Brightfields Development LLC and NRG Energy
Joint Response to

Invitation for RFQ/RFP Bid #850
Public-Private Partnership for On-Site Solar Projects

Prepared by:
Brightfields Development LLC
40 Walnut Street, Suite 301
Wellesley, MA 02481

Project Team Lead:
Pete Pedersen
Managing Principal
781-772-2871
ppedersen@brightfieldsllc.com

Date of Submission:
November, 29 2016

Awarding Authority:
Town of Bristol, Rhode Island
10 Court Street
Bristol, RI
&
Town of Barrington, Rhode Island
283 County Road
Barrington, RI

1. Cover Letter

November 29, 2016

Town of Bristol, Rhode Island
10 Court Street
Bristol, RI
&
Town of Barrington, Rhode Island
283 County Road
Barrington, RI

Dear Ms. Williamson:

Brightfields Development LLC and NRG Energy have read and understand the Town of Bristol & Town of Barrington's Invitation for RFQ/RFP Bid #850 *Public-Private Partnership for On-Site Solar Projects* and its six addenda and are pleased to submit the enclosed proposal. The Brightfields and NRG team (the "Project Team"), which will be structured as a joint venture between the two companies, proposes to lease the Town of Bristol, Rhode Island's municipal landfill on Minturn Farm Road for the purpose of developing a 3.9 MW_{DC}/3 MW_{AC} solar array.

To deliver maximum economic value to the Town of Bristol, the Project Team proposes to sell the array's clean energy production to National Grid under the Rhode Island Renewable Energy ("RE") Growth Program. In the RE Growth scenario, the Project Team would pay the Town a lease payment of \$25,000/MW_{AC}, or \$75,000 per year for the 20 year program term. In the unlikely scenario that the proposed project is not accepted into the RE Growth program, the Project Team would sell the clean energy production to the Bristol through a Power Purchase Agreement ("PPA") at a flat rate of \$0.115/kWh for a 20 year term.

The Protect Team is qualified to plan, permit, design, install, finance, operate and maintain a solar array at the Town of Bristol's landfill as the result of a partnership between one of New England's most experienced landfill solar developers, Brightfields, and the leading integrated power company in the U.S., NRG Energy.

Brightfields Development LLC was founded in 2010 under common ownership with Renova Partners LLC, one of the nation's only institutionally funded brownfields development companies,

to deploy solar on contained, underutilized and geotechnically complex properties. Brightfields' solar PV experience includes the development of utility-scale solar arrays on a broad spectrum of environmentally sensitive sites, or "brownfields", from municipal landfills and transfer stations to Superfund and Superfund Alternative sites across the United States. Brightfields collaborates with host communities throughout the development process and offers an unmatched level of responsiveness and flexibility to ensure that its projects satisfy the needs of all stakeholders.

NRG is uniquely positioned to be a valuable long-term solar partner for the Town. NRG is a Fortune 200 company with nearly 50,000 MW_{AC} of global, diverse energy assets. It is the largest independent power producer ("IPP") and one of the largest renewable generation companies in the U.S. NRG develops, constructs, finances, owns and operates solar energy systems, amounting to a portfolio with nearly 2,400 MW_{DC} of utility-scale and distributed solar assets. With NRG, Bristol will benefit from a reliable, financially sound, and technologically advanced long-term partner.

In addition to the maximum economic value described above, the Brightfields-NRG solar development proposal also offers a comprehensive clean energy education program. Brightfields takes pride in its ability to collaborate with municipalities to integrate clean energy education into the schools and host community. For a 3 MW project developed in Scituate, MA, Brightfields tailored its educational materials to be included in the town's elementary, middle and high school curricula and hosted educational field trips. Brightfields also presents annually at the town's Scituate Science Spectacular. The Project Team recognizes the importance of engaging the residents of the community beyond the schools. Therefore, the Brightfields-NRG team will construct a display kiosk at an acceptable, highly-visible location to provide residents with real-time information on the solar array's production and the accompanying environmental and societal benefits.

Brightfields and NRG are proven solution-driven developers that have worked with municipalities across the United States developing renewable energy, conventional energy and real estate projects for decades. The Project Team is experienced in responding to the needs of host communities, ranging from major cities to small towns. Brightfields and NRG have deployed solar photovoltaic projects across the nation and understand that no two communities are alike. The Project Team appreciates the importance of listening to and working with the client to achieve mutual goals.

The Project Team looks forward to collaborating with the Town of Bristol to develop a customized solar solution to fulfill the Town's clean energy vision. Brightfields and NRG appreciate the opportunity to provide this proposal.

Sincerely,

Pete Pedersen
Managing Principal
Brightfields Development, LLC

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Exhibit D: Bidder's Statement of Relevant Experience
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3. Executive Summary

On September 7, 2016, the Town of Bristol, Rhode Island and the Town of Barrington, Rhode Island issued the "Invitation for RFP/RFQ Bid #850 *Public-Private Partnership for On-Site Solar Projects*." This solicitation provided solar PV developers with the opportunity to propose on-site solar projects for the Town of Bristol's closed municipal landfill located on Minturn Farm Road and smaller scale rooftop solar installations in the towns of Bristol and Barrington. After attending the mandatory Pre-Bid meeting and visiting the Bristol landfill on October 14th, Brightfields Development LLC ("Brightfields") decided to engage and NRG Energy ("NRG") to collaborate and develop a customized solar solution for the Bristol municipal landfill that is both economically and socially advantageous. If selected, Brightfields and NRG (the "Project Team") will work with the Town to realize the project goals proposed herein, while being respectful of the site's space requirements and environmental conditions.

Brightfields and NRG propose to lease the Town of Bristol's landfill for the purpose of developing a 3.9 MW_{DC}/3.0 MW_{AC} ground-mount solar array. To provide the Town of Bristol with the most advantageous proposal possible, the Project Team proposes to sell the array's clean energy production to National Grid under the Rhode Island Renewable Energy ("RE") Growth Program. Under this arrangement, the Town of Bristol would benefit from a \$25,000/MW_{AC} or \$75,000 annual lease payment year for the 20 year program term. In the unlikely scenario that the proposed project is not accepted into the RE Growth program, the Project Team proposes to sell the electricity to the Town of Bristol through a power Purchase Agreement ("PPA") at a flat rate of \$0.115/kWh for a 20 year term.

Our proposal provides the following advantages for the Town:

- Advantageous financial proposal that delivers maximum economic value to the Town.
- Leading module, inverter and racking technologies to deliver optimum reliability and energy density.
- Peace of mind and quality assurance that comes with Brightfields' extensive experience developing solar arrays on municipal landfills
- The reputation and financial wherewithal of NRG, the leading integrated power company and the largest equity sponsor of solar projects in the U.S.
- A complementary, comprehensive clean energy educational program for students and residents

As Bidder, Brightfields Development is signing all bid documents including 1) Bid Form, 2) Non-Collusion Affidavit, 3) Bidder's Statement Regarding Insurance Coverage and 4) Bidder's Statement of Relevant Experience. NRG has read and acknowledges the provisions contained

therein and fully intends to abide by the bid documents upon transfer of ownership from Brightfields to NRG.

Please reference Exhibit E: Site Plan, for a detailed system layout, which includes the Point of Interconnection and the position of major system components.

4. Bidder's Background

Brightfields Development LLC		
A	Company ownership	Brightfields Development LLC is a privately held limited liability company, which was incorporated in Massachusetts on February 9, 2010.
B	Location of company offices	Brightfields' is headquartered in Wellesley, MA, but also has offices in CT and NH.
C	Number of employees	10
D	Location(s) from which employees will be assigned	Brightfields employees will be assigned from both the MA and CT offices.
E	Point of Contact	Pete Pedersen Managing Principal 40 Walnut St., Ste. 301, Wellesley, MA 02481 781-772-2871 ppedersen@brightfieldsllc.com
F	Company background/history	Please reference Section 5: "Company History and Qualifications" and Section 6: "Company PV Qualifications" for a description of Brightfields' history and qualifications.
G	Length of time Bidder has been providing the services described in this bid	The Brightfields leadership team has been remediating, redeveloping and managing environmental liabilities since the early 1990s. Brightfields has been crafting solar solutions for contaminated and underutilized properties for municipalities and Fortune 500 partners since 2010.
H	Past Rhode Island solar installation and examples of prior installations on state, quasi-state or municipal properties	Brightfields has extensive experience developing solar projects on municipal properties. Brightfields has developed solar arrays on municipal landfills in Scituate, MA, Needham, MA, Williamstown, MA, Lexington, MA and Norwich, CT. Brightfields is also developing the first solar project on U.S. Forest Service land in Miami, AZ. These projects are discussed in greater detail in Section 6: "Company PV Qualifications" and Section 8: "References and Sample Projects."

NRG Energy, Inc. / NRG Renew LLC		
A	Company ownership	NRG Energy, Inc. is a shareholder-owned, publicly-traded company (NYSE: NRG); NRG Renew LLC is a wholly-owned subsidiary of NRG Energy, Inc.
B	Location of company offices	NRG Energy, Inc. is dual-headquartered in Princeton, NJ and Houston, TX, and has regional operations across the U.S.; NRG Renew LLC is headquartered in San Francisco, CA, with a number of additional regional offices.
C	Number of employees	10,000+
D	Location(s) from which employees will be assigned	NRG employees will likely be assigned from the following offices: San Francisco, CA Scottsdale, AZ Reading, PA
E	Point of Contact	Daniel Keyes Associate, Solar Development 100 California Street, Suite 400, San Francisco, CA 94111 415-215-1461 daniel.keyes@nrg.com
F	Company background/history	Please reference Section 5: "Company History and Qualifications" and Section 6: "Company PV Qualifications" for a description of NRG's history and qualifications.
G	Length of time Bidder has been providing the services described in this bid	NRG Energy has been in the business of developing, constructing, owning, and operating power generation assets since its inception in 1989. NRG Renew has been in the business of developing, constructing, owning, and operating solar power generation assets since its inception in 2009.
H	Past Rhode Island solar installation and examples of prior installations on state, quasi-state or municipal properties	NRG has extensive experience developing, financing, and operating solar assets on municipal properties, including projects in MA, CT, FL, CA, and AZ. Please reference Section 6: "Company PV Qualifications" for specific examples.

5. Company History and Qualifications

a) Brightfields

Brightfields Development LLC is a Massachusetts-based limited liability company that is one of the nation's premier developers of innovative solar projects on contaminated or underutilized properties. Brightfields is qualified to plan, permit, design, install, finance and operate a 3.9 MW_{DC} array at the Bristol landfill, due to its prolific experience managing environmental liabilities, deploying solar arrays on landfills and helping municipalities and private clients achieve their clean energy goals.

Brightfields was founded in 2010 under common ownership with Renova Partners LLC ("Renova"), a specialty real estate investment company with expertise in redeveloping contaminated properties and managing environmental liabilities. Renova is one of the only institutionally funded brownfields developers in the United States, having established a $300 million joint venture with Prudential Real Estate Investors ("PREI"). PREI is the real estate investment business of Prudential Financial, and holds $49.1 billion of gross assets under management. Renova is the only brownfields developer in the Prudential Partners portfolio.

Since its inception 2001, Renova has established itself as one of the nation's leading brownfields redevelopment companies. To date, Renova's Principals have participated in 160 contamination reclamation projects nationwide. The company has purchased, entitled, remediated and redeveloped industrial brownfields, Superfund sites and landfills for Fortune 500 clients including Exxon Mobil, Chevron, Johns Manville and Union Pacific. Renova has obtained regulatory closure from federal and state authorities on all the properties it purchased, encompassing over 26,000,000 square feet of contaminated land.

Sample projects from Renova's broader real estate portfolio include the remediation and redevelopment of an oil refinery for one of the largest multinational oil conglomerates, a 500-acre former paper manufacturing facility, a bulk oil storage facility for a different multinational oil conglomerate and a highly contaminated 70-acre former railroad yard. Renova owned multiple landfills in the past and is aware of the complexities and challenges that can accompany development on landfill properties The Brightfields-Renova will leverage this knowledge to design and implement a custom solar solution for the Bristol landfill.

Renova's Principals created Brightfields Development in 2010, in conjunction with energy industry veterans, for the purpose of deploying solar energy on environmentally impaired sites. The Principals of Brightfields and Renova leverage their expertise in energy (solar, biomass, natural gas turbines and cogeneration), contaminated property redevelopment, environmental

consulting, landfill design, government relations, finance, law and real estate development to craft clean energy solutions to complex environmental challenges.

Pre and post demolition and reclamation images of a 500-acre former paper manufacturing facility in Brevard, NC.

Since 2010, Brightfields has utilized Renova's institutional brownfields knowledge to deploy solar arrays on municipal landfills, contaminated properties, former mineral extraction sites, Superfunds sites and underutilized properties across the nation. Relevant municipal landfill solar PV experience includes the development of arrays in Scituate, MA (3.0 MW_{DC}), Needham, MA (3.5 MW_{DC}), Williamstown, MA (1.9 MW_{DC}), Lexington, MA (2.25 MW_{DC}) and Norwich, CT (2.6 MW_{DC}). Relevant brownfields projects include a 7.0 MW_{DC} solar array on a federal Superfund site in Vermont and two 20 MW_{AC} projects on contaminated properties in Illinois, including a project on a Superfund Alternative site. Brightfields solar development experience is discussed in greater detail in Section 6 "Company PV Qualifications."

Solar arrays at the Rodgers Road Landfill in Norwich, CT.

Brightfields has no significant prior or ongoing contract failures, any civil or criminal litigation or pending investigations to disclose.

b) NRG Energy

NRG Energy, Inc. was founded in 1989 as a subsidiary of Northern States Power Company, later incorporated in 1992. NRG is a Delaware corporation and a public company listed on the NYSE, stock ticker "NRG." A Fortune 200 company, NRG supports clean energy resources and technologies critical to our transition to a sustainable, low-carbon society. Our diverse power generating facilities have a capacity of nearly 50,000 MW.

NRG Renew LLC: NRG's renewables group was established in 2009 and operates 49 large-scale renewable energy projects (16 solar & 33 wind) totaling approximately 4,500 gross MW_{AC} of capacity in operation, across 27 states, Guam and the Caribbean. That makes NRG one of the nation's largest renewable energy companies and the largest equity sponsor of solar power in the U.S. with nearly 2,400 gross MW_{DC} of solar power under management, with systems ranging from the world's largest utility-scale arrays to distributed generation projects on the roofs of hospitals, commercial buildings and universities.

NRG employs more than 10,000 people in the U.S., with nearly 300 people dedicated to NRG's distributed and utility-scale renewable energy business. We offer a diverse range of experience including longtime solar industry leaders, energy engineers, project developers and investment specialists, and experts in environmental issues, permitting, interconnection, transmission, and power plant operations. The NRG staff-members aligned for this project are equipped and available to prioritize its success, and have extensive experience in their assigned specializations and roles on comparable projects. These subject matter experts specialize in identifying the key drivers of every project, and will work closely with Bristol to uphold our promise of superior quality and satisfaction.

NRG has demonstrated expertise in managing solar projects of all sizes and scopes and offers the most diverse portfolio of energy products and services in the country. As one of the nation's largest generators and retail electricity providers, NRG has unmatched insight into the U.S. energy sector. We recognize that successful project implementation and portfolio management requires a broad spectrum understanding of not only energy markets, but also the disciplines that drive business decisions. NRG's experience across the energy value chain provides access to a range of resources that are unmatched by other solar companies.

6. Company PV Qualifications

a) Brightfields

Brightfields is a proven solutions-driven developer with extensive experience deploying solar on landfill and brownfields properties across the United States. In Massachusetts, Brightfields won competitive solicitations to develop solar arrays on municipal landfills in Scituate, MA (3.0 MW_{DC}), Needham, MA (3.5 MW_{DC}), Williamstown, MA (1.9 MW_{DC}) and Lexington, MA (2.25 MW_{DC}). Brighteilds' Lexington project, which includes a fixed tilt ground-mount array and two solar canopy structures, is one of the nation's only solar canopy landfill projects, due to the complexities associated with constructing structures on a geotechnical dynamic surface such as a landfill. Another relevant project is a 7.0 MW_{DC} solar PV array straddling the Towns of Strafford and Thetford, VT on a 28-acre former copperas mine and federal Superfund site. Brightfields worked closely with U.S. Environmental Protection Agency to develop this site-specific solar design that repurposed the dormant copperas mine into a clean energy asset.

Architectural rendering of landfill solar canopy array, which is currently under construction in Lexington, MA.

In 2014, Brightfields was selected by Connecticut Municipal Electric Energy Cooperative ("CMEEC") in a competitive procurement process to develop a 20 MW_{DC} community solar portfolio. Brightfields managed the complete development life-cycle including securing financing, site identification, preliminary design, final design, preparing and obtaining all permits, oversight of construction activities and ensuring compliance with design drawings. In partnership with CMEEC and financial partner SolarCity, Brightfields deployed solar assets at a number of

underutilized sites in the Cooperative's Connecticut service territory, including one at a municipal landfill in Norwich, CT. To date, four of the eight sites are complete (10.6 MW_{DC}), three are under construction with an anticipated January 2017 completion (6.7 MW_{DC}) and the final site (2.7 MW_{DC}) is in the preliminary permitting stage.

3.1 MW solar array in Bozrah, CT.

In addition to the solar development, Brightfields worked with Tesla to install one of the nation's first utility scale energy storage systems. The system will be composed of two 750 kW energy storage systems with up to 3,000 kWh of electricity, for an aggregate system size of 1,500 MW and 6,000 MWh of electricity. Tesla provided engineering and installation services and will maintain the battery storage system for the duration of its 20-year life span. CMEEC will utilize their Gridlogic platform to remotely and instantaneously dispatch stored solar energy in the event of increased demand or large-scale power outages in its service territory.

Subsection of a 750 kW—3,000 MWh lithium ion battery bank coupled with a 4.75 MW — DC solar array in Norwich, CT.

Other relevant solar developments from Brightfields' broader portfolio include a 10 MW_{DC} array on a closing copperas mine in Miami, AZ. For this project, Brightfields worked with KGHM Polska Miedz, one of the largest multi-national mining conglomerates, to obtain the first-ever Special Use Permit for solar on U.S. Forest Service land. This project has received all requisite approvals and construction is expected to commence during spring 2017.

In East St. Louis, IL, Brightfields aligned the interests of multiple stakeholders including USEPA, community groups and Alcoa to design a closure remedy for a 250-acre Superfund Alternative site and former bauxite residue disposal that integrated a 24 MW — DC solar field. The Brightfields team managed the project from concept to completion, ensuring that the proposed solar development works seamlessly with the complex remedial closure. The site remediation is in its final stages and the site should be available for solar development by the first quarter of 2017. Additionally, Brightfields is developing portfolios of community solar projects in Massachusetts and New York.

Brightfields will leverage its experience deploying solar assets on environmentally challenging sites and collaborating with environmental regulators to deliver the Town of Bristol a 3.9 MW_{DC} that fulfills the town's clean energy vision.

b) NRG Energy

NRG has nearly than 2,400 MW_{DC} of utility-scale and distributed solar projects in operation or under construction. The tables below represent this unparalleled experience.

Utility Project[1]

Project	Offtaker	Location	Complete	% Ownership	Generation Owned (MW AC)	Total System Size (MW AC)
California Valley Solar Ranch	Pacific Gas and Electric Company	San Luis Obispo County, CA	10/2013	100%	250	250
Solar*	City of Georgetown	Pecos County, TX	2/2018	100%	200	200
Ivanpah (thermal)	Pacific Gas and Electric Company Southern California Edison	Mojave Desert, CA	2/2014	50.1%	189	390 (net)
Desert Sunlight	Pacific Gas and Electric Company Southern California Edison	Riverside County, CA	12/2014	25%	138	550
Agua Caliente	Pacific Gas and Electric Company	Yuma County, AZ	2/2012	51%	148	290
Four Brothers – Enterprise	Pacificorp	Beaver and Iron County, UT	7/2016	100%	105	105
Four Brothers – Escalante I	Pacificorp	Beaver and Iron County, UT	8/2016	100%	105	105
Four Brothers – Escalante II	Pacificorp	Beaver and Iron County, UT	8/2016	100%	105	105
Four Brothers – Escalante III	Pacificorp	Beaver and Iron County, UT	8/2016	100%	105	105
Three Cedars – Granite Mountain East	Pacificorp	Iron County, UT	9/2016	100%	100	100
Three Cedars – Granite Mountain West	Pacificorp	Iron County, UT	10/2016	100%	100	100
Kawailoa*	HECO	Kawailoa, HI	12/2018	100%	67.6	67.6
Alpine	Pacific Gas and Electric Company	Lancaster, CA	1/2013	100%	66	66

Project	Offtaker	Location	Complete	% Ownership	Generation Owned (MW AC)	Total System Size (MW AC)
Three Cedars – Iron Springs	Pacificorp	Iron County, UT	8/2016	100%	63	63
Waipio*	HECO	Waipio, HI	12/2018	100%	62.2	62.2
Avra Valley	Tucson Electric Power	Marana, AZ	12/2012	100%	26.5	26.5
Dandan	Guam Power Authority	Inarajan, Guam	10/2015	100%	26	26
Borrego	San Diego Gas and Electric Company	Borrego Springs, CA	2/2013	100%	26	26
Avenal	Pacific Gas and Electric Company	Kings County, CA	8/2011	50%	23	45
Blythe	Southern California Edison	Riverside County, CA	12/2009	100%	21	21
Mililani II*	HECO	Mililani, HI	12/2018	100%	20.3	20.3
Blythe II*	Cisco	Riverside County, CA	Q1 2017	100%	20	20
Kansas South	Pacific Gas and Electric Company	Kings County, CA	6/2013	100%	20	20
Roadrunner	El Paso Electric	Santa Teresa, NM	8/2011	100%	20	20
Oasis	Southern California Edison	Palmdale, CA	1/2016	100%	20	20
TA-High Desert	Southern California Edison	Los Angeles County, CA	3/2013	100%	20	20
Community Solar 1	Imperial Irrigation District	Brawley, CA	6/2014	100%	6	6
MC1 Solar Farm	Dominion Power	Williamston, NC	8/2016	100%	5	5
Spanish Town Estate	U.S. Virgin Island Water and Power Authority	St. Croix, U.S. Virgin Islands	12/2014	100%	4	4
			Total		2,061.6	2838.6

[1]Asterisk (“ * “) denotes site is under construction.

Distributed solar[2]

Project	Location	System Size (kW DC)	Type	Date of Commissioning
Spencer Community Solar (10 locations)	Spencer, MA	20,101	Ground mount	11/2016
Arizona State University (31 locations)	Glendale, Mesa, Phoenix, Tempe, AZ	12,921	Ground mount (fixed, single-axis), rooftop, and elevated	5/2011 – 2/2013
SunShare CO Community Solar Gardens (9 locations)	Colorado Springs, Denver, and Watkins, CO	8,683	Ground mount	7/2015 – 8/2015
School District (9 locations)	Stevenson Ranch and Santa Clarita, CA	6,475	Ground mount and elevated	10/2012
MGM Mandalay Bay Phase I and II	Las Vegas, NV	8,303	Rooftop	7/2016
Federal Road	Plymouth County, MA	5,996	Ground	12/2015
Housing Authorities*	Mattapoisett, MA	5,346	Ground	5/2017
Lenape II	Indianapolis, IN	4,732	Elevated and rooftop	11/2015
Housing Authority*	Dighton, MA	4,475	Ground	6/2017
City and Housing Authorities*	Haverhill, MA	4,050	Ground	5/2017
City*	Lakeland, FL	3,783	Ground	12/2016
University (2 locations)*	Medford, MA	3,741	Ground	12/2016
San Diego International Airport (Phase 1a, 1b, 2)	San Diego, CA	3,316	Elevated and rooftop	9/2015 -1/ 2016
Lincoln Financial Field (Philadelphia Eagles)	Philadelphia, PA	3,257	Elevated and rooftop	2/2013
Corporate	Casa Grande, AZ	3,249	Ground mount single-axis	4/2011
County (8 locations)	Orange County, CA	3,235	Ground mount and elevated	12/2012
Steel Bridge	Polk County, OR	2,935	Ground mount	3/2016
School District (3 locations)*	Fresno, CA	2,750	Carport	1/2017
Foxborough Community Solar*	Foxborough, MA	2,614	Ground	5/2017
Hopkinton Community Solar*	Hopkinton, MA	2,453	Ground	5/2017
Rehoboth Landfill	Rehoboth, MA	2,415	Ground	12/2015
National Grocery Chain (11 locations)	Throughout CA	2,246	Rooftop fixed	12/2008 – 7/2010

Project	Location	System Size (kW DC)	Type	Date of Commissioning
FedExField	Landover, MD	1,949	Elevated and rooftop	9/2011
Town Landfill*	Webster, MA	1,797	Ground	12/2016
Town Landfill*	Foxborough, MA	1,556	Ground	5/2017
School District (3 locations)	Payson, AZ	1,404	Elevated	12/2010 – 3/2011
Pepperell Community Solar	Pepperell, MA	1,344	Ground	7/2016
School District (4 locations)	Phoenix, AZ	1,303	Elevated	8/2011 – 10/2011
University (2 locations)	La Jolla, CA	1,186	Rooftop and elevated	12/2008 – 10/2009
Medical Center	Burlington, NJ	1,159	Ground mount	6/2011
Freetown Community Solar	Freetown, MA	1,113	Ground mount	7/2015
Municipal Water District	Valley Center, CA	1,109	Ground mount single-axis	12/2008
Wastewater District	Richmond, CA	1,014	Ground mount dual-axis	2/2009
Gillette Foxboro Stadium (N.E. Patriots)	Foxborough, MA	940	Rooftop and elevated	12/2012
Corporate	Palo Alto, CA	906	Rooftop	12/2008
City (3 locations)	Flagstaff, AZ	862	Ground mount single-axis, rooftop, and elevated	12/2012 – 2/2013
County (2 locations)*	El Centro, CA	772	Carport and Rooftop	1/2017
Municipal Water District (3 locations)	Concord, CA	765	Ground mount	4/2011 – 1/2012
Non-Profit	Folsom, CA	755	Rooftop and elevated	2/2011
Corporate	Waterbury, VT	737	Ground	12/2015
City (2 locations)*	Lathrop, CA	730	Ground	12/2016
School District	Gila Bend, AZ	717	Elevated	12/2010
University (2 locations)*	Berkeley, CA	709	Roof and Carport	1/2017
Medical Center	Cameron Park, CA	666	Elevated	12/2008
School District (2 locations)	Vail, AZ	632	Elevated	10/2011 – 11/2011
Corporate	El Segundo, CA	601	Elevated and rooftop	2/2009
Starwood - The Phoenician	Scottsdale, AZ	568	Elevated	10/2015
County*	Stockton, CA	556	Carport	11/15/2016
Corporate	Compton, CA	499	Rooftop	1/2011
County (2 locations)	Ventura and Oxnard, CA	492	Rooftop	3/2010
School District (2 locations)	Lancaster and Palmdale, CA	484	Ground mount and elevated	10/2012
Sanitary District	San Lorenzo, CA	468	Ground mount single-axis	3/2011

Project	Location	System Size (kW DC)	Type	Date of Commissioning
Smith Street	Farmingdale, NY	435	Rooftop	12/2015
Pond Road	Oakdale, NY	435	Rooftop	1/2016
Sanitary District	Coachella, CA	420	Ground mount dual-axis	7/2011
School District (2 locations)*	Meriden, CT	392	Rooftop	12/2016
Levi's® Stadium (S.F. 49ers)	Santa Clara, CA	379	Elevated and rooftop	8/2014
City Wastewater Site	Willows, CA	376	Ground mount dual-axis	8/2011
University	San Diego, CA	357	Rooftop	12/2008
School District	Green Valley, AZ	349	Elevated	12/2010
Corporate (3 locations)	San Francisco, CA	348	Elevated	12/2008
School District	Palmdale, CA	343	Ground mount	10/2012
School District (2 locations)*	Bakersfield, CA	339	Carport	1/2017
School District (2 locations)	Flagstaff, AZ	331	Elevated	2/2013
MetLife Stadium (NY Jets & Giants)	East Rutherford, NJ	314	Elevated	9/2012
Religions Institution	Tabernacle, NJ	291	Ground mount	10/2012
School District	Arlington, AZ	280	Elevated	6/2011
University	Pasadena, CA	239	Elevated	12/2008
Medical Center	Apple Valley, CA	230	Elevated	12/2008
School District	Eloy, AZ	227	Ground mount single-axis	6/2011
City (4 locations)	Sun City, AZ	213	Ground mount and elevated	3/2013
County Sanitation District (2 locations)*	Walnut Creek, CA	207	Carport	1/2017
School District	Redding, CA	203	Ground mount	9/2010
City (2 locations)	El Mirage, AZ	202	Elevated	10/2011
Museum	Honolulu, HI	169	Ground mount and rooftop	6/2011
School District	Middlebury, CT	159	Rooftop	3/2010
NRG Stadium	Houston, TX	151	Elevated	8/2015
School District (2 locations)	Lake Hughes, CA	118	Ground mount	10/2012
Medical Center	Kaunakakai, HI	106	Rooftop	11/2010
Non-Profit	Maui, HI	65	Rooftop	11/2008
School District	San Geronimo, CA	57	Ground mount fixed	12/2008
School District	Monterey, CA	37	Rooftop	6/2008
Corporate	San Diego, CA	33	Rooftop	10/2008

Project	Location	System Size (kW DC)	Type	Date of Commissioning
AmericanAirlines Arena (Miami Heat)	Miami, FL	30	Elevated	11/2015
	Total	152.7 MW		

[2]Asterisk (“ * “) denotes site is under construction.

7. Anticipated Project Team

Project Team and Organization Chart

Name	Company	Title	Contact Information
Pete Pedersen	Brightfields	Managing Principal *Primary Point of Contact*	(781) 772-2871 ppedersen@brightfieldsllc.com
John Hanselman	Brightfields	Founder and Managing Principal	(781) 772-2874 jhanselman@brightfieldsllc.com
Mike Singer	Brightfields	President	(860) 214-7195 msinger@brightifeldsllc.com
Brian Tracey	Brightfields	VP Solar Business Development	(781) 772-2876 btracey@brightfieldsllc.com
Kim Martin	Brightfields	Chief Financial Officer	(781) 772-2873 kmartin@brightfieldsllc.com
Bill Pedersen	Brightfields	Program Manager	(781) 772-2877 bpedersen@brightfieldsllc.com
Craig Cornelius	NRG	President, NRG Renew LLC	(415) 627-1620 craig.cornelius@nrg.com
Daniel Keyes	NRG	Associate, Solar Development	(415) 215-1461 daniel.keyes@nrg.com
Joe Corning	NRG	Manager, Solar Development	(415) 627-1636 joe.corning@nrg.com
Patrick Sullivan	NRG	VP, Development Operations	(415) 627-1630 patrick.sullivan@nrg.com

Brian Magner	NRG	VP, Project Finance	(415) 627-1648 brian.magner@nrg.com
Mark Flickinger	NRG	VP, Construction Management	(480) 424-1694 mark.flickinger@nrg.com
Randall Hickok	NRG	SVP, Operations	(480) 424-1657 randall.hickok@nrg.com

Norman A. ("Pete") Pedersen III
Founder & Managing Principal

Pete Pedersen is a Managing Principal and Founder of Brightfields Development and Renova Partners. Mr. Pedersen has over thirty years of experience in law, corporate finance, and business with special expertise in corporate control transactions within the environmental industry and transactions involving environmentally impaired properties.

Prior to founding Renova, Mr. Pedersen was a corporate attorney and Vice President for Corporate Development at Thermo Electron Corporation and a Principal at EnCapital, Inc., a boutique investment bank serving the environmental, energy and engineering industries. While at Thermo, he managed acquisition campaigns, venture capital investments, and initial public offerings. He also conceived, founded and managed Thermo Electron's consulting practice for facilitating the redevelopment of contaminated properties and the mitigation of contingent environmental liabilities. At EnCapital, Mr. Pedersen originated and managed merger and acquisition and private placement engagements. Early in his career, Mr. Pedersen worked as an analyst in corporate finance at Lehman Brothers Kuhn Loeb in New York and as an attorney at Nagashima & Ohno in Tokyo and Hale and Dorr in Boston.

Mr. Pedersen is a regular speaker on redevelopment issues and renewable energy development at several educational institutions including Hamilton College and Boston University School of Management as well as at several trade and educational forums. Mr. Pedersen graduated from Amherst College, Magna Cum Laude, and holds a J.D. degree from the University of Chicago.

John B. Hanselman
Founder & Principal

John Hanselman is a Principal and Founder of Brightfields Development and a Principal of Renova Partners. He has thirty years of experience in renewable energy, environmental and entrepreneurial companies. Mr. Hanselman co-founded Brightfields Development to accelerate the revitalization of environmentally impacted lands with renewable energy generating facilities.

Mr. Hanselman has directed several of the nation's largest private acquisitions of contaminated properties from Fortune 500 polluters. He was responsible for creating Renova's $300 million joint venture with Prudential Real Estate Investors that lead to the cleanup of over 3 million square feet of contaminated buildings and land. Brightfields was founded in 2010 to combine Mr. Hanselman's passions for technology and the environment.

Mr. Hanselman began his career in real estate development, where he served as Director of Finance and Acquisitions for two national firms. During his tenure at the two firms, Mr. Hanselman completed over $2 billion worth of transactions in the mixed-use, hotel and retail sectors. Prior to joining Renova, Mr. Hanselman founded Active Impulse Systems, Inc., a semiconductor metrology company, and served as President and CEO until the company was acquired by Philips Electronics. Mr. Hanselman then founded and served as President and CEO of LingoMotors, Inc., a natural language software company. In addition to his duties at Brightfields, Mr. Hanselman is also the Executive Chairman of Vanguard Renewables, which operates multiple Anaerobic Digesters in Massachusetts.

Mr. Hanselman has been an invited speaker at Harvard Business School and both MIT's Sloan Business School and Center for Real Estate Development and currently serves on the Board of Directors for Atlantic Virtual Incubation Company, an early stage venture fund. He has published scientific papers and holds patents in the semiconductor manufacturing and metrology space. Mr. Hanselman has a B.A. from Hamilton College.

Michael Singer

President & Project Director, Environmental and Geotechnical Engineering

Michael Singer is President of both Renova and Brightfields, and oversees all projects. He is responsible for managing all redevelopment projects completed by Renova and Brightfields and is actively involved in the execution and structuring of new transactions. Mr. Singer has over 20 years' experience in project and program management in the real estate and environmental fields. He has specialized experience as a development manager in the purchase, remediation, development, and resale of environmentally impaired properties, specifically focusing on integration of remedial programs with real estate development. He has also worked with retail, industrial and commercial end users at both Trammel Crow Company and Sapient Corporation to consistently deliver complex projects. Mr. Singer's unique skillset provides proven experience to seamlessly coupling redevelopment priorities with environmental restoration work. Mr. Singer has a BS in Civil Engineering from Union College.

Brian A. Tracey
Vice President of Solar Business Development

Brian Tracey Brian Tracey is Vice President of Development at Brightfields and will serve as Program Manager. A 20-year veteran of the U.S. power industry, Mr. Tracey's expertise includes resource management, engineering and economic analysis, renewable energy policy, energy development and project management. Throughout his career, Mr. Tracey has worked as a consultant, project engineer and research analyst, including several years as the Senior Gas and Power Analyst with the Massachusetts Division of Energy Resources (DOER

Kim Martin
Chief Financial Officer

Kim Martin is the Chief Financial Officer for both Renova and Brightfields. Ms. Martin is responsible for financial modeling and analysis, as well as project financing and reporting. She also manages the investor relations. Ms. Martin oversees the accounting and financial reporting functions, including budget management, progress reporting and vendor, client and banking relations. Ms. Martin has over 20 years' experience in finance, accounting and financial reporting in both the public and private sectors. She has worked several years in public accounting at PricewaterhouseCoopers along with having several years of private experience in technology, manufacturing and retail. Ms. Martin is a graduate of Bentley University.

Bill Pedersen
Program Manager

Bill Pedersen is a Program Manager at Brightfields. Mr. Pedersen assists Brightfields' Principals with business development activities including relationship cultivation, site identification, solar feasibility analysis, and property acquisition. Prior to joining Brightfields, Bill was a two term Energy Corps AmeriCorps member serving with the Energy Coordinating Agency of Philadelphia and the Montana Department of Environmental Protection. At Montana DEQ, Bill was the sole full time employee of the SMART Schools Challenge, which got Lt. Governor Angela McLean recognized as the General Electric — National Lieutenant Governors Association "Public Leadership in Energy and Environmental Stewardship" award recipient. Bill has a B.A. from Hamilton College.

Craig Cornelius
Senior Vice President, Renewables

Craig is responsible for leading NRG's renewables division, including origination, development, operations, and asset management across the Company's businesses in utility wind and solar, commercial & industrial renewable energy, and community solar. In this capacity, he also serves as President of NRG Renewables LLC. Craig joined NRG in 2013, and until assuming his current role, led new business development for renewables, including the establishment of development platforms in new market segments, acquisition of projects, formation of strategic partnerships, and direction of business process improvement initiatives.

Prior to joining NRG, he served as a Principal and then a Managing Director at Hudson Clean Energy Partners, leading investment activities in the firm's solar investing practice, where the firm advanced investments in leading-edge supply chain platforms and built substantial development pipelines in Recurrent Energy and Element Power Solar prior to successful exits from those investments. Previously, he was the Program Manager of the U.S. Department of Energy's (DOE) Solar Energy Technologies Program, where he led the creation of the $1.5 Billion Solar America Initiative. He has also served terms at the U.S. National Aeronautics and Space Administration (NASA), the Geoinformatics and Space Technology Development Agency of Thailand, and the U.S. National Academies of Science.

Craig holds an A.B. from Princeton University in History of Science with a concentration in aerospace engineering, and an M.A. in Science, Technology and Public Policy from the George Washington University. He was a Henry Luce Foundation Scholar and received the DOE's Special Service Award for his work in creating the Solar America Initiative.

Daniel Keyes
Associate, Solar Development

Mr. Keyes is responsible for the development and acquisition of distributed solar projects that serve commercial, municipal, and utility customers across the U.S., with a focus on financial modeling, contract negotiation, economic analysis, and project management. Prior to his current role, he worked in the Strategy & Investor Relations group at NRG Energy, with a key focus on the financial and valuation impact of major strategic initiatives, power market supply and demand dynamics, and emerging distributed solar business models. Keyes began his career as an Investment Banking Analyst in the Power & Utilities group at Bank of America Merrill Lynch, where he advised on a number of notable power and renewables public market transactions. He holds a BS in Finance from Fordham University in New York, NY.

Joe Corning
Manager, Business Development

Mr. Corning is responsible for originating and developing distributed generation opportunities for NRG, with a particular focus on developing solar projects adjacent to NRG's conventional fossil-fueled assets. Prior to joining the team at NRG Renew, he was the Development Manager at C12 Energy, working on the acquisition and development of enhanced oil recovery projects using carbon dioxide. He holds a BA in Government and Environmental Science from Harvard College.

Patrick Sullivan
Vice President, Development

Mr. Sullivan leads NRG Renewable's Project Development team. He joined NRG in 2013 and brings more than a decade of experience in renewable energy project development, origination, project finance, capital formation, M&A and partnership management to his role at NRG, where he leads a multi-disciplinary team of developers and technical experts responsible for delivering NRG's growing portfolio of distributed generation and utility-scale wind and solar projects into construction. Prior to NRG, Patrick was Senior Director of Business Development BrightSource Energy, a leading global developer of utility scale solar thermal power projects. While at BrightSource, Patrick originated project development and partnering opportunities in the U.S., South Africa, China, India and North Africa, and led the implementation of BrightSource's strategic partnership with leading global power equipment company Alstom. He joined BrightSource as Director of Financial Planning, where he had day-to-day responsibility for corporate capital raising, investor relations, budgeting and treasury activities. Patrick began his career as an investment banker in the M&A groups of Lehman Brothers and Legacy Partners, where he focused on buy and sell-side transactions in the Global Industrials vertical. Patrick

received an A.B. in History from Princeton University and an MBA from the Darden Graduate School of Business Administration at the University of Virginia.

Brian Magner
Vice President, Project Finance

Mr. Magner has over 10 years of solar project development and financing experience. He currently leads NRG Renew's Project Finance department. Prior to joining NRG, Brian was Vice President and head of Recurrent Energy's Project Finance group where his team secured over $4 billion of project level debt and equity for more than 50 utility-scale solar projects throughout North America. Prior to Recurrent Energy, Brian was a senior analyst at SunPower and Powerlight Corporation where he played key roles in the development, analysis, execution and closing of more than 50 MW ($350 million) of solar projects. He holds a MS in Business Administration with a concentration in Finance from SFSU and a BS in Business Administration from the University of Delaware.

Mark Flickinger
PE, Vice President Construction & Projects

Mr. Flickinger brings more than 40+ years of construction experience to his role including the development, engineering, and construction management of nearly $1 billion of renewable energy projects. At NRG Renew, he is responsible for leading and managing engineering, procurement, and construction of distributed generation and utility-scale solar projects. Prior to this role, Flickinger was with Gehrlicher Solar America LLC, MW Energy, Acciona Energy North America where he managed the construction of solar projects ranging from 1-65 MW, wind projects ranging from 45-240 MW, substations from 34.5kv to 230kv, transmission and distribution infrastructure, and interconnections to the utilities. He has also held management and ownership roles within various commercial and residential construction firms. He is a Licensed, Class A, Contractor in Arizona, California (inactive), and Florida as well as NEBCEP solar certified.

Randall Hickok
Senior Vice President, Technical and Commercial Operations

Mr. Hickok is responsible for overseeing new solar projects through the evaluation, design and execution phases. Randy – who joined NRG Renew in early 2011 – will also steer the NRG Renew and NRG West region Asset Management team, which assumes commercial oversight of the construction, commissioning and commercial operations of our region's power solar plants working closely with our DEPC and Energy Services affiliates. He has 23 years of energy industry experience which include the commercial management of merchant power plants, direction of the operations and maintenance of a fleet of generating assets, management of

regulatory and legislative affairs, strategic planning and analysis, and mergers and acquisitions work. Most recently Randy held senior positions at Dynegy, LS Power, and Duke Energy where he performed the asset management function for a varying fleet of power plants in the Western United States. He holds a Bachelors of Business Administration degree from Texas A&M University with majors in Finance and Business Analysis.

8. References and Sample Projects

Scituate, MA — 3.0 MW

Client Name	Town of Scituate
Location	Scituate, MA
Project Owner/Financial Partner	Main Street Power (PPA)
Installation Size	3,000.00 kW—DC
Application Type	Landfill solar ground-mount system
Year of Completion	2013
Reference	Al Bangert Town of Scituate (781) 545-8700 abangert@scituatema.gov
Project Timeline	Competitive solicitation won 2011, commercial operation commenced 2013
Modules Used	Astronergy 280 W

Project Description	Scituate Solar I is a 3.0 MW – DC fixed tilt solar ground-mount array on a capped landfill, located in Scituate, MA. The project was awarded the PV America 2014 Project of Distinction Award and the 2014 Brownfield renewal Environmental Impact Award. Additionally, the United States Environmental Protection Agency (USEPA) completed a case study on the Scituate landfill solar project and presented it as an exemplary solar landfill project at the 2014 EUCI conference on brownfields in Philadelphia, PA. Please see Exhibit G for a copy of the USEPA case study.
Project Role	For Scituate Solar I, Brightfields secured and executed the following: • Won competitive solicitation • Financing from Syncarpha Capital, who sold the project to Main Street Power • Lease agreement with Scituate • Net metering and power sales agreement with Scituate • Detailed environmental study and design • MassDEP Landfill Reuse Permit application and approval • Array layout and one-line design for interconnect process • Interconnection application with National Grid • System Impact Study with National Grid • All Scituate municipal permits • MA DOER, MassDEP, MA DPU, FERC, and ISO-NE regulatory interface

Community Shared Solar Portfolio in Connecticut – 20 MW

Client Name	Connecticut Municipal Electric Energy Cooperative ("CMEEC")
Location	Several sites in Norwich, Bozrah and Groton
Project Owner/Financial Partner	SolarCity Corporation
Installation Size	20,000 kW
Application Type	Landfill and greenfield solar ground-mount systems
Reference	Drew A. Rankin Chief Executive Officer CMEEC 30 Stott Avenue Norwich, CT 06360 Email: drankin@cmeec.org Cell: 860-822-3697 Office: 860-383-1092
Project Timeline	Initial plans proposed summer 2014, construction commenced Q2 2015. Currently 4 sites are complete, 3 are under construction and one is in permitting.
Modules Used	Trina Solar 305W

Project Description	Brightfields was selected by the Connecticut Municipal Electric Energy Cooperative ("CMEEC") in a competitive procurement process to develop a 20 MW — DC community solar portfolio at several sites throughout Connecticut. Brightfields managed the complete development life-cycle including site identification, securing financing and EPC services, preliminary design, final design, preparing and obtaining all permits, oversight of construction activities and ensuring compliance with design drawings. Projects are sited on both brownfield and greenfield properties and some projects will incorporate battery storage. The site featured above is the largest solar plus storage farm in Connecticut, a 4.75 MW array with an accompanying 750 kW – 3,000 MWh lithium ion energy storage system located in Norwich, CT. A second battery (same size) will be coupled with the solar system deployed at the Polaris solar array in Groton, CT.
Project Role	For the CMEEC community solar portfolio Brightfields secured and executed the following: • Securing financing and EPC services from SolarCity Corporation • Obtained DEEP approval for solar development on the Rodgers Road landfill in Norwich, CT • Preformed site identification tasks • Managed stakeholder relationships • Coordinated broad teams composed of diverse stakeholders • Managed the preliminary and final design process • Provided oversight of construction activities • Obtain requisite approvals from CT Siting Council • Worked with CMEEC member utilities to create interconnection procedures • Received requisite interconnection approvals • Ensuring compliance with design drawings

Needham, MA – 3.5 MW

Client Name	Town of Needham
Location	Needham, MA
Project Owner/Financial Partner	SolarCity Corporation
Installation Size	3,560.00 kW—DC
Application Type	Landfill solar ground-mount system
Year of Completion	2016
Reference	Hank Haff Town of Needham P: 781-455-7550 x 347 E: hhaff@needhamma.gov
Project Timeline	Competitive solicitation won 2013, commercial operation commenced Q 1 2016
Modules Used	Renesola 310W
Project Description	Brightfields, bidding alone, was awarded the Needham project after an exhaustive competitive contract procurement process orchestrated for the Town of Needham. After securing permanent financing for the project with SolarCity Corporation, Brightfields performed the permitting and civil engineering scope of the of the project's post-contract execution.

Project Role	For Needham, Brightfields secured and executed the following: • Completed the detailed environmental study and design • Completed the final solar project design and site plan • Completed the project one-line design for the interconnect process • Developed a Materials Handling Agreement to incorporate excess soil previously stockpiled by the Town into the solar array development • Received approval from Mass Historical and Endangered Species • Received a Negative Declaration on Wetlands (no interference) • Received site plan approval from the Town Planning Board • Completed and submitted the interconnection application with NSTAR/Eversource • Initiated the System Impact Study with NSTAR/Eversource • Executed the Interconnection Service Agreement with NSTAR/Eversource • Received the MassDEP Landfill Post Closure Use Permit (PCUP) • Closed financing for the project with SolarCity, who will own and operate the system for the term of the Energy Management Services Contract with the Town

Williamstown, MA — 1.9 MW

Client Name	Town of Williamstown
Location	Williamstown, MA
Project Owner/Financial Partner	Williams College
Installation Size	1,900 kW
Application Type	Landfill solar ground-mount
Year of Completion	January 2017
Reference	Andrew Groff Town of Williamstown P: 413-458-9344 E: agroff@williamstown.net
Project Timeline	Competitive solicitation won in 2014, in a joint bid with SolarCity Corporation. SolarCity transferred its stake in the project to Williams College and the commercial operation is anticipated in q.4 2016
Modules Used	Trina TSM 305-PD14

Project Description	The Williamstown, MA project is a 1.9 MW ground mounted project located atop the Williamstown closed landfill. Brightfields worked closely with the Town to customize the final array size and layout for the Town's specific preferences to optimize the cost savings, education benefits, and economic gains to be realized by the Town. The project will consist of over 6,000 PV modules and cover approximately 7 acres of the landfill.
Project Role	For Williamstown, Brightfields secured and executed the following: • Completed the detailed environmental study and design • Completed the final solar project design and site plan • Completed the project one-line design for the interconnect process • Received approval from Mass Historical and Endangered Species • Received a Negative Declaration on Wetlands (no interference) • Received site plan approval from the Town Planning Board • Completed and submitted the interconnection application with National Grid • Initiated the System Impact Study with National Grid • Received the final Interconnection Services Agreement from National Grid • Received the MassDEP Post Closure Use Permit (PCUP) • Closed financing for the project with Williams College, who will own and operate the system for the term of the Power Purchase Agreement with the Town

Rehoboth, MA — 2.4 MW

Client Name	Town of Rehoboth
Location	Rehoboth, MA
Project Owner/Financial Partner	NRG Renew, LLC
Installation Size	2,415 kW
Application Type	Landfill solar ground-mount
Year of Completion	2016
Reference	Robert Ashton Health Agent Town of Rehoboth, Health Department 148 Peck Street, Rehoboth, MA 02769 (508) 252-3099 x3101
Project Timeline	Acquired project in development stage from BlueWave Capital in July of 2015, commenced construction in September, achieved mechanical completion in December and final completion in February of 2016.
Modules Used	RECOM 315W

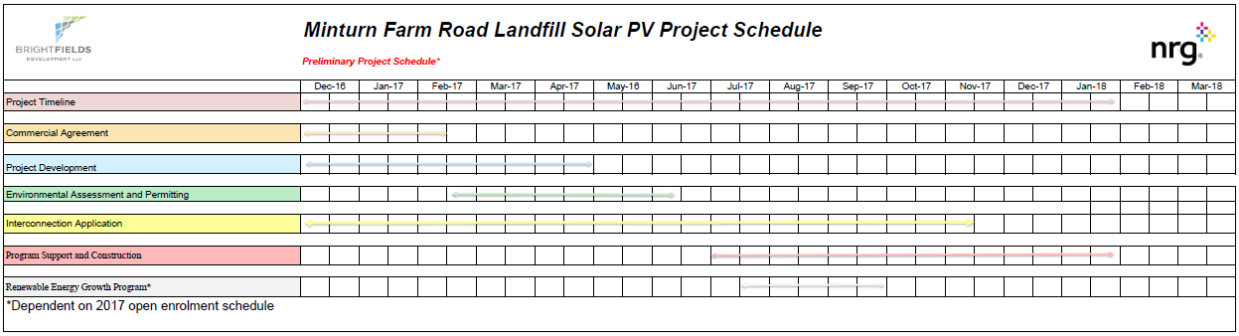
Project Description	The Rehoboth, MA project is a 2.4 MW ground mounted project located atop the Rehoboth closed landfill. NRG acquired this project and was responsible for the final design, construction, and financing of the system. NRG will be the long-term owner and operator of the project on behalf of the Town.
Project Role	For Rehoboth, NRG's responsibilities were: • Finalized single-line diagram for National Grid interconnection • Completed the final project design and site plan • Identified competitive engineering and construction firm and negotiated and executed EPC contracts • Procured and scheduled delivery for major electrical equipment • Managed construction, interconnection, and PCUP compliance process • Oversaw commissioning activities and commenced long-term O&M program • Established project companies and closed financing for the project with tax equity, debt, and NRG Yield

Additional NRG References

Project Name / Location	Description of services	Size and Type	Placed in Service	Client Contact Information *(name, title, phone, email)*
Smith Street, Oakdale, NY And Pond Road, Farmingdale, NY	Grid-connected solar project developed on private land, taking advantage of Long Island Power Authority's (LIPA) and PSEG LI's Feed-in-Tariff (FiT) program in which there's a fixed 20 year payment for all electricity produced.	869 kWdc ground-mount PV solar	12/2015 and 1/2016	Karl Jesaitis PSEG LI- Power Asset Management 516-949-8224 Karl.jesaitis@PSEG.COM
Federal Road South Carver, MA	Grid-connected community solar project developed on private land, taking advantage of Massachusetts's Solar Carve-Out II program in which there's a fixed 20 year payment for all electricity produced.	4,132 kWdc ground-mount PV solar	12/2015	Stephanie Mercandetti Director, Community & Economic Development Town of Medway smercandetti@townofmedway.org 508.321.4918

9. Project Schedule

Organization, clear communication and the identification of critical project pathways are crucial to the success of any solar project. To ensure that Brightfields' projects are completed on time and under budget, the Project Team creates detailed Project Development Schedules with key milestones, deliverables and task durations for all solar projects. To deliver maximum value to the Town of Bristol, Brightfields has created an aggressive but realistic Project Development Schedule to ensure that the Town starts receiving the benefits from Brightfields' proposed solar array as soon as possible. Below is a simplified version of the illustrative schedule.



The proposed Project Development Schedule has a Commercial Operation Date ("COD") in February, 2018. The Project Team anticipates beginning discussions with the Town of Bristol for commercial agreements in January 2017 and signing a mutually agreeable site lease or PPA by mid-February 2017. The Project Team anticipates receiving all necessary permits and approvals by end of June, 2017 and commencing site preparation work and construction by mid-August, 2017. The Project Team will submit a web application for the Rhode Island Renewable Energy Growth program at the first feasible opportunity following the completion of the Impact Study or Interconnection Services Agreement with National Grid.

Please see Exhibit F for the proposed Project Development Schedule, with major project milestones and durations. On the Schedule, critical path items that are crucial to project success are provided in the far-left column and associated timeframes are displayed to the right.

10. Permitting and Interconnection

a) Permitting

The Project Team has a proven history of obtaining regulatory permits and approvals for its solar projects from a variety of Authorities Having Jurisdiction ("AHJ"). Relevant experiences include obtaining multiple Landfill Reuse Permits from the Massachusetts Department of Environmental Protection ("DEP"), receiving Letters of Approval from Environmental Protection Agency ("USEPA") Region 5 for solar developments on federal Superfund sites in Illinois and a State of Vermont Certificate of Public Good ("CPG") for a solar development on a Superfund site. Brightfields has a 100% track record of obtaining regulatory closure and all applicable permits from federal and state authorities.

The Brightfields team's institutional knowledge with regards to obtaining regulatory approvals stems from its sister company, Renova's experience redeveloping over 26,000,000 square feet of contaminated land. Navigating the challenges associated with permitting complex, environmentally impaired properties including the redevelopment of oil refineries, bulk oil storage facilities, railyards and former paper manufacturing facilities has given the Brightfields-Renova team unparalleled expertise at working with regulatory bodies to achieve requisite permits and approvals. The Brightfields and Renova team's extensive history of working with a wide range of regulatory bodies will ensure that the Town of Bristol's solar array is constructed on time and under budget.

b) Rhode Island Department of Environmental Management

Brightfields and NRG understand that the proposed Minturn Farm Road landfill solar array will require approval to modify the existing capping remedy from Rhode Island Department of Environmental Management ("DEM"). Brightfields' civil engineers have reviewed the landfill's Final Closure Plan and do not anticipate any obstacles to development. Brightfields has had preliminary discussions with DEM employees, who told Brightfields that DEM leverages standards developed by Massachusetts Department of Environmental Protection ("DEP"), when regulating solar deployments on landfill properties.

Brightfields has obtained four Post Closure Use Permits ("PCUP") from Massachusetts DEP and is very familiar with the DEP's regulatory methodology. The Project Team is confident that it can prove to the RI DEM that our design will not affect the integrity of the Geosynthetic Clay Liner ("GCL") or adversely affect the landfill's drainage characteristics. The Project Team's development plan will protect the integrity of the capping remedy and the surrounding environment by deploying a ballasted non-penetrating racking solution, strictly enforcing the PSI guidelines for allowable pressure on the cap, utilizing low ground pressure construction vehicles

and installing sediment control measures during construction. The Project Team has extensive experience permitting solar projects on capped landfills and is confident the approval will be received on time and the Project will remain on schedule.

c) Interconnection

Brightfields has extensive experience coordinating interconnection with National Grid and other public and private utilities throughout ISO New England. Relevant experiences with National Grid include obtaining Interconnection Service Agreements for a 3.0 MW solar project in Scituate, MA and a 1.9 MW solar project in Williamstown, MA, commencing an Impact Study for a community solar array in Winchendon, MA, completing a Coordinated Electric System Interconnection Review ("CESIR") for a community solar array in New York and submitting numerous pre-application reports for prospective solar arrays throughout New England. Brightfields understands the interconnection procedure set forth in The Narragansett Electric Company Standards for Connecting Distributed Generation and has a proven track record of navigating the various steps of the distributed generation interconnection process.

For example, during the Scituate interconnection process, our team managed and completed the following:

- The array layout and electrical one-line design required for the interconnection application
- Applied for the Interconnection application with NGRID
- Accepted the System Impact Study with NGRID
- Executed the Interconnection Service Agreement

If selected, Brightfields will utilize its excellent working relationship with National Grid to obtain an Interconnection Service Agreement following the guidelines set by the Interconnection Tariff.

Brightfields has already initiated the interconnection process by requesting and receiving a Pre-Application Report for the three phase circuit on Minturn Farm Road. The Pre-Application report has substantiated the technical feasibility of the proposed project by informing the Project Team that as of September 23rd, 2016 there are 52 kW existing and 57 kW of pending distributed generation assets on the adjacent three phase distribution feeder (feeder: 53-51F1). The Pre-Application report is included on in Exhibit H: Pre-Application Report.

11. Proposed System Design

The Project Team proposes to develop a 3.9 MW_{DC} fixed-tilt ballasted solar array on the Bristol Landfill. The Project Team recognizes the negative impacts that stem from PV system downtime due to component failures. To protect the time and effort that the Towns of Bristol and Barrington have invested into the creation of this RPF and solar project, the Project Team will only utilize trusted solar components from reputable manufactures, with industry leading warranties and proven performance histories in harsh New England winters.

To maximize system output, the fixed-tilt array will be positioned at a 25° tilt and have an azimuth of 180°. A detailed site plan with the position of major system components is included in Exhibit E: Site Plan.

The Brightfields NRG team intends to utilize Canadian Solar CSU6 Max Power 340 M modules, Power Electronics FS1480CU inverters and a RBI ballasted fixed tilt racking solution. Descriptions of system components and warranties are included below. Detailed component cut sheets are included in Exhibit H: Component Cut Sheets.

a) System Components

Canadian Solar- CS6U Max Power 340 M Modules
The Project Team's design utilizes high efficiency Canadian Solar CS6U Max Power 340 M monocrystalline silicon modules. These 72 cell modules offer the industry's best low irradiance performance, module efficiencies of up to 17.49 % and a 25-year linear power output warranty. Canadian Solar CS6U Max Power 340 M modules deploy a rugged design that are engineered to withstand heavy snow loads up to 5400 pa and wind loads up to 2400 pa.

CS6U Max Power 340 M Modules are UL 1703 certified, to ensure safety and reliability.

Power Electronics HEC-UC FS1480CU

The Project Team's design utilizes Power Electronics HEC-US FS1480CU inverters. These central inverters are the most powerful and reliable Utility Scale PV Inverters on the market. This innovative design offers an extended MPPt voltage range and maximum efficiency in AC output voltages ranging from 400Vac to 460Vac, covering all commercial and utility-scale PV facilities.

The FS1480CU are UL 1741 and IEEE 1547 certified.

RBI Ballast Fixed-Tilt

The RBI ballasted system is a custom-designed racking solution that is perfect for municipal solid waste landfills and contaminated properties. This design accounts for important parameters of a landfill like static and dynamic loads, cap characteristics, slope and stability. This reliable and cost effective design has been widely deployed across the Northeast and has a proven performance history in harsh New England winters.

To learn more about the array's individual components, please visit Exhibit I: Component Cut Sheets.

b) Component Warranties

The Project Team and the Town of Bristol have a shared interest in system production and reliability. To protect the Town and the Project Team, Brightfields and NRG will utilities UL listed products with industry leading warranties. Below is a summary of the certifications and warranties for the modules, inverts and racking systems.

System Components	Manufacturer	Model	UL, IEC and IEEE Certification	Warranty
Solar Modules	Canadian Solar	CS6U 340 M	UL 1703 / IEC 61215	25 year linear power output warranty, 10 year product warranty on materials and workmanship
Inverter	Power Electronics	HEC-US FS1480CU	UL 1741/IEEE 1547	5 year standard; Extended warranty packages up to 20 years are available
Ground-Mounted Racking	RBI	Ballasted fixed tilt	UL 2703	20 Year-limited warranty

c) Subcontractors

The Project Team has developed solar PV arrays across the nation, including a number of projects on municipal landfill in New England. Upon award, Brightfields and NRG will work with their numerous contacts in the New England solar industry to identify best in class subcontractors for the Bristol landfill solar array.

12. Facility Operations and Maintenance Plan

NRG manages the O&M of one of the largest fleets of electricity generation (renewable and conventional) capacity in the U.S., comprised in part of nearly 2,400 MW_{DC} of solar projects including more than 150 distributed generation projects. NRG manages all its distributed energy projects utilizing in-house personnel, processes and approval procedures; therefore, we are able to customize an asset management program for each customer to conform to all operational, safety and security requirements. NRG can ensure that the final asset management and contingency plans will ensure minimal downtime while maintaining excellent customer service and safety standards. As the asset manager of our projects, NRG is committed to optimizing solar energy performance and system life with a rigorous O&M program that maximizes kWh production.

One of the main benefits of NRG's solar PPA structure is that all operational risk, performance risk and technology risk is transferred to NRG as the owner and operator of each system. NRG's asset management department will be responsible for monitoring, billing and maintenance. We are committed to optimizing solar energy performance and system life with a rigorous O&M program that minimizes investor risk, maximizes kWh production, provides real-time performance monitoring, and virtually eliminates customer involvement in day-to-day operational activities. Our O&M and Asset Management plan is comprised of preventive maintenance, unscheduled maintenance, asset management, monitoring and our trusted performance guarantee.

Preventive Maintenance

Preventive maintenance ("PM") involves panel cleaning, inverter servicing, tracker maintenance (when present) and balance of system inspection. Frequency of PM is dictated by environmental factors and equipment warranty requirements; panel cleaning is usually performed twice a year while the scheduling of inverter, tracker and balance of system maintenance are at fixed intervals. The value of preventive maintenance is measured in system efficiency and system/component lifespan. System efficiency is immediately quantifiable, while lifespan is a long-term result; both are affected by how well a system is maintained.

NRG contracts only with qualified third-party service providers to perform preventive maintenance services on our solar energy facilities. Often we contract for maintenance services

with our EPC partner who built the system. This allows us to leverage both the integrator's intimate knowledge of the system and their warranty. If our EPC partner is unable to perform O&M services, we will contract with our stable of qualified contractors, including solar maintenance companies, electrical contractors, and equipment manufacturers with maintenance capabilities with proven O&M results.

Maintenance scheduling is flexible to prevent disruption of site activities, and it is performed during daylight hours in coordination with the Town. Preventive maintenance on equipment other than panels is scheduled for at least one visit per year to maintain manufacturer's warranties. Service entails recommended inverter maintenance, thermal scans of all electrical contacts and fuses, component calibration, inspection of mounting systems and service of tracker components per manufacturer's guidelines.

Panel cleaning is generally scheduled for twice a year but fluctuates according to local environmental conditions. Service entails full inspection of the array to identify loose wiring connections, broken panels, damaged roof penetrations, trash, weed growth, etc. Recommended techniques include the use of a weak vinegar solution and agitation of the panel surface with a soft brush to remove dirt. Use of de-ionized water is not required but is allowed.

Approach to Unscheduled Maintenance

NRG Renew keeps a constant watch on system performance 24/7 via our Locus monitoring system. Constant, real-time monitoring allows us to follow a prescribed approach to reactive repair:

- Advanced PV performance monitoring tools alert our Operations Team to a potential or an actual problem.
- Our Operations Team will evaluate the problem and categorize it as a critical or noncritical repair.
- NRG's in-house experts make an attempt to identify the cause of the problem and its solution before contacting the O&M service provider. In situations where we do not have enough information about the problem, we will contact the O&M service provider immediately.

- With warranty repairs, NRG contacts the warranty provider to place a claim. For non-warranty repairs we contact the O&M service provider we keep under contract for such work, usually the integrator or the maintenance contractor.
- Once notified of a warranty repair claim, the warranty provider has a defined timeline to produce a plan of action and remedy the problem. This timeline is outlined in the EPC contract according to its nature of critical or non-critical.

Critical repairs are those that entail the loss of power production or the loss of production recording, or situations that present a potential safety hazard. These usually fall under the system warranty and require resolution within 48 hours.
Non-critical repairs are all other repairs and usually entail intermittent loss of communications with the array. Many also fall under the system warranty and require resolution within two weeks.

In-House Asset Management

Asset management is critical in a multi-year relationship, and understanding the skills, experience and capabilities of the PPA provider in this regard is an important decision criteria. NRG's SEFs are managed and maintained by our dedicated in-house asset management services team. NRG's portfolio of SEFs includes a wide variety of sizes and types of arrays ranging from fixed rooftop arrays to dual axis ground mount systems. NRG technicians and affiliates receive a thorough O&M and asset management training on the specific technology they will serve.

The primary roles of the asset management services department are:

- To provide hassle-free, seamless and optimized SEF performance for the customer.
- To ensure an unbroken, reliable revenue stream from the SEF that meets financial expectations over the term of the PPA.
- To serve as the one department that manages all of NRG's assets and interfaces with each customer, yet behind the scenes, the entire NRG organization provides full support.

Monitoring

NRG's in-house asset management services team monitors every single system within its portfolio for performance. Utilizing the Locus monitoring system, NRG keeps a constant watch on system performance 24/7. The Locus system provides monitoring for NRG that includes a Google Map

plugin for quick geo-location of projects including near real-time satellite weather. Asset Managers and Operators will be able to view and troubleshoot projects from this system.

In the event that NRG observes performance issues within the system, NRG has protocol in place that alerts the customer (e.g., internet connectivity issues), and/or the installation partner (e.g., panel under-performance). NRG and our installer partners have a defined period of time within which such issues are to be addressed.

In the event that a customer observes performance issues, they have the capacity to reach out to NRG's dedicated asset manager to have the matter escalated to the O&M provider. With NRG's network, in the event that the O&M partner is not capable of immediately servicing a PV system, one of NRG's network partners is deployed on the servicing call.

Monitoring and user interface systems

There are two parts to the data management software:

- System Monitoring: The solar systems are monitored remotely from NRG's control center in Scottsdale, Ariz. which monitors a combined solar and wind portfolio of more than 500 MWs using a system called Locus.

- User Interface: Locus offers a free customer portal for our customers that would like to see the performance of the solar energy facility they are host to. Any computer or Internet connected device can use this webpage. It can be displayed in a lobby or office and communicates the most typical information that our customers like to see, including present generation and greenhouse gas (GHG) offsets and other customizations.

Locus: System Monitoring

The Locus system monitoring software is a comprehensive suite of products that gives the Town access to both real-time and historical data. Data will be analyzed to identify potential system under-performance. In most occasions issues can be resolved remotely. When necessary, our ticketing and work order tool streamlines the dispatch of regional maintenance personnel to perform corrective actions at the site. Preventive and corrective maintenance of these facilities will

be performed by NRG personnel or will incorporate the use of a local contractor trained under NRG solar maintenance processes (more detail is provided below).

NRG utilizes the Locus LGate 360 Data Acquisition System (DAS) to monitor system performance parameters and provide production information, weather data and billing information for both NRG's asset management team and client personnel. The LGate 360 DAS integrates an onsite meteorological station, a revenue grade meter, network equipment and a graphical user interface (GUI) to monitor major electrical parameters, component temperatures and meteorological conditions. This system has reporting and notification capabilities, including historical graphing and performance analysis. All data is stored in a cloud environment to allow ready access to NRG and its operations contractors. A typical configuration of the Locus system is provided as follows.

The data collected includes:

- Instantaneous Solar PV energy production in kW
- Instantaneous Utility Grid Import kW
- Instantaneous Utility Grid Export kW
- Instantaneous Energy production in kWh
- Instantaneous kWh Net in and out from building
- Instantaneous Solar Irradiance
- Instantaneous Outside Air Temperature
- Instantaneous PV Module Temperature
- Instantaneous Wind Speed
- Instantaneous Wind Direction

A key factor to success on distributed projects is the system and process utilized for remote monitoring, which includes:

- Recording and reading alerts regarding data communication issues, availability of the system and of modular blocks, under-production, and other equipment failures.
- Monitoring of performance to determine and schedule optimum times to carry out preventative and site maintenance tasks such as panel washings and vegetation abatement.
- Resolving issues which can be address from a remote location.
- Mobilizing contractors to the site promptly when needed, and ensuring personnel possess the appropriate training, tools, and spare parts to resolve the problem in minimal time.
- Identifying performance trends for projects, measuring tools, individual equipment manufacturers (panels, combiner boxes, inverters, etc.) in order to optimize performance and inform future procurement decisions.

The Locus system provides monitoring for NRG that includes a Google Map plugin for quick geo-location of projects including near real-time satellite weather. Asset Managers and Operators will be able to view and troubleshoot projects from this system. As mentioned above, the solution is cloud-based so it can be accessed from anywhere.

13. Commercial proposal

Based on the Project Team's analysis of the sites presented in Bid #850, *Public-Private Partnership for On-Site Solar Projects*, Brightfields and NRG determined that the Bristol landfill located on Minturn Farm Road was the most advantageous site for solar development. The Project Team proposes to lease the Town of Bristol's landfill for the purpose of developing a 3.9 MW_{DC}/3.0 MW_{AC} ground-mount solar array. To deliver maximum value to all stakeholders, the Project Team will lease the landfill area from the Town and sell the electricity produced by the solar array to National Grid under the Renewable Energy ("RE") Growth Program. In the RE Growth scenario, the Town of Bristol would benefit from a \$25,000/MW_{AC} or total annual \$75,000 lease payment, for the 20 year program term.

In the unlikely scenario that the proposed project is not accepted into the RE Growth program, the Project Team proposes to sell the electricity to the Town of Bristol through a power Purchase Agreement ("PPA") at a rate of \$0.115/kWh for a 20 year term. This commercial proposal assumes a flat PPA rate with no escalator for the contracted energy price with the Town. This low PPA rate assumes a \$0 lease and \$0 pilot payment

NRG offers its clients a 90% weather-adjusted production guarantee and will extend this guarantee to the Town of Bristol.

Brightfields and NRG understand that the Town of Bristol is not interested purchasing the proposed solar asset.

14. Financial Strength

NRG has successfully completed more than $10 billion in financings over the last few years. We finance with existing cash, cash flow from operations, a shelf note debt structure currently in place, and access to additional debt and tax equity financing. In addition, in late 2012 NRG formed NRG Yield (NSE: NYLD), a $7.6 billion entity that was successfully listed on the NYSE in 2013 and serves to further demonstrate NRG's ability to capitalize and finance renewable energy generation projects. Our project financing and project execution success stem from NRG's robust financial profile characterized by substantial free cash flow from its generation assets and retail electricity subsidiaries, as well as prudent financial and capital management. NRG is a financially sound company, with nearly $33 billion in assets, annual revenues of $14.7 billion, and substantial liquidity to support new project construction and development, including approximately $693 million in cash and over $1.3 billion in total credit facility as of December 2015.

NRG's financial stability provides its clients with certainty of project execution. NRG is able to supply 100% of the required funding from existing liquidity, cash from operations and debt issuance via shelf note or elsewhere. NRG Energy's financial status and industry position are summarized below:

- The U.S's largest equity sponsor of solar projects
- The U.S's largest competitive power producer, with nearly 50,000 MW in operation
- More than 10,000 employees
- More than $1.3 billion in total credit facility with 18 global banks as of December 2015
- $3.77 billion in market capitalization as of 11/29/16
- NRG Energy's 2015 financial statements reflected:
  - $14.7 billion in operating revenue
  - $3.34 billion adjusted EBITDA
  - $1.3 billion of cash flow from operations
  - $32.8 billion in total assets
  - $3.3 billion in total liquidity

The following is a link to NRG Energy's financial reports for the five most recent full financial years: http://investors.nrg.com/phoenix.zhtml?c=121544&p=irol-reportsannual

15. Clean Energy Education

Brightfields recognizes the crucial importance of public outreach and clean energy education to accelerating the adoption of solar power and other forms of renewable energy. To this end, Brightfields prides itself on its ability to collaborate with municipalities to integrate clean energy education into the schools and community.

In Scituate, MA, Brightfields created educational materials for high school, middle school and elementary school audiences to accompany a 3.0 MW solar array it developed on the municipal landfill. Years after the completion of construction, Brightfields stays engaged in the Scituate community by presenting at the annual Scituate Science Spectacular. Brightfields has also worked with teachers from Needham, MA to develop strategies for integrating clean energy education into the existing curricula. Brightfields team members have led community energy education events across the country, managed a statewide environmental educational initiative (MT SMART Schools Challenge) and hosted local energy awareness days.

Brightfields employee discussing solar with students at the Scituate Science Spectacular.

The Project Team proposes to augment its collaboration with the schools by constructing a display kiosk at an acceptable, visible location in town, which will provide real-time information about the solar array's clean energy production. In addition to displaying clean energy production, this board can demonstrate the accompanying environmental benefits such as CO_2 emissions reductions, gallons of water conserved, passenger car miles offset, or any number of environmental metrics. This display board will be crucial to engaging the broader community to explain the importance of this specific solar PV project and clean energy in general.

If selected, Brightfields will engage the Bristol and Barrington communities to determine how best to utilize its educational expertise to contribute to the Town's clean energy educational goals and initiatives. There are a number of opportunities such as integrating Brightfields' educational curricula into local schools', hosting clean energy education days, publicizing the proposed solar arrays' clean energy production through a display board and much more. The development team looks forward to collaborating with the Towns to identify the most beneficial clean energy education opportunity.

Exhibit A: Bid Form

TOWN OF BRISTOL and TOWN OF BARRINGTON, RI

INVITATION FOR RFQ/RFP
BID #850
PUBLIC-PRIVATE PARTNERSHIP FOR ON-SITE SOLAR PROJECTS

Attachment A
Town of Bristol

BID FORM

NAME AND ADDRESS OF BIDDING FIRM:

Brightfields Development LLC

40 Walnut Stree: Suite 301

Wellesley, MA 02481

I herein agree to abide by all requirements as detailed in the "Invitation for Bid #850".

Signature: _____

Printed Name & Title: Norman ("Pete") Pedersen, Managing Principal

Date: 11/28/2016

TOWN OF BRISTOL and TOWN OF BARRINGTON, RI

INVITATION FOR RFQ/RFP
BID #850
PUBLIC-PRIVATE PARTNERSHIP FOR ON-SITE SOLAR PROJECTS

Attachment A
Town of Barrington

BID FORM

NAME AND ADDRESS OF BIDDING FIRM:

Brightfields Development LLC

40 Walnut Street: Suite 301

Wellesley, MA 02481

I herein agree to abide by all requirements as detailed in the "Invitation for Bid #850".

Signature: _____

Printed Name & Title: Norman ("Pete") Pedersen, Managing Principal

Date: 11/28/2016

Exhibit B: Non-Collusion Affidavit

TOWN OF BRISTOL and TOWN OF BARRINGTON, RI

INVITATION FOR RFQ/RFP
BID #850
PUBLIC-PRIVATE PARTNERSHIP FOR ON-SITE SOLAR PROJECTS

ATTACHMENT B
Non-COLLUSION AFFIDAVIT
To Be Completed, Notarized, and Submitted With Bid

State of Rhode Island
County of Bristol

" Brightfields Development LLC, Bidder, being first duly sworn, deposes and says that he or she is Owner of the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the Bidder has not , directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid."

11/28/2016
Date

Wellesley, MA
(Signed at)

Brightffields Development LLC
Bidder name
(Person, Firm, Corp.)

Authorized Representative

40 Walnut Street: Suite 301
Address

Norman ("Pete") Pedersen
Representative's Name

Wellesley, MA 02481
City, State, Zip

Managing Principal
Representative's Title

Exhibit C: Bidder’s Statement Regarding Insurance Coverage

TOWN OF BRISTOL and TOWN OF BARRINGTON, RI

INVITATION FOR RFQ/RFP
BID #850
PUBLIC-PRIVATE PARTNERSHIP FOR ON-SITE SOLAR PROJECTS

ATTACHMENT C

BIDDER'S STATEMENT REGARDING INSURANCE COVERAGE

BIDDER HEREBY CERTIFIES that the Bidder has reviewed and understands the insurance coverage requirements specified in the Invitation for Bid No. 850, Public – Private Partnership for On-Site Solar Projects. Should the Bidder be awarded the contract for the work, Bidder further certifies that the Bidder can meet the specified requirements for insurance and agrees to provide the Town with a certificate of insurance which names the Town of Bristol and the Town of Barrington as an Additional Insured for the work specified.

Insurance Required:

- Workman's Compensation in compliance with statutory limits
- Comprehensive General Liability Insurance of at least $1,000,000.

Brightfields Development LLC _____
Name of Bidder (Person, Firm, or Corporation)

_____
Signature of Bidder's Authorized Representative

Norman ("Pete") Pedersen _____
Name & Title of Authorized Representative

11/28/2016 _____
Date of Signing

Exhibit D: Bidder’s Statement of Relevant Experience

TOWN OF BRISTOL and TOWN OF BARRINGTON, RI

INVITATION FOR RFQ/RFP
BID #850
PUBLIC-PRIVATE PARTNERSHIP FOR ON-SITE SOLAR PROJECTS

ATTACHMENT D

BIDDER STATEMENT OF RELEVANT EXPERIENCE

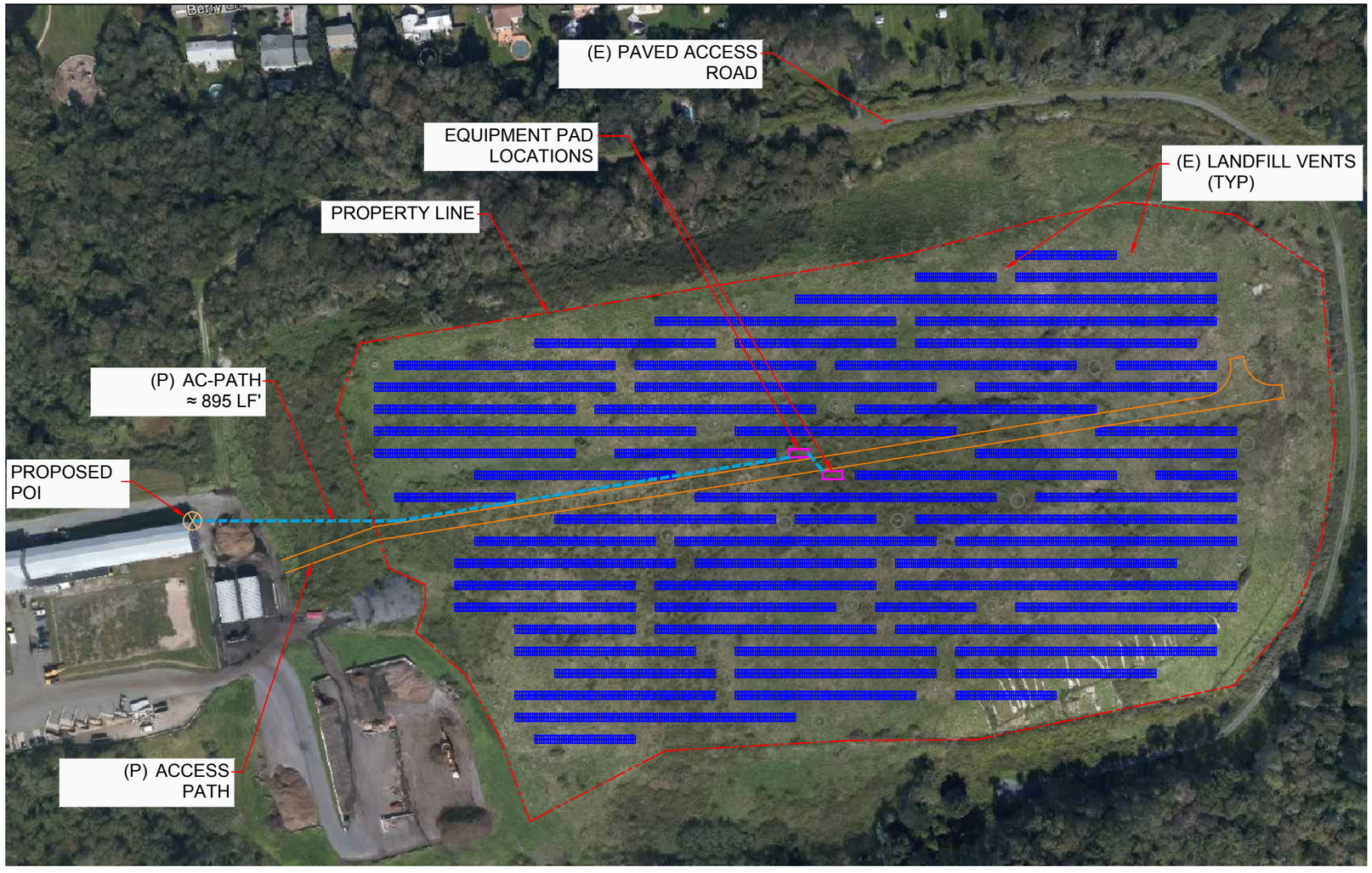
List three (3) references for which your firm provided service within the last five years.

I hereby certify that I have performed the work listed below.

Signature of Bidder

DESCRIPTION	DATES	CONTRACT AMOUNT	CUSTOMER CONTACT	CUSTOMER TELEPHONE
Scituate municipal landfill solar array	2011-present	N/A	Al Bangert	781-545-8700
Needham municipal landfill solar array	2013-present	N/A	Hank Haff	781-455-7550 x 347
CMEEC community solar portfolio	2014-present	N/A	Drew Rankin	860-383-3697

Exhibit E: Site Plan



SITE PLAN

SCALE 1" = 16'

N

PROPOSAL SPECIFICATIONS			
SYSTEM SIZE DC (kW)	3,904.56		
SYSTEM SIZE AC (kW)	3000		
DC TO AC RATIO	1.31		
GCR	0.40		
TOTAL (MWh)	--		
SPECIFIC PRODUCTION	--		
INTERCONNECTION LIMIT (kW)	NA		
MODULE INFORMATION	CANADIAN SOLAR INC., CS6U (340W)		
STRING INFORMATION	18 Modules per String		
INVERTER INFORMATION	POWER ELECTRONICS (FS1480CU)		
INTERCONNECTION VOLTAGE	-		
TRANSFORMER	--		
RACKING DETAILS	Fixed Tilt Ground Mount - RBI		
INTRAROW SPACING	21.5'		
SITE LATITUDE	41.67°	SITE LONGITUDE	-71.25°
ASCE 7-10 WIND SPEED (MPH)	110	GROUND SNOW LOAD (PSF)	30

ARRAY INFORMATION						
ARRAY NO.	TILT	AZIMUTH	NO. OF MODULES	NO. OF STRINGS	kW DC	INVERTER # CONNECTED
A	25°	0°	11,484	638	3,904.56	(2) 1500kW
TOTAL	--	--	11,484	638	3,904.56	(2) 1500kW

LEGEND:

Ground Mount Solar Arrays

Inverter

Point of Interconnect

PRELIMINARY DRAWING ONLY
NOT FOR CONSTRUCTION

BE SAFE TODAY

BRISTOL LANDFILL

PRELIMINARY SITE PLAN

MINTURN FARM ROAD
BRISTOL, RI

REVISIONS

NO.	DATE	DESCRIPTION	DRAWN	APV'D
A	11/21/2016	PRELIMINARY SITE PLAN	JN	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

nrg.

4900 N. SCOTTSDALE ROAD, SUITE 5000
SCOTTSDALE, AZ 85251
(480) 424-1300
WWW.NRG.COM

Project Number
--

Date
11/21/2016

Sheet
PV1.0

Exhibit F: Proposed Project Schedule

Minturn Farm Road Landfill Solar PV Project Schedule

Preliminary Project Schedule*

	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-16	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Project Timeline																
Commercial Agreement																
Award																
PPA with Town																
Lease Agreement																
Project Development																
Preliminary Design (PV Layout & Single-Line)																
Geotechnical Design																
Detailed Engineering Design																
Equipment Selection																
Environmental Assessment and Permitting																
Rhode Island DEM																
Wetlands, ConCom																
Endangered Species, Nat Heritage																
Land Use Approval, Planning Board/ZBA																
Building & Electrical Permits																
Interconnection Application																
Pre-Application Reports																
Application to Interconnect																
Impact Studies																
Interconnection Services Agreements																
Utility Construction of System Upgrades																
Interconnection of PV to Utility System																
Permission to Operate Rec'v (COD)																
Program Support and Construction																
Materials Procurement																
Mobilization/On Site Preparation																
Construction																
System Interconnection																
System Commissioning & COD																
Delivery of Closeout Documentation																
Renewable Energy Growth Program*																
Submission of enrolment application*																
Notice of Selection																
Selection filed with RI PUC for approval																

o Notice to Proceed

*Dependent on 2017 open enrolment schedule

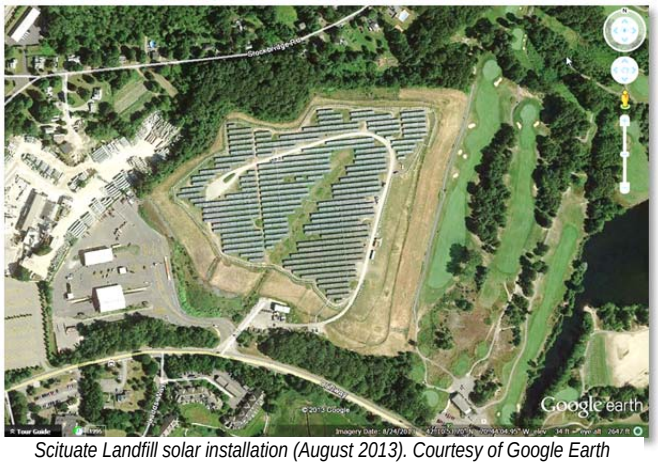
Exhibit G: USEPA Scituate Case Study

RE-Powering America's Land:
Siting Renewable Energy on Potentially Contaminated Land and Mine Sites

An Old New England Town Lights the Way with Solar

April 2014

The U.S. Environmental Protection Agency (EPA) recognizes the overall benefit of siting renewable energy projects on contaminated properties. Through the RE-Powering America's Land Initiative, EPA is encouraging renewable energy development on current and formerly contaminated lands, landfills, and mine sites. This case study highlights a successful renewable energy project on a closed landfill, including information on how key challenges were addressed.



Scituate Landfill solar installation (August 2013). Courtesy of Google Earth

Finding Treasure in a Trash Site

In 2010, representatives in the town of Scituate, MA, sought to find a productive use for its defunct town landfill. After considering recreational uses such as baseball fields, the town decided a solar photovoltaic (PV) installation would be the most viable and cost-effective use of the site, turning a cost center into a source of revenue.

After issuing a request for proposal (RFP) and conducting multiple interviews with respondents, Scituate representatives selected Brightfields Development, LLC (Brightfields), a Wellesley, MA, developer. Brightfields worked with the town, National Grid (utility), and others to tackle challenges and ensure the installation met a multitude of stakeholder objectives, such as cost savings for the town and alignment with the community's environmental interests. The Scituate Landfill is now home to a 3-megawatt (MW) PV installation that, in combination with a nearby wind turbine, provides Scituate with 100% of its municipal power needs from renewable sources.

SCITUATE SOLAR LANDFILL AT-A-GLANCE

- Scituate, MA (www.scituatema.gov)
- Former 29-acre municipal landfill
- Capped and covered with soil layer
- 3 MW solar PV installation on 12.5 acres (panels cover 6.1 acres)
- 10,560 polysilicon panels
- Expected $200,000 annual savings for town from net metering; T&D plus energy value
- Project will produce 3.825 million kilowatt-hours per year
- Land lease to developer: $1/year
- PPA price: 8.4 cents/kWh plus escalators; developer retained the SRECs
- All project labor was local

Property History

Turning a Cost Center into Revenue

Scituate is tucked into the southeastern tip of the greater Boston area, about 23 miles from the city and bordered on the east by the Atlantic Ocean. Incorporated in 1636, the Plymouth County town is now home to 18,000 people and is primarily residential.

"The most important issue was finding a developer with the experience, credibility, permitting expertise, and ability to obtain financing. We didn't select the lowest cost provider, but we did select the one we felt had the best chance of seeing the installation through to completion."

—Al Bangert, Scituate Department of Public Works

Scituate's town-owned landfill operated from 1976 until 1999, accepting a combination of municipal solid waste, construction debris, and residuals from a nearby wastewater treatment facility. In 2000, the municipal landfill was capped and a trash transfer station was constructed on the west portion of the property.

Once the site was capped and confirmed compliant with Massachusetts Department of Environmental Protection (MassDEP) standards, the town began investigating ways to return the land to productive use. The site was deemed inappropriate for

recreational uses, but had several characteristics that made solar a good technical fit, including being a relatively flat, unshaded site that sloped southward and was out of the view of residential neighborhoods.

Nonetheless, town officials were initially hesitant to pursue a solar project because they believed the cost would be too high. However, the volunteer committee evaluating options felt it important to at least investigate solar because it aligned with the town's commitments to the environment and renewable energy. The RFP response prices were more competitive than expected, with proffered Power Purchase Agreement (PPA) prices in line with those of the town's wind turbine. To ensure the selection of a sufficiently experienced and credible developer that would see the project to fruition, the town pared down RFP responses based on qualitative factors before reviewing price estimates. The town eventually selected Brightfields. Brightfields offered the town an 8.4 cent/kWh PPA price through Main Street Power, with Brightfields retaining the solar renewable energy credits (SRECs). Brightfields is also affiliated with Renova Partners, a national brownfields investment and development company.

In addition to selecting a qualified developer with relevant experience, Scituate officials also benefitted from MassDEP's support. Local officials indicate the state agency was proactive in supporting the required post-closure permits, and responded quickly to draft documents and inquiries with thorough and helpful feedback. The project sponsors submitted an application and supporting engineering documents in May 2011 to MassDEP for a "Post-Closure Use Permit" (which is required for any closed landfill that is being re-purposed for other uses). MassDEP issued the necessary permit in September 2011.

Scituate Landfill solar under construction. Courtesy Brightfields Development LLC

Moving Ahead and Tackling Roadblocks

The development team did a full site evaluation to understand and document the existing site conditions. Brightfields and the town together worked out an allocation of potential liabilities associated with the site. As part of its contract with Brightfields, the town acknowledges that it retains responsibility for the landfill and operation of its gas extraction system. Brightfields will be responsible for any issues that may have been caused during the installation, and remains responsible for issues resulting from operations and maintenance of the solar array.

> *"Renewable energy on brownfields is such a perfect fit. It takes land with few or no options for constructive or economic reuse and turns it into a long-term environmental and economic win."*
>
> *—John Hanselman, Brightfields Development LLC*

While site conditions and liability were addressed in the full site evaluation and lease agreement, the installation encountered roadblocks, beginning with connectivity issues to the grid. The initial evaluation indicated the project would be a fairly simple interconnection to a three-phase distribution line adjacent to the site. However, the circuit to which the solar array would connect already hosted the town's wind turbine at the nearby wastewater treatment site. National Grid was concerned about the capacity of the existing 10 MW 13.8-kilovolt (kV) distribution line to manage up to 5 MW of variable power without risk to circuit integrity. Utility officials initially estimated upgrades of as much as $900,000 would be needed to accommodate the solar PV system.

Rather than cancel or revise the project, Brightfields worked with National Grid to research the concern and see whether it could be addressed in other ways. Using studies from the U.S. Department of Energy's National Renewable Energy Laboratory and other data, Brightfields and National Grid conducted extensive modeling and analysis. By modeling the two production cycles, the team determined the wind and solar would actually complement one another in terms of time of energy generation, and that the anticipated impact on the area grid was not a major factor. Good communication and collaboration between the utility and the developer resulted in the interconnection being completed with minimal upgrades.

> *"The town initially pursued this installation for the revenue it would generate, but the bigger payout turned out to be the reputation it garnered and the positive perspective in the community of doing the right thing for the environment."*
>
> *—Al Bangert, Scituate Department of Public Works*

The second roadblock Brightfields faced was financing, primarily because of the way in which Massachusetts' SREC market had evolved. In Massachusetts, as in most other states with Renewable Portfolio Standards (RPS) requirements, utilities purchase SRECs to meet state-mandated RPS solar carve-out requirements. Brightfields based its original financials for the Scituate project in part on the assumption that SRECs generated by the project would be worth at least $285, in accordance with the floor price set by the state's Department of Energy Resources Solar Credit Clearinghouse Auction. However, a secondary market evolved for the Massachusetts SRECs, with utilities choosing to buy SRECs only one year forward. As a result, SREC prices were driven substantially lower than expected. This changed the financial assumptions of the Scituate project and forced Brightfields to seek a new financial partner.

Brightfields worked with the town to secure project extensions on its contractual deadlines while it sought new financing. To help town leadership assure residents it was holding the developers accountable to see the project through, while simultaneously reconfirming Brightfields' commitment to the project, Brightfields and its financial partner Syncarpha Capital submitted a $109,500 security deposit from which liquidated damages were subtracted for each day the project remained incomplete past the initial June 15, 2013 deadline. The town also maintained the option to cancel the entire contract if the project remained incomplete as of the new December 15, 2013 deadline.

Brightfields and Syncarpha were eventually able to close a financial deal with MS Solar Solutions and proceed with the installation. Representatives of both Brightfields and the town agree the long-term project economics made overcoming individual financial hurdles possible.

Success

In September 2013, Scituate officials joined Brightfields and its partners to proudly flip the switch on the town's landfill solar installation. The developer also partnered with town officials and school personnel to develop and implement a solar curriculum for K-12 students in the town. See next page for key takeaways from project participants.

For More Information

For more information about the RE-Powering America Initiative and tips on developing renewable energy on contaminated lands, visit EPA's website.

Key Takeaways from Project Participants

- *While costs are an important consideration, towns should also evaluate a developer's ability to deliver a finished project and overall areas of expertise. Scituate officials evaluated credibility, experience, permitting expertise, and financing abilities before considering price. Towns and developers should both consider the long term, which includes ensuring the underlying economics of a project make sense and that the selected developer can withstand changes in the market.*
- *Contracts should include clear and consistent deadlines, including milestones along the project development process. Not only does this set expectations early on and hold all parties accountable at appropriate phases in the project, it provides a means for regular communication and the chance to address roadblocks as soon as possible.*
- *Having a good understanding of site conditions is critical to the success of a project. Especially when considering a renewable energy project on a brownfield site or landfill, developers should gather as much information about the site as possible, including collecting information about the site's history and conducting site assessments as appropriate. Issues discovered during the assessment are not necessarily deal-breakers, but knowing the site and partnering with the town to determine liability ahead of time can reduce headaches, expense, and environmental issues.*
- *Support from state and local agencies can be crucial. Scituate notes that MassDEP was supportive of the landfill solar project, which saved the town and the developer both time and money. In particular, MassDEP offered clear and consistent permitting guidance, and was responsive to questions and permit submittals.*
- *Communicate with the community during all phases of the project. Though the Scituate community already had a demonstrated commitment to environmental and sustainability issues, the town made no assumptions about whether the community would support the solar project. Scituate officials engaged residents through town meetings and various public relations activities from the earliest phases of the project. The town was transparent about challenges as well as benefits.*
- *Communication among the developer, the town, and other stakeholders is also crucial. Scituate officials, Brightfields, MassDEP, and other stakeholders such as National Grid maintained regular communication and insisted on transparency about progress and concerns. This facilitated the partnership approach that helped the project overcome technical and financial hurdles.*

Exhibit H: Pre-Application Report

nationalgrid

Pre-Application Report	Applicant:	Brightfields Development LLC		
	Pre-Application Request Date:	9/12/2016	Preparation Date:	9/23/16
	Prepared by:	Andy Garsils	Revision # (if any):	0

I. Executive Summary:

A. Interconnection Application: The Applicant (noted above), has submitted a request for a Pre-Application Report (Report) for the interconnection of a generation system (located at the proposed location(s) noted below) to the National Grid (Company) Electric Power System (EPS).

B. Pre-Application Process: The proposed location was reviewed (as per the Standards for Interconnecting Distributed Generation referenced below) to: (1) determine the characteristics of the existing Company EPS near the proposed location(s), (2) identify the aggregate amount of other proposed and existing generation capacity connected to the nearby Company EPS, and (3) identify other potential system constraints or critical items that may impact the proposed generation system(s).

C. Further Inquiries: All additional questions and comments related to this report should be directed to National Grid's Distributed Generation Services email account: Distributed.Generation@nationalgrid.com.

II. Proposed Location Information:

The proposed location information provided in the table below is based on the information provided by the Applicant (i.e. Interconnecting Customer) in the **Exhibit B** - Pre-Application Report Form, which has been attached to this Report.

Table of Proposed Location Information		Proposed kW(AC):	3,000	Phase	3
Proposed Energy Source:	Solar	Existing Account (if applicable):			
Street Address:	10 Minturn Farm Rd				
City:	Bristol	State:	RI	Zip Code:	02809
GPS (North):	41.677853	GPS (West):	-71.253895		

III. The Company's Electric Power System (EPS):

A. As required by the Standards for Interconnecting Distributed Generation (referenced below), the Company must identify feeders within ¼ mile of the proposed interconnection site. Since many locations may not have any adequte feeders within ¼ mile, the Company may elect to provide information for the nearest adequate feeder(s) to the proposed location.

Table of Information for Nearest Feeder					
Feeder Number:	53-51F1		Radial or Network?		radial
Substation:	Bristol		Voltage at Substation:		12.47 kV
Voltage (near location):	12.47 kV		Phase (near location):		3
Distance to three-phase (if not within 1/4 mile of proposed location):					na
DG on Feeder:	109 kW	Pending DG:	57 kW	Existing DG:	52 kW
Included in total above:		*Pending PV:*	57 kW	*Existing PV:*	52 kW

Table of Information for Second Nearest Feeder (if available)					
Feeder Number:			Radial or Network?		
Substation:			Voltage at Substation:		
Voltage (near location):			Phase (near location):		
Distance to three-phase (if not within 1/4 mile of proposed location):					
DG on Feeder:		Pending DG:		Existing DG:	
Included in total above:		*Pending PV:*		*Existing PV:*	

B. Other Known System Constraints:

1. A conceptual grade cost estimate of the required system modifications will be determined during the System Impact

Study (SIS). The cost for line extensions / re-conductoring of radial feeders can approach or exceed $500,000/mile depending on the level of complexity. State and Federal taxes apply to payments for system modifications, including feeder line extensions. The Point of Interconnection, circuit characteristics, and/or other projects may affect feasibility of installing the proposed generation capacity on this circuit at the proposed location. Also, the available distributed generation capacity is open to other project proponents unless and until a complete application is received.

2. Additional system constraints particular to the proposed location (if applicable):

3. This Pre-Application Report is a non-binding report of existing National Grid electrical facilities in the area of your proposed project. This report shall not be used to infer the ability to interconnect any project to any of the existing National Grid facilities. That determination can only be made following receipt of a completed Interconnection Application and National Grid completing the applicable review process as outlined in the Tariff.

IV. References:

A. National Grid's Narraganset Distributed Generation Websites:
   1. Commercial: http://www.nationalgridus.com/narragansett/business/energyeff/distributed_generation.asp
   2. Residential:http://www.nationalgridus.com/narragansett/home/energyeff/distributed_generation.asp
B. National Grid's Rhode Island for Interconnecting Distributed Generation:
   http://www.nationalgridus.com/non_html/RI_DG_Net_Metering_Tariff.pdf
C. Design Standards:
   1. ESB 756 (Appendix D) - Requirements for Parallel Generation:
   http://www.nationalgridus.com/non_html/shared_constr_esb756.pdf
   2. ESB 750 - Specifications for Electrical Installations:
   http://www.nationalgridus.com/non_html/shared_constr_esb750.pdf
   3. National Grid's Phone Line Installation Guide:
   http://www.nationalgridus.com/non_html/Expedited%20Standard%20Interconnection/Phone%20Line%20Installation.pdf
D. Other Guidance Documents:
   1. National Grid's Witness Test Procedure Guideline:
   http://www.nationalgridus.com/non_html/Expedited%20Standard%20Interconnection/NGrid%20Witness%20Test%20Guidelines%20Feb%202012.pdf

Exhibit I: Component Cut Sheets

NEW

CanadianSolar

MAXPOWER
CS6U-325|330|335|340M

Canadian Solar's modules use the latest innovative cell technology, increasing module power output and system reliability, ensured by 15 years of experience in module manufacturing, well-engineered module design, stringent BOM quality testing, an automated manufacturing process and 100% EL testing.

KEY FEATURES

- Excellent module efficiency of up to 17.49 %
- Outstanding low irradiance performance of up to 96.5 %
- No. 1 PTC — High PTC rating of up to 91.7 %
- IP67 — IP67 junction box for long-term weather endurance
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa

25 years linear power output warranty

10 years product warranty on materials and workmanship

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2008 / Quality management system
ISO 14001:2004 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

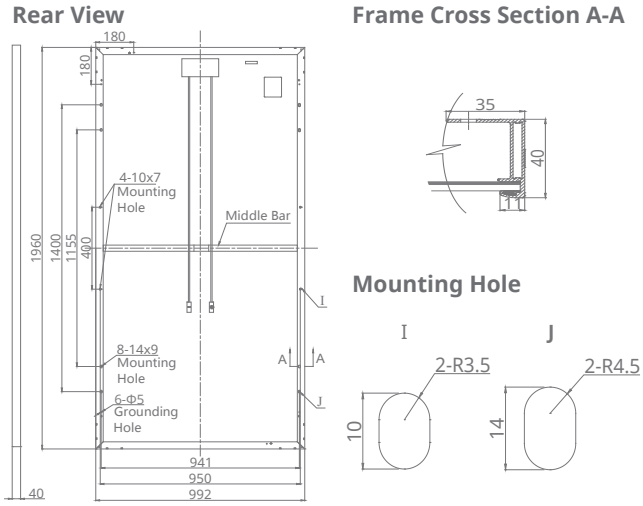
IEC 61215 / IEC 61730: VDE / CE / CQC / MCS / INMETRO
UL 1703 / IEC 61215 performance: CEC listed (US)
UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE
UNI 9177 Reaction to Fire: Class 1
IEC60068-2-68: SGS
Take-e-way

* As there are different certification requirements in different markets, please contact your local Canadian Solar sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

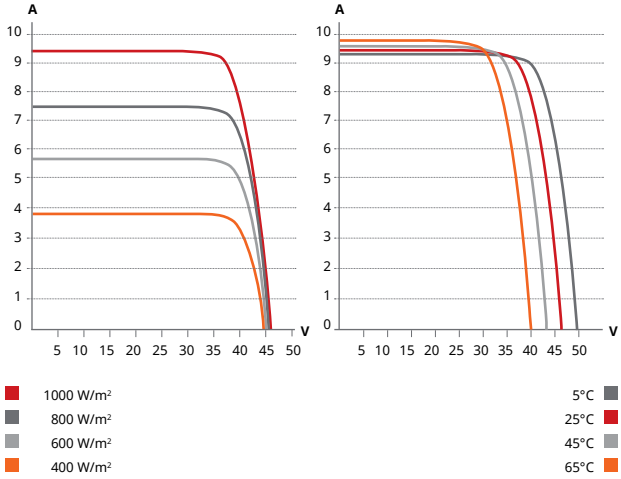
CANADIAN SOLAR INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading PV project developer and manufacturer of solar modules with over 16 GW deployed around the world since 2001, Canadian Solar Inc. (NASDAQ: CSIQ) is one of the most bankable solar companies worldwide.

CANADIAN SOLAR INC.
545 Speedvale Avenue West, Guelph, Ontario N1K 1E6, Canada, www.canadiansolar.com, support@canadiansolar.com

ENGINEERING DRAWING (mm)



CS6U-335M / I-V CURVES



ELECTRICAL DATA | STC*

CS6U	325M	330M	335M	340M
Nominal Max. Power (Pmax)	325 W	330 W	335 W	340 W
Opt. Operating Voltage (Vmp)	37.4 V	37.5 V	37.8 V	37.9 V
Opt. Operating Current (Imp)	8.69 A	8.80 A	8.87 A	8.97 A
Open Circuit Voltage (Voc)	45.8 V	45.9 V	46.1 V	46.2 V
Short Circuit Current (Isc)	9.21 A	9.31 A	9.41 A	9.48 A
Module Efficiency	16.72%	16.97%	17.23%	17.49%
Operating Temperature	-40°C ~ +85°C			
Max. System Voltage	1000 V (IEC) or 1000 V (UL)			
Module Fire Performance	TYPE 1 (UL 1703) or CLASS C (IEC 61730)			
Max. Series Fuse Rating	15 A			
Application Classification	Class A			
Power Tolerance	0 ~ + 5 W			

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline, 6 inch
Cell Arrangement	72 (6×12)
Dimensions	1960×992×40 mm (77.2×39.1×1.57 in)
Weight	22.4 kg (49.4 lbs)
Front Cover	3.2 mm tempered glass
Frame Material	Anodized aluminium alloy
J-Box	IP67, 3 diodes
Cable	4 mm² (IEC) or 4 mm² & 12 AWG 1000V (UL), 1160 mm (45.7 in)
Connector	T4 series or PV2 series
Per Pallet	26 pieces, 635 kg (1400 lbs)
Per container (40' HQ)	624 pieces

ELECTRICAL DATA | NOCT*

CS6U	325M	330M	335M	340M
Nominal Max. Power (Pmax)	235 W	238 W	242 W	245 W
Opt. Operating Voltage (Vmp)	34.1 V	34.2 V	34.5 V	34.6 V
Opt. Operating Current (Imp)	6.88 A	6.96 A	7.01 A	7.10 A
Open Circuit Voltage (Voc)	42.0 V	42.1 V	42.3 V	42.4 V
Short Circuit Current (Isc)	7.46 A	7.54 A	7.62 A	7.67 A

* Under Nominal Operating Cell Temperature (NOCT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.41 % / °C
Temperature Coefficient (Voc)	-0.31 % / °C
Temperature Coefficient (Isc)	0.053 % / °C
Nominal Operating Cell Temperature	45±2 °C

PERFORMANCE AT LOW IRRADIANCE

Outstanding performance at low irradiance, with an average relative efficiency of 96.5 % from irradiances, between 1000 W/m² and 200 W/m² (AM 1.5, 25°C).

The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to on-going innovation, research and product enhancement, Canadian Solar Inc. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

Caution: For professional use only. The installation and handling of PV modules requires professional skills and should only be performed by qualified professionals. Please read the safety and installation instructions before using the modules.

PARTNER SECTION

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HEC-US PLUS 420VAC

TECHNICAL CHARACTERISTICS

		420VAC - MPPt Window 594V-900V					
		FRAME 2		FRAME 3		FRAME 4	
NUMBER OF MODULES		5	6	7	8	9	10
REFERENCE		FS1051CU	FS1271CU	FS1480CU	FS1690CU	FS1901CU	FS2110CU
OUTPUT	AC Output Power(kVA/kW) @50°C	1050	1270	1480	1690	1900	2110
	AC Output Power(kVA/kW) @25°C	1160	1400	1630	1860	2100	2330
	Max. Power (kW@PF=0.9, @50°C)	940	1140	1330	1520	1710	1900
	Max. AC Output Current (A) @25°C	1600	1920	2240	2560	2880	3200
	Operating Grid Voltage(VAC)	420Vac ±10%					
	Operating Grid Frequency	60Hz					
	Current Harmonic Distortion (THDi)	< 3% per IEEE519					
	Power Factor (cosine phi)[1]	0.00 leading ... 0.00 lagging adjustable/ Reactive Power injection at night					
	Power Curtailment (kVA)	0...100%/0.1% Steps					
INPUT	MPPt Voltage Window (VDC)[2]	594V-900V					
	MPPt window @full power (VDC)[2]	616V–820V @50°C / 680V–820V @25°C					
	Maximum DC Voltage	1000V					
	Minimum Start Voltage	700V - User configurable					
	Max. DC continuous current (A)	1750	2100	2450	2800	3150	3500
	Max. DC short circuit current (A)	2275	2730	3185	3640	4095	4550
EFFICIENCY & AUXILIARY SUPPLY	Max. Efficiency / CEC (η)	98.6% / 98.0%					
	Euroeta (η)	98.3%		98.4%			
	Max. Standby Consumption (Pnight)	< approx. 40W/per module					
	Control Power Supply	120V / 208VAC–1kVA power supply available for external equipment					
	Max. Power Consumption	2300W	2760W	3220W	3680W	4140W	4600W
CABINET	Dimensions [WxDxH] [inches]	153.5"x40.12"x94.5"		192.9"x40.12"x94.5"		232.3"x40.12"x94.5"	
	Dimensions [WxDxH] [mm]	3900x1050x2400		4900x1050x2400		5900x1050x2400	
	Weight (lbs)	7804	8487	10119	10802	12434	13117
	Weight (kg)	3540	3850	4590	4900	5640	5950
	Air Flow	Bottom intake. Exhaust top vent (Front or Rear option)					
	Type of ventilation	Forced air cooling					
ENVIRON-MENT	Degree of protection	NEMA 3R					
	Permissible Ambient Temperature	-22°F to +122°F, -30°C[3] to +50°C / Active Power derating >50°C/122°F					
	Relative Humidity	0% to 100% non condensing					
	Max. Altitude (above sea level)	1000m; >1000m power derating 1% Sn (kVA) per 100m					
	Noise level [4]	< 70 dBA					
CONTROL INTERFA-CE	Interface	Alphanumeric Display (inside cabinet) / Optional Freesun App					
	Communication Protocol	RS232 / RS485 / USB / Ethernet, (Modbus RTU, Modbus TCP/IP)					
	Power Plant Controller	Optional					
	Keyed ON/OFF switch	Standard					
PROTECTIONS	Ground Fault Protection	Floating PV array: Isolation Monitoring per MPP NEC2014 Grounded PV Array: GFDI protection Optional PV Array transfer kit: GFDI and Isolation monitoring device					
	Humidity control	Active Heating					
	General AC Protection & Disconn.	Circuit Breaker					
	General DC Protection & Disconn.	External Disconnecting Unit Cabinet (FSDK)					
	Module AC Protection & Disconn.	AC contactor & fuses					
	Module DC Protection & Disconn.	DC contactor & DC fuses					
	Overvoltage Protection	AC and DC protection (type 2)					
CERTI-FICA-TIONS	Safety	UL 1741; CSA 22.2 No.107.1-01					
	Utility interconnect	IEEE 1547 with Utility Interactive Control functions					

NOTES
[1] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$
[2] Values at 1.00•Vac nom and cos Φ= 1. Consult Power Electronics for derating curves.
[3] Heating kit option required below -20°C.
[4] Sound pressure level at a distance of 1m from the rear part.

RBI SOLAR

Solar Mounting Systems

BALLAST SYSTEM OVERVIEW

ENGINEERING MANUFACTURING INSTALLATION

Ground Mount

Roof Mount

Landfill

Specialty Structures

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RBI Solar Ballast Systems

Solar Mounting Systems

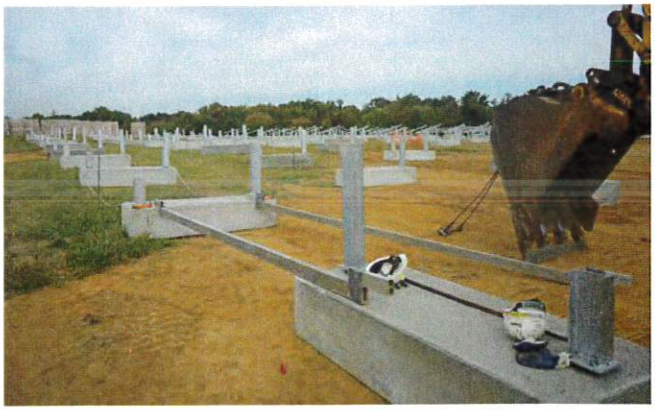
RBI Solar

- RBI Solar is a sister company of Rough Brothers, a corporation with over 80 years of experience in commercial design-build specialty structures. RBI's in-house design, engineering and manufacturing capabilities helped establish its identity as a market leader for solar racking solutions.

- RBI has designed and installed over 60 MW of ballasted landfill racking solutions. In the Nov/ Dec 2015 issue of enerG magazine, RBI's design for the 11.18 MW ballasted landfill in in Kinsley, NJ that was featured as one of the largest solar landfill projects in the world.

Ballast Design

- All ballasts are designed and engineered based on snow loads, wind loads, topography and module orientation
- Designed for continuous rows or tables based upon for project specific conditions



Installation Process

- Ballasts are delivered on-site and unloaded with standard construction equipment
- Pre-assembly of racking is available for all ballast designs
- ARRA compliant

RBI Solar Ballast Systems

Solar Mounting Systems

RBI Solar Ballast System

RBI's custom designed ballasted ground mount solar racking is a perfect solution for municipal solid waste landfills and properties with contaminated or corrosive soil conditions. Our engineers and designers consider important parameters of a landfill like static and dynamic loads, cap characteristics, slope and stability before designing a reliable and cost-effective landfill solution to fit the needs of our customers. Our designs include ballast tray, ballast block and sloped ballast block systems.

RBI Solar Ballast Systems

Ballast Tray

- Designed for a low bearing capacity
- The lightweight design makes it ideal for sites with machine limitations
- Flexible racking system allows for any module orientation or configuration

Ballast Block

- Designed for 20-year capped landfills
- The concrete base reduces the post size and pre-assembly reduces on-site installation costs
- Flexible racking system allows for any module orientation or configuration

Sloped Ballast Block

- Designed for flat terrain with no slope
- The sloped block significantly reduces the amount of racking material needed
- Flexible racking system allows for any module orientation or configuration

Ballast Tray Design

Solar Mounting Systems

The Ballast Tray design is an ideal ground mount solution for a landfill or site with contaminated/corrosive soil. The Ballast Tray is a high strength, flexible steal racking system with a lightweight foundation.

The steel tray at the base of the racking system acts as a protective layer between the ground and ballast blocks, keeping the foundation from penetrating the surface. This light weight design is also used on sites with machine limitations and mobility concerns.

All ballast blocks are pre-cast and specifically designed and engineered for each site, taking into account snow loads, wind loads and surface conditions.

Ballast Tray Specs

- Tilt ranges from 5-35 degrees
- Ideal slopes <5 degrees, max of 10
- Reduces racking materials
- Concrete block sizes and quantities are specifically engineered for each site
- Flexible to mount any module type/ size
- Adjustable racking size increases options for module height and orientation.

Ballast Block Design

Solar Mounting Systems

The Ballast Block design is an ideal ground mount solution for a landfill or site with contaminated/corrosive soil. The Ballast Block reduces the cost of racking by minimizing post length. Pre-assembly of the posts and top chords reduce the number of connection points for on-site installation by up to sixteen per ballast.

All ballast blocks are specifically designed and engineered for each site, taking into account snow loads, wind loads and surface conditions.

Ballast Block Specs

- Tilt ranges from 5-35 degrees
- Ideal slopes <5 degrees, max of 10
- Concrete block sizes and quantities are specifically engineered for each site
- Flexible to mount any module type/ size
- Adjustable racking size increases options for module height and orientation.

Ballast Specifications

Solar Mounting Systems

Sloped Ballast Block Specs

- Tilt ranges between 5-15 degrees
- Ideal for flat terrain, no slope
- Pre-cast ballast block size is specifi- cally engineered for each site (dimen- sions and quantity vary)
- Allows vertical and East/West adjust- ments
- All layouts are designed as tables, not continuous rows

Ballast Block Specs

- Tilt ranges from 5-35 degrees
- Ideal slopes <5 degrees, max of 10
- Concrete block sizes and quantities are specifically engineered for each site
- Flexible to mount any module type/ size
- Adjustable racking size increases options for module height and orientation, compatible with I-beam or Cee Post

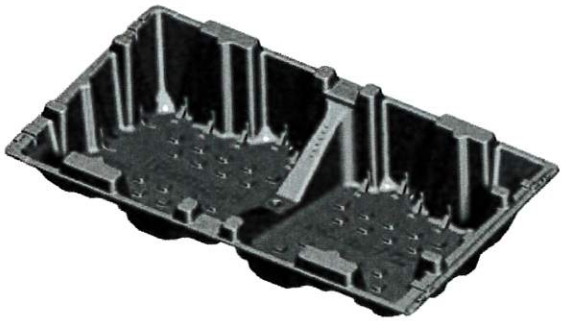
Renusol GS

Solar Mounting Systems

The Renusol GS is an innovative solution for landfills or brownfields with low bearing capacity. The lightweight, non-penetrating system is designed to evenly distribute the weight from pre-cast ballast blocks inside the tray of the system.

The GS tray is made from 100% recycled high molecular weight polyethylene and is non-conductive, requiring no additional materials for grounding. Each tray has four connection points for module mounting and trays can connect together to form continuous rows.

The GS system is uniformly manufactured and stackable to make shipping and installation on-site easier.



Renusol GS Specs

- Fixed tilt of 10 degrees
- Ideal for flat terrain, no slope
- Universal design is compatible with most 72-cell modules in landscape orientation
- Measuring 80" wide and 41" long, each tray accommodates one module with a clearance of 9"
- Durable material allows for East/West adjustments

SINGLE SOURCE PROVIDER

DESIGN

RBI Solar provides complete structural and foundation design. Our focus is to deliver the most effective and efficient racking solution based upon the array layout and site conditions.

ENGINEERING

Our in-house engineers, incorporate and analyze data from available certified geotechnical reports, on-site pile testing and all applicable codes and loading considerations, when designing the most cost-effective structures.

MANUFACTURING

Multiple state-of-the-art manufacturing facilities, along with a vertically integrated procurement and manufacturing protocol, ensures overall quality of product with reduced lead times for material.

INSTALLATION

Single source responsibility, with in-house project management and installation crews. This approach reduces duplication of efforts throughout the enterprise, focused on delivering projects on time and within budget.

GROUND MOUNT • ROOF MOUNT • CARPORTS • LANDFILL

Racking questions? We are here to answer.
Contact us at info@rbisolar.com or call (513)242-2051

www.rbisolar.com

ProtekPark SOLAR

RBI SOLAR