clean Energy Business Plan Competition

2005 Volunteer of the Year Award from the MIT Enterprise Forum

PROJECT ROLE

Mr. Walker is Ameresco's Vice President of Solar Grid-Tie Projects, responsible for Ameresco's solar photovoltaic grid-tie business. Mr. Walker works with our customers to structure Power Purchase Agreements and land lease agreements that provide the best customer value. Mr. Walker also meets with tax assessors, Board of Alderman, Board of Selectmen, siting council members, town and city managers, and town finance committee members to find mutually beneficial agreements to site and build solar PV projects. Mr. Walker is also responsible for meeting with legislators and regulators to educate policy makers on the benefits of solar PV.

Mr. Walker brings 40 years of diverse energy experience in the power and natural gas industry, which included a focus on energy conservation engineering early in his career, then natural gas and power supply trading and delivery during the deregulation period, then technology business development and strategic energy market analysis to energy companies, and currently solar PV business growth and management.

PROJECT EXPERIENCE

Mr. Walker has directly developed and/or, through his staff, managed the development of more than 70 solar PV constructed projects totaling more than 25 MW. Projects currently in construction will bring an additional 40 MW to our future constructed portfolio. Awarded projects are more than 71 MW, which we expect to move into construction within the year. Our proposed projects, but not yet awarded set of projects, are more than 230 MW. A sample list of these projects include:

Fisher Rd. Dartmouth, MA	Ground Mount	**6 MW**	**$15.6M**
Mass DOT Ph. 1B	Ground Mount	**1.3 MW**	**$7.4M**
Northampton, MA	Landfill Solar	**3.3 MW**	**$7.2M**
City of Pittsfield, MA	Landfill Solar	**2.9 MW**	**$6.8M**
City of Waltham Phase 2	Roof Top Solar	**1.7 MW**	**$6.3M**
Town of Acton, MA	Landfill Solar	**1.6 MW**	**$6.0M**
Groton Light Dept, MA	Landfill Solar	**2.9 MW**	**$6.0M**

JAMES J. WALKER, PE

VICE PRESIDENT, SOLAR PV GRID-TIE PROJECTS

PROFESSIONAL EXPERIENCE

Ameresco, Inc. 2010 – present Vice President, Solar PV Grid Tie Business Unit

Global Insight, Managing Director, Energy

Sun Microsystems, Director, Global Energy Business Development

Forrester Research, Senior Analyst, Energy Trading and Markets

GTE Corporation, Corporate Energy Manager

PROJECT EXPERIENCE (CONTINUED)

City of Lowell, MA	Landfill Solar	**1.5 MW**	**$5.8M**
Town of Weston	Landfill Solar	**2.27 MW**	**$5.6M**
Town of Sudbury, MA	Landfill Solar	**1.5 MW**	**$4.9M**
Braintree Electric Light	Landfill Solar	**1.3 MW**	**$4.6M**
Town of Newton, MA - Rumford	Landfill Solar	**2.5 MW**	**$4.0M**
City of Saugus, MA	Landfill Solar	**1.7 MW**	**$3.9M**
Town of Lexington, MA	Roof Top Solar	**1.1 MW**	**$3.8M**
City of Newburyport, MA	Roof Top Solar	**502 kW**	**$3.4M**
Massport – Logan Airport	Roof Top Solar	**370 kW**	**$2.5M**
City of Newton, MA	Roof Top Solar	**686 kW**	**$2.5M**
City of Fall River, MA	Roof Top Solar	**575 kW**	**$2.4M**
Town of Natick Phase 2	Roof Top Solar	**521 kW**	**$2.2M**
Town of Arlington, MA	Roof Top Solar	**719 kW**	**$2.1M**
City of Waltham, MA	Roof Top Solar	**193 kW**	**$1.2M**
Town of W. Newbury, MA	Ground Mount	**440 kW**	**$1.2M**
Town of Natick Phase 1	Roof Top Solar	**212 kW**	**$843K**

LUIS F. ALEGRIA

DIRECTOR – SOLAR PV DEVELOPMENT ENGINEERING

EDUCATION

University of Massachusetts, Lowell
Master of Science in Energy Engineering, Solar Option

Universidad del Valle, Colombia, South America
B.S. Electrical Engineering

PROFESSIONAL AFFILIATIONS

ASTM, IEC-US 82 TAG

PROFESSIONAL EXPERIENCE

Ameresco, Inc. 2016 - present
Director – Solar PV Development Engineering

Ameresco, Inc. 2015 – 2016
Manager – Development Engineering, PV-Grid Tie

Ameresco, Inc. 2010 – 2015
Senior Project Management Engineer

Evergreen Solar Inc. 2005 – 2010
Manager, Technical Sales and Applications and Field Support Engineer, Product Development Engineer

Global Transition Group 1999 – 2004
PV System/Product/Applications Engineer

Merck Colombia S.A. 1992 – 1998
Technical Support Coordinator

PROJECT ROLE

Luis Alegria has over 20 years of experience in the Renewable Energy Industry. Alegria has knowledge of different RE technologies including PV, Wind, Solar Thermal and Passive Solar. Alegria is knowledgeable in the following areas: PV System Design and Engineering, NEC regulations, PV Product Sales, PV system Troubleshooting, Technical Training, UL and IEC Certification, PCB / Electronic Design, and Product Testing.

PROJECT EXPERIENCE

Fisher Rd. Dartmouth, MA	Ground Mount	**6 MW**	**$15.6M**
Mass DOT Ph. 1B	Ground Mount	**1.3 MW**	**$7.4M**
Northampton, MA	Landfill Solar	**3.3 MW**	**$7.2M**
City of Pittsfield, MA	Landfill Solar	**2.9 MW**	**$6.8M**
City of Waltham Phase 2	Roof Top Solar	**1.7 MW**	**$6.3M**
Town of Acton, MA	Landfill Solar	**1.6 MW**	**$6.0M**
Groton Light Dept, MA	Landfill Solar	**2.9 MW**	**$6.0M**
City of Lowell, MA	Landfill Solar	**1.5 MW**	**$5.8M**
Town of Sudbury, MA	Landfill Solar	**1.5 MW**	**$4.9M**
Braintree Electric Light	Landfill Solar	**1.3 MW**	**$4.6M**
Town of Newton, MA - Rumford	Landfill Solar	**2.5 MW**	**$4.0M**
City of Saugus, MA	Landfill Solar	**1.7 MW**	**$3.9M**
Town of Lexington, MA	Roof Top Solar	**1.1 MW**	**$3.8M**
City of Newburyport, MA	Roof Top Solar	**502 kW**	**$3.4M**
Massport – Logan Airport	Roof Top Solar	**370 kW**	**$2.5M**
City of Newton, MA	Roof Top Solar	**686 kW**	**$2.5M**
City of Fall River, MA	Roof Top Solar	**575 kW**	**$2.4M**
Town of Natick Phase 2	Roof Top Solar	**521 kW**	**$2.2M**
Town of Arlington, MA	Roof Top Solar	**719 kW**	**$2.1M**
City of Waltham, MA	Roof Top Solar	**193 kW**	**$1.2M**
Town of Natick Phase 1	Roof Top Solar	**212 kW**	**$843K**

PAUL DEL MAR

MANAGER – PROJECT DEVELOPMENT ENGINEERING – SOLAR PV GRID TIE

EDUCATION AND TRAINING

University of Delaware
MS, Electrical Engineering

Northeastern University
B.S., Electrical Engineering, Magna Cum Laude

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics Engineers (IEEE)

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2015 – Present
Manager, Project Development Engineering – Solar PV, Senior Project Development Engineer

Borrego Solar System
2014 – 2015
PV Systems and Performance Engineer

SunPower Corporation
2013 – 2014
Performance Engineer, Ground Products and R&D

The Dow Chemical Company
2012 – 2013
Solar R&D – PV systems and Reliability Engineer

DLB Associates
2009 – 2010
Consulting Engineers – Electrical Engineer

PROJECT ROLE

Mr. Del Mar has been in the solar photovoltaic industry since 2006 and has experiences ranging from cell and module manufacturing, product research and development, design engineering, and construction/project management. Mr. Del Mar is currently responsible for the design, analysis, costing, and production estimation of commercial/industrial scale solar PV projects. Mr. Del Mar also managed the construction of a number of projects and also is responsible for evaluating new PV focused technologies in addition to energy storage and micro-grid solutions.

SOLAR PV PROJECT EXPERIENCE (ENGINEERING/DESIGN)

Northampton, MA - Landfill	**3.17 MW**
MS Walker, Dedham, MA - Rooftop	**645kW**

SOLAR PV PROJECT EXPERIENCE (CONSTRUCTION/PROJECT MANAGEMENT)

Partners Healthcare, Somerville, MA – Garage Canopy	**1.25 MW**
Sturbridge, MA – Ground Mount	**2 MW**

PROJECTS IN DEVELOPMENT

New Milford, CT - Ground	**27 MW**
Wayland Middle School Resiliency – Solar + Generator	**$2M**

DAVID S. TURNER

ASSOCIATE PROJECT DEVELOPMENT ENGINEER

EDUCATION

Bucknell University
Bachelor of Science, Mechanical Engineering

Charter Oak College
B.S. Applied Science and Technology

PROFESSIONAL AFFILIATIONS

American society of Mechanical Engineers (ASME)

Northeast Energy Commerce Association (NECA**)**

PROFSSIONAL EXPERIENCE

Ameresco, Inc.
2015 – present
Associate Project Development Engineer

Ameresco, Inc.
2014 – 2015
Associate Measurement & Verification Engineer

AstraZeneca
2013 – 2014
Process Engineer

PJM Interconnection
2012
Intern

PROJECT ROLE

Mr. Turner offers solar PV development experience for municipal and private business customers across Massachusetts and the Northeast on rooftops, greenfields and landfills. His background in measurement and verification offers a unique, in-depth understanding of payback and energy savings models.

PROJECT EXPERIENCE

West Newbury, MA Ground Mount Solar PV	**440 kW**	**$5.8M**
Town of Weston, MA Landfill Solar PV	**2.3 MW**	**$2.5M**
Town of Ashland Carport Solar PV	**230 kW**	**$2.3M**
Town of Ashland, MA Landfill Solar PV	**1.3 MW**	**$8.6M**

JOHN LIPPIELLO

ASSOCIATE DEVELOPMENT ENGINEER

EDUCATION

University of Massachusetts, Lowell
Masters Energy Engineering
Masters Applied Mathematics
Bachelors Electrical Engineering

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
May 2017 – Present
Associate Development Engineer

Raytheon
2013 – 2017
Systems Engineer II

PROJECT ROLE

Mr. Lippiello has 1 year of experience in the energy industry including work in his current position developing photovoltaic systems. His experience ranges from design of rooftop, ground mount and land fill photovoltaic systems to carport structures. His mechanical design experience and variety of project types are beneficial to the project development of solar projects.

Mr. Lippiello's daily duties include development engineering and design review. Additionally, he performs system engineering and design in the solar discipline, with a strong knowledge base of mechanical and electrical design. He works with Ameresco's project development team to implement their renewable energy opportunities.

PROJECT EXPERIENCE

City of Mansfield, CT
Design of several rooftop solar PV systems on public buildings and schools, as well as some carport solar PV systems

Amesbury Landfill, MA
Design of a ballasted landfill solar PV system

PSE&G Solar, NJ
Design of a ballasted landfill solar PV system for PSE&G utility in NJ

Erving, MA
Design of post driven ground mount solar PV system in Western MA

NABIH YOUNIS
PROJECT MANAGER

EDUCATION AND TRAINING

Northeastern University
B.S. Electrical Engineering

LICENSES AND CERTIFICATIONS

Massachusetts Hoisting License 2A/1C

NABCEP PV Professional Certification

US Solar Institute Certification

OSHA 30-Hour Safety Certificate

Massachusetts Hoisting License 2A/1C

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2016 – present
Project Manager

Endless Energy
2014-2016
Project Manager

Beaumont Solar
2013-2014
Project Manager

PROJECT ROLE

Mr. Younis manages the construction of Renewable Energy projects, including contractor selection and negotiation to bring the project in on time and under budget. He assists development managers and the engineering team in design issues and resolutions, while keeping customer service as the number one

PROJECT EXPERIENCE

City of Newton, MA Phase II Projects 1.3-MW Solar PV across 7 sites	**$4.3M**
Town of Lenox, MA 810-kW Landfill Solar PV	**$2.6M**
Town of Stockbridge, MA 898-kW Landfill Solar PV	**$2.4M**
Town of Moultonborough, NH 2.5-MW Ground Mount Solar PV for New Hampshire Electric Cooperative (under construction)	**$3.9M**

ROBERT W. PERSONS III, P.E.

SENIOR PROJECT DEVELOPMENT ENGINEER

EDUCATION

University of Wisconsin
M.S., Mechanical Engineering

Cornell University
M. Eng, Civil
B.S., Engineering

LICENSES & CERTIFICATIONS

Licensed Professional Engineer in MA, CT, NH, NJ, NY, OH and RI

PROFESSIONAL AFFILIATIONS

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHARE)

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2000 – present
Senior Project Development Engineer

Persons Engineering
1992 – 2000
President

Citizens Conservation Corporation,
1989 – 1992
Director of Technical Services

Thermo Electron, Inc.
1978 – 1988
Senior Applications Engineer

PROJECT ROLE

Mr. Persons has over 30 years of mechanical engineering design and project management experience. Licensed in numerous states, Mr. Persons is involved with project technical development during audits and during the design, specification, construction, and quality control phases of project management. He has directly designed decentralizations, steam-to-hydronic conversions, electric-to-gas space heat and domestic hot water conversions, cogeneration systems, building ventilation improvements, high-efficiency boiler plant replacements, and other major mechanical improvements.

Mr. Persons has also developed techniques to improve ventilation and indoor air quality in public housing developments without sacrificing energy conservation. He advises engineering staff responsible for energy audits, design, and specification documents, and is directly responsible for measure and engineering analyses on a number of key projects.

Mr. Persons' key responsibilities include examining customers' facilities and modeling building and system behavior to assess pre-retrofit efficiency and to evaluate potential energy and water conservation measures. He also develops and prices energy-conserving measures and technologies for heating, ventilation, air-conditioning, exhaust systems, and controls to yield energy savings without sacrificing comfort, while also providing the most cost-effective, durable, and reliable solution for the customer.

Mr. Persons provides on-site technical support as required to oversee subcontracted work of engineers and subcontractors.

PROJECT EXPERIENCE

Jordi Labs – Mansfield, MA	249 kW Solar PV	**$754K**
Unicorn Realty – Plymouth, MA	1,248 kW Solar PV	**$3.3M**
City of Fall River, MA		**$5M**

Primary measures included: solar photovoltaic system, energy management systems, window renovations and replacement, and high-efficiency boilers.

Town of North Andover, MA	$5.1M

Primary measures included: energy management systems, HVAC equipment upgrades, and weatherization improvements.

ROBERT W. PERSONS III, P.E.
SENIOR PROJECT DEVELOPMENT ENGINEER

PROJECT EXPERIENCE (CONTINUED)

San Francisco Housing Authority **$27M**

Primary measures included: high-efficiency boilers and water heaters, cogeneration, ventilation systems and energy management systems.

Worcester Housing Authority **$10M**

Primary measures included: cogeneration, building ventilation, energy management system, space temperature controls and weatherization.

Providence Housing Authority **$12M**

Primary measures included: cogeneration, decentralization and space temperature controls.

Lowell Housing Authority **$9.1M**

Primary measures included: decentralization, steam-to hydronic conversion, building ventilation and space temperature controls.

Boston Housing Authority **$63M**

Primary measures included: decentralization, steam-to-hydronic space heating conversion, high-efficiency boilers, and space temperature controls.

Akron Metropolitan Housing Authority
Phases 2 & 3 **$5.6M**

Primary measures included: solar photovoltaic systems, high efficiency boilers and water heaters, make-up air system modification and space temperature controls.

BRIAN PITREAU, P.E., NABCEP

ENGINEERING TEAM LEADER

EDUCATION

Worcester Polytechnic Institute
B.S. Biomechanical Engineering

LICENSES & CERTIFICATIONS

Professional Engineer – Massachusetts and Maine

North American Board of Certified Energy Practitioners (NABCEP)

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2013 – present
Engineering Team Leader

Ameresco, Inc.
2004 – 2012
Senior Project Management Engineer

WB Engineers
2002-2004
Mechanical Engineer, Project Manager

PROJECT ROLE

Mr. Pitreau is a senior project management engineer. With more than fourteen (14) years of experience in energy engineering, he is responsible for taking a project from the development stage to construction. He is responsible for design and design oversight of energy efficient systems and specification of material and equipment to be used on a project. He is also accountable for ensuring systems conform to applicable codes and standards and for coordinating the work of installation subcontractors during construction.

PROJECT EXPERIENCE

Solar PV Projects

• City of Waltham, MA	1.93 MW	$7.4M
• Town of Natick, MA	1.05 MW	$4.4M
• City of Fall River, MA	575 kW	$2.4M
• City of Newburyport, MA	502 kW	$3.4M
• City of Lowell, MA	1.85 kW	$7.8M

Energy Performance Contracts

- Huntington Union Free School District
- Freeport Union Free School District
- City of Portland, ME
- Minisink Valley Central School District
- Monticello Central School District
- Catskill Central School District
- Utica Central School District
- Pinebush Central School District
- Brewster Central School District
- Washingtonville Central School District
- Yonkers Public Schools
- Edgemont Union Free School District

Public Housing Projects

Boston Housing Authority **$63.4M**

Assisted with design of space heat decentralization, photovoltaic installation, and boiler replacements.

BRIAN PITREAU, P.E., NABCEP
ENGINEERING TEAM LEADER

PROJECT EXPERIENCE (CONTINUED)

Providence, RI Housing Authority **$12.1M**

Boiler replacement at 20 sites. Multi-family and senior housing.

Watertown, MA Housing Authority **$3.9M**

Boiler Replacements, Boiler Plant Decentralization, Low Flow Toilets and Showerheads, Faucet Aerators, Washing Machines, Gas Dryers, Lighting, Windows, Boiler Fuel Conversions, Zone Valves, Limiting Thermostats, EMS, Cogeneration, Refrigerators

Cambridge, MA Housing Authority **$3.3M**

Developed solar design for rooftop photovoltaic installation.

Albany, NY Housing Authority – Ph. 2 **$7.9M**

Electric to Gas Heating/Hot Water Conversions, Oil to Gas Burner Conversion, Combined DHW and Hot Air Heating Systems, Radiator Bypass Valves for Zone Control, Low Flow Toilets and Showerheads, Faucet Aerators, Lighting, Refrigerators, Motor Replacements, Windows, Limiting Thermostats

ROGER O. GYEBI

ASSOCIATE PROJECT DEVELOPMENT ENGINEER

EDUCATION

University of Massachusetts Lowell
M.S., Energy Engineering
(Solar Option)
B.S., Mechanical Engineering

LICENSES & CERTIFICATIONS

Certified for Building Science and Energy Retrofit Basics

OSHA 10 Hour Construction and Industry Outreach Certified

PROFESSIONAL AFFILIATIONS

National Society of Black Engineers (N.S.B.E.)

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2016 - Present
Senior Project Engineer

Ameresco, Inc.
2010 – 2015
Associate Project Development Engineer

PROJECT ROLE

Mr. Gyebi develops and designs photovoltaic systems. He is responsible for preparing technical engineering analysis, feasible reports and engineering designs of photovoltaic systems.

PROJECT EXPERIENCE

Fall River Solar Feasibility Study **$3M**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

DOER (Worcester State University) **$18.4M**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

DOER (Canton Housing Authority) **$330K**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

Waltham Public Schools PV **$7.6M**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

Milton Academy Solar **$730K**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

Natick Senior Community Center **$320K**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

Natick High School **$1.4M**
Primary measures included: being the Design Engineer and Commissioning the project before it went into service.

RAYMOND N. HANNA, LEED AP

SENIOR PROJECT MANAGER, CONSTRUCTION

EDUCATION

California State University
B.S., Mechanical Engineering

LICENSES & CERTIFICATIONS

Licensed Construction Supervisor:
Massachusetts LEED, AP

PROFESSIONAL AFFILIATIONS

U.S. Green Building Council (USGBC)

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2009 – present
Construction Project Manager

G. Greene Construction
2005 – 2008
Senior Project Manager
Project Manager

Ahlborg and Sons Construction Co.
2002 – 2005
Construction Project Manager

Shawmut Design & Construction Co.
2000 – 2002
Construction Project Manager

Hanna Construction
1986 – 1997
Owner

PROJECT ROLE

Mr. Hanna is a Construction Project Manager, responsible for construction assigned. Mr. Hanna has over 30 years of construction experience in lighting, electrical, and mechanical project installation, in occupied space.

Mr. Hanna has expertise in the construction of various turnkey and energy savings performance contracts in Massachusetts and Maine. Mr. Hanna is responsible for supervising 2 construction related personnel. Mr. Hanna is responsible for the implementation of performance contracts assigned to him. These contracts included energy management systems, boilers, variable speed drives, and lighting. He has managed complex retrofit projects for numerous customers.

PROJECT EXPERIENCE

Town of Weston	Landfill Solar	**2.27 MW**	**$5.6M**
Town of Arlington	Roof Top Solar	**719 kW**	**$2.1M**
Town of W. Newbury	Ground Mount Solar	**440 kW**	**$1.2M**
Town of Lexington	Roof Top Solar	**1 MW**	**$3.0M**
Mass DOT Ph. 1A	Ground Mount Solar	**2.45 MW**	**$5.8M**
Fisher Rd. Dartmouth	Ground Mount Solar	**6 MW**	**$15.6M**
Town of Acton	Landfill Solar	**1.6 MW**	**$6.0M**
City of Lowell	Landfill Solar	**1.5 MW**	**$4.9M**
Town of Sudbury	Landfill Solar	**1.5 MW**	**$4.2M**

Boston Housing Authority **$15M**
Measures included: boilers, insulation, roofing, solar PV & cogeneration

Cambridge Housing Authority **$2M**
Measures included: lighting, lighting controls, motors, boilers, insulation, water conservation, roofing and solar PV

City of Portland **$9.4M**
Measures included: lighting, lighting controls, motors, HVAC upgrades, EMS, boilers and water conservation

Lynn Housing Authority **$6.2M**
Measures included: lighting, lighting controls, motors, boilers, insulation and water conservation

KENNETH W. GROSS

VICE PRESIDENT – SAFETY AND RISK MANGEMENT

EDUCATION

Columbia Southern University
B.S., Occupational Safety and Health Engineering

LICENSES & CERTIFICATIONS

OSHA 30-Hour Course Construction Safety and Health

OSHA Construction Outreach Trainer for 10-Hour and 30-Hour Construction Safety

TN-EPSC Level-1 Certified #115146-TN07

American Society of Safety Engineers #000055900

State of Tennessee Certified Hazardous Materials Technician

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2007 – Present
Director – Safety & Risk Management

Blaine Construction Corporation
2001 – 2007
Deputy Safety Director

State of Tennessee Occupational Safety & Health Review Commission
1996-2004
Chariman

PROJECT ROLE

Mr. Gross is the senior manager responsible for the evaluation, development, implementation and overall compliance of the Corporate Environmental Safety & Health Program and Risk Management activities. He has authored numerous internal policies and procedures that have reduced the Company's overall EMR and RIIR statistics. He and his staff conduct nationwide audits of ongoing projects and operations to ensure compliance and identify any deficiencies so they can be readily corrected.

Formerly Mr. Gross was the Project Environmental Safety and Health Manager for the U.S. Department of Energy's HEUMF and SNS Projects. He held day-to-day responsibilities to manage staff and subcontractors to ensure strict compliance to the approved Environmental Safety and Health Plans. Conducted management reviews and assessments, as well as, lead all incident investigation teams following any occurrence. Was responsible to develop and implement corrective actions based on the causal analysis determination.

PROJECT EXPERIENCE

Department of Energy **$549M**
Primary measures included: construction of the Highly Enriched Uranium Storage Facility at the Y-12 National Weapons Complex

Department of Energy **$1.4 Billion**
Primary measures included: construction of the Spallation Neutron Source Facilities at the Oak Ridge National Laboratory

MICHAEL WILLIAMSON
ASSISTANT PROJECT MANAGER

EDUCATION

B.S. Electrical Engineering
Union College

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2013 – Present
Associate Project Manager

CHA Consulting
2015 – 2016
Assistant Engineer / GIS Designer

PROJECT ROLE

Mr. Williamson manages projects from 30% design drawings, through construction and the interconnection process. He develops and coordinates the construction schedule, negotiates quotes and purchase equipment, drafts contracts and hires subcontractors along with obtaining any necessary permits for Ameresco projects. Mr. Williamson coordinates the development and engineering teams to push project designs from the sales concept to the stamped construction drawings stage. He is also responsible for planning and leading the client and contractor project progress meetings.

PROJECT EXPERIENCE

Eversource Energy Services **Hampden, MA** Ground Mount Solar Array	**4.9 MW**	**$7.46M**
Northampton, MA Landfill Solar Array	**3.3 MW**	**$7.2M**
Town of Newton, MA - Phase 2 6 Rooftop and 2 Carport Canopy	**1.28 MW**	**$4.3M**
Town of Newton, MA - Rumford Landfill Solar PV	**2.5 MW**	**$4M**
City of Pittsfield, MA Landfill Solar	**2.9 MW**	**$6.8M**
Groton Light Department, MA Landfill Solar PV	**2.9 MW**	**$6M**

WILL BLAND

MAINTENANCE SERVICES SUPERVISOR

EDUCATION

University System of New Hampshire
Communication/Operations Management

SPECIALIZATION

Operations management
Facilities management
Maintenance management
Construction Management
Electrical/power distribution
Cogeneration O&M

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2006 – present
Project Manager

Select Energy Services
2003 – 2006
Project Manager

Shafmaster Fishing Group
1986 – 2003
Operations Manager

Portsmouth Naval Shipyard
1981 – 1986
Nuclear Special Projects – Team Leader

PROJECT ROLE

Mr. Bland is a Project Manager with extensive energy services experience including operations, facility, and maintenance management, inventory control, budget preparation and management, and vendor and contractor negotiations and relations. He is also experienced in root cause and failure mode analysis. He has designed and implemented preventive maintenance programs, as well as developed and maintained predictive computer databases used to project future maintenance requirements and costs and to predict possible equipment failure. His responsibilities include the development, implementation, and monitoring of the operations and maintenance programs that ensure the long-term operational reliability of the electrical and mechanical equipment required by prescribed energy conservation and cogeneration measures.

Mr. Bland was involved in the commissioning of a new cogeneration and package boiler upgrade to the steam/power plant at Portsmouth Naval Shipyard (PNS) in Kittery, Maine. He was the commissioning manager for a shipyard-wide boiler decentralization program consisting of over 50 steam-to-hot-water heat exchangers and domestic boiler heating systems. Mr. Bland is responsible for the ongoing maintenance of the power plant steam and electrical generation equipment, building heating systems, as well as the annual testing and repair of the shipyard's compressed air system and entire complement of steam traps. He has developed short and long-term maintenance and fiscal plans that will ensure the availability and reliability of this equipment for the next decade and a half.

In addition to these duties, Mr. Bland has the project management responsibilities for a Structural, Mechanical, Electrical (SME) contract at the Portsmouth Naval Shipyard and is responsible for all aspects of the contract including contract negotiation; government coordination/communication with several levels of Navy personnel; and detailed work scope coordination, safety reviews, and direct oversight of subcontractors performing work on-site. His responsibilities also include the detailed tracking of all aspects of the project including sub-contractor management, submittals reviews, safety reviews, and testing as well as budget oversight and schedule coordination.

Mr. Bland is also responsible for the long term maintenance and repair programs for the HVAC and automated building control systems at York County Jail, a correctional facility in southern Maine and the Wrentham Development Center, a state run long-term care facility in Wrentham, Massachusetts.

WILL BLAND
MAINTENANCE SERVICES SUPERVISOR

PROJECT EXPERIENCE

U.S. Navy Portsmouth Naval Shipyard, ME **$42M**
15 MW cogeneration and package boiler upgrade to the steam/power plant. Boiler decentralization to 50 steam-to-hot-water heat exchanger and domestic boiler heating systems. Ongoing maintenance of the power plant steam and electrical generation equipment and building heating systems.

U.S. Navy Portsmouth Naval Shipyard, ME **$28M**
Preventative maintenance, inspection, and testing of electrical and mechanical distribution systems and the execution of multiple construction and repair delivery orders.

U.S. Navy Portsmouth Naval Shipyard, ME **$900K**
Power plant smokestack removal. Quality control and safety management of a critical demolition project involving hazardous material abatement, confined space and aerial work, and critical crane lifts.

U.S. Navy Portsmouth Naval Shipyard, ME **$3.5M**
Provided site project management and customer liaison during the Design Engineering Phase of an ESPC project to replace 4500' of underground condensate piping and installation of two trim air compressors and upgraded system controls

WILLIAM D. MILLER
ELECTRICAL PROJECT MANAGER

EDUCATION

Wentworth Institute of Technology: Welding I: Intro to Electrical Wiring; Journeyman Electrician I; Master Electrician

Merit Shop Institute: Electrical II; Electrical III

LICENSES & CERTIFICATIONS

Commonwealth of Massachusetts, #36517 E

State of New Hampshire, # 9957 J, renewal pending

State of Maine, # JY40089871, renewal pending

National Technology Transfer Inc. "Trouble Shooting Motor Controls", Jan. 1994

AEE "Fundamentals of Lighting Efficiency", 1996

Memic Safety Services "OSHA Voluntary Compliance Outreach Program 10-Hour Construction Certificate Course, 1997

National Safety Council, Defensive Driving Course, 2002

CompuMaster "Understanding Networking Fundamentals", 2001

OSHA 10 hour course in Construction Safety & Health, 2002

American Red Cross Adult CPR, and Standard First Aid, 2003

PROJECT ROLE

Mr. Miller has 14 years of experience in facilitating and coordinating electrical projects, primarily lighting upgrades and implementation of utility rebate programs, as well as coordinated communication between parties involved with a project. He excels at smoothly and efficiently managing the installation of new equipment and the removal and disposal of old equipment with minimal disruption to customer activities.

Mr. Miller is experienced in ensuring targeted production levels on installations, maintaining accountability of on-site material, both old and new and addressing all on-site customer concerns during projects.

PROJECT EXPERIENCE

City of Lowell MA, Solar PV **$1.6M**
Primary measures included: onsite construction supervision, liaison between city officials, utility reps and on site contractors, coordination of material delivery and receipt, scheduling between multi-site constructions, on site safety supervision and compliance and ongoing support and PM's of sites with O&M department.

Newburyport MA, Solar PV **$800K**
Primary measures included: onsite supervision of first large scale PV project for Ameresco, daily onsite management with contractor and customer, receipt of materials and resolution of material issues, directly involved with installation of onsite Data Acquisition System display system and coordination with DAS contractor on their install and ongoing support and PM's of site with O&M.

Edgemont School District, NY **$2.8M**
Primary measures included: monitoring and verification support to Ameresco Newburgh NY office on project in preconstruction phase, compiling pre-consumption electrical data for the lighting phase.

WILLIAM D. MILLER
ELECTRICAL PROJECT MANAGER

PROFESSIONAL AFFILIATIONS

Worcester Regional Chamber of Commerce DBA William Miller LJE

2011 Certificate Course of National Electrical Code Update

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2003 – Present
Electrical Project Manager

Noresco
1992 – 2003
Field Electrician

PROJECT EXPERIENCE (CONTINUED)

Bridgewater University Kelly Gym
Building window upgrade **$7.8M**
Primary measures included: assumption of onsite duties for outgoing co-worker on supervision of windows upgrade, including coordination between simultaneous demolition/installation of new window system, balancing demo contractor progress against installer contractor progress, in a fully occupied functioning university building, coordination of schedules and meeting with State PM counterpart and university facilities.

City of Lowell, MA, ESPC **$16M**
Primary measures included: daily onsite coordinated supervision with other Ameresco PM, Senior OM's and engineering personnel, weekly meeting with City of Lowell officials including City buildings supervisor, school building supervisor, city energy manager and others, site supervision on rood replacement ECM, Motors install ECM with pre and post M&V data recording, coordinated support from electrical contractors to mechanical contractors, support to Ameresco lighting PM on installation and post M&V data collection, on city wide lighting ECM.

JOHN OCCHIALINI

ASSET MANAGER, OPERATIONS & MAINTENANCE

EDUCATION

Associated Technical Institute
Woburn, MA

LICENSES AND CERTIFICATIONS

Massachusetts Journeyman Electrical License

Medium Voltage Splicing Certified

C-10 Electrical Contractor's License, CA

PROFESSIONAL EXPERIENCE

Ameresco, Inc.
2015 – present
Asset Manager, Operations & Maintenance

Nexamp
2014 – 2015
QA/QC Manager

Trylon
2013 – 2014
Senior Field Engineer

Satcon Utility Solar Investors
2010 – 2013
Client Site Manager

Occhialini Electrical Systems
2007 – 2010
Project Manager

Nuvera Fuel Cells
2000 – 2007
Implementation Manager

PROJECT ROLE

Mr. Occhialini has over thirty years of experience in the electrical and energy services industry. As an Asset Manager, he is an integral part of the team that oversees the operations and maintenance of completed Energy Conservation Projects throughout the northeast United States. His duties include assuring that operating systems are working correctly and that preventative and corrective maintenance and repairs are performed as required. He maintains close relationships with both customers and subcontractors.

Current operations and maintenance customers include Tewksbury Hospital, Revere Public

Schools, Portsmouth Naval Shipyard, Kittery ME and Harvard Medical School's New Research Building Chiller Plant in Boston MA. In addition, Mr. Occhialini is involved in the preventive maintenance of Energy Management Systems for several school districts throughout the Hudson River Valley region of New York. A key responsibility of Mr. Occhialini, is daily operations and maintenance of an extensive portfolio of Solar PV production facilities throughout the northeast.

PROJECT EXPERIENCE

Tewksbury Hospital **$10.4M**
Lighting systems; steam traps; energy management systems; domestic water conservation; satellite boiler plants; BACT compliant boiler replacement; Burner controls; switchgear replacement; window replacement; 500kW cogeneration; sanitary sewer upgrades; solar PV; steam system improvements; EE motors; pipe insulation; addition of central cooling

City of Revere, MA **$10.3M**
Lighting systems; Open Protocol Energy Management Systems; boiler replacements, roof replacement including integrated solar PV, steam traps, new rooftop units, transformers, air sealing, computer power management, pipe and insulation, cooling tower replacement, unit ventilators, pool dehumidification, power factor correction, and water conservation

JOHN OCCHIALINI
ASSET MANAGER, OPERATIONS & MAINTENANCE

PROJECT EXPERIENCE (CONTINUED)

Department of Transportation, MA **$8.3M**
Multiple ground mount site installation including areas off of exits 13N and 13S, Framingham Service Plaza, and the Natick Embankment all located on the Mass Pike as well as the exit 5 service plaza in Plymouth on rt 3. The (5) sited combined equal a total of 3MW

Town of Arlington, MA **$2.5M**
Multiple site installation including Arlington High School, Ottoson School, Peirce School, Stratton School, Dallin School, and the Thompson School. The (6) sites combined equal a total of 2.1 MW.

Weston, MA **$5.4M**
2.3MW Landfill Solar PV System

Victoria Howland, P.E., LEED AP

Project Engineer

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer – Rhode Island

LEED Accredited Professional

OSHA Construction Safety 10-Hour Training

Nuclear Gauge Field Density & Compaction Testing

EDUCATION

Northeastern University, Boston, MA- M.S. Sustainable Building Systems, 2016

Worcester Polytechnic Institute, Worcester, MA - B.S., Civil Engineering, 2012

RELEVANT EXPERIENCE

Ms. Howland has seven years of experience and is a member of Pare's site/civil design team. She has been involved in the development of plans and specifications and the design of drainage, utility, grading, and stormwater management systems for various projects. Relevant experience includes:

- **Providence Water Supply Board – Central Operations Facility:** Senior Engineer for the redevelopment of a 175,000-sf building and 16-acre site into a new central operations facility. Site upgrades included new drives, a guardshack, vehicle wash station, fueling area, stormwater improvements, and the application low-impact development techniques. Providence, RI.

- **North Atlantic Distribution Processing Center:** Staff Engineer for a new 33,000-SF import vehicle processing center at the Quonset Business Park/Port. Services included the design of underground stormwater infiltration systems and the preparation of construction documents. North Kingstown, RI.

- **URI/South County Bike Path Connector:** Senior engineer for the design and permitting of a 1.8-mile bike path connecting the URI campus and the William C. O'Neill (South County) Bike Path. Kingston, RI.

- **RI Attorney General Customer Service Center:** Provided LEED consultation services for the construction of a new 18,000-SF customer service center and associated site improvements. Project is targeting LEED Gold certification. Cranston, RI.

- **Rhode Island Veterans Home:** Staff Engineer for site/civil design of a new 240,000-SF veterans home. Assisted in the site design, hydraulic and hydrologic analysis, design of the stormwater management systems, and grading of the site. Prepared design development documents for permitting and provided construction administration. Bristol, RI.

- **University of Rhode Island – Brookside Apartments:** Senior Engineer for a new six-story, 500-bed apartment building for upperclassmen. Services include stormwater investigation, utility research and design, USGBC LEED consultation, site plan preparation, and permitting. Project is targeting LEED Gold certification. Kingston, RI.

- **Collyer North Parking Expansion:** Senior Engineer for the design and permitting of a parking expansion at Collyer Business Center. Site upgrades included redesign and expansion of the existing stormwater management system. Lincoln, RI.

- **Twin River Casino Hotel:** Staff Engineer for the design and permitting of a 250-bed Hotel addition at the Twin River Casino facility. Conducted hydrologic assessment of site and project area, stormwater management system design, and site grading. Lincoln, RI.

- **Rhode Island College – Craig-Lee and Gaige Halls:** Staff Engineer for site/civil engineering for a feasibility study of two of the largest academic building complexes on the campus to determine their potential to meet the needs of the evolving academic programs at the college. Services included an evaluation of the existing utility infrastructure of the two facilities to

identify required upgrades and improvements necessary to support the expansion of the facilities. Providence, RI.

- **Seekonk Senior Center:** Staff Engineer for the development of a senior center for the Town of Seekonk. The project includes preparation of conceptual, permitting, and construction site development documents. Seekonk, MA.

- **Avecia Building 155 Expansion:** Senior Engineer for the development of a two-wing, 12,400-SF expansion to a pharmaceuticals manufacturing facility. Services included site design, grading and drainage plans, utility design, permitting, and construction documents. Milford, MA.

- **Franklin Public Library:** Senior Engineer for the site improvements associated with the addition of a 3,800-SF addition to the Public Library. Tasks included site layout, grading, drainage design, and construction documents. Franklin, MA.

- **Hotel Viking Expansion:** Staff Engineer for a site feasibility study for the expansion of Hotel Viking. Services included a parking efficiency study and parking concept plans. Newport, RI.

- **Rhodes Pharmaceuticals:** Senior Engineer for the development of a 25,000-SF pilot plant building to expand the pharmaceuticals manufacturing capabilities within the campus. Services included grading, utility connections, stormwater design, and site plan development. Coventry, RI.

- **Grace Church:** Senior Engineer for the addition of a 5,000-SF parish hall to the existing Grace Episcopal Church. Tasks included utility investigation and design, stormwater management design, and the preparation and development of permitting and construction documents. Providence, RI.

- **Pawtucket Central Falls Development Corporation - Branch Street Development:** Staff Engineer for the design and permitting of a 30-unit affordable housing complex. Services include site planning, grading, stormwater management, and permitting through the Rhode Island Department of Environmental Management. Pawtucket, RI.

- **Barry Hall & Simpson Hall Renovations:** Staff Engineer for renovations to the existing buildings for HVAC and electrical upgrades. The project also included site upgrades and utility layouts. Cranston, RI

- **Benjamin Rush & Louis Pasteur:** Staff Engineer for renovations to the existing buildings for HVAC and electrical upgrades. The project also included site upgrades and utility layouts. Cranston, RI.

- **Rhode Island Old State House:** Staff engineer for the site design of a transformer vault and stormwater improvements to the historic Old State House. Services included the development of site plans, city and utility permitting, and construction administration. Providence, RI.

- **Mixed-Use Development:** Staff Engineer for the design and permitting of a combined Dunkin Donuts and Affordable Housing facility. Services included site layout, grading, and stormwater management system design. Lincoln, RI.

Briscoe B. Lang, PWS
Permitting Specialist

PARE CORPORATION

REGISTRATIONS AND CERTIFICATIONS

Professional Wetland Scientist

Certified Wetland Delineator (Rutgers University)

Rhode Island Low Impact Development Master Design Certification

Certified Invasives Manager

AFFILIATIONS AND MEMBERSHIPS

Society of Wetland Scientists

Rhode Island Association of Wetland Scientists

Association of Massachusetts Wetland Scientists

Pare Climate Change Committee

EDUCATION

Southern Connecticut State University:
B.S. Earth Science 1988

University of Rhode Island: Graduate Level Courses In Wetland Ecology, Wetland Field Investigations, Wetlands and Land Use

Cook College of Continuing Education (Rutgers University): Vegetation Identification for Inland Wetland Delineations, Methodology for Delineating Jurisdictional Wetlands

RELEVANT EXPERIENCE

Mr. Lang is an environmental specialist with 30 years of experience applying environmental science to the planning, design, permitting and development of civil engineering projects in Southern New England. Over his career Mr. Lang has participated in hundreds of projects involving environmental planning and wetland identification, delineation and permitting. His capabilities include feasibility studies and project planning; environmental impact assessments and alternative analyses; avoidance, minimization, and wetland mitigation design; appeals and enforcement actions; erosion and sediment control planning and implementation; construction monitoring; wetland delineations and reviews; GPS/GIS mapping; reports and permit applications for highway, utility, commercial, and residential projects, both coastal and inland. Representative project experience includes:

- **Providence Water Supply Board pH Study:** Principal Environmental Scientist for a water monitoring study at the outfall of a lagoon at the Providence Water Supply Board's PJ Holton Purification Plant. The study was to support the Owners request for a reduction in pH effluent limits allowed under their RIPDES discharge permit. Was instrumental in developing study design and obtaining RIDEM approval for the effort. Performed wetland delineations and mapping, identified reference wetland, oversaw sample collection and analysis, and assisted in preparing the summary report. The study was accepted by RIDEM and the effluent limit was reduced. Scituate, RI.

- **Providence Water Receiving Water Evaluation:** Project Manager and Principal Environmental Scientist for an evaluation of the receiving waters located downstream from sludge lagoon Outfall 002A to assess whether the area could be legitimately construed as functioning primarily as a direct conveyance to the Pawtuxet River in order to address new RIPDES effluent limitations for Total Iron, to which a dilution factor could be applied if the outfall were to a conveyance rather than a "wetland". The evaluation included field review of the receiving water and surrounding areas, stream channel cross sections and profile, wetland mapping, and evaluation of the functions and values provided by the receiving waters. Scituate, RI.

- **Providence Water Supply Board – Central Operations Facility:** Principal Environmental Scientist for the Freshwater Wetlands permitting associated with the redevelopment of a 175,000-sf building and 16-acre site into a new central operations facility. Site upgrades included new drives, a guardshack, vehicle wash station, fueling area, stormwater improvements, and the application low-impact development techniques. The project borders the Mashpaug Pond which receives the majority of the site's stormwater runoff. Providence, RI.

- **Mount Hope High School Athletic Field Improvements:** Responsible for permitting of drainage and grading improvements for the athletic field facility at Mount Hope High School. Responsible for the preparation of plans and submission of a permit modification application for a previously-issued permit. Bristol, RI.

- **Lincoln Middle School Site Development:** Obtained a RI Department of Environmental Management Wetland Edge Verification and prepared permit documentation for a new $25 million, 135,000-SF public middle school and ancillary facilities. Lincoln, RI.

- **New Woonsocket Middle Schools Design:** Principal Environmental Scientist responsible for wetland/river delineation and environmental permitting for a $74-million project to construct two new 800-student middle schools at the same site. To maintain project schedule, prepared separate Stormwater Pollution Prevention Plans for demolition and construction phases. Oversaw preparation of a Request for a Preliminary Determination application for submission to RIDEM. Project approved with no review comments. Woonsocket, RI.

- **Girl Scouts of Rhode Island Camp Cookie Dam Repair:** Dam repair project involving spillway and gate replacement, and embankment repairs. Engaged in the delineation and evaluation of wetlands surrounding the impoundment, pre-application coordination with the RIDEM Freshwater Wetlands Program, and wetland permitting. Construction required the use of cofferdams, partial draw down of the impoundment, creation of a construction-phase access road in the pond, and pond restoration following construction. Glocester, RI.

- **RIDOT Bridge Rehabilitation/Replacement Program – Group 8, Chestnut Hill Bridge No. 951:** Responsible for resource classification, impact assessment and Freshwater Wetlands permitting for replacement of the bridge and the adjacent spillway at the Smith and Sayles Reservoir dam. Coordinated closely with Landscape Architect to develop a plan for restoring forested wetland temporarily disturbed for the construction of the new spillway. Designated as construction-phase Environmental Monitor to oversee contractor compliance with the terms and conditions of environmental permits. Glocester, RI.

- **RIDOT Bridge Rehabilitation/Replacement Program – Group 8, Granite Mill Bridge No. 308:** Responsible for wetland evaluations, classification, impact assessment, and Freshwater Wetland permitting for the replacement of Granite Mill Bridge carrying State Route 107 over the perennial Clear River. Coordinated closely with other RIDOT consultants to incorporate a related roadway rehabilitation project into the submission. Burrillville, RI.

- **Twin River Off-Site Roadway Improvements:** Environmental Scientist responsible for the evaluation of existing wetlands and preparation of a Request for a Preliminary Determination for improvements to the State roadways serving the Twin River Casino. Participated in a pre-application meeting with representatives of RIDEM and provided coordination to assure that the design would be in conformance with the wetland and hydrologic parameters established for related on-site improvements. Lincoln, RI.

- **Richmond Sand & Gravel Due Diligence:** Project Manager for a due diligence study for the potential purchaser of a 208-acre site used for hard rock quarrying, composting, sand and gravel processing, and other industrial activities. Coordinated a multi-disciplinary team in the preparation of an Environmental Site Assessment, evaluation of existing site constraints (e.g., wetlands, natural heritage area, floodplain), and projection of potential uses. Richmond, RI.

- **Central Landfill Permitting – Rhode Island Resource Recovery Corporation:** Environmental Scientist responsible for the preparation and submission of the Stormwater Pollution Prevention Plan and the Construction Phase RIPDES Notice of Intent for the Phase II and III Permanent Cap project. Johnston, RI.

- **Central Landfill Erosion and Sedimentation Plan – Rhode Island Resource Recovery Corporation:** Lead author of an update to the site-wide erosion and sediment control plan for the largest landfill in New England. The plan included descriptions of the existing facilities and operations, current and proposed erosion and sediment control Best Management Practices, monitoring, maintenance and reporting requirements, and provisions for updating the plan. Johnston, RI.

David L. Potter, P.E.
Project Manager

PARE CORPORATION

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer – Rhode Island, Massachusetts

Title V Soil Evaluator – Massachusetts

Title V System Inspector – Massachusetts

Onsite Wastewater Treatment Systems, Class III Designer, Rhode Island

OSHA Construction Safety 10-Hour Training

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

Providence Engineering Society

EDUCATION

Worcester Polytechnic Institute: M.S., Civil Engineering and Construction Management, 2007

Northeastern University: B.S., Civil Engineering, 2002

RELEVANT EXPERIENCE

Mr. Potter has 20 years of experience designing and managing civil and environmental engineering projects. He is especially proficient in the areas of stormwater management, utilities, roadway, and site design for a wide variety of educational, recreational, institutional, commercial and public facilities. His experience includes the following projects:

- **Providence Water Supply Board – Central Operations Facility:** Civil Project Manager for the redevelopment of a 175,000-sf building and 16-acre site into a new central operations facility. Site upgrades included new drives, a guardshack, vehicle wash station, fueling area, stormwater improvements, and the application low-impact development techniques. Providence, RI.

- **Solar Park Developments:** Project Manager for site/civil design services provided for several solar park developments. Services included site layout, grading, application of low-impact development techniques, and permitting. Locations of the solar installations include Warwick, Lincoln, and North Providence, RI

- **Roger Williams Park Zoo Rainforest Exhibit:** Project Engineer for site planning and design, including storm water management strategies, for the new Rainforest Exhibit. The design incorporates sustainable and low impact stormwater management techniques for control of storm water runoff. This is accomplished through innovative ways to blend into the exhibit and may employ water quality swales, rain gardens or bioretention areas to obtain no net increase in the rate of runoff from the site. Providence, RI.

- **Smithfield Office Center Development:** Project Engineer for site/civil engineering services for a proposed development consisting of three new office buildings of 44,000 square feet each. Services include site design, grading and drainage plans, master plan submission to the Town, subsurface investigations, utility design, traffic study, permitting, and construction documents. Smithfield, RI.

- **Twin River Parking Lots:** Design and permitting for three new parking lots at the Twin River facility to provide approximately 1,100 parking spaces for employees and patrons for special events. Design included underground storage and infiltration for the storm water runoff and soil removal program for removing unsuitable subsurface materials. Construction observation services, including materials testing, were also provided. Lincoln, RI.

- **Rhode Island Veterans Home:** Managing Engineer for design of a new campus facility for the Veterans of Rhode Island. The new $121 million project consists of a new 208-bed nursing home and recreational areas for homeless veterans. The project included 45 acres of site work and approximately 260,000 SF of new building construction. Responsible for design of site improvements (roadway layout, parking, pavement, site concrete, curbing, grading) and utility improvements. Bristol, RI.

- **Amgen Biopharmaceutical Manufacturing Facility:** Senior Engineer for site/civil design for a new $1.2-billion, 500,000-SF cell culture manufacturing facility. Site/civil services included on- and off-site sanitary sewer upgrades, water distribution, drainage and utilities, and surface parking design to

provide 620 permanent and 1,800+ temporary parking spaces. West Greenwich, RI.

- **Bristol Town Beach Stormwater Outfall Retrofit:** Project Engineer for watershed study and design of stormwater outfall retrofit to incorporate best management practices (BMP's) to improve beach water quality. The project included the identification of the tributary sub-watershed limits; performance of a hydrologic analysis; development of conceptual and final designs for water quality improvement BMP's targeting bacteria removal; and the preparation of RIDEM and CRMC permit applications. Bristol, RI.

- **North Kingstown Schools RIDE Assessments:** Project Manager for Stage I and II site evaluations of six elementary schools, two middle schools, and the high school in support of the school district's RIDE applications. Evaluations included walkways, parking/pavement, signage, fencing, drainage, etc. North Kingstown, RI.

- **West Warwick Schools RIDE Assessments:** Project Manager for Stage I and II site evaluations of four elementary schools and the middle school/high school complex in support of the school district's RIDE applications. Evaluations included walkways, parking/pavement, signage, fencing, drainage, etc. North Kingstown, RI.

- **Amesbury DPW Final Design:** Project Engineer for the final design of a 12,000 +/- square foot pre-engineered building addition including new parking, maintenance, and laydown areas, utility improvements, and stormwater management design. Local and State permitting services were provided. Amesbury, MA.

- **Quonset Business Park – Babcock Road Improvements**: Project Engineer for drainage design as part of the .45-mile, full-depth road reconstruction project. North Kingstown, RI

- **Self-Storage Facility Site Development:** Staff Engineer for site development project for a proposed self-storage facility, including improvements to the existing parking area, a new parking area, and drainage infrastructure. Tasks included permitting and regulatory compliance, and attendance at the Town Council meeting. Lincoln, RI.

- **Self-Storage Facility Site Grading Plan:** Staff Engineer for preparation of site grading plan for conversion of a former manufacturing facility to a climate-controlled self-storage facility. Central Falls, RI.

- **Burlingame State Park Improvements – Rhode Island Department of Environmental Management:** Staff Engineer for redesign of the Mills camp RV sites at this state-owned camping area. Charlestown, RI.

- **Inskip Motors Satellite Parking Lot Development:** Project Engineer for permitting and preparation of design development and construction documents for a new 2.8-acre parking lot across Pace Boulevard to project overflow parking for the Inskip Motors auto dealership. The proposed development includes the clearing of existing vegetation, construction of a porous pavement parking facility, landscaping and drainage improvements. West Warwick, RI.

APPENDIX E: SAMPLE PPA

A Sample PPA is provided on the following pages.

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SOLAR POWER PURCHASE AGREEMENT

THIS SOLAR POWER PURCHASE AGREEMENT ("***Agreement***") is made and entered into as of this _____ (the "***Effective Date***") by and between [INSERT CUSTOMER], with an address of _____ ("***Buyer***") and [INSERT SYSTEM OWNER], with an address of 111 Speen Street, Suite 410, Framingham, MA 01701 ("***Developer***"). Buyer and Developer are sometimes hereinafter referred to individually as a "***Party***" and collectively as the "***Parties***".

(A) Developer proposes to construct a solar photovoltaic generation facility (the "***Facility***") with an aggregate generating capacity of up to approximately _____MW DC (_____ MW AC) (the "***Project***") on the property described in Attachment B hereto (the "***Property)***;

(B) the Parties intend that, pursuant to the Net Metering Rules (defined below), the Project will be comprised of one or more Net Metering Facility (defined below), and will generate Net Metering Credits (defined below);

(C) Buyer is or shall be the Host Customer of the Facility;

NOW, **THEREFORE**, in consideration of the foregoing recitals, the mutual promises, representations, warranties, covenants, conditions herein contained, and the Exhibits attached hereto, Buyer and Developer agree as follows.

Section 1. DEFINED TERMS; RULES OF INTERPRETATION

Capitalized terms used in this Agreement shall have the meanings ascribed to them in Attachment A hereto.

Section 2 SYSTEM DESCRIPTION

This Agreement provides the terms and conditions upon which the Developer may, subject to satisfaction or waiver of the conditions precedent below, construct and install the Facility. A preliminary description of the Facility is set forth in Attachment C hereto.

Section 3 TERM

(a) Term. The term of this Agreement (the "***Term***") shall commence on the Effective Date and shall remain in effect until the twentieth (20th) anniversary of the Commercial Operation Date, or such earlier date provided herein. The Term may be extended by mutual written agreement of the Parties for two (2) additional terms of up to five (5) years each at an Electricity Price to be agreed upon by the Parties at the time of the extension.

(b) Without constituting a default under this PPA, and without liability of either Party to the other Party (except for amounts then due under this PPA), Developer shall have the right, but not the obligation, to terminate this Agreement prior to expiration of the Term upon the occurrence of an unstayed order of a court or administrative agency having the effect of subjecting the sales of Electricity to federal or state regulation of prices and/or services.

(c) Conditions Precedent. The obligation of Developer to commence construction hereunder (and with respect to subparagraph (c)(xii) below, the obligation of Developer to commence selling Electricity

hereunder) is subject to the fulfillment of each of the following conditions precedent or waiver by Developer, though such waiver will not affect any right of Buyer to terminate this Agreement under Section 8 (Force Majeure):

(i) Developer shall have obtained financing on terms acceptable to Developer in its sole discretion. For the purposes of this subparagraph (c)(i), financing may include debt financing, equity financing, tax equity financing, loan and credit agreements, notes, bonds, indentures, security agreements, lease financing agreements, mortgages, interest rate exchanges, or swap agreements, and any other documents relating to the development, bridge construction or the permanent financing for the construction and operation of the Facility.

(ii) Developer shall have received and approved the Financial Statements of Buyer.

(iii) Developer shall have obtained all permits, licenses and other approvals required by Applicable Legal Requirements and from the LDC and owner of the Property for construction, installation and operation of the Facility;

(iv) if applicable Developer shall have determined that the roofs of the buildings at the Property have sufficient load-bearing capacity to support the Facility and all related foot traffic and construction activities and/or the infrastructure of the buildings at the Property can support the Facility.

(v) Developer shall have determined that no upgrades are required to Buyer's existing electrical infrastructure, structural infrastructure or roofs, it being acknowledged by both Parties that neither Party shall be under any obligation to pay for any required upgrades;

(vi) the LDC shall not have required material changes in plans and/or specifications to the Facility or the interconnection of Buyer's facilities which requires additional costs or fees which in Developer's sole discretion are unreasonable;

(vii) Buyer shall have entered into all contracts and delivered all other documents required by the LDC in connection with this Agreement and the transactions contemplated hereby (the "Utility Documents") to the reasonable satisfaction of Developer, or the LDC shall have waived the requirements for such Utility Documents;

(viii) [Without limiting the foregoing condition, Buyer shall have delivered a copy of the executed Schedule Z and Customer Interconnection Acknowledgement Agreement];

(ix) Developer shall have entered into all contracts for procurement, construction, installation and operation of the Facility;

(x) Developer shall have satisfied itself that the Facility, if constructed, would not be in violation of zoning or land use laws applicable to the Property, it being acknowledged by Buyer that Developer is under no obligation to apply for or obtain zoning relief;

(xi) Developer shall have confirmed that Developer will obtain all applicable Environmental Incentives and Tax Credits;

(xii) for ground-mounted Facilities, Developer has performed a title examination of the Properties and received and environmental Phase I and is satisfied in its sole discretion with the results of such examination.

Developer shall give Buyer written notice of Developer's intent to terminate this Agreement due to non-fulfillment or failure of any of the foregoing conditions. In the event Developer terminates this Agreement, the Parties shall have no further obligations hereunder except those which survive expiration or termination of this Agreement in accordance with the terms hereof. Developer shall notify Buyer when the conditions are met, and on or before such notice, Developer shall provide Buyer with the construction schedule.

(d) (i) In the event Developer fails to achieve Commercial Operation on or before the Outside Commercial Operation Date, which failure is not caused by Force Majeure, delay caused by LDC or Buyer, Buyer shall have the right to demand payment of Delay Damages for each day of delay until the Project reaches Commercial Operation. The Parties agree that if Developer can document that Commercial Operation of the Facilities is delayed due to (i) delays by the LDC in approving interconnection of the Facilities, (ii) Force Majeure events, or (iii) delays caused by Buyer (including without limitation, delays resulting from Hazardous Substances, then the Outside Commercial Operation Date shall be automatically extended day for day to address such delays.

(ii) Delay Damages payable by Contractor under Section 3(d) will be payable in arrears on the last day of each month, or if such day is not a Business Day then on the immediately following Business Day. The amounts payable under Section 3(d) shall be the sole and exclusive remedies of Buyer for damages associated with delays in the Facilities achieving Commercial Operation on or before the Outside Commercial Operation Date except to the extent arising from a Developer Event of Default. The Parties further agree that Buyer's actual damages in the event of such delays or failures would be extremely difficult or impracticable to determine and that, after negotiation, the Parties have agreed that the Delay Damages are in the nature of liquidated damages and are a reasonable and appropriate measure of the damages that Buyer would incur as a result of such delays or failures, and do not represent a penalty. The Parties further explicitly agree and intend that the provisions of this Section 3(d) shall be fully enforceable by any court exercising jurisdiction over any dispute between the Parties arising under this Agreement. Each Party hereby irrevocably waives any defenses available to it under law or equity relating to the enforceability or reasonableness of the liquidated damages set forth in this Section 3(d).

(iii) Maximum Delay Liquidated Damages. In no event shall Developer's aggregate liability under this Agreement for Delay Damages exceed [ ].

Section 4 FACILITY OWNERSHIP, INSTALLATION, OPERATION, MAINTENANCE, AND REMOVAL

(a) Construction. Developer will use diligent and commercially reasonable efforts to (i) obtain all permits and financing for the Project, (ii) furnish all design, materials, supplies, tools, equipment, labor, and other services necessary for the installation of the Facility, and (iii) maintain the Facility in good condition and repair and in accordance with Applicable Legal Requirements and the terms of this Agreement. Developer shall coordinate the construction with Buyer so as to minimize disruption to Buyer's activities. Developer shall coordinate project meetings with a representative of the Buyer to discuss the status and progress of the Project and to address any issues that may arise during construction. Upon completion of the construction of the installation of the Facility, Developer shall remove all debris, tools, and packaging.

(b) Title to Facility. Except as otherwise set forth in this Agreement, as between the Parties during the Term of this Agreement, all ownership of and title to the Facility, permits, approvals, Environmental

Attributes, Environmental Incentives, Reporting Rights and tax benefits associated with the Facility shall be with the Developer. Developer shall be the legal and beneficial owner of the Facility, which Facility will at all times retain the legal status of personal property of Developer as defined under Article 9 of the Uniform Commercial Code. The Facility will not attach to or be deemed a part of, or a fixture to, the Property notwithstanding the manner in which the Facility is or may be affixed to real property of Buyer. If there is any mortgage or fixture filing against the Property which could reasonably be construed as prospectively attaching to the Facility as a fixture, Buyer shall provide a disclaimer or release from such lienholder. Buyer shall not directly or indirectly permit, create, incur, assume or suffer to exist any Lien attributable to Buyer on the Facility, and if there shall nonetheless be such a Lien, Buyer hereby agrees that it shall, at its expense, cause the same to be duly discharged and removed within thirty days of notice of such lien. Buyer will not take a position on any tax return or in other filings suggesting that it is anything other than a purchaser of Electricity from the Facility. Buyer authorizes Developer to file a precautionary UCC financing statement which shall disclaim the fixture status of the Facility. The Parties intend this Agreement to be treated as a "service contract" within the meaning of section 7701(e)(3) of the Internal Revenue Code.

(c) Cooperation Regarding Authorizations. Developer will prepare, file and manage applications for all permits, approvals, registrations and other related matters under the SREC-II program and with the LDC and any other Governmental Authority and, to the extent necessary, Developer will do so on behalf of Buyer. Buyer agrees to reasonably cooperate with Developer in preparing such applications and securing such permits, approvals and registrations, including without limitation, timely executing and delivering all documentation required from Buyer relating thereto. Where allowed by law and if necessary, and subject to Applicable Legal Requirements, Buyer shall designate Developer as its agent in obtaining all permits, approvals, registrations and additional authorizations required of Buyer in connection with this Agreement and the transactions contemplated hereby.

(d) License; Access; Other Rights. [replace with Lease as applicable]

(1) Buyer hereby grants to Developer and Developer's employees, contractors, consultants, invitees, designees and Designated Third Parties ("***Developer's Designees***"), a license ("***License***") to enter upon the Property to construct, install, maintain, operate and remove the Facility, which License shall be irrevocable and rent free during the Term and for a period of 120 days following expiration or termination thereof. The area of a Property upon which a Facility will be located (in each case, the "***Licensed Area***") consists of (i) rooftop space of the building on the Property and (ii) other space either inside the building or elsewhere on such Property for the installation, operation and maintenance of utility lines, cables, conduits, transformers, wires, meters, monitoring equipment, communication lines and other necessary and convenient equipment and appurtenances ("***Cabling Space***"). A preliminary depiction of the rooftop space and the respective Facility at each of the Property is shown on Attachment B hereto. After construction, Developer shall provide updated drawings of the rooftop spaceFacility at each Property.

(2) Buyer hereby grants to Developer and Developer's Designees rights of ingress and egress over and across each Property to and from the respective Licensed Areas from all public roads serving the Property.

(3) Buyer hereby grants to Developer and Developer's Designees the temporary use of additional space at each Property for construction laydown, storage of construction materials, parking of construction crew vehicles and trailers, such area to be agreed upon by the Parties prior to construction.

(4) Buyer hereby grants to Developer and Developer's Designees the use of Developer's water supply already available at the Property for purposes of construction, cleaning and maintenance of the Facility.

(5) During the Term, Buyer shall not grant any license or other interest in and to the Property that would interfere with the License granted to Developer or that interferes with other rights granted to Developer under this Agreement. Buyer shall not cause or permit any shading of the Facility or permit any obstruction or interference with direct sunlight to the Facility.

(6) Developer and Developer's Designees shall have access at all reasonable times to the Property pursuant to the License for the purpose of planning, constructing, operating, inspecting, maintaining, repairing and removing the Facility, and to any documents, materials and records of Buyer relating to the Property that Developer reasonably requests in conjunction with these activities.

(7) At Developer's request or at the request of Developer's lenders, Buyer agrees to execute a recordable notice of License and other access rights granted to Buyer, and consents to the recording of such document in the land records of the county where the Licensed Area is located.

(8) If Buyer ceases its activities at a Property on which a Facility is located, such cessation of activities shall not reduce Buyer's obligation to purchase hereunder the Electricity produced by such Facility.

(9) If Buyer loses its rights to a Property on which a Facility is located, Buyer shall either (A) obtain a replacement power purchase agreement with the new right holder to such Property with respect to the Facility on terms equivalent to this Agreement or otherwise acceptable to Developer; (B) pay Developer's Costs of relocating to the Facility to another property of Buyer's, compensate Developer for the Electricity that would have been produced during the period necessary for such relocation and adjust the Electricity Price for any reduction in insolation associated with the replacement property, or (C) pay Developer the Termination Payment with respect to the affected Facility and reimburse Developer its Costs resulting from the removal of such Facility.

(e) Security. Developer shall at all times comply with all safety and other operating procedures established by Buyer, and all Applicable Legal Requirements.

(f) Operations Manual; Training. On or before the Commercial Operation Date, Developer shall deliver to Buyer an operation, maintenance and parts manual for the Facility. In addition, Developer will train Buyer's representative(s) on Buyer operations and monitoring (for informational purposes only) and emergency preparedness and response, it being acknowledged by Buyer that Buyer shall not operate the Facility, except in the case of an emergency where immediate action on the part of the Buyer is reasonably necessary for safety reasons. In the event of an emergency where immediate action on the part of Buyer is reasonably necessary for safety reasons, Buyer may, but is not obligated to, shut down or disconnect the Facility and provide immediate notice to Developer, but otherwise Buyer shall not be permitted to perform any maintenance or repair on the Facility. Any lost production resulting from Buyer's emergency shutdown shall not be the subject of a claim for lost revenue unless Buyer does not notify Developer as required in this subsection.

(g) Notice of Commercial Operation. Subject to the provisions of this Agreement, Developer shall notify Buyer when the Facility achieve Commercial Operation ("***Notice of Commercial Operation***"), and shall in such notice state the Commercial Operation Date.

(h) Removal of the Facility. Except as otherwise provided herein, Developer shall, within one hundred twenty (120) days following the expiration of the Term and at Developer's sole cost and expense, remove the Facility from the Property and restore the Property to their original respective conditions, normal wear and tear excluded.

(i) Developer Access. Notwithstanding anything to the contrary in this Agreement, Developer shall be allowed immediate access to the Property and the Facility in connection with any emergency condition then existing with respect to the Facility that could reasonably be expected to pose an imminent threat to the safety of persons or property.

(j) Net Metering Provisions.

(1) Host Customer. At Developer's request, Buyer shall take any reasonable action and execute any documents that are necessary to designate Buyer as the LDC customer of record for the LDC Metering Device and otherwise establish Buyer as the Host Customer for such Facility for purposes of the Net Metering Rules. Developer shall prepare any such documents, including the LDC's net metering service application and Buyer shall reasonably cooperate with Developer's preparation of such documents, including, without limitation, by providing information on Buyer's existing other accounts with the LDC.

(2) Net Metering Facility. The Parties acknowledge their mutual intent that each of the Facility be classified as a Net Metering Facility, and, in the event that a Facility is so classified, each Party agrees not to take any action inconsistent with such regulatory status of the Project except insofar as such action is expressly authorized hereunder.

(3) No Resale of Electricity. The Electricity purchased by Buyer from Developer under this Agreement shall not be resold to any other Person, nor shall such Electricity be assigned or otherwise transferred to any other Person (other than to the LDC pursuant to the Net Metering Rules), without prior approval of Developer.

(m) Hazardous Substances.

(1) Customer Hazardous Substances. Developer shall not be responsible for any liabilities, damages, costs, or expenses related to: (i) any pre-existing Hazardous Substances encountered at, released from, or transported from the Property; or (ii) any Hazardous Substances brought onto the Property or released by Customer or Customer's agents, employees, contractors, subcontractors, licensees, or invitees (items (i) and (ii) together ("Customer Hazardous Substances"). Customer shall indemnify and hold harmless Developer from any liability, damages, costs or expenses (including reasonable attorneys' fees) incurred by Developer arising out of or related to the Customer Hazardous Substances. Upon encountering any materials that Developer suspects may constitute Customer Hazardous Substances, Developer shall immediately notify Customer and may suspend work in the affected area as reasonably necessary until such materials are properly remediated by Customer; provided, however, that Developer shall not be responsible for any liabilities, damages, costs or expenses related to such Customer Hazardous Substances.

(2) Customer Remediation. If Customer Hazardous Substances are encountered at the Property in violation of any Applicable Legal Requirements and prevent or interfere with the installation of the System, Customer shall remediate such Customer Hazardous Substances at its own cost and expense. Developer shall stop work in the affected area until Customer can demonstrate that all required remediation is complete. After the Commercial Operation Date, if Customer Hazardous Substances are encountered at the Property, and Customer is required by Applicable Legal Requirements to remediate the Customer Hazardous Substances, then Customer shall notify Developer in writing of the extent of Customer's planned remediation. If the System must be removed for, or Developer's ability to operate, inspect, test, maintain, repair or replace the System is hindered in any way by Customer's performance of such remediation, Customer shall be responsible for all costs incurred by Developer to remove, store and reinstall the System or any part thereof, and lost revenue due to such downtime, and the Lease Term shall be extended day for day for each day of interruption due to Customer's remediation.

(3) Developer Hazardous Substances. Developer shall not introduce or use any Hazardous Substances on, in or under the Property in violation of any Applicable Legal Requirements. If Developer directly causes a release of Hazardous Substances, Developer shall perform all required remediation. Developer shall indemnify and hold harmless Customer from any costs or expenses incurred by Customer due to any release of Hazardous Substances on the Property caused by Developer or its subcontractors in excess of quantities allowed under Applicable Legal Requirements.

Section 5. PURCHASE AND SALE; DELIVERY; GOVERNMENTAL CHARGES

(a) Purchase and Sale of Electricity. Commencing on the Commercial Operation Date and continuing throughout the remainder of the Term, Developer shall sell and make available to Buyer, and Buyer shall purchase and take delivery of at the Delivery Point, all of the Electricity generated by the Facility. Buyer acknowledges that Electricity produced by the Facility is intermittent as available energy product and that Buyer is solely responsible for meeting any and all of its energy needs not met from Facility-generated energy at Buyer's cost and expense.

(b) Price for Electricity. Notwithstanding any other provision of this Agreement, Buyer shall pay Developer for the Electricity, as metered at the Developer Metering Device, at the applicable Electricity Price set forth on Attachment D. In all cases, any adjustments in the Electricity Price shall be made to the nearest thousandth of a cent.

(c) Title and Risk of Loss of Electricity. Title to and risk of loss of the Electricity will pass from Developer to Buyer at the Delivery Point. Developer warrants that it will deliver the Electricity to Buyer at the Delivery Point free and clear of all liens, security interests, claims, and other encumbrances. Buyer shall be responsible for installation and operation of equipment on Buyer's side of the Delivery Point necessary for acceptance and use of the Electricity.

(d) Governmental Charges.

(i) Developer is responsible for local, state and federal income taxes attributable to Developer for income received under this Agreement.

(ii) Buyer shall pay directly or reimburse Developer on an after-tax basis for all sales and use taxes that may be imposed by any Governmental Authority on the sale of Electricity to Buyer.

(iii) Buyer shall pay directly any real or personal property taxes assessed against Buyer. If any real or personal property taxes are assessed against Developer during the Term due to Developer's ownership or operation of the Facility or occupancy of the Property, Developer will promptly submit to Buyer a written notice setting forth (A) the manner in which such taxes change Developer's costs to provide the Electricity, and (B) Developer's adjustment to the Electricity Price. The parties explicitly agree that any assessment of real or personal property tax to Developer shall be offset with an equivalent increase in the Electricity Price.

(iv) Both Parties shall use reasonable efforts to administer this Agreement and implement its provisions so as to minimize Governmental Charges. In the event any of the sales of Electricity hereunder are to be exempted from or not subject to one or more Governmental Charges, the applicable Party shall, promptly upon the other Party's request therefore, provide the applicable Party with all necessary documentation to evidence such exemption or exclusion.

(f) Guaranteed Annual Electric Output.

(i) Developer guarantees that the Facility will produce the Guaranteed Annual Electric Output, as adjusted by the Annual Facilities Degradation Factor, under standard insolation conditions at the Property and measured on a rolling, three-year, cumulative basis. On the first anniversary of the Commercial Operation Date and each anniversary of the Commercial Operation Date thereafter during the Term, the Guaranteed Annual Electric Output shall be decreased by the Annual Facilities Degradation Factor.

(ii) Subject to clause (iii) below, if, as of any anniversary of the Commercial Operation Date beginning on the third anniversary of such date, a Production Shortfall exists with respect to such three-year period, Developer may be required to credit Buyer with a credit equal to the product of:

(A) the positive difference, if any, between the [Net Metering Credit Value] minus the Electricity Price for such Contract Years, multiplied by (B) the Production Shortfall during such three-year period; provided the amount under subclause (A) shall in no case exceed $[0.10] per kWh.

(iii) For purposes of calculating a Shortfall Payment under clause (A) above, the Production Shortfall shall be adjusted as reasonably determined by Developer due to insolation conditions other than standard insolation conditions as of the Effective Date, failure, damage or downtime attributable to third parties, inverter failure, delayed repairs, general utility outages or any failure of any electric grid, Force Majeure, or breaches or omissions of Buyer of any of its obligations hereunder, including with respect to Section 4(d)(5) hereof. Payment or credit of the Shortfall Payment, as described herein, shall be Buyer's sole remedy against Developer for failure to meet the Guaranteed Annual Electric Output. Notwithstanding the foregoing, Developer may install additional equipment on the Property (including without limitation additional solar panels) to prevent or reduce future Production Shortfalls, upon advance notice to Buyer. Developer may at its option credit Buyer on future invoice(s) the amount of the Shortfall Payment.

(g) [Outages for Maintenance and Roof Repair or Replacement.]

(i) The Parties agree that at any time during the Term of the Agreement, Buyer shall be afforded a period of up to five (5) days per Contract Year per Facility during which a designated Facility may be temporarily shut down and taken out of operation so that Buyer may perform minor roofing repair work on the Property on which such Facility is located. Buyer agrees to and shall pay Developer an amount with respect to such work equal to Developer's actual and documented removal, storage, and replacement costs. Buyer agrees to coordinate such minor repair work to minimize the period of time in which the Facility is taken out of operation and to mitigate the Developer's loss of revenues by attempting to schedule repair work during times of day when insolation is at a minimum.

(ii) If the Buyer requires that a Facility be temporarily shut down and taken out of operation for major repair or reconstruction of roofs for an amount of time exceeding five (5) days in a Contract Year, Buyer agrees to and shall pay Developer an amount with respect to such work equal to Developer's actual and documented removal, storage, and replacement costs plus any estimated Electricity not delivered and any lost REC revenue during such outage. Following Buyer's notice to Developer containing an assurance that an appropriation has been made for payment of the estimated removal, storage, and replacement costs (plus amounts owed for estimated Electricity not delivered and any lost REC revenue, if applicable) in the required amount, Developer shall arrange for removing, storing and re-installing the Facility at an existing building. Buyer shall reimburse Developer (or, at the Developer's option, make payment directly to the applicable contractor or vendor on Developer's behalf) for the actual documented costs of such removal, storage and reinstallation of the Facility (plus amounts owed for estimated Electricity not delivered and any lost REC revenue, if applicable) within thirty (30) days following receipt of an invoice from Developer, including reasonably acceptable back up information, with respect thereto. Buyer shall provide at least ninety (90) days' prior notice of the

need for such extended temporary removal. Notwithstanding the foregoing, Developer shall respond within 24 hours to any request from Buyer to turn off a Facility to permit Buyer to make emergency repairs to the roof of any Property. The Electricity output of the affected Facility shall be estimated by Developer for the period of such shutdown and such estimated output shall be added to actual Facility output for purposes of determining whether the Guaranteed Annual Electric Output has been satisfied.

Section 6. ENVIRONMENTAL ATTRIBUTES

(a) Title to Environmental Attributes. All Environmental Attributes, Environmental Incentives and Reporting Rights relating to the Facility or the Electricity, other than Net Metering Credits, if any, will be and remain property of Developer. Developer shall have all right, title, and interest in and to any and all such Environmental Attributes, Environmental Incentives and Reporting Rights that relate to the Electricity during the Term.

(b) Reporting of Ownership of Environmental Attributes. Buyer shall not report to any Person that any Environmental Attributes, Environmental Incentives or Reporting Rights relating to the Electricity or the Facility belong to any Person other than Developer.

(c) Further Assurances. At Developer's request, Buyer shall execute all such documents and instruments reasonably necessary or desirable to effect or evidence Developer's right, title and interest in and to the Environmental Attributes, Environmental Incentives and Reporting Rights relating to the Electricity. If the standards used to qualify Environmental Attributes, or Environmental Incentives to which Developer is entitled under this Agreement are changed or modified, and the Parties shall use all commercially reasonable efforts to cause the Environmental Attributes to comply with new standards as changed or modified.

Section 7. METERING DEVICE AND METERING

(a) Metering Equipment. Developer shall provide, install, own, operate and maintain the Developer Metering Device. Developer shall maintain and test the Developer Metering Device in accordance with Applicable Legal Requirements.

(b) Measurements. Readings of the Developer Metering Device shall be conclusive as to the amount of Electricity delivered to Buyer; *provided,* that if the Developer Metering Device is out of service, is discovered to be inaccurate, or registers inaccurately, measurement of Electricity shall be determined in the following sequence: (i) by estimating by reference to quantities measured during periods of similar conditions when Developer Metering Device was registering accurately; or (ii) if no reliable information exists as to the period of time during which such Developer Metering Device was registering inaccurately, it shall be assumed for correction purposes hereunder that the period of such inaccuracy for the purposes of the correction was equal to (A) if the period of inaccuracy can be determined, the actual period during which inaccurate measurements were made; or (B) if the period of inaccuracy cannot be determined, one-half (1/2) of the period from the date of the last previous test of such Developer Metering Device through the date of the adjustments, *provided, however*, that, in the case of clause (B), the period covered by the correction shall not exceed nine (9) months.

(c) Testing and Correction/Buyer's Right to Conduct Tests. Each Party and its consultants and representatives shall have the right to witness each test conducted by or under the supervision of Developer to verify the accuracy of the measurements and recordings of the Developer Metering Device. Developer shall provide at least ten (10) days prior written notice to Buyer of the date upon which any such test is to occur. Developer shall prepare a written report setting forth the results of each such test, and shall provide Buyer with copies of such written report not later than thirty (30) days after completion of such test.

(d) Standard of Metering Device Accuracy; Resolution of Disputes as to Accuracy. The following steps shall be taken to resolve any disputes regarding the accuracy of the Developer Metering Device:

(i) If either Party disputes the accuracy or condition of the Developer Metering Device, such Party shall so advise the other Party in writing setting forth in reasonable detail the reasons it believes the Developer Metering Device is inaccurate including the dates it discovered same.

(ii) The non-disputing Party shall, within fifteen (15) days after receiving such notice from the disputing Party, advise the other Party in writing as to its position concerning the accuracy of such Developer Metering Device and state reasons for taking such position.

(iii) If the Parties are unable to resolve the dispute, then either Party may cause the Developer Metering Device to be tested by an agreed upon and independent third party.

(iv) If the Developer Metering Device is found to be inaccurate by two percent (2%) or less, any previous recordings of the Developer Metering Device shall be deemed accurate, and the Party disputing the accuracy or condition of the Developer Metering Device shall bear the cost of inspection and testing of the Developer Metering Device.

(v) If the Developer Metering Device is found to be inaccurate by more than two percent (2%) or if such Developer Metering Device is for any reason out of service or fails to register, then (A) Developer shall promptly cause any Developer Metering Device found to be inaccurate to be adjusted to correct, to the extent practicable, such inaccuracy, (B) the Parties shall estimate the correct amounts of Electricity delivered during the periods affected by such inaccuracy, service outage or failure to register in accordance with Section 7(b) above (but for not more than nine (9) months prior), and (C) Developer shall bear the cost of inspection and testing of the Developer Metering Device in accordance with Section 7(c). If as a result of such adjustment the quantity of Electricity for any period is decreased (such quantity, the "***Electricity Deficiency Quantity***"), Developer shall reimburse Buyer for the amount paid by Buyer in consideration for the Electricity Deficiency Quantity by crediting such amount against Buyer's payment obligations under this Agreement, and Developer shall bear the cost of inspection and testing of the Developer Metering Device. If as a result of such adjustment the quantity of Electricity for any period is increased (such quantity, the "***Electricity Surplus Quantity***"), Buyer shall pay for the Electricity Surplus Quantity at the Electricity Price applicable during the applicable Contract Year and Buyer shall reimburse Developer for the cost of inspection and testing of the Developer Metering Device.

Section 8. LOSS, DAMAGE OR DESTRUCTION OF FACILITIES; FORCE MAJEURE

(a) Facility Loss.

(i) Developer shall bear the risk of any Facility Loss, except to the extent such Facility Loss results from the negligence of Buyer or Buyer's agents, representatives, vendors, employees, contractors, (collectively, "***Buyer Misconduct***").

(ii) Partial Loss. In the event of any Facility Loss that results in less than total damage, destruction or loss of the Facility, this Agreement will remain in full force and effect and Developer will, at Developer's sole cost and expense, subject to the provisions below, repair or replace the Facility as quickly as practicable. To the extent of any Facility Loss that results in less than total damage, destruction or loss of the Facility, and is caused by Buyer Misconduct, Buyer shall promptly upon demand therefore from Developer pay any and all costs and expenses of such repair or replacement, including any lost revenues for sales of Electricity and loss of Environmental Attributes, Environmental Incentives and Reporting Rights based upon the estimated energy production capacity of the Facility in

the relevant Contract Year. In the event Facility Loss is caused by Buyer Misconduct, then after written demand from Developer, Buyer shall pre-pay or post security acceptable to Buyer for any repair expenses reasonably estimated by Developer.

(iii) Total Loss. In the event of any Facility Loss that, in the reasonable judgment of Developer, results in total damage, destruction or loss of the Facility, Developer shall, within sixty (60) Business Days following the occurrence of such Facility Loss, notify Buyer whether Developer is willing, notwithstanding such Facility Loss, to repair or replace the Facility. In the event that Developer notifies Buyer that Developer is not willing to repair or replace the Facility following a total loss, this Agreement will terminate automatically effective upon the effectiveness of such notice and Developer shall within a reasonable time remove the Facility from the Premises in accordance with Section IV. If such Facility Loss was caused by Buyer Misconduct, Buyer shall pay to Developer, as liquidated damages, the Termination Payment as of such termination date within thirty days after receipt of invoice.

In the event that Developer notifies Buyer that Developer is willing to repair or replace the Facility following a total loss, the following shall occur, (A) this Agreement will remain in full force and effect, (B) Developer will repair or replace the Facility as quickly as practicable, and (C) if such Facility Loss has been caused partially or totally by Buyer Misconduct, Buyer shall promptly upon demand therefore from Developer pay any and all costs and expenses of such repair or replacement, lost revenues for sales of Electricity, loss of Environmental Attributes and Environmental Incentives and Reporting Rights, in each case based upon the estimated energy production capacity of the system in the relevant Contract Year. After written demand from Developer, in the case of Buyer Misconduct, Buyer shall pre-pay or post security acceptable to Developer for any repair expenses reasonably estimated by Developer.

(b) Performance Excused by Force Majeure. To the extent either Party is prevented by Force Majeure from carrying out, in whole or part, its obligations under this Agreement and such Party (the "***Claiming Party***") gives written notice and details of the Force Majeure to the other Party as soon as practicable, then the Claiming Party will be excused from the performance of its obligations under this Agreement (other than the obligation to make payments then due or becoming due with respect to performance prior to the Force Majeure, but the period of time to pay shall be extended if Buyer is prevented from paying due to Force Majeure). The Party affected by Force Majeure will use commercially reasonable efforts to eliminate or avoid the Force Majeure and resume performing its obligations; provided, however, that neither Party is required to settle any strikes, lockouts or similar disputes except on terms acceptable to such Party, in its sole discretion. The non-Claiming Party will not be required to perform or resume performance of its obligations to the Claiming Party corresponding to the obligations of the Claiming Party excused by Force Majeure for so long as the claim of Force Majeure continues. For greater clarity, the Guaranteed Annual Electric Output shall be adjusted or pro-rated for any period of time the Facility are not generating Electricity due to Force Majeure.

(c) Termination Due to Force Majeure. If a Claiming Party claims a Force Majeure for a consecutive period of twelve (12) calendar months or longer, then either Party may terminate this Agreement, in whole or in part, without any liability to the Claiming Party as a result of such termination and Developer shall within a reasonable time remove the Facility from the Property.

(d) Change in Law. In the event that a change in Law occurs, including without limitation, a change in the Net Metering Rules, or the administration of interpretation thereof by the [State] Department of Public Utilities or the LDC ("Change in Law") which (a) materially restricts the ability of Developer to deliver Electricity generated by the Facility to Buyer or the ability of Electricity generated by the Facility to be delivered to the LDC or the ability of Buyer to receive Net Metering Credits, (b) results in more or more Facility for which Buyer is Host Customer being disqualified as a Net Metering Facility, or (c) otherwise materially

impacts the ability of either Party to perform its obligations under this Agreement, including changes in Law that result in material increase in Developer's costs of construction and installation, or operation of one or more Facility, then, upon a Party's receipt of notice of such Change in Law from the other Party, the Parties shall promptly and in good faith endeavor to negotiate such amendments to or restatements of this Agreement as may be necessary to achieve the allocation of economic benefits and burdens originally intended by the Parties, subject to Applicable Legal Requirements. Without limiting the foregoing, such amendments may include an amendment and restatement of this Agreement in the form of a net metering credit purchase agreement. If the Parties are unable, despite good faith efforts, to reach agreement on an amendment or restatement within one hundred twenty days, either Party may terminate this Agreement; provided that if Buyer terminates this Agreement, Buyer shall pay the Termination Payment.

Section 9. EVENTS OF DEFAULT; REMEDIES

(a) Events of Default. An "***Event of Default***" means, with respect to a Party (a "***Defaulting Party***"), the occurrence of any of the following:

(i) the failure to make, when due, any payment required under this Agreement if such failure is not remedied within five (5) Business Days after receipt of written notice;

(ii) any representation or warranty made by such Party in this Agreement (including the License) is false or misleading in any material respect when made or when deemed made or repeated;

(iii) the failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default); provided, that the Defaulting Party shall have sixty days after receipt of written notice of default to cure the alleged breach, or additional time if the Defaulting Party has diligently commenced and is pursuing a cure of such breach during such sixty (60) day period;

(iv) such Party becomes Bankrupt, or any assignment shall be made by the Developer or by any guarantor of the Developer for the benefit of creditors, or if a petition is filed by the Developer or by any guarantor of the Developer for adjudication as a bankrupt, or for reorganization or an arrangement under any provision of the Bankruptcy Act as then in force and effect, or if an involuntary petition under any of the provisions of the Bankruptcy Act is filed against the Developer and such involuntary petition is not discharged within ninety (90) days thereafter, in any of those events the Buyer may terminate this Agreement upon written notice to the Developer;

(v) such Party fails to provide or maintain in full force and effect any required insurance, if such failure is not remedied within five (5) Business Days after receipt of written notice from the Non-Defaulting Party to the Defaulting Party.

(b) Remedies for Event of Default. If at any time an Event of Default with respect to a Defaulting Party has occurred and is continuing beyond applicable notice and cure periods, the other Party (the "***Non-Defaulting Party***") shall, without limiting the rights or remedies available to the Non-Defaulting Party under this Agreement or applicable Law, but subject to the provisions of Sections 9(c) and (d) and Section 19, have the right to any of the following: (a) by notice to the Defaulting Party, to designate a date, not earlier than twenty (20) Business Days after the date such notice is effective, as an early termination date ("***Early Termination Date***") in respect of this Agreement; (b) to withhold any payments due to the Defaulting Party under this Agreement; and (c) to suspend performance due to the Defaulting Party under this Agreement and (d) exercise all other rights and remedies available at law or in equity to the Non-Defaulting Party.

(c) Buyer Rights Upon Termination for Default. In the event that Buyer is the Non-Defaulting Party and elects to terminate this Agreement as provided in Section 9, Buyer shall require Developer to remove the Facility as provided in Section 4 above. In the event that Buyer elects the foregoing remedies, such express remedy shall be the sole and exclusive remedy available to Buyer as a result of termination of this Agreement subject, however, to subsection (h) below.

(d) Developer Rights Upon Termination for Default. In the event that Developer is the Non-Defaulting Party and elects to terminate this Agreement as provided in Section 9, Buyer shall pay Developer the Termination Payment plus Costs as liquidated damages, and Developer shall remove the Facility within one hundred twenty days after receipt of such payment. In the event that Developer elects the foregoing remedy, such express remedy and any associated measure of damages shall be the sole and exclusive remedy available to Developer as a result of termination of this Agreement subject, however, to subsection (h) below.

(e) Termination Payment Notice. In the event that a Non-Defaulting Party elects to require payment of the Termination Payment as provided in Section 9 herein, then, the Non-Defaulting Party will notify the Defaulting Party of the amount due and outstanding under this Agreement. In the event that the Defaulting Party is the Buyer, Buyer shall pay the Termination Payment within thirty days after the Early Termination Date. Payment not made within such 30-day period shall accrue interest at the Interest Rate.

(f) Closeout Setoffs. The Non-Defaulting Party shall be entitled, at its option and in its discretion, to set off, against any amounts due and owing from the Defaulting Party under this Agreement, any amounts due and owing to the Defaulting Party under this Agreement.

(g) Remedies Cumulative. Except as otherwise provided in Sections 9(c) and 9(d), the rights and remedies contained in this Section 9 are cumulative with the other rights and remedies available under this Agreement or at law or in equity.

(h) Unpaid Obligations. The Non-Defaulting Party shall be under no obligation to prioritize the order with respect to which it exercises any one or more rights and remedies available under this Agreement. Notwithstanding anything to the contrary herein, the Defaulting Party shall in all events remain liable to the Non-Defaulting Party for any amount payable by the Defaulting Party in respect of any of its obligations remaining outstanding after any such exercise of rights or remedies.

Section 10. INVOICING AND PAYMENT

(a) Invoicing and Payment. Developer will bill Buyer on a monthly basis and Buyer shall pay such invoice not later than thirty (30) days after receipt of the applicable invoice (or, if such day is not a Business Day, then on the next Business Day). Each invoice shall state (i) the quantity of Electricity produced by the Facility and recorded at the Developer Metering Device during such billing period, (ii) the Electricity Price and (iii) the total amount due from Buyer. Each Party will make payment by electronic funds transfer, or by other mutually agreeable method(s), to the account designated by the other Party. Any amounts not paid by the applicable due date will accrue interest at the Interest Rate until paid in full.

(b) Disputed Amounts. A Party may in good faith dispute the correctness of any invoice (or any adjustment to any invoice) under this Agreement at any time within three (3) months following the date the invoice (or invoice adjustment) was rendered. In the event that either Party disputes any invoice or invoice adjustment, such Party will nonetheless be required to pay the full amount of the applicable invoice or invoice adjustment on the applicable payment due date, and to give notice of the objection to the other Party.

(c) Records and Audits. Notwithstanding any other record keeping provision of the [State] General Laws, each Party will keep, for a period not less than two (2) years after the expiration or termination of any

transaction, records sufficient to permit verification of the accuracy of billing statements, invoices, charges, computations and payments for such transaction. During such period each Party may, at its sole cost and expense, and upon reasonable notice to the other Party, examine the other Party's records pertaining to transactions during such other Party's normal business hours.

Section 11. REPRESENTATIONS AND WARRANTIES;BUYER ACKNOWLEDGEMENT

(a) Representations and Warranties. Each Party represents and warrants to the other Party that:

(i) the execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, or any Applicable Legal Requirements;

(ii) this Agreement, and each document executed and delivered in accordance with this Agreement, constitutes its legally valid and binding obligation enforceable against it in accordance with its terms; subject to any bankruptcy, insolvency, reorganization and other Applicable Legal Requirements affecting creditors' rights generally, and with regard to equitable remedies, the discretion of the applicable court;

(iii) it is acting for its own account, and has made its own independent decision to enter into this Agreement, and is not relying upon the advice or recommendations of the other Party in so doing;

(iv) it is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions and risks of this Agreement; and

(v) it understands that the other Party is not acting as a fiduciary for or an adviser to it or its Affiliates.

(b) Acknowledgement Regarding Inapplicability of Bankruptcy Code Section 366/Forward Contract. Buyer acknowledges and agrees that, for purposes of this Agreement, Developer is not a "utility" as such term is used in Section 366 of the United States Bankruptcy Code (the "***Bankruptcy Code***"), and Buyer agrees to waive and not to assert the applicability of the provisions of Section 366 in any bankruptcy proceeding wherein Buyer is a debtor. The Parties acknowledge and agree that this Agreement and the transactions contemplated hereunder are a "forward contract" within the meaning of the United States Bankruptcy Code, and that Developer is a "forward contract merchant" within the meaning of the United States Bankruptcy Code.

(c) Additional Representations by Buyer.

(i) Buyer is duly formed and validly existing under [State] law and that the individual(s) executing this Agreement on behalf of Buyer is/are authorized and empowered to bind Buyer.

(ii) Buyer has the full right, power and authorization to enter into and perform this Agreement and each of Buyer's obligations and undertakings under this Agreement, and Buyer's execution, delivery and performance of this Agreement have been duly authorized and agreed to in compliance with the requirements of [State] law.

(iii) All consents and approvals necessary to the Buyer's execution, delivery and performance of this Agreement have been obtained, and no further action needs to be taken in connection with such execution, delivery and performance.

(iv) Buyer will execute and acknowledge when appropriate all documents and instruments and take all actions necessary to implement, evidence and enforce this Agreement.

(v) Except as previously disclosed in writing to Developer, to Buyer's knowledge there are no facts, circumstances or other matters that may interfere with or delay the construction and installation of the Facility.

(vi) Buyer represents, warrants, and covenants that it is the fee owner of and has good, lawful and marketable title to the Property free of any liens, encumbrances, restrictions or covenants which may impact Developer's proposed occupancy. Buyer shall deliver to Developer copies of any title policies, deeds, orders of taking or other instruments evidencing the fact of Buyer's fee ownership of the Property. In the event that any encumbrance, easement, restriction, covenant or similar instrument is found to impact, prohibit or adversely affect Developer's ability to install, maintain or operate the Facility, or interferes with insolation to the Facility, Buyer shall make all commercially reasonable efforts to discharge, modify, amend or subordinate any such instrument so that Developer's rights hereunder are not adversely impacted.

(vii) (1) Buyer is and has been, in compliance with all Environmental Laws; (2) to the knowledge of Buyer, none of the Property is in violation of Environmental Laws; (3) to the knowledge of Buyer, the Facility is not located in, on or around any property where Hazardous Materials or other contamination has been Released into the soil or groundwater in violation of Environmental Laws; (4) Buyer has not received written notice from any governmental authority or of any actual or potential violation of or liability under any Environmental Laws with respect to the Property. To the extent permitted by law, Buyer shall indemnify, protect, defend and hold harmless Developer and any Designated Third Party (defined in Section 19) for any claims which result from Buyer's receipt, handling, use, storage, transportation, generation, discharge, Release and/or disposal of Hazardous Materials in violation of Applicable Legal Requirements in, on or around the Property, including Hazardous Materials existing in, on or around any of the Property prior to Developer's installation of the Facility. As used herein "***Environmental Laws***" means any law, act, order, by-law, regulation, judgment, decree of or by any Governmental Authority and all licenses and permits which may at any time be applicable to a Party's rights and obligations hereunder and which are for the protection of the environment or human health and safety including but not limited to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act of 1980, the Superfund Amendments and Reauthorization Act of 1986, the Federal Clean Water Act, the Federal Clean Air Act, the Toxic Substances Control Act.

Section 12. LIMITATIONS

(a) Limitation of Remedies, Liability and Damages. The Parties confirm that the express remedies and measures of damages provided in this Agreement satisfy the essential purposes hereof. For breach of any provision for which an express remedy or measure of damages is provided, such express remedy or measure of damages will be the sole and exclusive remedy, the obligor's liability will be limited as set forth in such provision and all other remedies or damages at law or in equity are waived. If no remedy or measure of damages is expressly provided herein, the obligor's liability will be limited to actual direct damages only, and such direct actual damages will be the sole and exclusive remedy and all other remedies or damages at law or in equity are waived. It is agreed by the Parties that the Termination Payment is considered to be direct damages. In no event shall either Party be liable to the other Party for consequential, incidental, punitive, exemplary or indirect damages, including but not limited to, loss of profits or revenue, downtime costs, loss of use of any property, cost of substitute equipment or facilities, whether arising in tort, contract or otherwise. This Section 12 shall survive termination of this Agreement. For greater clarity, the Parties agree that the Termination Payment does not constitute consequential, incidental, punitive, exemplary or indirect damages. If an Event of Default by Developer occurs without termination of this Agreement, Developer's liability to Buyer shall not exceed Two Hundred Thousand Dollars.

(b) EXCEPT AS EXPRESSLY DISCUSSED IN SECTION 11, THE ELECTRICITY PROVIDED TO BUYER WILL BE AS IS, WHERE IS, AND ALL OTHER WARRANTIES, IMPLIED OR EXPRESS, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY DEVELOPER. BUYER ACKNOWLEDGES THAT ELECTRICITY FROM THE SYSTEM IS INTERMITTENT, AND BUYER IS RESPONSIBLE FOR MEETING ANY AND ALL OF ITS ENERGY NEEDS NOT MET FROM THE SYSTEM-GENERATED ENERGY AT BUYER'S SOLE COST AND EXPENSE. BUYER IS RESPONSIBLE FOR INSTALLATION AND OPERATION OF ANY EQUIPMENT ON BUYER'S SIDE OF THE DELIVERY POINT NECESSARY FOR ACCEPTANCE AND USE OF THE ELECTRICITY.

Section 13. SYSTEM PURCHASE AND SALE OPTIONS

(a) For and in consideration of the payments made by Buyer under this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, Developer hereby grants Buyer the right and option to purchase all of Developer's right, title and interest in and to the Facility Assets on the terms set forth in this Agreement (the "***Purchase Option***"). The Purchase Option shall be exercisable on the 10th and 15th anniversary of the Commercial Operation Date, or upon expiration of the Initial Term or expiration of any Extension Term (such date, the "***Purchase Option Date***"). To exercise the option User shall give advance written notice to the Owner during the Exercise Period (defined below) following a Final Determination (defined below).

(b) Buyer Request for Appraisal of Facilities Value. Not later than one hundred and eighty (180) days prior to the Purchase Option Date, provided Buyer is not then in default, Buyer shall have the right to provide a notice to Developer requiring a determination of the Fair Market Value of the Facilities. Fair Market Value shall be determined pursuant to Section 13(c) and (d) by the Independent Appraiser.

(c) Selection of Independent Appraiser. Within twenty Business Days after receipt of a notice provided under subsection (b), Buyer and Developer shall mutually agree upon an Independent Appraiser. If Developer and Buyer do not agree upon the appointment of an Independent Appraiser within twenty (20) Business Days, then at the end of such twenty (20) Business Day period, two proposed Independent Appraisers shall, within five (5) Business Days of each Party's notice, select a third Independent Appraiser (who may be one of the Independent Appraisers originally designated by the Parties or another Independent Appraiser) to perform the valuation and provide notice thereof to Developer and Buyer. Such selection shall be final and binding on Developer and Buyer.

(d) Determination of Purchase Price. The selected Independent Appraiser shall, within twenty (20) Business Days of appointment, make a determination of the Fair Market Value (the "***Final Determination***") which shall specify the "Final Appraised Value" of the Facilities. Upon making such Final Determination, the selected Independent Appraiser shall provide such Final Determination to Developer and Buyer, together with all supporting documentation that details the calculation of the Final Determination. Except in the case of fraud or manifest error, the Final Appraised Value of the selected Independent Appraiser shall be final and binding on the Parties.

(e) Calculation of Purchase Price. The "***Purchase Price***" payable by Buyer for the Facility Assets shall be equal to the higher of the Termination Payment or the Final Appraised Value as determined by the Independent Appraiser.

(f) Costs and Expenses of Independent Appraiser. In the event Buyer purchases the Facilities pursuant to its option in subsection (b) above, Developer and Buyer shall each be responsible for payment of one half of the costs and expenses of the Independent Appraiser. If Buyer elects not to purchase the Facilities upon receiving the Final Appraised Value, Buyer shall pay all costs of the Independent Appraiser.

(g) Exercise of Purchase Option. Buyer shall have twenty (20) Business Days from the date of the Final Determination (such period, the "***Exercise Period***") to exercise the Purchase Option, at the Purchase Price. Buyer must exercise its Purchase Option during the Exercise Period by providing a notice (an "***Exercise Notice***") to Developer, and specifying a closing date for the purchase and sale of the Facilities (the "***Transfer Date***"). Once Buyer delivers its Exercise Notice to Developer, such Exercise Notice shall be irrevocable.

(h) Terms of Facilities Purchase. On the Transfer Date (a) Developer shall surrender and transfer to Buyer all of Developer's right, title and interest in and to the Facility Assets, and shall retain all liabilities arising from or related to the Facility Assets prior to the Transfer Date, (b) Buyer shall pay the Purchase Price, by wire transfer and shall assume all liabilities arising from or related to the Facility Assets from and after the Transfer Date, and (c) both Parties shall (i) execute and deliver a bill of sale and assignment and assumption of contract rights containing no representations or warranties, except as to title, together with such other conveyance and transaction documents as are reasonably required to fully transfer and vest title to the Facilities in Buyer on an AS IS, WHERE IS basis, and (ii) deliver such other commercially reasonable ancillary documents as may be reasonably necessary to complete the sale of the Facility Assets to Buyer.

(i) Transfer Date. The closing of any sale of the Facilities (the "***Transfer Date***") pursuant to this Section 13 will occur no later than thirty (30) Business Days following the date of the Exercise Notice.

Section 14. INSURANCE

Attachment G hereto contains the insurance requirements under this Agreement for both Developer and Buyer, each of which are hereby incorporated by reference into and made a part of this Agreement..

Section 15. INDEMNIFICATION

To the fullest extent permitted by law, the Developer shall indemnify and hold harmless the Buyer and all of its officers, employees, boards, commissions, and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind ("***Losses***") from or to third parties which arise out of the performance of Developer's work, provided that such Losses are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property but only to the extent caused by the negligent or intentional acts or omissions of the Developer, its employees, agents, subcontractors, or anyone directly or indirectly employed by them or anyone for whose acts Developer is legally liable. This indemnity obligation shall apply notwithstanding any negligent or intentional acts, errors or omissions of the Buyer, but the Developer's obligation to pay Losses shall be reduced in proportion to the percentage by which the Buyer's negligent or intentional acts, errors or omissions caused the Losses.

To the extent permitted by law, Buyer shall indemnify and hold harmless Developer from and against any and all Losses from or to third parties for injury or death to persons or damage or loss to or of property to the extent arising out of the negligent or intentional acts or omissions of the Buyer, its employees, agents, subcontractors or representatives. This indemnity obligation shall apply notwithstanding any negligent or intentional acts, errors or omissions of Developer, but the Buyer's obligation to pay Losses shall be reduced in proportion to the percentage by which the Developer's negligent or intentional acts, errors or omissions caused the Losses.

The provisions of this section shall survive the expiration or earlier termination of the Agreement.

Section 16. CONFIDENTIALITY

(a) Confidentiality. Neither Party will use any Confidential Information for any purpose except such Party's performance under this Agreement or except where disclosure is required by law. Furthermore,

neither Party will disclose any Confidential Information to any third party (other than (and then only for purposes permitted by this Agreement) the Party's or the Party's Affiliates' officers, employees, lenders, counsel, accountants or advisors (collectively, "***Representatives***") who have a need to know such information for the purposes permitted by this section and who have agreed to keep such terms confidential or are otherwise bound by confidentiality obligations at least as restrictive as those contained herein) except in order to comply with the requirements of any applicable Law or any exchange, control area or independent system operator rule, tariff or agreement or in connection with any judicial or regulatory proceeding or request by a Governmental Entity; *provided, however*, that each Party will use reasonable efforts to prevent or limit any such disclosure. "*Confidential Information*" means any non-public confidential or proprietary information of a Party or its Affiliates or any of its or their Representatives relating to this Agreement and the Facility and revealed to the other Party or its Affiliates or any of its or their Representatives during the Term.

The obligations of the Parties under this Section 16 will survive for a period of two (2) years from and after the termination of this Agreement.

Section 17. DISPUTE RESOLUTION

Disputes regarding changes in and interpretations of the terms or scope of the Agreement and denials of or failures to act upon claims shall be resolved according to the following procedures:

(a) Notice of Dispute/Negotiated Resolution. In the event that there is any controversy, claim or dispute between the Parties hereto arising out of or related to this Agreement, or the breach hereof, that has not been resolved by informal discussions and negotiations, either Party may, by written notice to the other, invoke the formal dispute resolution procedures set forth herein. The written notice invoking these procedures shall set forth in reasonable detail the nature, background and circumstances of the controversy, claim or dispute. During the twenty (20) Business Day period following a party's receipt of said written notice, the Parties shall meet, confer and negotiate in good faith to resolve the dispute.

(b) In the event that any controversy, claim or dispute between the Parties hereto arising out of or related to this Agreement, or the breach hereof, cannot be settled or resolved amicably by the Parties during the twenty (20) Business Day period of good faith negotiations provided for above, then either or any Party hereto may resort to any and all available judicial proceedings in a court of competent jurisdiction.

Section 18. NOTICES

(a) Notices. All notices, requests, statements or payments will be made to the addresses and persons specified below. All notices, requests, statements or payments will be made in writing. Notices required to be in writing will be delivered by hand delivery, overnight delivery. Notice by hand delivery or overnight delivery will be deemed to have been received when delivered. A Party may change its address by providing notice of the same in accordance with the provisions of this section.

If to the Buyer:

If to the Developer: [X]
111 Speen Street, Suite 410
Framingham, MA 01701

With a copy to: Ameresco, Inc.
111 Speen Street, Suite 410
Framingham, MA 01701
Attention: General Counsel

(b) Emergency. The Parties shall designate certain individual(s) as their respective points of contact to be available in emergencies (either Party may change the individuals by providing written notice of same in accordance with the provisions of this section).

Section 19. ASSIGNMENT; BINDING EFFECT; FINANCING PROVISIONS

(a) Assignment; Binding Effect. Except as provided in this Agreement, neither Party shall have the right to assign or transfer, whether voluntarily or by operation of law, any of its rights, duties or obligations under this Agreement without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed.

(b) Permitted Assignment by Developer. Notwithstanding anything to the contrary herein, Developer may assign all or a portion of its rights and obligations hereunder to (i) to one or more Affiliates of Developer that will be the owner of all or substantially all Project assets, (ii) an Affiliate of Developer in circumstances other than those described in clause (i), (iii) to any person succeeding to all or substantially all of the assets of Developer, (iv) to an entity that acquires the Project or, prior to the construction of the Project, the development rights thereto (each, a "***Permitted Transfer***"). In the event of any such assignment, Developer shall provide advance written notice to Buyer of the existence of such assignment, together with the name and address of the assignee, and documentation establishing that the assignee has assumed (or as of the closing of such transaction will assume) all or a portion of the Developer's rights and obligations under this Agreement. Buyer agrees to promptly execute any document reasonably requested in acknowledgement of such assignment and in consent thereto in accordance with the provisions hereof. If such assignment is a full assignment of all of Developer's rights, and obligations under this Agreement, then Developer shall have no further liability arising under this Agreement after the effective date of the assignment.

Subject to the foregoing restrictions on assignment, this Agreement will inure to the benefit of and be binding upon the Parties and their respective successors and permitted assigns.

(c) Buyer agrees that this Agreement (including without limitation the license provisions) shall survive any transfer of the Property. In furtherance of the foregoing, Buyer agrees that it shall cause any purchaser, assignee, or mortgagee of the Property to execute and deliver to Developer an assignment and assumption of this Agreement simultaneously with the transfer of the Property to such purchaser, assignee or mortgagee. Such assignment and assumption agreement shall contain an acknowledgement by the purchaser, assignee or mortgagee that it has no interest in the Facility and shall not gain any interest in the Facility by virtue of the transfer, other than the rights of Buyer hereunder.

(d) Financing Provisions. Notwithstanding any contrary provisions contained in this Agreement, including without limitation Section 19(a) and 19(b), Buyer specifically agrees, without any further request for prior consent but with advance written notice to Buyer, to permit Developer to assign, transfer or pledge its rights under this Agreement and its rights and title to the Facility for the purpose of obtaining financing or refinancing in connection with the Project (including, without limitation, pursuant to a sale-leaseback or partnership flip transaction) and to sign any agreement reasonably requested by Developer or its lenders to acknowledge and evidence such agreement. The Buyer agrees to cooperate with Developer in the negotiation

and execution of any reasonable amendment or addition to this Agreement required by the financing parties so long as such amendment or addition does not in any way materially alter or amend the rights and obligations of the Buyer herein.

(e) Third Party Rights.

(1) Notice to Designated Third Party. Buyer agrees to give copies of any notice provided to Developer by Buyer under Section 9 to any assignee or transferee permitted pursuant to Section 19(b) (each, a "Designated Third Party").

(2) Exercise of Developer Rights. Any Designated Third Party, as collateral assignee and if allowed pursuant to its contractual arrangements with Developer, shall have the right in the place of Developer, to any and all rights and remedies of Developer under this Agreement. Such Designated Third Party shall also be entitled to exercise all rights and remedies of secured parties generally with respect to this Agreement, subject to the terms of this Agreement.

(3) Performance of Developer Obligations. A Designated Third party shall have the right, but not the obligation, to pay all sums due under this Agreement and to perform any other act, duty or obligation required of Developer hereunder or cause to be cured any default of Developer hereunder in the time and manner provided by and subject to the terms of this Agreement. Nothing herein requires the Designated Third Party to cure any default of Developer under this Agreement or (unless such party has succeeded to the Developer's interests under this Agreement) to perform any act, duty or obligation of Developer under this Agreement, but Buyer hereby gives such party the option to do so, provided any such cure, act, duty or obligation is performed in accordance with the terms of this Agreement.

(4) Exercise of Remedies. Upon the exercise of secured party remedies, including any sale of one or more of the Facility by a Designated Third Party, whether by judicial proceeding or under any power of sale contained therein, or any conveyance from Developer to the Designated Third Party (or any assignee of the Designated Third Party) in lieu thereof, the Designated Third Party shall give notice to Buyer of the transferee or assignee of this Agreement. Any such exercise of secured party remedies shall not constitute a default under this Agreement, unless the act of exercising such remedy itself constitutes an Event of Default provided, however, that the exercise of such remedies shall not itself serve as the cure of any default of Developer, unless cured by the Designated Third Party.

(5) Buyer agrees that each Designated Third Party is a third party beneficiary of the provisions of this Section.

(6) Buyer shall not exercise any rights to terminate or suspend this Agreement unless it shall have given the Designated Third Party a copy of prior written notice of its intent to terminate or suspend this Agreement specifying the condition giving rise to such right, and the Designated Third Party shall not have caused to be cured the condition giving rise to the right of termination or suspension within ninety (90) days after Developer's cure period expires with respect to payment defaults and one hundred twenty (120) days with respect to all other defaults. The parties' respective obligations will otherwise remain in effect during any cure period.

(7) If pursuant to an exercise of remedies by a Designated Third Party, such party of its assignee shall acquire control of the Facility and this Agreement, and shall within the time periods describe in the preceding paragraph (6) cure all defaults capable of being cured under this Agreement existing as of the date of such change in control in the manner required by this Agreement, then such person or entity shall no longer be in default under this Agreement and this Agreement shall continue in full force and effect.

(f) Buyer agrees to cooperate with Developer and its financing parties in connection with any financing or refinancing of all or a portion of the Facility. In furtherance of the foregoing, as Developer or its financing parties request from time to time, Buyer agrees, subject to the other provisions of this Agreement, to (i) execute any consents to assignment or acknowledgements, (ii) negotiate and deliver such reasonable estoppel certificate as an existing or prospective Designated Third Party may reasonably require, and (iii) furnish such reasonable information as Developer and its financing parties may reasonably request.

Section 20. MISCELLANEOUS

(a) Amendment and Restatement; Contract Drafting. The Parties acknowledge that they jointly participated in the drafting of this Agreement, jointly participated in the choice of language used in this Agreement, and have each reviewed all of the terms of this Agreement. This document has not been proffered by one Party to the exclusion of the other Party. If any ambiguous word or phrase is found in this Agreement, the canon of construction requiring that any such word or phrase be construed against the drafter shall not be applied to determine the true meaning of that ambiguous word or phrase.

(b) Waiver. No action or failure to act by either party shall constitute a waiver of a right or duty afforded to the other party under the Agreement, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing. No forbearance or indulgence in any form or manner by either party shall be construed as a waiver or in any way limit the legal or equitable remedies available to the other party. No waiver by one party of any default or breach by the Developer shall constitute a waiver of any subsequent default or breach by the other party.

(c) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the other provisions hereof. Any provisions adjudged to be invalid or unenforceable shall be severed from the Agreement and the remaining provisions shall continue in full force and effect to the extent permitted by law. The Parties shall negotiate promptly and in good faith to fashion contractual provisions to be observed in place of any provisions adjudged to be invalid or unenforceable to achieve as nearly as possible the commercial results contemplated by this Agreement.

(d) Headings. The headings of Sections of this Agreement are for convenience of reference only and are not intended to restrict, affect or be of any weight in the interpretation or construction of the provisions of such Sections.

(e) Entire Agreement; Amendment. This Agreement and any Exhibits referenced herein shall constitute the entire agreement of the Parties as to the subject matter addressed herein. There are no other agreements between the Parties concerning the subject matter of this Agreement. This Agreement and its Exhibits may not be altered, modified, supplemented, terminated or discharged except by way of an instrument in writing executed by both Parties.

(f) Good Faith. All rights, duties and obligations established by this Agreement shall be exercised in good faith and in a commercially reasonable manner.

(g) Governing Law. This Agreement shall be interpreted and enforced in accordance with the laws of the [State], without resort to any principles of law that would call for the application of the laws of any other jurisdiction. Each of the Parties consents to the jurisdiction of the state or federal courts of the [State] with respect to all disputes arising under or out of this Agreement.

(h) Consent to Service of Process. Each Party hereby consents to service of process in the [State] in respect of actions, suits or proceedings arising out of or in connection with this Agreement or the transactions contemplated by this Agreement.

(i) Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. A signature on a copy of this Agreement received by either Party by facsimile transmission is binding upon the other Party as an original.

(j) No Third Party Beneficiaries. Nothing in this Agreement will provide any benefit to any third party or entitle any third party to any claim, cause of action, remedy or right of any kind other than each successor, permitted assignee and any Designated Third Party.

(k) Relationship of Parties. The Parties are independent contractors, and will not be deemed to be partners, joint venturers or agents of each other for any purpose, unless expressly stated otherwise herein. The Developer shall provide services under this Agreement as an independent contractor with the Buyer and not as an employee of the Buyer. No employee, agent or representative of the Developer shall be entitled to receive any benefits of employment with the Buyer, including without limitation salary, overtime, vacation pay, holiday pay, sick leave, health insurance, life insurance, pension or deferred compensation.

(l) Authority to Speak. Neither Party shall represent or purport to represent that it speaks for the other party vis-à-vis the media or the public at-large without the other party's express, written consent in advance.

(m) No Limitation of Regulatory Authority. The Parties acknowledge that nothing in this Agreement shall be deemed to be an agreement by Buyer to issue or cause the issuance of any Approval.

(n) Survival. The provisions of Sections 4(h), 9(c), (d), (e), (f), (g) and (h), 12, 15, 16 shall survive the expiration or earlier termination of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties hereto have executed this POWER PURCHASE AGREEMENT under seal as of the day and year first above written.

BUYER:

By:_____

DEVELOPER:

By:

By:_____
[SIGNATURE]

Printed Name:_____

Printed Title:_____

Exhibit A

Defined Terms

"***Affiliate***" means, with respect to any Person, any other Person that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such Person.

"***Agreement***" means this Power Purchase Agreement, including all Attachments and exhibits hereto, each of which are hereby incorporated by reference into and made a part of this Agreement.

"***Applicable Legal Requirements***" means any present and future law, act, rule, requirement, order, by-law, ordinance, regulation, judgment, decree, or injunction of or by any Governmental Authority, ordinary or extraordinary, foreseen or unforeseen, and all licenses, permits, tariffs, and other governmental consents, which may at any time be applicable to the Facility, or any part thereof or to any condition or use thereof, or a Party's rights and obligations hereunder and all leases, permits and other governmental consents which are or may be required for the use and occupancy of the Property and for the design, installation, operation, maintenance and removal of the Facility.

"***Bankrupt***" means that a Party or other entity (as applicable): (i) is dissolved (other than pursuant to a consolidation, amalgamation or merger); (ii) becomes insolvent or is unable to pay its debts or fails (or admits in writing its inability) generally to pay its debts as they become due; (iii) makes a general assignment, arrangement or composition with or for the benefit of its creditors; (iv) has instituted against it a proceeding seeking a judgment of insolvency or bankruptcy or any other relief under any bankruptcy or insolvency law or other similar law affecting creditor's rights, or a petition is presented for its winding-up, reorganization or liquidation, which proceeding or petition is not dismissed, stayed or vacated within twenty (20) Business Days thereafter; (v) commences a voluntary proceeding seeking a judgment of insolvency or bankruptcy or any other relief under any bankruptcy or insolvency law or other similar law affecting creditors' rights; (vi) seeks or consents to the appointment of an administrator, provisional liquidator, conservator, receiver, trustee, custodian or other similar official for it or for all or substantially all of its assets; (vii) has a secured party take possession of all or substantially all of its assets, or has a distress, execution, attachment, sequestration or other legal process levied, enforced or sued on or against all or substantially all of its assets; (viii) causes or is subject to any event with respect to it which, under the applicable laws of any jurisdiction, has an analogous effect to any of the events specified in clauses (i) to (vii) inclusive; or (ix) takes any action in furtherance of, or indicating its consent to, approval of, or acquiescence in, any of the foregoing acts.

"***Billing Cycle***" means the monthly billing cycle established by the LDC.

"***Business Day***" means any day except a Saturday, Sunday, or a Federal Reserve Bank holiday.

"***Claiming Party"*** has the meaning set forth in Section 8.

"***Commercial Operation***" means with respect to a Facility, that the Facility is capable of producing Electricity, is ready for regular, daily operation, has approval to interconnect to the LDC system, and has all relevant governmental approvals.

"***Commercial Operation Date***" means the first day on which the Facility achieves Commercial Operation, as defined herein, is ready for Commercial Operation, as certified in writing by Developer to Buyer in a notice of Commercial Operation.

"***Contract Year***" means a 365-day period commencing on the Commercial Operation Date, and each subsequent 365-day period thereafter.

"***Costs***" means (i) all reasonable attorney's fees and expenses incurred by the relevant Party in connection with the termination of this Agreement, and (ii) all reasonable costs and expenses incurred by the relevant Party in removal of the Facility; provided that in the case of (i) and (ii) above, the relevant Party uses commercially reasonable efforts to mitigate such Costs.

"Delay Damages" means the amount per calendar day, as the net of the National Grid Virtual Net Metering Credit Value minus the Electricity Price multiplied by the Guaranteed Annual Electrical Output divided by 365.

"***Delivery Point***" means, with respect to a Facility, the point behind which such Facility is interconnected to Buyer's intertie with the LDC. The Delivery Point shall in all cases be on the Buyer's side of the LDC Metering Device.

"***Developer Metering Device***" means with respect to the Facility, any and all revenue quality meters installed by Developer at or before the Delivery Point needed for the registration, recording, and transmission of information regarding the amount of Electricity generated by a Facility and delivered to the Delivery Point.

"***Early Termination Date***" shall have the meaning ascribed to it in Section 9.

"***Effective Date***" is the date first set forth in the introductory paragraph of this Agreement.

"***Electricity***" means the electricity generated by the Facility and delivered to Buyer at the Delivery Point, as metered in whole kilowatt-hours (kWh) at the Developer Metering Device. The Electricity delivered to Buyer at the Delivery Point shall be deemed to be equal to the electric energy measured at the Developer Metering Device; actual energy losses between the Developer Metering Device and the Delivery Point shall not reduce the measurement of Electricity.

"***Electricity Price***" shall mean the price per kWh of Electricity delivered to the Delivery Point, as set forth in Attachment D attached hereto.

"***Environmental Attributes***" means the characteristics of electric power generation by the Facility that have intrinsic value separate and apart from the energy and arising from the perceived environmental benefit of the Facility or the energy produced by the Facility including but not limited to all environmental attributes or renewable energy credits, including carbon trading credits, or certificates, emissions reduction credits, emissions allowances, green tags and tradable renewable credits, environmental and other attributes that differentiate the Facility or energy produced by the Facility from energy generated by fossil fuel based generation units, fuels or resources, characteristics of the Facility that may result in the avoidance of environmental impacts on air, soil or water, such as the absence of emission of any oxides of nitrogen, sulfur or carbon or mercury, or other base or chemical, soot particulate matter or other substances attributable to the Facility or the compliance of the Facility or energy with the law, rules and standards of the United Nations Framework convention on Climate Changes or the Kyoto Protocol or the UNFCCC or crediting "early action" with a view thereto, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator of any state or federal entity given jurisdiction over a program involving transferability of rights arising from Environmental Attributes and Reporting Rights. Environmental Attributes does not include Environmental Incentives.

"***Environmental Incentives***" means any credit, benefit, reduction, offset, financial incentive, tax credit and other beneficial allowance that is in effect as of the Effective Date or may come into effect in the future, including, to the extent applicable and without limitation, (i) greenhouse gas offsets under the Regional Greenhouse Gas Initiative, (ii) tax credits, incentives or depreciation allowances established under any federal or state law, (iii) fuel-related subsidies or "tipping fees" that may be paid to accept certain fuels, and (iv) other financial incentives in the form of credits, tax write-offs, reductions or allowances under applicable Legal Requirements attributable to the Facility or Electricity, and all Reporting Rights with respect to such incentives.

"***Events of Default***" has the meaning set forth in Section 9.

"***Facility***" or "***Facility***" have the meanings set forth in the recitals. For avoidance of doubt, except as otherwise expressly provided herein, the term "Facility" as used in this Agreement shall correspond with the term "Unit" as used in the Net Metering Rules.

"***Facility Assets***" means each and all of the assets of which a Facility is comprised, including solar energy panels, mounting systems, tracking devices, inverters, integrators and other related equipment and components installed on the Property, electric lines and conduits required to connect such equipment to the Delivery Point and the LDC Facility, protective and associated equipment, improvements, Metering Devices, and other tangible and intangible assets, permits, property rights and contract rights reasonably necessary for the construction, operation, and maintenance of the Facility.

"***Facility Loss***" means loss, damage or destruction of a Facility or Facility Assets that prevents or limits the Facility from operating in whole or in part, resulting from or arising out of casualty, condemnation or Force Majeure.

"***Fair Market Value***" means the fair market value of the Facility determined by an Independent Appraiser. Fair Market Value means the price that would be established in an arm's-length transaction between an informed and willing buyer and an informed and willing seller, neither being under any compulsion to act.

"***Force Majeure***" means any event or circumstance having an adverse effect upon a Party's ability to perform pursuant to this Agreement if such event or circumstance is beyond the Party's reasonable control and is not the result of willful or negligent act or omission of the Party relying thereon as justification for not performing any obligation or complying with any obligation required of such Party under this Agreement. "Force Majeure" events or circumstances may include but are not restricted to events of the following kinds: an act of God, an act of war, insurrection, riot or civil disturbance, fire, explosion, flood, epidemics, unusually severe and extraordinary weather conditions, acts of government or regulatory authorities, and strikes or lockouts which materially affect, impact or impede obligations under this Agreement. Force Majeure will not be based on (i) Buyer's inability to economically use Electricity purchased hereunder, or (ii) Developer's ability to sell Electricity at a price greater than the Electricity Price under this Agreement.

"***Guaranteed Annual Electric Output***" means the amount of electricity that is guaranteed by the Developer to be generated by the Facilities in a particular period, as set forth in Attachment D.

"***Governmental Authority***" means the United States of America, the [State], and any political or municipal subdivision thereof (including but not limited to Buyer), and any agency, department, commission, board, bureau, or instrumentality of any of them, and any independent electric system operator.

"***Governmental Charges***" means all applicable federal, state and local taxes (other than taxes based on income or net worth but including, without limitation, sales, use, gross receipts or similar taxes), governmental charges, emission allowance costs, duties, tariffs, levies, leases, fees, permits, assessments, adders or surcharges (including public purposes charges and low income bill payment assistance charges), imposed or authorized by a Governmental Authority, LDC, or other similar entity, on or with respect to the Electricity or this Agreement.

"***Host Customer***" shall have the meaning given this term in the Net Metering Rules.

"***Hazardous Materials***" means those substances defined, classified, or otherwise denominated as a "hazardous substance", "toxic substance", "hazardous material", "hazardous waste", "hazardous pollutant", "toxic pollutant" or oil in the Applicable Legal Requirements or in any regulations promulgated pursuant to the Applicable Legal Requirements.

"***Independent Appraiser***" means an individual qualified by education, certification, experience and training to determine the value of solar generating facilities of the size and age and with the operational characteristics of the Facility. Except as may be otherwise agreed by the Parties, the Independent Appraiser shall not be (or within three (3) years before his appointment have been) a director, officer or employee of, or directly or indirectly retained as consultant or adviser to, Developer, any Affiliate of Developer, or Buyer.

"***Interest Rate***" means a fluctuating interest rate per annum equal to the sum of the lesser of (i) the Prime Rate as stated in the "Bonds, Rates & Yields" section of the The Wall Street Journal on the Effective Date and thereafter on the first day of every calendar month, plus two (2) percentage points, or (ii) ten percent (10%). In the event that such rate is no longer published in The Wall Street Journal or such publication is no longer published, the Interest Rate shall be set using a comparable index or interest rate selected by Buyer and reasonably acceptable to Developer. The Interest Rate hereunder shall change on the first day of every calendar month. Interest shall be calculated daily on the basis of a year of three hundred and sixty-five (365) days and the actual number of days for which such interest is due.

"LDC" means the electric local distribution company that provides electric distribution service to the Buyer, as set forth in Attachment D.

"***LDC Retail Rate***" means the rate (expressed on a $/kWh basis) charged by the LDC (excluding any LDC charges that are not strictly based on electricity usage or kWh unit rate) in any Contract Year for Electricity that is delivered to Buyer, and shall include, without limitation, all electric commodity charges, transmission, distribution or other delivery charges, ancillary service charges, transition, renewable energy, efficiency, or competitive service charges, taxes, and other fees and charges in place.

"***LDC Facility***" means the electric distribution system operated and maintained by the LDC.

"***LDC Metering Device***" means one or more meters furnished and installed by the LDC for the purpose of measuring the Electricity delivered by the LDC to the Host Customer and delivered by the Host Customer to the LDC.

"***License***" means the license for the use of the Property granted by Buyer to Developer, as further described in Section 4(b).

"***Licensed Area***" means the area on the Property in which Buyer grants Developer a license to install and operate the Facility.

"***Net Metering***" shall have the meaning set forth in the Net Metering Rules.

"***Net Metering Credit Value***" shall mean the applicable monetary value of an excess kilowatt-hour of electricity, determined in accordance with the Net Metering Rules.

"***Net Metering Facility***" shall have the meanings set forth in the Net Metering Rules.

"***Net Metering Rules***" means collectively, _____ relating to Net Metering, and the associated net metering tariff of the LDC, as same may be amended.

"Outside Commercial Operation Date" shall mean _____.

"***Person***" means an individual, general or limited partnership, corporation, municipal corporation, business trust, joint stock company, trust, unincorporated association, joint venture, Governmental Authority, limited liability company, or any other entity of whatever nature.

"Production Shortfall" means the amount, expressed in kWh, by which the actual amount of Electricity generated by the Facility in any period is less that the Guaranteed Annual Electric Output for such period.

"***Property***" has the meaning set forth in Attachment A.

"***Purchase Price***" shall have the meaning ascribed to it in Section 13 of this Agreement.

"***Release***" means any release, migration, seepage, discharge, disposal, leak or spill of Hazardous Materials, including without limitation as any of the foregoing may be defined in or pursuant to any of the Applicable Legal Requirements.

"***Reporting Rights***" means the right of Developer to report to any federal, state or local agency, authority or other party, including without limitation under Section 1605(b) of the Energy Policy Act of 1992 and provisions of the Energy Policy Act of 2005, to the extent that such Acts provide such rights, or under any present or future domestic, international or foreign emissions trading program, that Developer owns the Environmental Attributes and the Environmental Financial Incentives associated with energy produced by the Facility.

"***Term***" shall have the meaning set forth in Section 3 herein.

"***Termination Date***" means the earlier to occur of (i) the last day of the Term, (ii) the date of termination of this Agreement as the result of an Event of Default, and (iii) the date of termination pursuant to Section VIII herein.

"***Termination Payment***" means an amount payable by Buyer to Developer in the event of termination of this Agreement as a result of an Event of Default, as set forth in Attachment F attached hereto.

Attachment B

DESCRIPTION OF PREMISES

Name:

Address:

Site Photo:

ATTACHMENT C

PRELIMINARY DESCRIPTION OF FACILITIES

Name:

Address:

The final Facility Description shall be the final As-Built drawings to be provided after Commercial Operation Date. The information below is preliminary and subject to change.

General Facility Description:

1. Facility Size DC:	_____ kW_DC at STC capacity
2. Facility Size AC:	_____ kW_AC

Solar PV Panels:

1. Manufacturer:	
2. Model Number:	
3. Module Wattage:	
4. Panel Count:	
5. Type:	
6. Array tilt:	
7. Warranty Information:	

Inverters:

1. Manufacturer:	
2. Model Number:	
3. Number and size to be installed:	
4. String size and Quantity:	
5. Warranty Information:	

Mounting Facility:

1. Manufacturer:	
2. Model Number:	
3. Type:	

Data Acquisition Facility (DAS):

1. Manufacturer:
2. Model:

ATTACHMENT D

ATTACHMENT E

TERMINATION PAYMENT

Attachment F

Attachment G

Insurance Coverage

The Developer shall provide and maintain throughout the Term the following insurance with companies that are authorized and licensed in the [State] to issue policies for the coverages and limits so required.

i. Workers' Compensation Insurance as required by the laws of the [State] and employer's liability insurance in the amount of $500,000 by accident, each accident/$500,000 by disease, each employee/$500,000 by disease, policy limit.

ii. Commercial General Liability Insurance, $1,000,000 each occurrence and $2,000,000 aggregate limit. Commercial General Liability insurance shall include personal injury liability, broad form property damage liability, products/completed operations liability and broad form contractual liability.

iii. Automobile Liability Insurance - Combined single limit of $1,000,000.

iv. Professional Liability Insurance, covering errors and omissions, $1,000,000 each occurrence and $2,000,000 aggregate limit.

v. Excess Liability Insurance, Umbrella Form - $2,000,000 each occurrence and $2,000,000 aggregate, which shall be following form, providing coverage over commercial general liability insurance, automobile liability insurance, professional liability insurance, and employer's liability under workers' compensation insurance.

vi. The Buyer shall be named as an additional insured on each such policy of Commercial General Liability Insurance, Excess Liability Insurance, Umbrella Form, and Automobile Liability Insurance.

vii. Developer shall provide written notice to Buyer at least thirty (30) days prior to the effective date of any cancellation or material amendment of such policies.

viii. Certificates evidencing such insurance shall be furnished to Buyer upon execution of this Agreement. Such certificates shall not merely name the types of policy provided, but shall specifically refer to this Agreement and shall state that such insurance is as required by this Agreement.

ix. Certificates evidencing such insurance shall be furnished to Buyer on the first anniversary of the Commercial Operation Date and each anniversary of the Commercial Operation Date thereafter during the Term (and any extension thereof).

(b) Buyer shall maintain during the Term the coverage set forth in subsections (a)(i) and (a)(ii) and (a)(v).

(c) Developer may satisfy the insurance obligations above by ensuring that its subcontractors provide and maintain such insurance coverage.

CERTIFICATE REGARDING PUBLIC RECORDS

Ameresco's Executed Certificate Regarding Public Records is provided on the following page.

This page is intentionally left blank.

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

Certificate Regarding Public Records

Upon behalf of Ameresco, Inc. (Firm or Individual Bidding),

I, Joseph P. DeManche (Name of Person Making Certification),

being its Executive Vice President (Title or "Self"), hereby certify an understanding that:

1. All bids submitted in response to Requests for Proposals (RFP's) and Requests for Qualification (RFQ's), documents contained within, and the details outlined on those documents become public record upon receipt by the City Clerk's office and opening at the corresponding Board of Contract and Supply (BOCS) meeting.
2. The Purchasing Department and the issuing department for this RFP/RFQ have made a conscious effort to request that sensitive/personal information be submitted directly to the issuing department and only at request if verification of specific details is critical the evaluation of a vendor's bid.
3. The requested supplemental information may be crucial to evaluating bids. Failure to provide such details may result in disqualification, or an inability to appropriately evaluate bids.
4. If sensitive information that has not been requested is enclosed or if a bidder opts to enclose the defined supplemental information prior to the issuing department's request in the bidding packet submitted to the City Clerk, the City of Providence has no obligation to redact those details and bears no liability associated with the information becoming public record.
5. The City of Providence observes a public and transparent bidding process. Information required in the bidding packet may not be submitted directly to the issuing department at the discretion of the bidder in order to protect other information, such as pricing terms, from becoming public. Bidders who make such an attempt will be disqualified.

I affirm by signing below that I am duly authorized on behalf of Bidder, on this 22 day of June 20 18 .

Signature of Representative

Joseph P. DeManche, Executive Vice President
Printed Name

MBE / WBE FORMS

Ameresco's executed MBE / WBE forms are provided on the following pages.

This page is intentionally left blank.

MBE/WBE PARTICIPATION AFFIDAVIT

Item Description (as seen on RFP):
Renewable Energy Projects

Prime Bidder: Ameresco, Inc.
Prime Bidder (Company) Phone Number: 508-661-2200
Prime Bidder (Company) Zip Code: 01701

Which one of the following describes your business' status in terms of Minority and/or Woman-Owned Business Enterprise certification with the State of Rhode Island? ☐ MBE ☐ WBE ☑ Neither MBE nor WBE

By initialing the following sections and signing the bottom of this document in my capacity as the contractor or an authorized representative of contractor, I make this Affidavit:

It is the policy of the City of Providence that minority business enterprises (MBEs) and women business enterprises (WBEs) should have the maximum opportunity to participate in procurements and projects as prime contractors and vendors. Pursuant to Sec. 21-52 of the Providence Code of Ordinances and Chapter 31-14 *et seq.* of the Rhode Island General Laws (as amended), MBE and WBE participation goals apply to contracts.

The goal for Minority Business Enterprise (MBE) participation is 10% of the total bid value.
The goal for Women's Business Enterprise (WBE) participation is 10% of the total bid value.
The goal for combined MBE/WBE participation is 20% of the total bid value.

I acknowledge the City of Providence's goals of supporting MBE/WBE certified businesses. Initial JPD

If awarded the contract, I understand that my company must submit to the Minority and Women's Business Coordinator at the City of Providence (MBE/WBE Office), copies of all executed agreements with the subcontractor(s) being utilized to achieve the participation goals and other requirements of the RI General Laws. **I understand that these documents must be submitted prior to the issuance of a notice to proceed.** Initial JPD

I understand that, if awarded the contract, my firm must submit to the MBE/WBE Office canceled checks and reports required by the MBE/WBE Office on a quarterly basis verifying payments to the subcontractors(s) utilized on the contract. Initial JPD

If I am awarded this contract and find that I am unable to utilize the subcontractor(s) identified in my Statement of Intent, I understand that I must substitute another certified MBE and WBE firm(s) to meet the participation goals. **I understand that I may not make a substitution until I have obtained the written approval of the MBE/WBE Office.**
Initial JPD

If awarded this contract, I understand that authorized representatives of the City of Providence may examine the books, records and files of my firm from time to time, to the extent that such material is relevant to a determination of whether my firm is complying with the City's MBE/WBE participation requirements.
Initial JPD

I do solemnly declare and affirm under the penalty of perjury that the contents of the foregoing Affidavit are true and correct to the best of my knowledge, information and belief.

Signature of Bidder

Joseph P. DeManche, Executive Vice President
Printed Name

Ameresco, Inc.
Company Name

June 22, 2018
Date

MBE/WBE WAIVER REQUEST FORM

Fill out this form only if you are using subcontractors and did not meet the 20% MBE/WBE participation goal. MBE or WBE Prime Bidders that are certified by the State of Rhode Island are NOT REQUIRED to fill out this form.

Submit this form to the City of Providence MBE/WBE Outreach Director, Grace Diaz, at mbe-wbe@providenceri.gov for review **prior to bid submission.**

This waiver applies only to the current bid which you are submitting to the City of Providence and does not apply to other bids your company may submit for in the future.

Prime Bidder: Ameresco, Inc.
Company Trade: Energy Systems
Item Description (as seen on RFP):
Renewable Energy Projects

To receive a waiver, you must list the certified MBE and/or WBE companies you contacted, the name of the primary individual with whom you interacted, and the reason the MBE/WBE company could not participate on this project.

MBE/WBE Company Name	Individual's Name	Company Trade	Why did you choose not to work with this company?
Ameresco will subcontract civil engineering design, survey, and permitting services to Pare Corporation. Pare in turn will subcontract to Landscape Architect Diane C. Soule & Associates, which is a certified WBE.			

I acknowledge the City of Providence's goal of a combined MBE/WBE participation is 20% of the total bid value. I am requesting a waiver of TBD % MBE/WBE (20% minus the value of **Box F** on the Subcontractor Disclosure Form). If an opportunity is identified to subcontract any task associated with the fulfillment of this contract, a good faith effort will be made to select MBE/WBE certified businesses as partners.

Signature of Prime Contractor — Joseph P. DeManche, Executive Vice President (Printed Name) — 6/22/2018 (Date Signed)

Signature of City of Providence MBE/WBE Outreach Director — Grace Diaz (Printed Name of City of Providence MBE/WBE Outreach Director) — 06/24/18 (Date Signed)

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
OFFICE OF DIVERSITY, EQUITY AND OPPORTUNITY
Minority Business Enterprise Compliance Office
One Capitol Hill
Providence, RI 02908-5860
Office: **(401) 574-8670**
RI Relay: **711**
www.odeo.ri.gov

November 10, 2017

Ms. Diane Soule
Diane C. Soule & Associates, ASLA
422 Farnum Pike
Smithfield, RI 02917

Dear Ms. Soule:

Based on the annual review package provided by you, a determination has been made that your firm remains eligible for certification as a **DBE** for the U.S. DOT DBE Program. The MBE Compliance Office (MBECO), acting as certification agent for RIDOT, RIAC, and RIPTA, has determined that your firm continues to meet the certification criteria as established by U.S. DOT under 49 CFR Part 26. The number that you may utilize as proof of your certification is MBCN 259. Your company has been approved as a **DBE** to conduct business primarily as a **"landscape architectural design services, as well as graphics, plan and perspective rendering services"** firm under primary NAICS Code 541320 and additional NAICS Codes 541340.

Please be advised that it is your responsibility to notify MBECO of any changes in circumstance affecting your ability to meet size, disadvantaged status, ownership, or control requirements, or any material change in the information provided in your application form, within 30 days of such changes. The notice must take the form of a sworn affidavit sworn or an unsworn declaration executed under penalty of perjury of the laws of the United States, and must include supporting documentation describing in detail the nature of such changes. Failure to make timely notification of such a change will result in administrative removal of certification for failure to cooperate under 49 CFR 26.109(c).

In order to maintain your certification as a DBE, you must submit your annual review package sixty (60) days prior to your annual review date which is **10/31/2018.** (a) a completed No Change Affidavit; (b) current corporate federal tax returns, including all federal schedules and attachments, for the applicant firm and any affiliate firms, if applicable; (c) copy of your current certification letter from your home state UCP if firm is not based in Rhode Island, and (d) copy of pertinent Rhode Island licenses if business is operating in a licensed industry. Failure to submit your annual review package will result in an administrative removal of your certification. Please note that every five (5) years firms will undergo a slightly more substantive review including a review of personal financial and economic disadvantage criteria and a new site visit and interview, as applicable. You will be notified in writing when your firm is due for such a review. We wish you success in the DBE Program, and if we can be of further assistance to you, please contact this office.

Sincerely,

Dorinda L. Keene
Assistant Administrator – MBE Compliance

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
OFFICE OF DIVERSITY, EQUITY AND OPPORTUNITY
Minority Business Enterprise Compliance Office
One Capitol Hill
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www.odeo.ri.gov

November 10, 2017

Ms. Diane Soule
Diane C. Soule & Associates, ASLA
422 Farnum Pike
Smithfield, RI 02917

Dear Ms. Soule:

Based on the annual review package provided by you, a determination has been made that your firm remains eligible for certification as a WBE for the State of Rhode Island Minority Business Enterprise Program. Your "Minority Business Certification Number" which you can utilize as proof of your status is MBCN 259. Your company has been approved as a **WBE** to conduct business primarily as a **"landscape architectural design services, as well as graphics, plan and perspective rendering services"** firm under primary NAICS Code 541320 and additional NAICS Codes 541340.

In order to maintain your certification during the certification period, you must submit your annual review package sixty (60) days prior to your annual review date which is **10/31/2018**. Your annual review package must include: a) a completed No Change Affidavit (b) current corporate federal tax returns, including all federal schedules and attachments, for the applicant firm and any affiliate firms as applicable; (c) copy of your current certification letter from your home state UCP if firm is not based in Rhode Island, and (d) copy of pertinent Rhode Island licenses if business is operating in a licensed industry. Failure to submit your annual review package will result in an administrative removal of your certification. Further, please be advised that it is your responsibility to notify the Minority Business Enterprise Compliance Office of any changes in the ownership or control of your business within thirty (30) days of such changes.

In addition, please be advised that all certified firms undergo a more substantive review, including a new site visit, as well as a review of personal financial information and economic disadvantage status, every five (5) years. Our records indicate that your firm is due for such a review on or about **10/31/2020**.

We wish you success in the State of Rhode Island's Minority Business Enterprise Program; and if we can be of further assistance to you, please contact this office.

Sincerely,

Dorinda L. Keene
Assistant Administrator – MBE Compliance

CONTACTS:

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NAME OF CONTACT PERSON IN THE FIRM:

KLEO TALIADOUROS
DIRECTOR – DEVELOPMENT

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