

June 22, 2018

City of Providence Board of Contract and Supply

Attn: Department of the City Clerk - City Hall, Room 311

25 Dorrance Street Providence, RI 02903

Re: Providence Water Supply Board Renewable Energy RFP

Dear Sirs,

Green Development, LLC ("Green") eagerly submits the enclosed response to the Providence Water Supply Board's (the "PWSB") RFP for renewable energy projects to benefit the Providence Water Supply Board. Green has unmatched experience in delivering turnkey projects for virtual net-metering customers in Rhode Island. Green looks forward to working with the PWSB to reach its energy goals.

Green has carefully read all bid documents published by the PWSB and understands all provisions of the RFP, addendums and City Required Bid Forms. Our response has been crafted to offer the PWSB the best possible value to satisfy its total electric consumption by means of renewable energy. Green is offering both wind and solar projects, which can be tailored to meet at least the full 7,770,000 kWh consumption by the PWSB, providing substantial energy benefits. Each of the proposed projects are located on property owned by the PWSB and have been carefully reviewed to avoid impact on the critical water resources the PWSB regulates.

Green has provided the required documents following this letter.

- -Bid Form 1: Bidders Blank
- -Bid Form 2: Certification of Bidder
- -Certificate Regarding Public Records
- -MBE/WBE Documents
- -Bidder's Proposal and packet of attachments
- -Financial Assurance

Green is available at any time to answer questions or provide further clarity on the enclosed proposal. We look forward to meeting for an interview to discuss the proposal in more detail. Thank you for the opportunity to respond to this RFP. We look forward to hearing from you.

Sincerely,

Allen Bucknam

CEO

Green Development, LLC



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

# **BID FORM 1: Bidders Blank**

- 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):	Green Development, LLC
Contact Name: Allen Bucknam, CE	
Business Address: 3760 Quaker Lane,	, North Kingstown, RI
Business Phone #: (401) 295-4998	
Agrees to bid on (Items(s) to be bid):F	Renewable Energy Projects
	n Rhode Island, list name and contact information for a local agent for
service of process:	
	n/ and identify the NAICS Code(s) for items being bid on. Enter the NAICS ach item listed immediately above: 221114 and 221115
Delivery Date (when applicable): D	epends on project(s) selected
Name of Surety Company (if applicable	):
Total Amount in Writing*: Unit Price Bid	l: Eight Hundred, Twenty-nine Thousandths of a dollar per kilowatt hour*
Total Amount in Figures*: Unit Price B	sid: \$0.0829/kWh**
*If you are submitting a unit price bid	I please insert "Unit Price Bid."
Use additional pages if necessary for a	dditional bidding details.
**First year, Solar NMC discount price	scenario
	Signature of Representative
	CEO
	Title

# BIDDER'S BLANK ATTACHMENT 1

Providence Water Supply Board Renewable Energy Projects

# Photovoltaic Project(s) Purchased or PPA

1)	<b>Unit Price per kWh</b> . 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 In Words	Eight hundred, twenty-nine thou	\$ 0.0829 /kWh usandths of a dollar per kilowatt-hour			
2)			ation factor to be applied to the ational Grid net metering credit rate (NMC oted rate based on trailing 12-month, NMC			
3)		kWh/Year. Please state the guarant bund mounted PV Project(s).	nteed kWh for the first year of the			
	In Figures In Words	Seven million, seven hundred seven	7,770,000 <u>kWh/Year</u> enty thousand kilowatt hours per year			
4)	provide the a Project(s). Pl	mercial Operation (Permission to enticipated date of commercial operated lease note PW reserves the right to date not be met.				
	Date	3	December 31, 2019			

# BIDDER'S BLANK ATTACHMENT 1

Providence Water Supply Board Renewable Energy Projects

# Wind Project(s) Purchased or PPA

1)	<b>Unit Price per kWh</b> . Please state the amount of the proposed unit price per kWh for the proposed Wind Project(s) electricity.						
	In Figures In Words	\$ 0.0906 /kW  Nine hundred six thousandths of a dollar per kilowatt-ho					
2)	Price per kWh after the first Price is quoted a	provide a yearly escalation factor to be applied to the Utyear. s a discount to National Grid net metering credit rate (NMI) periodically. Quoted rate based on trailing 12-month NMI)	ИCR),				
3)	Guaranteed kWhs/Year. Wind Project(s).	lease state the guaranteed kWhs per year for the prop	osed				
	In Figures In Words Seven million	7,770,000 kWh/Yea , seven hundred seventy thousand kilowatt hours per yea					
4)	provide the anticipated da	tion (Permission to Operate by National Grid). Please te of commercial operation of the Wind Project(s). Ple to cancel the project should the anticipated date not	ase				
	Date	December 31, 2019	_				



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

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

Upo	on behalf of Green Development, LLC	(Firm or Individual Bidding),			
l, <u> </u>	Allen Bucknam	(Name of Person Making Certification),			
bei	ng its_ Chief Executive Officer	(Title or "Self"), hereby certify that:			
1. 2.	Bidder does not unlawfully discriminate on the gender, sexual orientation and/or religion in its All of Bidder's employees have been hired in and local laws, rules and regulations.	s business and hiring practices.			
I af	firm by signing below that I am duly authorized	on behalf of Bidder, on			
this	3 25th day of June	2018 ,			

Signature of Representative

Printed Name



# **BOARD OF CONTRACT AND SUPPLY**

CITY OF PROVIDENCE, RHODE ISLAND

# Certificate Regarding Public Records

Upor	beha	alf of	Green Development, LLC	(Firm or Individual Bidding),
1,	Aller	n Bucknar	n	(Name of Person Making Certification),
being	its_	Chief Ex	ecutive Officer	(Title or "Self"), hereby certify an
unde	rstand	ding that		
<ul><li>3.</li><li>4.</li><li>5.</li></ul>	Quadoc the The con issueva. The problem of the redained the requirements of the front the front the front the control of the the front the front the control of the front the front the front the front the control of the front t	alification uments of correspondents of the	n (RFQ's), documents con become public record upon pointing Board of Contract asing Department and the isometric fort to request that sensition artment and only at request a vendor's bid. The details may result in disconformation that has not be defined supplemental information that has not be defined supplemental information. Providence observes a purple bidding packet may not of the bidder in order to ing public. Bidders who make the supplemental information of the bidders who make the supplemental information that has not be detailed as a supplemental information.	rests for Proposals (RFP's) and Requests for rained within, and the details outlined on those in receipt by the City Clerk's office and opening at and Supply (BOCS) meeting.  Issuing department for this RFP/RFQ have made a ve/personal information be submitted directly to the stif verification of specific details is critical the on may be crucial to evaluating bids. Failure to qualification, or an inability to appropriately evaluate the requested is enclosed or if a bidder opts to rmation prior to the issuing department's request in the clerk, the City of Providence has no obligation to dity associated with the information becoming the blic and transparent bidding process. Information to be submitted directly to the issuing department at protect other information, such as pricing terms, aske such an attempt will be disqualified.
l affir	m by	signing I	pelow that I am duly autho	rized on behalf of Bidder, on
this_	25th		day of_ June	2018 .
				Signature of Representative

Printed Name

Allen Bucken

# MBE/WBE PARTICIPATION AFFIDAVIT

Item Description (as seen on RFP): Renewable Energy Projects (under RFP to Providence W	Vater). We request temporary waiver because 1) we are
proposing multiple projects to PW and our choice of subc	contractor will depend on which projects are awarded (e.g. solar,
wind or both) and 2) A highly qualified, woman-owned su	b is in process of registering as WBE in RI, but not completed.
Prime Bidder: Green Development, LLC	
Prime Bidder (Company) Phone Number: 401-295-4998	}
Prime Bidder (Company) Zip Code: 02852	
Which one of the following describes your business' statu Enterprise certification with the State of Rhode Island?	
By initialing the following sections and signing the bot authorized representative of contractor, I make this A	tom of this document in my capacity as the contractor or an affidavit:
(WBEs) should have the maximum opportunity to participate	siness enterprises (MBEs) and women business enterprises pate in procurements and projects as prime contractors and of Ordinances and Chapter 31-14 <i>et seq</i> . of the Rhode Island in goals apply to contracts.
The goal for Women's Business Enterprise	(MBE) participation is 10% of the total bid value.  (WBE) participation is 10% of the total bid value.  E participation is 20% of the total bid value.
I acknowledge the City of Providence's goals of suppo	rting MBE/WBE certified businesses. Initial
the City of Providence (MBE/WBE Office), copies of all	ust submit to the Minority and Women's Business Coordinator at executed agreements with the subcontractor(s) being utilized to the RI General Laws, <b>Lunderstand that these documents proceed</b> . Initial
I understand that if awarded the contract, my firm m	ust submit to the MBE/WBE Office canceled checks and
reports required by the MBE/WBE Office on a quarte on the contract. Initial	erly basis verifying payments to the subcontractors(s) utilized
If I am awarded this contract and find that I am unable to	utilize the subcontractor(s) identified in my Statement of Intent,
	and WBE firm(s) to meet the participation goals. <u>I understand</u>
that I may not make a substitution until I have obtained	ed the written approval of the MBE/WBE Office.
Initial	
	l representatives of the City of Providence may examine the
books, records and files of my firm from time to time,	
determination of whether my firm is complying with t	he City's MBE/WBE participation requirements.
Initial	
and accompanies and the contraction of the contract	perjury that the contents of the foregoing Affidavit are true
and correct to the best of my knowledge, information	and belief.
(MI) / xides	Allen Bucknam
Signature of Bidder	Printed Name
Green Development, LLC	6/20/2018
Company Name	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: Green Development, LLC

Company Trade: Develop/Build Renewable Energy Projects (237990)

Item Description (as seen on RFP):

Renewable Energy Projects (under RFP to Providence Water). We request temporary waiver because 1) we are proposing multiple projects to PW and our choice of subcontractor will depend on which projects are awarded (e.g. solar, wind or both) and 2) A highly qualified, woman-owned sub is in process of registering as WBE in RI, but not completed.

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?
	3		

I acknowledge the City	of Prov	idence's goal of a combined MBE/WBE participation is 20% of the total bid value. I am
requesting a waiver of	20	% MBE/WBE (20% minus the value of Box F on the Subcontractor Disclosure Form).
If an opportunity is idea	ntified to	subcontract any task associated with the fulfillment of this contract, a good faith effort
will be made to select A	ABE/W	BE certified businesses as partners.

Signature of Prime Contractor

Signature of City of Providence MBE/WBE Outreach Director Allen Bucknam

Printed Name

Printed Name of City of Providence MBE/WBE Outreach Director 6/20/2018

Date Signed

Date Signed



# Green Development, LLC's Proposal to the Providence Water Supply Board's Renewable Energy RFP



# Green Development, LLC

Contact: Allen Bucknam Chief Executive Officer Tel: (401) 295-4998 Email: ab@green-ri.com Fax: (401) 295-4944



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## **Attachments:**

Attachment 1: Proposed Projects

Attachment 2: Project Component Specification Sheets and Warranties

Attachment 3: Project Schedules

Attachment 4. Project Production Estimate

Attachment 5: Respondent Documentation

Attachment 6: Outreach Experience

Attachment 7: Sample Documents



# **Executive Summary**

Green Development, LLC, ("Green") is pleased to respond to the Providence Water Supply Board's (the "PWSB") Request for Proposals ("RFP") for the development, construction and operation of one or more renewable energy projects for virtual net metering, on property owned by the PWSB. The Projects will allow the PWSB to maximize energy savings by purchasing renewable energy net metering credits through a Net Metering Credit Agreement ("NMCA"). Green proposes a menu of Core Projects, any of which can offset 100% of PWSB's electric use, and a series of Alternate Projects for PWSB to generate additional revenue through lease payments. Green has unmatched skills and experience in developing and constructing renewable energy in Rhode Island, which assures highest likelihood of success for the PWSB's projects.

It is important to note that the nature of PWSB's RFP, taking undeveloped sites from concept through operation, is very different from the procurement of existing products or contracting for construction services for well-defined projects. We strongly recommend that PWSB focus on selecting the best <u>partner</u> who can deliver the most value, by leveraging experience and expertise to select the best opportunities and navigate the politics and regulations that always impact such efforts. We firmly believe that Green offers the most comprehensive suite of skills, combined with local Rhode Island relationships and political savvy, to generate the most value for PWSB.

Green is a Rhode-Island-based company that provides the necessary resources to develop, finance, interconnect, construct, and manage community-distributed onshore wind and solar projects. The company has an extensive track record working with Rhode Island entities to deliver reliable, inexpensive, and clean power via public-private partnerships. Recently, Green has partnered with the Narragansett Bay Commission, National Grid and the towns of Coventry, Portsmouth, and West Warwick to deliver over 26 MW of renewable energy capacity. Another 29 MW of projects are scheduled to be online before year's end, which will sell power to National Grid, the Rhode Island Convention Center, West Warwick Housing Authority and Pawtucket Housing Authority, the town of Scituate, along with other municipal, non-profit and state entities.

Green has worked diligently to identify and evaluate the feasibility of wind and solar at the PWSB properties outlined in this proposal. We have developed preliminary layouts for PWSB-owned properties to completely satisfy its energy consumption needs, assuming no interfering planned or future uses for the identified parcels and assuming we are able to fully develop the Projects. The Core Projects shown in Table I are designed to at least offset PWSB's annual electric load of 7,770,000 kWh, which would generate as much as \$549,000 in Year 1 savings and more than \$18 million over 25 years, depending on the selected rate scenario. The projected savings are based on the PWSB's remaining annual electricity consumption of 7,770,000 kWh and can be modified to include up to 3,500,000 kWh as a second phase. Figure I illustrates the potential cumulative savings to the PWSB from energy savings under the Solar NMCR Discount Scenario, which is described in the Financial Evaluation section of this proposal. Table II summarizes the potential for lease revenue from Alternate Projects at PWSB-owned sites.



Table I: Proposed Renewable Energy Systems on PWSB Properties for Electric Savings (Core Projects):

Site	Technology	Capacity (MW DC)	Capacity (MW AC)	Est. Annual kWh Production
Fields Hill	Scituate	Wind	3.0	8,000,000
Fields Hill	Scituate	Solar	6.22	7,794,000
Hopkins Ave	Johnston	Solar	6.22	7,794,000
Plainfield Pike	Scituate	Wind	3.0	8,000,000
Water Treatment Plant	Scituate	Solar	6.22	7,794,000
Fields Hill	Scituate	Wind	3.0	8,000,000

<sup>\*</sup> Please see pricing section for \$/kWh

Figure I: Potential Energy Savings to PWSB over 25 years – Solar NMCR Discount Scenario

# **Cummulative Savings over Term of NMCA**

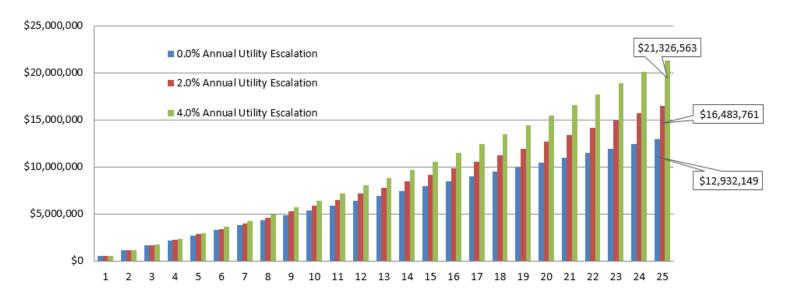




Table II: Proposed Renewable Energy Systems on PWSB Properties for Lease Revenue (Alternate Projects):

Site	Location	Technology	Capacity (MW DC)	Est. Annual kWh Production	Annual Lease Revenue	Lease Revenue Over 25 years
Fields Hill	Scituate	Wind	6.0	16,000,000	\$108,000	\$2,983,841
Fields Hill	Scituate	Solar	120	147,200,000	\$2,040,000	\$56,361,439
Central Pike	Johnston	Solar	10.23	13,400,000	\$173,910	\$4,804,813
Plainfield Pike	Scituate	Wind	6.0	16,000,000	\$108,000	\$2,983,841
Hopkins Ave	Scituate	Solar	9.81	12,800,000	\$166,770	\$4,607,548
PWSB Property Total *:			152.04		\$2,596,680	\$71,741,482

<sup>\*</sup>Assuming we are able to fully develop the sites.

# Wind and PV Proposal

# Relevant Company Background

Founded in 2009 and located in North Kingstown, Green is a Rhode-Island-based company that provides the resources and services for the development, construction and management of commercial scale onshore wind and solar projects. With nearly 50 local employees, the company coordinates with communities and public entities in Rhode Island to develop renewable energy projects that deliver reliable and cost-efficient clean power. Green is committed to helping Rhode Island change and expand its energy portfolio to meet Governor Raimondo's goal of 1,000 MW of renewable energy by 2020. Green's services include feasibility studies and alternative energy recommendations, procurement, installation and commissioning, as well as ownership and operation. With 26 MW of operational projects, expected to reach 55 MW by year-end and more than 200 MW expected to be deployed in the next two years, Green is expertly poised to boost local economies, reduce carbon emissions, and increase energy security while preserving open space in Rhode Island.

Green is a diverse team of seasoned professionals with decades of collective experience with the development, construction, financing and operation of renewable energy systems. Unique among many in the space, Green maintains a dedicated staff for in-house project development, engineering, construction and operation. This includes site identification, lease and contract negotiation, permitting, civil and electrical engineering, surveying, site construction, project management, final commissioning and operations and maintenance. Green will be responsible for all construction aspects of the project and the above capabilities enables the company to develop wind and solar projects in a timely, predictable manner. Included below is an organizational chart listing team members and roles. Additional company information and team member experience can be found in the Project Experience section.



# **Project Overview**

Green is proposing multiple ground-mounted solar energy systems and wind turbines on PWSB-owned properties to provide PWSB with maximum flexibility to select projects that meet its needs. In order to narrow down sites to include in the proposal, Green carefully reviewed characteristics, such as topography/slope and National Grid's current interconnection queue, and avoided sites that would require major land clearing within the watershed. Green is the only Rhode Island firm that can offer wind and solar to the PWSB. Wind required significantly less land than solar, which may appeal to PWSB at locations where tree clearing is not appropriate in the watershed.

Green has significant experience delivering power to public entities in Rhode Island through Net Metering Credit Agreements ("NMCAs") and Direct Ownership models. Green is the largest owner and operator of renewable energy in the state and has the most experience completing projects for NMCAs. Our customers include Narragansett Bay Commission, and the Towns of Coventry, Portsmouth, and West Warwick. Green is under contract and has begun construction on projects for the RI Convention Center, Pawtucket and West Warwick Housing Authorities, and various other state and local entities. Green will assure that all projects for PWSB will comply with applicable sections of RIGL Chapter 26.4 of Title 39.

Our proposal allows the PWSB to choose the most suitable location and quantity of projects to meet its energy and financial needs. Any one of the Core Projects offered by Green can produce 100% of PWSB's annual kWh usage. The final site selection will depend on the ability to cost-effectively interconnect and build the project(s), as well as PWSB's watershed protection priorities. The Alternate Projects offered are designed to supplement PWSB's energy savings via the Core Projects with lease revenue. Any additional megawatts ("MW") from the Alternate Projects would pay PWSB annual lease payments of \$17,000/MW and the power will be offered to another net-metering entity. Green Development also leads the state in securing third-party buyers for net metering credits.

## Project Description and Location

Green is proposing multiple wind turbine and ground mounted solar array systems to satisfy the PWSB's electricity demands. The below tables illustrate each Project's location, total installed capacity, estimated annual production, and distance to 3-phase power. Additional information concerning technologies, outputs, project life, and warranties and guarantees are included in this section. Please see the Facility Operations, Maintenance and Warranty Plan for maintenance information.



**Table III. Proposed Core Projects** 

Site	Location	Technology Source	Project Life (Years)	Capacity (MW DC) solar, MW AC Wind)	Estimated 1 <sup>st</sup> Yr. Production (kWh)	Proximity to local grid
Fields Hill	Scituate	Wind	25+	3.0	8,000,000	.59mi
Fields Hill	Scituate	Solar	25+	6.08	7,794,000	.59mi
Hopkins Ave	Johnston	Solar	25+	6.08	7,794,000	.64mi
Plainfield Pike	Scituate	Wind	25+	3.0	8,000,000	.4mi
Water Treatment Plant	Scituate	Solar	25+	6.08	7,794,000	>.1mi

**Table IV. Proposed Alternate Projects** 

Site	Location	Technology Source	Project Life (Years)	Potential Estimate Additional 1 <sup>st</sup> Yr. Capacity Production (MW DC) (kWh)		Proximity to Local Grid	Potential Annual Lease Payment
Fields Hill	Scituate	Wind	25+	6.0	16,000,000	.59mi	\$102,000
Fields Hill	Scituate	Solar	25+	120	147,200,000	.59mi	\$2,040,000
Central Pike	Scituate	Solar	25+	10.23	13,400,000	.52mi	\$173,910
Plainfield Pike	Scituate	Wind	25+	6.0	16,000,000	.4mi	\$102,000
Hopkins Ave	Johnston	Solar	25+	9.81	12,800,000	>.1mi	\$166,770

# **Project Sites**

Green has carefully evaluated each property that the PWSB owns throughout Rhode Island for renewable energy potential. Green looked at the specific sites offered in the RFP documents, as well as other PWSB sites we identified on RIGIS. We used initial screening criteria that tend to be indicative of buildable projects to create a short list of sites. This criteria included: topography, slope, height, proximity to neighbors at proposed wind sites, distance to 3-phase power, and necessity to clear trees and grade land for solar within the watershed. We feel that several properties owned by the PWSB in the Towns of Scituate and Johnston are best suited for renewable energy development. We recommend the following sites for further evaluation and the describe the particular attributes that make the sites favorable. This list makes up all Core and Alternate Project sites proposed to PWSB.



#### Fields Hill:

Located at 350 Fields Hill Road in Scituate, RI, the Fields Hill site comprises 361 acres of cleared and uncleared land. Green has proposed four different project proposals for this site. There is strong potential for a range of wind and solar due to the unique characteristics of the land. There are two peaks on the property where a 3.0 MW turbine could be installed without impacting neighbors or clearing trees. On the other hand, there is plenty of south facing land to build ground-mounded solar arrays. Two out of the four proposed projects are Core Projects designed specifically to produce 100% of PWSB's electrical usage. A single wind turbine on the 573' peak of Fields Hill will likely produce 110% of PWSB's electric usage. Likewise, a 6.08 MW solar project installed on the previously cleared, south sloping portion of Fields Hill system would produce about 100% of PWSB's usage. Due to the size of the property and distance to the water body, it may be in PWSB's interest to install more solar than required to meet its own electric demand, or an additional wind turbine. Accordingly, Green proposes two Alternate Projects on the Fields Hill property which would bring in lease revenue to the PWSB. The specific size of the projects depends on PWSB's tolerance of tree clearing and National Grid's ability to accept the project for interconnection. Pre-applications to National Grid for Fields Hill are included in Attachment 1. The site is less than a mile from 3-phase power, but due to low electric demand in the area National Grid may require voltage mitigation. All proposed layouts can be found in Attachment 1.

#### Plainfield Pike:

Located on the south side of Plainfield Pike in Scituate, this parcel comprises close to 200 acres of hilly wooded terrain. Due to close proximity to the water body and unbroken forest, Green is proposing only wind turbines at this location. The site is less than 1 mile from 3-phase power and has a high point of 390' above sea level. Green proposes a single 3.0 MW wind turbine as a Core Project, which could produce up to 100% or slightly more than PWSB's annual electric usage of 7,770,000 kWh. An additional turbine at the site is proposed as an Alternate Project, which would bring in \$54,000 in annual lease revenue. A Pre-application report from National Grid can be found in Attachment 1 and layouts can be found in Attachment 1.

## Water Treatment Plant:

Located adjacent to PWSB's Water Treatment Plant near North Road in Scituate, the parcel comprises about 328 acres of land containing forests, fields, and the treatment plant. Green proposes a Core Project option for ground-mounted solar at this site due to several attributes. The land slopes gently to the south, the site can be heavily buffered from residential neighbors, 3-phase power is close by, and the site is downstream from the watershed. Although tree clearing would be required to build this 6.08 MW solar project, the project should not have any impact on water quality. The parcel has single phase utility capacity on the road, with 3-phase capacity nearby. Green has reviewed the location with National Grid's Pre-Application report to recently queued projects in the area, showing minor energy load from existing and pending applications.

# Hopkins Ave:

This is a PWSB-owned parcel located on Hopkins Ave in Johnston, RI comprising about 90 acres. This site is ideal for solar due to its southern sloping topography, ability to buffer from residential neighbors, and distance from the reservoir. Additionally, there is a clear path to permitting in the Town of Johnston that would leverage Green's strong relationships with that town. Green proposes a Core Project and an Alternate Project at this site. The Core Project at 6.08 MW would produce 100% of PWSB's electric



usage. The solar array could be expanded to 9.81 MW of solar to bring in lease revenue. The 3.73 additional MW would generate \$63,410 in lease revenue to PWSB. Green has intricate knowledge of National Grid's infrastructure in Johnston due to our seven wind turbines currently under construction there. We would anticipate interconnecting to the 12.47kV 18F6 feeder at the Johnston #18 Substation, located off of Central Avenue. This feeder has under 250 kW AC of PV projects existing and 3,000 kW AC of pending PV projects. Three-phase electrical infrastructure is located approximately 0.62 miles from this property. Layouts are included in Attachment 1.

#### Central Pike:

This parcel is located on the south side of Central Pike just east of Trimtown Road. The parcel is approximately 152 acres covered by young brush and other low growth. Green proposes solar on this site due to the lack of mature trees and southern slope. Green can fit up to 10MW of solar on this site which would bring in \$170,000 in lease revenue to PWSB. This project is offered as an Alternate vs. a Core project because it is located in Scituate where large solar is not currently permitted. Green has an excellent working relationship with the Town of Scituate and can pursue a solar project if this site is of interest to PWSB. Layouts are included in Attachment 1. Green anticipates interconnecting to the 34F1 feeder at the 12.47kV Chopmist Hill Substation on Chopmist Hill Road. There is approximately 2,000 kW AC of existing PV projects and 5,000 kW AC of pending PV projects. Three-phase electrical infrastructure is approximately 0.75 miles from this property.

# Project Approach

Green provides set development, construction and operations and maintenance procedures to each of our projects, ensuring their long-term viability and helping PWSB achieve their energy goals. As part of our RFP Response we have provided a list of sites that we think can be developed quickly and are suitable for the PWSB. The following provides an overview of our approach to the overall development process as well as how we intend to work with the PWSB.

# Site Development – 100% In-House

## Screening Potential Sites

Our understanding of the renewable energy industry guides us to target sites where we can optimize wind and solar energy for our customers based on the following criteria.

- Technical Constraints: Market specific technical constraints will be taken into consideration including allowable system capacity, ground space, unique property characteristics and mounting methodology.
- Benefits: Our experience in the renewable energy industry in Rhode Island will benefit the PWSB. Our understanding of the local and municipal permitting process and the renewable energy incentives, rules and regulations will allow us to identify locations where wind and solar energy can be implemented in a quick and cost-effective manner.

#### Site Vetting Process

Green reviews site specific constraints including: interconnection availability, soil conditions, wetlands, topography, and any cultural or environmental impacts. These constraints allow Green to prioritize sites based on desirability and eliminate those that will not work.

 Develop Layouts and Performance Estimate: Green develops preliminary layouts to determine the capacity of the system. These layouts take into consideration natural features and



topography. Helioscope and PVSyst are used to generate preliminary performance estimates for the sites.

- Review Permitting Process: Green meets with the local planners, building officials and fire
  districts to determine any and all permitting requirements and incorporates these into our
  project schedule.
- Determine Feasibility for Interconnection: Green submits pre-applications and applications for
  each site early in the development process and engages National Grid to discuss specific
  interconnection concerns. Green has an excellent relationship with National Grid, extending to
  very high-level relationships between the companies.

#### Sign Lease Option and Perform Site Investigation

Once the preliminary site screening and feasibility assessment are complete a Project Manager conducts a site visit to ensure all site characteristics have been accounted for and Green signs a binding lease option with the landowner. Samples of site control documents that the PWSB can anticipate are included in Attachment 7.

#### System Design and Engineering – At least 80% In-House

Green manages a team of engineering and construction professionals in-house with the ability to evaluate projects, perform feasibility analysis, and provide input on design and engineering. This ability allows us to select sites that are cost effective and optimize system design early in the development process; preventing delays during construction, helping to keep costs lower for the PWSB. Furthermore, our presence in Rhode Island allows us to quickly sit down with relevant stakeholders to push projects forward.

#### System Production Estimates

# Wind Projects

Green has procured wind energy resource analyses at various location in the state for our projects, which will total 39 MW at year end. We have ample data from existing turbines, a MET tower (a freestanding tower equipped with meteorological equipment), a LIDAR system (light detection and ranging for wind profile) and a SODAR system (sonic detection and ranging). These are expensive technologies owned by Green Development, LLC that are typically only utilized on projects of much larger scale. We estimated wind turbine production in this proposal based on long-term data collected from our Johnston and Coventry projects. A thorough study will be completed on any potential wind site prior to construction.

#### Solar Projects

Solar electricity is a variable resource. Accurate prediction of the amount of available sunshine in any given period due to local weather is challenging. However, the amount of solar insolation (solar radiation that is converted by the panels in to DC electricity) is a well understood resource that has been tracked in the U.S for over 50 years. While weather conditions are unpredictable over the short term, average long-term production is highly predictable. Standard deviations within 2.0% compare favorably with other renewable resources. Over the course of the year, solar production will increase in the summer and decrease in the winter in relation to the number of daylight hours and angle of the sun.



Green utilizes a combination of the HelioScope and PVSyst software tools to calculate reliable production estimates for the solar energy sites detailed below. Each software tool utilizes very similar performance calculations, but each has their own benefits to compliment the output model from each other. We have included copies of our PVSyst production estimates as part of our proposal. Green assumed a 0.5% annual degradation factor for solar production over time.

Each of these tools draw their projection assumption from indicative solar production for each month taken from the historical record over the last 30 years. The data is recorded as an input from the nearest major certified weather station to the zip code of the proposed installation location. It should be noted that while over the long-term weather trends are predicable, they can vary on a daily or yearly basis. As such, a level of uncertainty will always exist and the output from either tool is not a guarantee of actual yearly production.

At Green, we are continuously striving to improve our models for accuracy and reliability. Utilizing the latest in analysis tools and taking the feedback to drive the accuracy of system design and layouts to maximize performance provides financing companies the confidence required to move a project from conception to reality.

#### Permit Procurement

The Green team will work with our Engineers to ensure that all necessary permits are procured as required by federal, state, and local rules and regulations. Permits will be based on topographic, property, geotechnical and environmental information on the site, appropriate stormwater, environmental impact, and aesthetic studies. Site plans and installation drawings will be prepared as needed for the various permit applications.

We will ensure that all such permits are approved and available before the start of installation. As part of the preparation for project construction, the following plans may be required for permit applications.

- Existing and proposed site plans
- Solar array construction details
- Access and security details
- Storm water management plan
- Erosion and sediment control plans
- Constructions notes and project implementation schedule.

# Construction Services – 100% In-House

#### Project Implementation Plan

With decades of experience in the construction industry, Green prides itself on delivering projects on time and on budget. Based on this experience, Green fully intends on providing the PWSB with successful sites that meet or exceed project deadlines, while avoiding project delays and budgetary overruns.

Green works alongside its sub-consultants to ensure that the wind and/or solar systems are efficiently constructed, minimizes the impact to the daily operations of the host site, and maximizes the benefit to the PWSB by meeting all project schedules and budgets.



#### **Project Management**

Green self performs a majority of the construction work, providing the PWSB with a unique cost-effective and streamlined construction process. All our subconsultants are highly experienced contractors providing their expertise to the wind and solar projects. Our goal is to provide the highest level of service and quality to the PWSB; working diligently to ensure satisfaction and on-time completion.

Green's development team is involved in all stages of the project, from the initial design through installation, startup and system commissioning. Green's staff are dedicated to providing prompt service and continued communication to ensure a successful project. Green's team includes Project Managers, Site Superintendents, Foremen and Project Engineers.

#### Site Security

Green will be responsible for maintaining the security of the system equipment before and during construction. We will develop a plan for securing the modules, inverters, and balance-of-system components to prevent theft or vandalism. Our team has provided site security for a wide range of construction projects ranging from residential construction to commercial scale wind turbines. We will coordinate our security measures with local requirements as defined by local officials and site managers.

#### Post Construction: Customer Service and System Support – 100% In-House

Green is experienced at providing O&M services by operating and maintaining its ten turbines in Coventry, one turbine in Portsmouth, one turbine in North Kingstown and three solar arrays in Richmond; totaling 26 MW. Monitoring and proactive maintenance of renewable energy projects maximizes the production of the array, helps avoid unexpected operating and maintenance costs, and enables the system to achieve the lowest life-cycle cost for solar generation. To this extent, Green has established an Operations and Maintenance ("O&M") department focused on ensuring maximum uptime and kWh production for each of our operational projects. With a local North Kingstown office that employs more than 30 field crew and over a dozen office staff, we have the internal resources to respond quickly as problems arise, minimizing operating risk.

Green currently monitors its data acquisition system and meter logs to ensure each system is performing normally. The Data Acquisition System installed with each project provides us with live streaming data at our network operations center and remotely, available 24 hours. We compile reports and bill our net metering customers monthly. We maintain service agreement with our equipment providers, including filing relevant paperwork process alarms, alerts, and service requests, perform visual and mechanical inspections of renewable energy projects.

# Wind Specific Asset Management Information

All over the world, Vensys' wind turbines provide proven high-performance German technology that is designed for maximum durability and trouble-free operation through Long Term Service Agreements (LTSA). The LTSA includes all maintenance costs of the wind turbine. The 95% availability ensures compliance with operations and maintenance best practices. This guarantee is a simple and transparent way to determine whether the requirements are being met without excessive administrative costs. Inspection, maintenance and servicing will be provided by the manufacturer on a regular basis in accordance with the maintenance guidelines (normally every six months). In the case of a malfunction, repairs are done immediately at no cost to the customer.



Vensys has established their United States Operations and Maintenance Headquarters in North Kingstown, RI. These Turbines will be monitored around the clock by the Vensys monitoring team, using remote control software. Servicing includes the inspection, maintenance and repair of all parts delivered by Vensys and will be conducted by expert Vensys Energy AG technicians. The operational status of the turbine is constantly monitored via IT by their monitoring team which also produces maintenance and service reports. Services are exclusively provided by qualified staff trained by Vensys. The LTSA guarantees the operator technical availability.

After construction, the wind turbines will be thoroughly commissioned and subjected to a rigorous trial run and officially handed over to the project owner. Final payment to Vensys is not due until the turbine is accepted by the project owner. After the acceptance, the maintenance schedule in Attachment 2 goes into effect.

## Annual budget being provided for all Operations, Maintenance, and Warranties

Green has provided all asset management and operations and maintenance required for each of the technologies as a part of our NMCA offer to PWSB. There are no additional costs to the PWSB for the operation and maintenance of the Projects.

# Scheduling of major maintenance activity, and the plan for testing equipment - 100% In-House *Monitoring and Customer Response*

Green will monitor the solar and wind projects on a real-time basis and run regular analysis of the system output to ensure it is meeting performance expectations. The company utilizes monitoring software that provides automated analysis and alerting across a wide range of environmental and operating parameters. The monitoring system allows for Green to perform:

- Fast detection of system failures and performance degradation
- Remote troubleshooting and problem qualification
- Prompt dispatch of service response crews
- Analysis of long term system performance
- Complete collection of yield and system performance data

# Wind

## Wind Preventative Maintenance

Due to the specialized maintenance requirements of wind versus solar, Vensys provides trouble-free operation through Long Term Service Agreements (LTSA) for each of their projects. The LTSA includes all maintenance costs of the wind turbine for a period of 10 years.

Site dispatch services are exclusively provided by qualified staff trained by Vensys. In addition, Vensys has established an O&M headquarters at our office in North Kingstown, RI. Inspection, maintenance and servicing is provided from this office on a regular basis in accordance with the maintenance guidelines (normally every six months). An example of the preventative services and inspections provided are in the following list. In the case of a malfunction, repairs are done immediately at no cost



#### to the customer.

- Inspection of screwed connections
- Rotor lock system
- Blade pitch system
- Yawing system
- Hydraulic power unit
- Generator rotor and stator

These services and inspections shall be performed per the manufacturer's requirements and best practices. The 95% availability ensures compliance with operations and maintenance best practices. This guarantee is a simple and transparent way to determine whether the requirements are being met without excessive administrative costs.

#### Solar

#### Solar Preventative Maintenance

A site-specific schedule of preventive maintenance activities will be created and managed by Green to ensure the continued and reliable performance of the project. An example of a typical preventive maintenance plan includes the following items. All this work will be performed in accordance with manufacturers' recommendations.

- DC Operating Current Testing
- Open Circuit Voltage Testing
- Check for Damage or Defects in Modules
- Visual Inspection of Array Mechanical Components
- Visual Inspection of AC and DC Electrical Components
- Inverter Inspection and Check Torque on Electrical Terminations
- Inverter Filter Cleaning/Replacement
- Inverter Pad/Container Inspection and Cleaning

- Check Torque on System Mechanical Connections
- Routine Monitoring System Maintenance, Data Integrity Check
- Routine Electrical and Ground Connections
   System Maintenance
- Inspect Combiner Boxes, Tighten Connections
- Site Drainage Inspection
- Ground System Testing
- Sensor Calibration
- Inverter Functional Testing
- Corrosion Protection

These tasks will be performed in accordance with best practices for what is necessary, given the site-specific environment of the solar project, as well has all requirements of the manufacturers. Any loss of performance due to system downtime is a direct cost to Green. Green will be singularly focused on operating the array at its maximum potential throughout the life of the NMCA (or other type of agreement).

#### Customer Service and System Support

Green develops, owns and operates electric generation facilities for municipalities and other state entities. The company offers a complete solution for the ownership and maintenance of the solar energy



systems over the full length of the project's life (25+ years). Included in our scope for projects which we own and operate are the following services:

- Performing routine maintenance
- Inspecting the system
- Responding to outages
- Repairing the system in the event of failure

# Project Life

Renewable Energy projects are typically long-term energy generating assets. Each of these projects are anticipated to last over 25 years. Additional information can be found below and in the attachments regarding warranties and system specifications.

# Proposed Equipment Wind Projects

Table V. Proposed Wind Turbine Major Equipment

Model Vensys V120 3000

	Tello 30 T120 0000
Tower Height	98 Meters
Turbine Lease Area	¼ Acre
Blade Diameter	120 Meters
System Size	3,000 KW
Estimated 1st year kWh	8,400,000
Foundation Type	Spread Footing

Please see Attachment 2 for detailed equipment specification sheets.

#### Wind Equipment

VENSYS is an industry leading manufacturer of gearless wind turbines. More than 16,400 VENSYS wind turbines totaling over 28,000 MW are connected to the grid worldwide. VENSYS technology is second to none and the turbines are limited to a small number of high-quality, long-life components. VENSYS wind turbines deliver reliable energy thanks to their technological innovation, high efficiency, compact design, robustness and low maintenance requirements. The VENSYS wind turbines stand out due to some of the unique characteristics listed below. In addition, the revolutionary configuration of Vensys turbines create tremendous safety and environmental benefits in contrast to the traditional gearbox-driven wind turbines of the same size. The direct drive technology in these systems significantly reduce the required amount of hydraulic and lubricating oils. In traditional gearbox-driven turbines, the oils tend to leak from the hub and base of the system into the ground; polluting the nearby area. The Vensys wind turbines need as little as 10% of the hydraulic and lubricating oils when compared to other major competitors in the wind industry. Developing a Vensys wind turbine on PWSB property avoids those potential environmental impacts to the PWSB's critical drinking water and watershed areas.





#### **Direct Drive**

VENSYS relies on direct drive technology. The rotating speed of the rotor is transferred directly to the multi-polar generator, dispensing with the need for a high-maintenance gear unit that is susceptible to wear.



# Permanent Magnet Technology

Permanent magnets are fixed to the rotating part of the generator. Excitation power thus saved is fully available as additional energy yield.



## Full Power Converter System

VENSYS converter systems feature power plant properties and comply with the requirements and regulations of various grid operators in all parts of the world.



# **VENSYS Pitch System**

VENSYS uses patented blade pitch systems with triple redundancy. One special feature is the proven toothed belt drive which is lubrication-free and minimizes maintenance.



#### Air Cooling

VENSYS cooling systems are convincingly simple and robust at the same time – either as a passive external air cooling system or as a closed system with a heat exchanger.

# Solar Projects

#### Major Solar Equipment

The solar systems proposed to the PWSB will utilize pile-driven racking systems. These foundation systems are a highly reliable, fast, and cost-effective foundation solution. We have highlighted the equipment proposed for the projects in the following table and narratives. The product manufacturers are industry leaders for each of the products considered.



**Table VI. Proposed Equipment Overview** 

Woulding Wethou	Ground Wount				
Orientation & Tilt Angle	180 Azimuth, 25 Degrees				
Proposed Panel	JA Solar 375W (or equivalent)				
Proposed Inverter	TMEIC PVH-L3200GR (or equivalent)				
Proposed Racking	RBI Solar (or equivalent)				

Please see Attachment 2 for detailed equipment specification sheets.

Mounting Mathod

#### Panels

JA Solar is a world-leading manufacturer of high-performance solar panels. JA Solar panels succeed in long-term reliability tests and are highly reliable and come with a 25-year performance guarantee. As a testament to the quality and reliability of their panels, JA Solar has shipped over 29,000 MW of solar panels over the last ten years. The JA Solar 375-watt module has been selected for these projects. Green Development's CEO has a long-standing strategic relationship with the managing director of JA Solar's business unit for the Americas.

#### *Inverters*

TMEIC is a world class leader of PV inverter technology innovation that entered the large-scale PV inverter industry in 1983. A joint venture between Toshiba and Mitsubishi-Electric, TMEIC's United States headquarters is located in Roanoke, VA. Their inverters are designed to provide customers with reliability and efficiency for large scale solar arrays, with up to a 20-year warranty available. These inverters are designed with redundant power stages, allowing the array to operate with a power stage down. TMEIC inverters have various advantages over the competition like: minimizing DC side losses and reduce capital cost with less Blowout Preventer equipment, skid mount system for greater quality control in system integration/startup and heat pipe cooling system which reduces O&M costs and down time due to filter fouling. TMEIC takes reliability seriously, having only two field failures amongst 10 GW of installed systems.

#### Racking System

RBI Solar, Inc. is a leading international solar racking manufacturer, with decades of experience in design-build projects. RBI has an in-house engineers and designers licensed in all 50 states, and in-house manufacturing to ensure a high quality and durable racking system that is backed by a 20-year limited guarantee. A ground mounted racking system is being proposed for each of the included projects. These systems will provide the structural support necessary to ensure long-lasting systems.

#### Warranties and Guarantees

We utilize components with industry-leading performance and equipment warranties. It is Green Development's responsibility to keep the assets operating to specifications and Green will provide all warranty administration. Green Development owns the projects throughout the 25-year term and is dependent upon the production of the assets to achieve the required return on investment. The fact that Green has real "skin in the game" should be a strong source of assurance to PWSB, because our



long-term ownership position provides the strongest incentive to engineer and construct with quality, resiliency and lifetime reliability in mind. Further, Green guarantees the weather-adjusted production of the Core Project selected by PWSB will be no less than 100% in the first year and 80% for the remainder of the term of the 7.77 million kWh target as adjusted annually for normal system degradation.

For the wind projects, Green has a 10-year 3<sup>rd</sup> party turnkey manufacturer's availability guarantee for each turbine. If anything goes wrong for the first 10 years of the project or if the turbine is not producing up to its power curve; Vensys will fix it or pay lost revenue. The guarantee is structured as a 95% uptime and availability guarantee from the manufacturer for 10 years. For the wind projects, Green would also agree that in the event Green received payment from Vensys under this guarantee, Green would share this payment with the PWSB on terms to be further agreed to as part of the NMC Agreement.

The JA Solar panels proposed for the solar projects have a twelve-year limited product warranty and a 25-year limited power output warranty. Yaskawa – Solectria Solar has a 5-year standard warranty with options of up to a 20-year warranty. RBI Solar, Inc has a 20-year limited warranty for its racking system.

Service and maintenance information will be addressed in the Facility Operations, Maintenance and Warranty Section of this response. Copies of warranty documentation for the specified solar panels, inverters, and racking have also been included in Attachment 2.

#### Decommissioning Plan

Green would propose a decommissioning plan that is secured by a decommissioning bond, escrow or letter of credit with a mutually acceptable bank. The value and form of the financial security would be negotiated during the lease and/or NMCA negotiations; for our modeling here, we assumed a conservative value that should well exceed the actual cost of decommissioning.

#### Interconnection

Based on our extensive experience developing projects in rural Rhode Island, we expect the possibility of voltage issues on some of the Scituate sites. All sites will require a Utility Impact Study to determine likelihood of interconnection. Green has a productive working relationship with National Grid. We have submitted pre-applications to National Grid enclosed in Attachment 1. We expect fewer interconnection challenges at the proposed site on Hopkins Ave in Johnston, where there are more electrical feeders available and higher localized electric demand which should even out voltage concerns.

We spend significant time and at least \$20,000 early in development to identify sites with feasible interconnection. Green's project development process is to submit interconnection applications early, since this is typically the longest lead time item in the development process. We move as quickly as possible into Utility Study, which is when National Grid determine the timeline and price to interconnect a project. This process takes 90 days. Green directly engages National Grid on each project to discuss the merits of overhead and underground options, necessary upgrades and on whose side permitting lies in order to achieve favorable results for timelines and cost. Our experience with permitting and constructing the underground line extension shaved over a year off the construction timeline for National Grid. As a site construction company, we are uniquely suited to expedite these National Grid timelines. Over time, our methods have proven to be successful in reducing risks and accurately predict costs to interconnect.



## Permitting

Green is recommending sites in the Towns of Scituate and Johnston. The Town of Scituate does not currently allow wind or solar. Green has an excellent relationship with the Town of Scituate and recently won an RFP to site solar and wind on Town owned property. The Town has plans to expand the allowance of wind and solar to privately owned sites. Based on conversations with the Town, Green expects progress on renewable energy development in Scituate within the year, but this timeline is entirely up to the public process of amending the zoning ordinance. The Town of Johnston allows wind and solar through a special use permit. Green has permitted 21 MW of wind in Johnston and has several solar projects currently going through the process. We do not expect any adversity to developing a solar project in Johnston on PWSB land.

# Other Required Permits:

#### Department of Environmental Management:

Wetlands will be flagged upon gaining site control. After wetlands are delineated we will adjust site layouts accordingly and file for a RIPDES or Preliminary Determination to RIDEM. Green has a comprehensive understanding of RIDEM processes and does not anticipate any problems obtaining the required permits.

## Federal Aviation Administration:

Green engages a specialty consultant to navigate the complex FAA approval process. The entire process from initial screening to Notice of No Hazard can take up to 6 months. Green has permitted 19 turbines in Rhode Island using the same method. We do not anticipate a problem at the proposed wind sites in Scituate and will know more after the initial screening.

## **Project Costs**

Project costs are highly proprietary and have been included separately with other company-confidential information in an envelope addressed to Mr. Gary Marino. Since Green Development is quoting only Net Metering Credit rates, and is not offering a project purchase, the construction cost of our projects should not be made publicly available as part of our bid.

#### Financial Evaluation

Net-Metering Credit Agreement - Financial Benefits

Green proposes to develop, construct, own and operate a renewable energy facility and sell the credits generated by the system at a discounted rate to the PWSB through a NMCA. Under Rhode Island law, municipal, state and not-for-profit entities can purchase power from a renewable energy facility located remotely and allocate credits generated to other PWSB accounts.



Our NMCA offer is composed of four scenarios: 1) Solar Net Metering Credit Rate ("NMCR") Discount; 2) Solar Fixed Rate; 3) Wind NMCR Discount; 4) Wind Fixed Rate. These four scenarios are summarized in Table VII below and full 25-year cash flows are included in the "Confidential – Not a Bid" envelope.

For the NMCR Discount scenarios, the rate is structured as a discount from the applicable net metering credit rate (the small commercial C-06 rate), which is adjusted by National Grid on a periodic basis. The PWSB would pay for credits at a fixed percentage of the net-metering credit rate ("NMCR") value. For example, in the Solar NMCR Discount Scenario, the NMCR Discount is 46% and the NMCR is \$ 0.1536 per kWh, meaning the PWSB would pay Green 54% of the credit value and retain 46%, thus receiving a financial benefit equivalent to \$0.0707/kWh and paying to Green \$0.0829/kWh. In Table VI, we have assumed a 2% annual escalation in utility rates (including the NMCR) and the total savings over 25 years for the Solar Fixed Rate Scenario is \$18.8 million vs. \$16.5 million for the Solar NMC Discount Scenario. Nevertheless, we recommend the NMC Discount because if, for example, utility rates remain flat, then the total 25-year savings would be \$12.9 million for the NMC Discount vs. \$11.1 million for Fixed Rate. Thus, the NMC Discount rate structure provides broader risk mitigation over a range of utility rate inflation scenarios and assures the same percentage savings to PWSB in any likely utility rate environment.

PWSB has requested a buyout option at fair market value and Green is willing to offer that at the end of the 10<sup>th</sup> and 15<sup>th</sup> project year. If different intervals are desired, we are willing to discuss.

#### **Pricing Conditions**

- 1. Please note that all NMC Discount Scenarios require a floor price of \$0.085/kWh paid to Green and would be included in the NMC agreement. This is necessary as a condition of project financing given that banks will not finance a project without a contractual floor. We view it as highly unlikely that the NMCR would ever drop below this floor and believe it is far more likely that the NMCR will trend upward over the 25-year project life.
- 2. Our pricing is provided under the condition that the utility interconnection cost does not exceed \$0.13 per watt, which is the average cost in Green Development's significant Rhode Island experience. While we could have assumed a lower cost to offer more aggressive pricing, we view this as irresponsible given the known high cost of interconnection in RI. Because we are offering five different Core Projects and only need one, we believe it likely that interconnection will be less than \$0.13/W. If it is higher, we will pass it through to the project at cost and adjust our pricing accordingly; PWSB would be free to accept or reject accordingly.
- 3. All wind pricing assumes that construction commences by end of 2019 and that wind studies are conducted to validate sufficient wind resource. Unlike solar, wind must be studied locally before accurate projections can be made.



Table VII: Financial Offer to the PWSB

	Sol	ar	Wind			
	NMC Discount Fixed Ra		NMC Discount	Fixed Rate		
Total Net Metering Credits (kWh)	7,770,000	7,770,000	7,770,000	7,770,000		
Current NMC Rate*	\$ 0.1536	\$ 0.1536	\$0.1536	\$ 0.1536		
NMC Discount %	46%		41%			
Yr-1 Rate Paid to Green	\$0.0829	\$0.0930	\$ 0.0906	\$ 0.1010		
Fixed Rate Escalation		0%		0%		
Yr-1 Estimated Savings	\$548,997	\$470,862	\$489,324	\$408,702		
Estimated Cumulative Savings (25 Yrs.)	\$16,483,761	\$18,812,497	\$15,470,648	\$18,347,674		
Adjusted Rates if RECs go to PWSB**						
NMC Discount %	32%		30%			
Yr-1 Rate Paid to Green	\$ 0.1044	\$ 0.0930	\$ 0.1075	\$ 0.1210		

<sup>\*</sup> Trailing 12-month average. Will vary based on the applicable Credit Rate as set by National Grid.

#### Annual Lease Payments – for Alternate Sites

Lease payments to the PWSB are calculated based on each additional MW of solar installed after satisfying up to 110% of PWSB's electric usage. For solar, Green would pay \$17,000 per megawatt Direct Current ("DC") for the first five years. Starting in year 6 and escalating every five years thereafter the lease payment would escalate by 5.0% annually. For wind, Green pays \$54,000 per wind turbine with the same escalation rates as solar starting in year 6. Based on our initial review of land owned by PSWB, Green estimates that over 400 MW of renewable energy could be installed.

# Form Net Metering Credit Agreement

Please see Attachment 7 for a copy of Green's confidential form NMCA. Please note this is a form and will need to be mutually negotiated by the Parties based on the projects and business terms outlined in our RFP response and further agreed to by Green and the PWSB.

# Additional Information on Virtual Net-Metering

Green will interface on the behalf of the PWSB with National Grid and coordinate the necessary paperwork for the PWSB to receive the full benefits of the Net Metering Credits. For Projects where Green provides a NMCA, Green will bill the PWSB for the NMCs generated by the renewable energy projects. The process by which net metering credits are allocated is outlined in Rhode Island state law. It is extremely important that generation matches consumption on a per-account basis and Green will work with the PWSB to ensure credits are allocated accordingly. The rates outlined below were based

<sup>\*\*</sup> Estimated savings not shown in "RECs to PWSB" scenario, because REC value would need to be included and we don't want to speculate for PWSB



on National Grid's posted credit values as of June 23, 2018. Green would recommend that the PWSB confirm the credit value on National Grid's website when evaluating the proposals. Note that in our financial analysis, we used a trailing 12-month average as the rate tends to fluctuate seasonally and the full-year rate is a better indication.

Table VIII. C-06 Rate in Cents per kWh

Rate Component	Rate (cents/kWh)
Distribution Charge	3.952
Transmission Charge	2.726
Transition Charge/(Credit)	(0.087)
Renewable Energy Distribution Charge*	-
Energy Efficiency Programs*	-
Renewable Energy Standard Charge*	-
1 year Trailing Average Supply Charge	8.770
Total	15.361

<sup>\*</sup>Disputed charge not eligible for NMC.

#### Renewable Energy Credits

Green will maintain ownership of all renewable energy credits ("RECs") generated by the system to the New England Power Pool Generation Information System ("NEPOOL GIS"). This could include options for long term contracts or selling RECs into the spot market. Although Rhode Island does not have a specific Solar REC "SREC" program, attributes from RI projects can be sold as Class I RECS into the regional market with Massachusetts and Connecticut currently offering the highest prices. Please note that we did provide adjusted (higher) rates in Table VII in the event PWSB prefers to retain the RECs.

#### **Bonding**

Green Development intends to provide the requested \$3 million payment and performance ("P&P") bond, subject to a structure satisfactory to the bonding surety. Generally, a P&P bond would be appropriate for a situation in which PWSB is purchasing the project and would be the oblige of the bond from Green Development, the contractor. In our proposed net metering credit agreement, Green Development is building and selling the project to a project entity that is under common ownership with Green. Thus, a P&P bond in favor of PWSB may not make sense unless PWSB were willing to step in and complete construction, but we are willing to discuss. Similarly, Green plans to offer an annually renewable maintenance and decommissioning bond (or other security) in an amount sufficient to secure the annual operations and maintenance expense and the cost of decommissioning the site at the conclusion of the project.

#### **Grant Funds**

Green closely monitors project funding opportunities at the state and federal levels and is proficient in securing available incentives. Green will apply on the PWSB's behalf for any grants available through the Renewable Energy Fund ("REF"), as well as any other qualifiable programs, such as the Rhode Island Infrastructure Bank ("RIB"). Green has previously supported the Narragansett Bay Commission with



their application for grant funding from the Renewable Energy Fund ("REF"). The REF has an upcoming application due date on October 19, 2018. Green looks forward to assisting the PWSB with future grant applications.

# Project Schedule

Green has created detailed project schedules that incorporate all major milestones for each of the proposed sites. Through these schedules, Green is incorporating the most efficient path to project development for the PWSB in terms of cost and time. The project schedules are included in Attachment 3 and will include the assumed Notice of Award 60 days after the RFP submission. Line items highlighted in yellow are items that are either within the control of PWSB or other 3<sup>rd</sup> parties such as the Utility Company. Any items not highlighted are within Green's control and the durations are guaranteed.

# Qualifications

# Company Background

Green is a Rhode Island based company founded in 2009 that provides the necessary resources to develop, construct, and manage commercial scale on-shore wind and solar projects. The company works with Rhode Island communities and public entities to plan and construct renewable energy projects; delivering reliable, inexpensive, and clean power. Green plans to help Rhode Island completely transform and diversify its energy portfolio in the coming years.

**Table IX: Company Profile** 

Location	3760 Quaker Lane, North Kingstown, RI				
Years in operation	9 consecutive years				
Employees	40+ full-time, local employees				

Green partners with a full range of service providers to ensure 100% of the work required by the project is included in our turnkey price. These include MSE Engineering; a highly-experienced engineering and design company, and leading equipment manufacturers such as Vensys AG; a global leader in Wind Turbine Technology Development & Manufacturing.

Green's business differentiates itself through financial and legislative expertise, technology awareness, project management efficiency, supply chain and logistics expertise, maintenance capabilities, speed to market and transfer of knowledge to our clients. Green's model capitalizes on the ability to quickly identify and engage government agencies, public institutions and the private sectors. The goal of our upfront efforts is to guide our customers to energy independence through sustainable, renewable energy options.

Green supplies a prescribed level of engagement for each application. Available services range from feasibility studies and alternative energy recommendations to procurement, installation and commissioning, as well as ownership and operation. Green will navigate all local, state and federal



regulatory agencies to include completing federal and state applications for financial assistance. Local participation is fostered throughout the established process, lending a sense of ownership to all involved and having the effect of enhancing project success.

Green is a licensed general contractor in the state of Rhode Island, which is required to bid on public projects. A copy of Green's Rhode Island contractor's license can be found in Attachment 5. Green has the ability to deliver turnkey services in-house and through our network of partners to the PWSB. Green's first renewable project was installed in North Kingstown in the fall of 2012 and connected to the grid in December 2012. To date, the company's portfolio has expanded to a total of 12 turbines installed and connected to the grid in the towns of Coventry, Portsmouth and North Kingstown. Green is fully capable of meeting all insurance requirements as outlined in the RFP.

Green is specifically focused on the municipal, quasi-government, and non-profit markets and has led the charge with regards to remotely located renewable energy projects. Below is a list of our accomplishments in the renewable energy sector:

- First large-scale project installed under the DG program
- First large-scale project installed under the REG program
- First Rhode Island developer to successfully complete the ISO-NE OP 14 asset registration process
- First offsite virtually net metered project in the state
- First multi-municipal collaborative in the state

#### Our Mission Includes Several Goals:

## Increase Energy Security

Currently, Rhode Island imports almost all of its energy resources and nearly 96% of those resources come from natural gas, which is not produced in Rhode Island. Green is helping Rhode Island produce its own clean and renewable power which in turn makes our energy supply more reliable.

#### Lower Carbon Emissions

Wind Turbines and Solar Energy Systems greatly reduce greenhouse gas emissions. Green has completed construction on numerous wind turbines and solar energy systems; which will greatly benefit the region.

#### Preserve Farm Land in Rhode Island

Farmland in Rhode Island has been disappearing, with the loss more the 80% of the productive farmland that existed in 1940. Farmers struggle with increasing regulations and prohibitive land costs, wondering how to keep the land that has supported generations. Green Development has forged strong, trust-based relationships with many farmers in the state and has provided land lease agreements that sustain the farm family for a season and retain the option to revert to traditional farming in the future. Green Development's solar farms provide a temporary productive use of the land without sacrificing its future potential.



#### Collaborate with Communities

Green strives to offer solutions that consider the perspectives of all stakeholders whenever possible. Green's suggestion for a given area depends on the available sites, the local character and the expressed goals of the community. If the objective is minimum land usage, then Green may offer a wind turbine, which requires only 200 square feet around the base. Where it is preferred that the project not be visible, Green may suggest solar with appropriate buffers to preserve existing viewsheds. Our objective is to involve the community and develop a solution that delivers broad acceptance while delivering economic value and sustainable energy.

#### **Boost Local Economies**

We deliver power to municipalities through a net metering program at a fixed, low rate, helping to save them millions of dollars over the course of our contract. Our renewable energy projects create jobs in the U.S., including construction engineering, manufacturing and service after installation. We also significantly add to the local tax base where our projects are sited, in some instances paying up to 40% more than the state mandated payments in lieu of taxes.

# Past Project Experience

Green has developed, constructed and delivered 26 MW of renewable energy projects in Rhode Island; of which, <u>each</u> system is larger than 1.0MW AC. Green also has 29 MW of renewable energy projects in construction for 2018. More than 24.8 MW of the operational projects and projects in construction are specifically for Rhode Island Municipal and Public entities. Table X below lists these projects.

Green currently contracts to provide asset management services for every project in our portfolio. As part of this service, Green carefully monitors and maintains the projects in order to maximize production. These asset management services are provided from our headquarters in North Kingstown, RI.

**Table X. Operational & In-Construction Projects** 

Project Name	Ownership	Location	Capacity (kW AC)	Length of Contract	Technology	Power Purchaser	Transaction/Financi ng Structure	Completion Date
North Kingstown Green	Green	North Kingstown	1,500	15 years	Wind	National Grid	Debt + ITC as a cash grant; DG Contract	December 2012
WED Coventry One, Three and Four	Narragansett Bay Commission	Coventry	4,500	N/A	Wind	NBC	Direct Purchase/NMC	July- September 2016
WED Coventry Two	Town of West Warwick	Coventry	4,500	N/A	Wind	West Warwick	Direct Purchase/NMC	August 2016
WED Coventry Five	Green	Coventry	1,500	20 years	Wind	National Grid	Debt + Tax Equity; REG Contract	February 2017



WED Coventry Six	Green	Coventry	4,500	20 years	Wind	National Grid	Debt + Tax Equity; REG Contract	September 2016
WED Portsmouth One	Green	Portsmouth	1,500	25 years	Wind	Portsmouth and Coventry	Debt + Internal Tax Equity; NMC multi- municipal collaborative	August 2016
WED Stilson Solar	Green	Richmond	2,430	20 years	Solar	National Grid	Debt + Tax Equity; REG Contract	December 2017
WED Kingstown Solar I	Green	Richmond	5,300	25 years	Solar	Narraganse tt Bay Commissio n	Debt + Tax Equity; NMCA	December 2017
WED Plainfield	Green	Johnston	3,000	25 Years	Wind	National Grid	Debt +Tax Equity; REG Contract	Est. Q4 2018
WED Plainfield II	Green	Johnston	3,000	25 Years	Wind	National Grid	Debt +Tax Equity; REG Contract	Est. Q4 2018
WED Plainfield III	Green	Johnston	3,000	25 Years	Wind	National Grid	Debt +Tax Equity; REG Contract	Est. Q4 2018
WED Shun I	Green	Johnston	3,000	25 Years	Wind	TBD	Debt +Tax Equity; NMCA	Est. Q4 2018
WED Shun II	Green	Johnston	3,000	25 Years	Wind	RICCA	Debt +Tax Equity; NMCA	Est. Q4 2018
WED Shun III	Green	Johnston	3,000	25 Years	Wind	National Grid	Debt +Tax Equity; REG Contract	Est. Q4 2018
WED Green Hill	Green	Johnston	3,000	25 Years	Wind	TBD	Debt +Tax Equity; NMCA	Est. Q4 2018

# Public-Private Partnerships

Green has more experience obtaining Net Metering Credits for municipal entities than any other project developer in the State. We were the first developer to work through the Schedule B process with National Grid for four separate municipal and state entities. These include the Narragansett Bay Commission and the towns of West Warwick, Coventry and Portsmouth.

Green was the first developer in New England to work through the Renewable Resource Eligibility applications for the RI Public Utilities Commission for a group of separate projects that were singularly viewed as an ISO-NE full market participant. This was complicated by the fact that some of the projects were net metered while others were Renewable Energy Growth projects.



- 1. Virtual Net-Metering for the Town of West Warwick ("West Warwick"). West Warwick purchased three 1.5-MW wind turbines from Green, where they receive net metering credits from the utility to offset their usage across over two dozen accounts. West Warwick decided to own the projects outright rather than pursue an NMCA, but Green completed all project development at risk in advance of having the contract secured with West Warwick. After the town voted via referendum to purchase the turbines, Green provided construction services. Green's responsibilities included site identification, negotiating leases with landowners, permitting through FAA, DEM, DOT, and local authorities, importing the turbines, constructing 7 miles of underground electrical infrastructure from the Coventry substation to the site across town and state roads, erecting the turbines and registering with the RI PUC and ISO-NE. West Warwick has an Asset Management Agreement with Green whereby Green manages Net Metering Credits, ISO-NE procedures, FERC and other regulatory filings, REC advisory services, and coordinates service and annual maintenance with the turbine manufacturer. The Town is expected to save up to \$44 million dollars over 25 years from the purchase of the turbines.
- Virtual Net-Metering arrangements with the Narragansett Bay Commission ("NBC"). Green developed and constructed three 1.5-MW wind turbines for the NBC. Green presented the NBC with the option to purchase the projects outright at the Commercial Operation Date or purchase the power from the projects through a MNCA. Ultimately, NBC decided to own the projects due to their specific goals and preferences. The wind projects are located on 3 separately leased parcels in the Town of Coventry. Green's responsibilities included site identification, negotiating leases with landowners, permitting through FAA, DEM, DOT, and local authorities, importing the turbines, constructing 7 miles of underground electrical infrastructure from the Coventry substation to the site across town and state roads, erecting the turbines and registering with the RI PUC and ISO-NE. NBC has an Asset Management Agreement with Green, whereby Green manages ISO-NE procedures, FERC and other regulatory filings, and coordinates service and annual maintenance with the turbine manufacturer. NBC performs some of the services typically included in our Asset Management Agreement in house because of their expertise performing these services for the three turbines installed at their facility in Providence.
- 3. Virtual Net-Metering arrangements with the Town of Portsmouth ("Portsmouth"). Portsmouth purchases its electricity for more than two dozen municipal and school accounts from the Green-owned wind turbine at the Portsmouth High School. Portsmouth agreed to purchase up to 3,600 MWh of virtual net-metering credits. As part of the relationship, Green took down the previous turbine which had a broken gearbox at the Portsmouth High School and replaced it with a Vensys 1.5MW Direct Drive Gearless turbine, which will not be susceptible to the same failure. Besides the removal of the old turbine, Green paid off the town's debt related to the old turbine, which was over \$1.5 million to the state and Portsmouth now buys their renewable power directly from Green.
- 4. **Virtual Net-Metering arrangements with the Town of Coventry.** Green has entered into an agreement with Coventry to offsets its municipal electric demand through purchasing power from Green's wind turbine located in Portsmouth. Green owns and operates the turbine and is utilizing the tax credits internally. Through this agreement, Green will provide up to 1,200 MWh



- annually to Coventry for up to 25 years at a fixed rate with escalation after three years. In addition to the power rate, Green and Coventry share in both the upside and downside of the Renewable Energy Credits.
- 5. Virtual Net-Metering arrangements with the Narragansett Bay Commission ("NBC"). Green developed and constructed solar projects for the NBC, totaling 5.3 MW DC. The NBC opted to enter into a NMCA with Green. The solar projects are located on one leased parcel in the Town of Richmond. Green's responsibilities included site identification, negotiating leases with landowners, permitting through FAA, DEM, DOT, and local authorities, importing the solar modules and necessary equipment and registering with the RI PUC. NBC has an Asset Management Agreement with Green where Green manages FERC and other regulatory filings and coordinating service and annual maintenance.

# Respondent's Financial Resources

To date Green has developed, constructed, owned and operated all of our projects that have not been sold to municipal entities. Developing renewable energy projects requires significant financial expertise and bandwidth. Each Project requires a combination of debt, project equity and tax equity. It is imperative for the PWSB to choose a renewable energy partner that has experience transacting with equity and debt partners, the ability to quickly deploy projects and experience in bringing projects to bear. Green has a proven track record of transacting with each of these components, for renewable energy projects in Rhode Island totaling more than 26MW. Green has established relationships with multiple banks on construction financing/permanent financing vehicles that will provide all the capital required for the development, and construction of these Projects. Through these vehicles, Green intends to provide construction financing through the Commercial Operation Date ("COD"), which will then transfer to permanent financing and the inclusion of a tax equity partner as was done with our wind turbines in Coventry.

Green does not typically disclose its financing partners as a part of a public RFP or bidding process but is willing to do so confidentially and will include this information as part of the Supplemental Information requested by PWSB in a separate submission. Green has worked with tax equity and debt partners with each of the projects we have financed to date. Green has a committed tax equity partner with more than \$150 million in Federal tax liability to fully utilize the 5 Year Modified Accelerated Cost Recovery System ("MACRS") depreciation schedule as well as the Federal Business Investment Tax Credit ("ITC"). The value of the MACRS and ITC total is approximately 50% of the total system cost, thereby maximizing the value of these tax incentives is critical to achieving optimal economics for PWSB. In addition to fully utilizing the Federal tax benefits, our team is in an optimal position to maximize all local incentives which in turn enables us to reduce long-term electricity costs for the PWSB.

Green maintains relationships with numerous banks wiling to act as lenders to renewable energy projects. We are currently closing on \$52 million in construction financing with three regional banks. We would utilize one of our existing relationships to provide construction financing and long-term debt for the project. As a construction contractor working on large commercial projects, Green has the ability



to self-perform all construction work, providing project equity and eliminating the need to negotiate lengthy EPC contracts, which could delay construction and increase costs associated with construction financing. Green also maintains relationships with equipment suppliers and subcontractors that include favorable credit and payment terms, saving further on construction financing/debt costs.

# Respondent's Logistical Resources

Green is a fully staffed turnkey renewable energy project developer. We lead, control, and manage every aspect of our renewable energy projects including initial site identification, lease and contract negotiation, permitting, surveying, site construction, project management and final commissioning. Our unique ability to comprehensively develop solar projects ensures that Green's projects are executed efficiently from start to finish. Green has dedicated staff resources to all renewable energy projects proposed to Green and maintains the flexibility to adjust schedules accordingly to meet project timelines under any circumstance.

Green will be responsible for all construction aspects of the renewable energy project. The company includes a general contracting business that utilizes the ability to provide and access the service and expertise of a wide variety of construction and repair companies. Green has more than two decades of experience that demonstrates the ability to provide and coordinate on-call and emergency general contracting service work and repair. Services include:

# Construction

- General Construction
- Asphalt & Concrete Paving
- Processing & Recycling Bases & Aggregates
- Excavation & Site Work
- Utility Work
- Trench Shoring & De-watering
- Shore & Slope Protections
- Surveying
- Solar and Wind energy system Construction

#### Project Planning

- Budgeting
- Contract Document Review
- Value Engineering Design
- Conceptual Estimates
- Conceptual Estimates
- Logic Flow Diagrams
- Subsurface Investigation
- Quality Control & Assurance Plan



# **Project Examples**

Green has developed and constructed 26 MW of renewable energy projects in Rhode Island. Our three most recent projects have been listed below.

## WED Portsmouth One

**Customer Name:** Town of Portsmouth and Town of Coventry **Customer Contact:** Rich Rainer – Portsmouth Town Administrator

Customer Phone: (401) 683-3255

Location: Education Lane, Portsmouth, RI

**Project Description:** 

This 1.5-MW wind project, which consisted of removing the defunct gearbox turbine located at the Portsmouth High School and replacing it with a new Vensys gearless turbine. This is a Vensys 82 turbine mounted on an 85 meter tower. Green owns and operates this turbine and sells power from the project

to the Town of Portsmouth and the Town of Coventry.

**Staff Member Involvement:** Entire Green Development team

**Role in Project:** Project Developer, Lead Contractor, Owner/Operator.

**Scheduled Completion Date:** October 2015-July 2016 **Actual Completion Date:** October 2015-August 2016

**Type of Contract:** Power Purchase Agreement

Equipment: 1 Vensys V82 1.5 MW Turbine with 82 meter blades, mounted on an 85 meter tower

Installed Capacity: 1.5 MW DC

Annual System Production: 5,149,000 kWh





## WED Kingstown Solar I

**Customer Name:** The Narragansett Bay Commission

**Customer Contact:** Barry Wenskowicz – Pollution Prevention Engineer

**Customer Phone:** (401) 461-8848

Location: Kingstown Road, Richmond, RI

**Project Description:** This 5.3-MW DC solar array occupies a footprint of approximately 19 acres. Green owns and operates this solar project and will sell power to the Narraganset Bay Commission through a 25-year Net Metering Credit Agreement. The project is estimated to save the Narragansett Bay Commission more than \$275,000 in the first year of operation. The landowner is using the lease payments generated by the solar project to fund a non-profit located on-site, focusing on providing help and education to individuals with mental illnesses.

Staff Member Involvement: Entire Green Development team

**Role in Project:** Project Developer, Lead Contractor, Owner/Operator.

**Scheduled Completion Date:** March 2017-December 2017

**Actual Completion Date:** December 2017 **Type of Contract:** Power Purchase Agreement

Equipment: 17,020 Yingli 320 watt panels, Solectria Inverters and RBI Racking

**Installed Capacity:** 5.3 MW DC

Estimated 1st Year System Production: 6,637,000 kWh





#### WED Stilson Solar

Location: Stilson Road, Richmond, RI

Customer Contact: N/A. This project serves National Grid

**Project Description:** This 2.4 MC DC solar array is located in Richmond, RI and occupies a footprint of approximately 13 acres. The project is enrolled in the Renewable Energy Growth Program, having a 20-year contract with National Grid. Site construction has been completed and the array is interconnected

and operational.

**Staff Member Involvement:** Entire Green Development team

**Role in Project:** Project Developer, General Contractor, Owner/Operator.

Scheduled Completion Date: April 2017-July 2018
Actual Completion Date: April 2017-December 2017

Equipment: 7,800 Yingli 320 watt panels, Solectria Inverters and RBI Racking

Estimated Annual System Production: 3,373,000 kWh



# Additional Project References

Company Name: Town of West Warwick

Project: WED Coventry Two (4.5 MW Wind Turbines)

Contact Person: John Cimino Telephone: (401) 338-2049



# Respondent's Point of Contact

The main point of contact for the PWSB during the contracting and development phases will be Allen Bucknam. Allen will be responsible for negotiating the NMCA and lease, as well as ensuring communication regarding the permitting, and construction are clearly communicated to the PWSB. The construction project manager for Green will be Matt Ursillo. He will be responsible for managing all Green field employees as well as equipment deliveries, subcontractors, and ensuring the construction of the project proceeds on time and on budget.

#### Allen Bucknam

Telephone: (401) 295-4998

Fax: (401) 295-4944 Email: <u>ab@green-ri.com</u>

#### **Matthew Ursillo**

Telephone: (401) 295-4998

Fax: (401) 295-4944 Email: mu@green-ri.com

#### Office Location

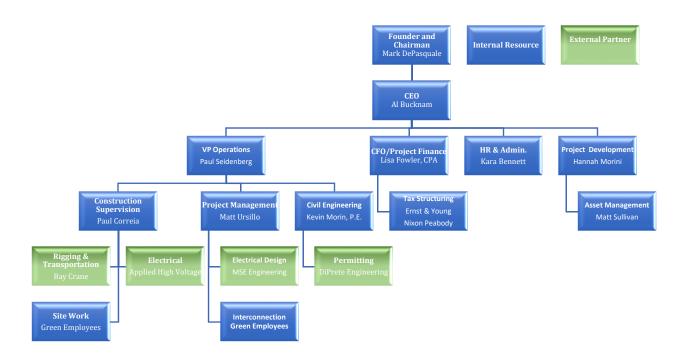
Green Development, LLC is a Rhode Island-based company, headquartered at 3760 Quaker Lane, North Kingstown.



# **Project Team**

Green is the team leader and will maintain overall responsibility for the project. Our goal is to ensure timely and cost-effective operations and continuously meet or exceed client expectations. In addition to our in-house staff with renewable energy experience, Green has chosen an experienced and knowledgeable group of partners to provide the full range of services required to provide a turnkey solution to in all phases of project development. These partners include MSE Engineering and our civil engineering partner. This ongoing collaboration with seasoned professionals lends years of experience to the Green team.

In addition to our internal team, we work with a number of subcontractors. Below is a project organizational chart showing the relationship between Green and its subcontractors. Ultimate responsibility for all aspects of the project will fall to Green.



#### Green Team Bios

The Green Development leadership team has successfully developed more than 300 MW of renewable energy projects, collectively exceeding 100 years of construction experience. The experience that Green Development's staff have span amongst a wide variety of development types and sizes. The members of Green Development are reputable and recognized as leading professionals in their aspect of the industry.

Mark DePasquale, Chairman and Founder and entrepreneur, has more than three decades of diverse public and private design build and construction project experience. Utilizing his ability to provide and access the service and expertise of a wide variety of legal, finance, engineering, and construction professionals, he has developed and managed over \$100,000,000 in projects that include but are not



limited to public safety complexes, education facilities, subdivisions, road and site construction, commercial sized wind turbines and solar arrays, and utility work. Since 2009, he has created Rhode Island's leading sustainable wind and solar energy company that differentiates itself through legislative expertise, technology awareness, project management efficiency, supply chain and logistics expertise, operation and maintenance capabilities, speed to market, transfer of knowledge to clients and the community all with the goal of land preservation, reducing energy dependence and growing local economy.

Al Bucknam, CEO has more than 20 years' experience in the renewable energy industry, including eight years as CEO of leading-edge companies. Al joined Green Development to drive the company's evolution from a wind-energy company to a comprehensive renewable-energy-solutions provider committed to developing, building, owning and operating community-focused energy projects, including wind, solar, biomass, and energy storage. Previously, Al was president and CEO of California-based REC Solar, where he revamped the company's vision and strategy, resulting in over 130 MW installed and a \$225 million fund for project capital from a national utility. Prior to REC Solar, Al served as the CEO of SunDurance Energy, a New Jersey-based developer, designer and builder of megawatt-scale solar projects that completed over 70 MW of commercial and utility-scale solar projects nationwide and was ranked #2 nationwide in MW of solar provided to institutions of higher learning. Al's earlier career includes ten years in Corporate Development and Strategy at Plug Power in Albany, NY, which developed and commercialized fuel cell technology, and ten years in finance-related positions at Ryder System, a large transportation/logistics company based in Miami, Florida. Al holds a B.A. in Chemistry from Middlebury College in Vermont and received an MBA from the University of Pennsylvania's Wharton School.

Paul Seidenberg, Vice President of Operations, has more than thirty-five years of experience in the Heavy Civil, Utilities, Land Development, and Energy related fields. He has been a part of a range of differing projects including construction of a 1.5M gallon Hydro-Pillar water tower, 80,000 GPD sewer treatment plant, single private development projects including hotels and open-air life style centers up to \$250,000,000, as well as single source contracts approaching \$30,000,000 for LDC's such as Eversource, Summit Gas, and Liberty Utilities in the transmission and distribution of electricity and natural gas. Paul spent over 15 years in the field before becoming a Chief Estimator, Senior Project Manager and Project Executive. He attended Hartwick College and Northeastern University.

Matt Ursillo, Director of Project Management has more than a decade of project management, engineering, and construction experience in the renewable energy and utilities field. In his position at Green Development, Matt oversees the execution of photovoltaic and wind energy projects. Previously, Matt worked for Exelon and the M&W Group as a project manager and engineer for a diverse variety of projects throughout the energy industry. Matt is experienced in utility solar projects, fuel cells, electrical distribution, microgrids, demand response, cogeneration systems, fossil fuel power plants, boilers, chillers, HVAC systems, and civil site work. He holds a Bachelor of Science degree in mechanical engineering from the University of Rhode Island, an MBA from the Pennsylvania State University, and a PMP credential from the International Project Management Institute.

Kevin Morin, PE, Director of Civil Engineering has more than twenty-five years of engineering and project management experience in the civil, land development, and utilities field. Previously, Kevin worked for DiPrete Engineering with his most recent roles as Vice President and Senior Project Manager. Kevin has worked on land development projects across Rhode Island including renewable energy projects in both solar and wind, mixed use developments, urban redevelopment, apartment communities, and



commercial and residential development. Kevin has extensive experience with the local and state regulatory entitlement process. He holds a Bachelor of Science degree in Civil Engineering from the University of New Hampshire.

Lisa Fowler, CFO is a CPA and has over 25 years of experience in public accounting with both national and regional firms. She has spent most her career working with closely held businesses in manufacturing, construction and real estate development. She has been involved in the financing of many different types of projects utilizing varied and diverse funding sources. Her expertise extends to structuring tax deals, including tax equity partnerships, and has been sought out to do extensive tax legislative research for Congress and helping to write tax legislation for the state of Rhode Island. Lisa is a member of the AICPA and serves on various committees for the RISCPA. She is often an invited guest speaker at professional organization where she addresses a wide range of tax-related topics. She is a graduate of Bryant University, where she earned a BS degree in Business Administration with concentration in Accounting.

Hannah Morini, Project Developer is a renewable energy industry professional with both private and public-sector experience gained over the past eight years. Hannah joined Green in 2015 after three and a half years as the Renewable Energy Program Manager at the Rhode Island Commerce Corporation. In this role, Hannah created, implemented, and administered all clean energy finance programs at Commerce RI. Prior to Commerce RI, she worked as an Operations Manager, Project Developer and Sales Associate in the wind division of Alteris Renewables, a predecessor to RGS Energy. She also has experience in solar operations management, event planning, research, and energy policy. Hannah holds two Bachelor of Science degrees from the University of Rhode Island in Environmental Science and Resource Management and Coastal and Marine Policy.

Matthew Sullivan, Associate Project Developer, joined Green after a year as a 2016 URI Energy Fellow. He provides support for renewable energy project development, construction and proposal development, contract negotiation, permitting, reporting, administration and asset management. Matthew also delivers presentations about renewable energy, energy conservation and sustainability practices at primary and secondary schools in Rhode Island and Connecticut. Matthew holds two Bachelor of Science degrees from the University of Rhode Island; for Environmental and Natural Resource Economics and Business Administration with a focus in Green Markets and Sustainability.

Paul Correia, General Superintendent, has more than 20 years of field experience. During his career, he has managed and overseen all phases of a construction project from initial planning to completion. Paul specializes in public works projects, residential work, commercial and private projects. Several of these projects took place in RI and MA. Through his commitment to excellence and dedication, Paul has continued to form strong professional partnerships based on integrity, and reliability. These characteristics have made Paul become one of the most respected names in the field.



# **Project Team Subcontractors**

#### MSE Engineering

MSE Engineering, LLC ("MSE Engineering") is an Engineering, Design, Consulting, Permitting and Commissioning company headquartered in New York. Founded in 1991, MSE Engineering specializes in commercial to large-scale industrial power systems with voltages ranging up to 765,000 Volts. The company provides services to utilities, institutional facilities, government-owned facilities.

MSE Engineering is comprised of highly qualified professional engineers, who have completed hundreds of electrical infrastructure projects across North America and around the world. With a focus on long-term client relationships, the company has been able to successfully complete over five hundred electrical substation, transmission and distribution projects. MSE Engineering is flexible and time efficient; while taking a system-oriented approach to ensure that every component of a project is configured for maximum performance. Completed projects by MSE Engineering can be found across numerous U.S. States and in multiple foreign countries. MSE Engineering staff are registered Electrical Engineers in 22 U.S. States.

#### DiPrete Engineering, Inc.

Dennis DiPrete formed DiPrete Engineering in 1988 with a focus on providing high quality solutions and building a solid reputation within the engineering and design world. The firm's primary focus is civil/environmental regulatory permitting. The DiPrete staff works as part of the client's team to accomplish their objective at a high standard and with a keen awareness of the value of time. DiPrete Engineering provides support services including stormwater management, site/civil design, wetlands, land planning, and surveying.

#### Vensys Energy, AG

Vensys Energy AG ("Vensys") is a leading manufacturer of gearless wind turbines in the megawatt and multi-megawatt class. More than 16,400 VENSYS wind turbines totaling over 28,000 MW have already been connected to the grid worldwide. It is their technological features that make the Vensys wind turbines second to none: Gearless, with permanent magnet-excited multi-pole generators, grid-friendly VENSYS converter systems and innovative, low-wear toothed belt drives for the blade pitch system.

VENSYS wind turbines deliver reliable energy due to their technological innovation, high efficiency, compact design, robustness and low maintenance requirements all over the globe and even under the most different climatic conditions. VENSYS wind turbines are on the grid in the important growth markets for wind energy in China, India, Canada, the USA, Germany, Poland, Portugal and Brazil. New wind parks in Ecuador, Egypt, Cyprus, Sri Lanka and Australia will be completed in the near future.

# Additional Information about Green

## Community Involvement

Headquartered in North Kingstown, Rhode Island, Green Development takes pride in being locally based and places a high priority on developing projects in the surrounding community. Compounding from a



community-centered focus and a strong local presence, the majority of Green's staff are Rhode Island residents or other individuals who now call Rhode Island their home. Each renewable energy project completed by Green is directly involved with local hiring and engaging residents; leading to the continued development of the renewable energy workforce throughout the state. The team at Green Development eagerly await the opportunity to expand the growth and success of the industry through the proposed projects with the PWSB.

The staff at Green have a strong sense of responsibility and are proud to give back and share their experiences with the community. Green makes every opportunity available to provide outreach and education activities regarding renewable energy, energy conservation and jobs in the green energy industry. As a result, Green is the renewable energy developer in Rhode Island that is frequently invited to present to community organizations and academic institutions; ranging from primary to college-level. Green would be more than willing to work with the PWSB to expand its range of available programs to include renewable energy education, energy conservation and environmental consciousness. Below are some recent activities that Green has been involved with in the last year. Supplemental documentation is available in Attachment 6.

- University of Rhode Island Energy Fellows Program (Annual)
- Alumni and career panels at the University of Rhode Island (Annual)
- Hosting site trips for University of Rhode Island's Environmental Economics and Engineering courses.
- Hosting site trips for members of the public and as well as interested municipalities. (Numerous times per year)
- Sponsorship and participation with the Science and Math Investigative Learning Experiences (SMILE) program at the University of Rhode Island.
- Professional day and environmental class presentations at primary and secondary schools in Rhode Island and Connecticut. (Annual)
- Presentations to Cub Scout troop members introducing renewable energy and conservation measures.

# Insurance Requirement

If awarded, Green can furnish the PWSB with insurance coverage naming the PWSB additionally insured within 10 days. Green will meet the insurance requirements of Workman's Compensation and General Liability Insurance of \$1,000,000.

# Required Bid documentation

Green Development understands and is committed to meeting the <u>hiring</u>, <u>Apprentice Utilization</u>, <u>and air</u> <u>quality requirements</u> as presented in the bid package.