KEARSARGE ENERGY

GZA

NARRAGANSETT ENGINEERING INC. NEI PORTSMOUTH, RHODE ISLAND

Kearsarge Energy, GZA & Narragansett Engineering's Response to the Providence Water Supply Board Request for Proposals for Renewable Energy Projects

KEARSARGE ENERGY

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SECTION 1. COVER LETTER

June 25, 2018

Board of Contract and Supply
Department of the City Clerk – City Hall, Room 311
25 Dorrance Street
Providence, RI 02903

Re: Response to Request for Proposals for Renewable Energy Project

Dear Providence Water Supply Board:

On behalf of Kearsarge Energy Limited Partnership ("Kearsarge"), GZA GeoEnvironmental ("GZA"), and Narragansett Engineering Inc. ("NEI") we are excited to provide the Providence Water Supply Board ("PW") with the enclosed proposal for remote solar net meter credits and for the development of solar photovoltaic arrays located on PW land. Our proposal includes:

1. **7,700,000 kWh** of remote solar net meter credits for the **Phase I** as defined in Addendum 2;
2. **3,500,000 kWh** of remote solar net meter credits for the **Phase II** as defined in Addendum 2;
3. 7**.05 MW DC** ground-mount solar photovoltaic array located on PW property at North Road, Scituate, Parcel ID: 09-1/007-00;
4. 7**.06 MW DC** ground-mount solar photovoltaic array located on PW Property at Field Hill Road, Scituate, Parcel ID: 51-0/049-00; and

Please see Appendix 1 for Pricing Forms and additional details on the financial benefits to PW and Appendix 2 for Required Bid Forms.

We are offering a hybrid approach to accelerate the financial benefits to PW while also preserving the option to build two solar projects on PW land in Scituate. As a result of our experience developing solar and working with National Grid in Rhode Island, we believe the interconnections for the Scituate sites may take longer than anticipated given the current workload of National Grid, current demand and the condition of the utility infrastructure. . The Project Team has the experience and expertise to expediently permit the Scituate projects, but the current schedules from National Grid run twelve to twenty four months from submitting an application to the utility finishing their work and connecting the projects.

Because of these long timeframes, Kearsarge proposes to allocate credits to PW from projects that are advanced in the development cycle and as a result, PW can achieve energy savings as soon as the first quarter of 2019. With this hybrid approach, PW will earn significant energy cost savings sooner, but will also realize land lease revenue from the Scituate solar arrays, thus increasing the overall economic benefits to PW.

In summary, Kearsarge, GZA and NEI provide PW with the highest rated and most comprehensive solution:

- Over 150 MWs of combined experience designing, permitting, building, operating and maintenance solar photovoltaic arrays in Rhode Island and throughout the Northeast;
- Strong presence and familiarity with solar in Rhode Island through our successful track record of completing solar arrays with the University of Rhode Island, South Kingstown and Narragansett;
- Extensive experience working with Water Districts and Wastewater Treatment Plans; completed 1.7 MW array with the Grafton Water District and a 1 MW DC on-site array with the Westborough Wastewater Treatment Plant;

- Our local experience from over 51.8 megawatts of projects in development in Rhode Island;
- Unparalleled track record of developing solar projects through public-private partnerships and executing municipal net metering contracts;
- Long-term partner and owner, with attention to detail and expertise to assist PW with managing, tracking and allocating net meter credits.
- Kearsarge is a financially very strong partner and does not "flip" projects once completed, and as a long-term owner/operator our interests are aligned with those of PW. ;
- Strong reputation and references from every project we have completed; and,
- Kearsarge will continue to create construction and operations & maintenance jobs and stimulate the local economy while helping PW and Rhode Island reduce greenhouse gas emissions

TEAM EXPERIENCE & QUALIFICATIONS SUMMARY
PROVEN INDUSTRY LEADERS

KEARSARGE ENERGY: DEVELOPER, FINANCING PROVIDER, & LONG-TERM OWNER

- Kearsarge Energy, with offices in Boston, MA and Bristol, RI is a full-service renewable energy project developer, financier, and owner/operator. Kearsarge is one of the largest solar companies in the Northeast in terms of installed capacity, having developed and financed more than **90 MWs and $250 million of solar PV projects**. Kearsarge is adding an additional 38 MWs and $120 million of solar projects in the next year to our operating Portfolio.
- Kearsarge Energy currently is one of the largest solar owners/operators in RI with 9.3 MW DC solar project across three Superfund sites in Rhode Island built in partnership with URI, South Kingstown, and Narragansett scheduled for operation in July. Completion is expected in July, 2018 and the project is expected to generate over $9 million in energy cost savings for the off-takers. Kearsarge is developing an additional 51.8 MWs of remote net metered solar projects in Rhode Island.
- Kearsarge Energy is financially strong and will provide all of its own funding for these projects and has direct, established lending relationships with multiple regional banks for project debt.
- Kearsarge will be the long-term owner and operator of the projects.

GZA GEOENVIRONMENTAL: PERMITTING & ENVIRONMENTAL PARTNER

- GZA, founded in 1964 as a soils and foundations specialty consultant, is an employee-owned company with a legacy of experience in geotechnical and environmental engineering as well as permitting, structural engineering, project management and air quality services. GZA leverages this extensive experience, to specialize in all aspects of solar developments on greenfield, landfill, brownfield and environmentally sensitive areas.
- GZA has a significant Rhode Island presence with 65 employees based in their Providence, RI office (second largest office in the U.S.) and with company headquarters in Norwood, MA.
- GZA has a strong track record of working with public and private entities on permitting solar on landfills and brownfields in Rhode Island, Massachusetts and other areas throughout New England. Specific to this project, GZA has extensive experience working with the various permitting authorities in Rhode Island, including local building, zoning and planning departments, Department of Environmental Management, Freshwater Wetlands and Natural Heritage Programs, US Army Corps of Engineers Section 404, Federal Wild and Scenic Rivers Act, Coastal Resource Management Council (CRMC) and other authorities that may have jurisdictional requirements. GZA has worked with each of these local, state and federal entities to successfully transform proposals into valuable assets for all stakeholders.

- GZA has worked on 50 MWs of solar PV arrays on closed landfills in New England, ranging in size from 2 to 10 MWs, in addition to providing permitting and geotechnical evaluation services on over 20 greenfield solar developments in Massachusetts and Rhode Island over the past several years.

NARRAGANSETT ENGINEERING, Inc: CIVIL, SURVEY & CONSULTING PARTNER

- NEI, a Minority-Owned Business and based in Portsmouth, RI, has been providing quality civil engineering and survey services to Rhode Island and Southeastern Massachusetts for over 25 years and has a full in-house team to assist with all aspects of site development
- NEI has extensive experience working with the State of Rhode Island and numerous public entities throughout the state, including RIDOT, RI Public Transportation Authority, RIAC, the Town of Portsmouth and the University of Rhode Island
- Services offered by NEI include civil design, stormwater management, surveying, planning, utility and infrastructure design and permitting at the local, state and federal level

Highlighted are some key factors that differentiate Kearsarge from its competitors:

- **Kearsarge will be the long-term owner and operator of the PW's Solar PV projects.** Unlike many other developers, we are committed to our projects for the long term and have built a business model on developing, installing, owning and operating a portfolio of projects, while using as many local partners as possible. PW will know from the onset, whom their partner is and we are aligned to maximize benefits throughout the length of the contracts.

- **Kearsarge's completed projects have consistently out-performed.** Over the next 25 years, Kearsarge's Solar Portfolio is forecasted to generate more than 1.6 billion kilowatt-hours of electricity. This local, emission-free renewable energy will displace enough conventional generation to prevent the release of 1.2 million metric tons of Carbon Dioxide into the atmosphere, and power 118,737 average U.S. homes.

- **Kearsarge provides all of its own funding and does not need to sell its solar projects nor work with an intermediary to secure financing.** We have approved all equity funding and Kearsarge has direct established lending relationships for debt financing for the Project with multiple regional banks. This allows us to move quickly with no delays as we have no need to secure outside equity financing.

- Over the past six years Kearsarge has established itself as **one of the top solar developers and owners in the Northeast**, having developed almost 90 MWs of projects with 25 MWs to be completed in the next five months, in addition to a 100 MW pipeline of projects. Kearsarge has leveraged this experience and track record to build a **rapidly growing portfolio of Rhode Island projects**, including the 9.3 MWs in South Kingstown and an additional 50 MW portfolio of RI projects currently under development.

- Kearsarge is a privately held, local company with streamlined decision making and a superior reputation for **delivering on its proposals and in successful partnerships with public and private entities**. Every project that we have started as been completed on time and on budget. We stand behind and execute on our commitments.

- **Kearsarge is experienced in the design and permitting of Solar PV**, having obtained all permits for our portfolio as a result of working closely with landowners, neighbors, local, state and federal authorities in 25 communities throughout Massachusetts and Rhode Island.

- Finally, **Kearsarge and its partners bring a high sense of integrity and transparency to every project**, ensuring that all stakeholders feel that the project is completed in an ethical and fair manner. We have outstanding references from every solar project we have completed.

Kearsarge has executed over 40 Ground Leases and Power Purchase Agreements with Massachusetts and Rhode Island municipalities, schools and other public entities over the past several years. Public Partners include the Town of South Kingstown, Narragansett, URI, Towns of Bellingham, Grafton, Norwell, Montague, West Springfield, Duxbury Public Schools, Pathfinder Regional Vocational School, and many others. Part of Kearsarge's success in executing and delivering on Solar Agreements is our flexibility, ability to creatively solve problems and be a trusted partner that the PW can rely upon.

As evidence of the strength of our relationships and our ability to work with municipalities and other public entities to secure Power Purchase Agreements (PPA's) and Ground Leases, please find below highlighted select projects that we completed over the past couple of years with municipal partners and Appendix 3 for letters of support.

Project: South Kingstown Solar Consortium (SKSC)

Location: South Kingstown, RI

Size: 9.3 MW

Type: Net Metered Credit Sales Agreement

Public Off-taker: URI, South Kingstown, Narragansett

Interconnection Utility: National Grid

Major Equipment: LG Modules, SMA Inverters, RBI Racking

Estimated Completion Date: July, 2018

Description: Kearsarge is in the final stages of completing three solar sites in partnership with URI, South Kingstown, and Narragansett totaling 9.3 MW DC. Kearsarge was awarded the project following a joint RFP filed by the towns and university under the South Kingstown Solar Consortium. The three solar arrays are constructed across three landfill and former Superfund sites in South Kingstown, RI. Kearsarge serves as lead developer and will own the sites under a 25-year license with net metering sales agreements with the South Kingstown Solar Consortium. The project is expected to generate $9.4 million in forecasted energy savings for the off-takers with approximately 11 million kWh produced annually.

Project: Grafton Water District

Location: Town of Grafton, MA

Size: 1.7 MW DC

Type: PPA

Public Off-taker: Town of Grafton and the Grafton Water District

Interconnection Utility: National Grid

Completion Date: October, 2012

Major Equipment: Hanwha Modules, Solectria Inverters, RBI Racking

Description: The solar farm is situated on approximately 10 acres of land surrounding one of the water district's pump stations and is interconnected to existing electrical infrastructure that serves pump station equipment on site.

The project has been recognized by the Massachusetts Department of Environmental Protection as a leading example of how solar arrays can be seamlessly integrated with existing water infrastructure facilities as it was first project permitted within the 400' Zone I radius of a groundwater well. Kearsarge successfully worked with Massachusetts Department of Fish & Game and the Natural Heritage & Endangered Species Program as the site includes Wood Turtle Habitat and nesting grounds, as well as the Town of Grafton Planning Board and Conservation Commission.

A Land Lease was executed with the Grafton Water District on additional land that is sub-leased from the Town and a Power Purchase Agreement was executed with the District, further establishing Kearsarge as a leader in the public solar energy sector in Massachusetts.

Project: Kearsarge WWTP

Host: Westborough Wastewater Treatment Plant

Location: Westborough, MA

Size: 1 MW DC

Type: PPA & On-site usage

Off-taker: Westborough Wastewater Treatment Plant

Interconnection Utility: National Grid

Completion Date: December, 2016

Major Equipment: LG Modules, Sungrow Inverters, RBI Racking

Description: Kearsarge developed, constructed and financed this ground mount solar array located at the Westborough Wastewater Treatment Plant in Westborough, MA. Kearsarge was awarded the rights to develop the project through a public procurement process run by the Treatment Plant. Kearsarge worked closely with the Town of Westborough, the Plant and the Plant operators to develop the site while providing the opportunity for further public use along the Assabet River. All energy generated by the project is directly offsetting a portion of the Plant's electricity usage and reducing its operating expenses. In addition, Westborough will receive significant tax revenue over the life of the project.

As required we acknowledge Addendums 1 & 2 to the Providence Water Supply Board Request for Proposals for Renewable Energy Projects

Thank you for the opportunity to work with the PW on these exciting projects. We look forward to building a successful partnership for the development of the PW sites.

Sincerely,

Andrew Bernstein, on behalf of the Project Team
Managing Partner
Kearsarge Energy Limited Partnership

SECTION 2. COMPANY BACKGROUND & EXPERIENCE

a. Company Profile

Kearsarge Energy, a leading renewable energy project development and holding company, was formed in 2009 by a group of energy professionals with the belief that Kearsarge could create long-term economic and environmental value by partnering with local communities while leveraging its experience and access to project finance. Kearsarge is a financially strong partner with total assets exceeding $150 million. Additionally, we are held to the highest standards of creditworthiness and financial discretion in order to meet the requirements of our banks and are fully audited each year. Upon request we would be pleased to provide further information to the PW regarding our financial strength and financial ability to execute these projects.

Kearsarge's headquarters is located at 1200 Soldiers Field Road, Suite 202 Boston MA and has a local office in Bristol, RI.

Team Leader and Point of Contact:

Andrew Bernstein, Managing Partner, Kearsarge Energy LP
1200 Soldiers Field Road, Suite 202
Boston, MA 02134
617-393-4222
abernstein@kearsargeenergy.com

Key personnel assigned to projects:

Name	Title	Entity	Project Role
Andrew Bernstein	Managing Partner	Kearsarge Energy	Team Leader
Everett Tatelbaum	Vice President	Kearsarge Energy	Financing, Project Management, Regulatory Compliance & Contracts
Adam Vosker	Director, Finance & Accounting	Kearsarge Energy	Financing, Accounting & Compliance
Pat Fennessy	Director, Asset Management	Kearsarge Energy	Asset Management & Operations
Eric Pinsoneault	Senior Accountant	Kearsarge Energy	Financial Operations & Reporting
Henry Barrett	Development Manager	Kearsarge Energy	Project Development & Due Diligence
Paul Raducha	Senior Developer	Kearsarge Energy	Project Development
Michael McNeley	Project Developer	Kearsarge Energy	Project Development
Alex Deng	Associate	Kearsarge Energy	Project Finance & Due Diligence
Ed Summerly, P.G.	Principal	GZA	GZA Team Leader
Todd Greene, P.E.	Senior Project Manager	GZA	Civil Engineering, Construction Management, Stormwater Management
Doug Le Do	Senior Project Manager	GZA	Geotechnical, Civil & Environmental Engineering
Stephen Lecco, A.I.C.P, C.E.P	Senior Environmental Planner	GZA	Environmental Impact Evaluation, Permitting & Wetland Assessment
Sara Haupt, E.I.T	Assistant Project Manager	GZA	Civil & Environmental Engineering, Permitting
Neal K. Hingorany, MS, PLS	President	Narragansett Engineering	NEI Team Leader
Andrew Peterson	Survey Crew Chief	Narragansett Engineering	Survey, Permitting
Kamal Hingorany, P.E., P.L.S.	President (Emeritus)	Narragansett Engineering	Civil Engineering, Surveying

KEARSARGE ENERGY RESUMES

ANDREW BERNSTEIN
MANAGING PARTNER
CONTACT: *abernstein@kearsargeenergy.com, 617-393-4222*

Mr. Bernstein manages overall development of Kearsarge Solar and is currently leading construction and development of Massachusetts and Rhode Island projects ranging from 400 kW DC to 6 MW DC, and 150 MWs of development stage projects throughout the Northeast. Mr. Bernstein has 30 years of experience managing a broad range of organizations and divisions of large publicly traded corporations to early stage entrepreneurial enterprises with two successful exits and experience in project finance and investment banking. He is immersed in the local Massachusetts community and is on the board of several foundations and nonprofit entities including volunteer teaching in local public schools as well as guest lecturing in business at colleges and business schools.

- 30 years of experience managing a broad range of organizations and divisions of large publicly traded corporations to early stage entrepreneurial enterprises with two successful exits and experience in project finance and investment banking.
- CEO & President of Cymfony Inc., for 9 years, a market intelligence and media analysis company which was purchased by TNS Media in 2007 and then WPP.
- Selected Energy Consulting for National Firms focused on renewable and clean energy assets.
- Managing Partner of HotHouse Venture Partners, an early stage venture capital and consulting organization including several projects on renewable development.
- COO and Executive Vice President of Articulate Systems, a software company specializing in voice and data applications acquired by Lernout & Hauspie in 1999.
- Started the international division of a $600 million apparel and footwear company, The Stride Rite Corporation in 20 countries over five years.
- Kidder, Peabody & Co. equity research and project finance investment banking.
- A.B. Brown University and an MBA from Harvard University
- Currently serves on or leads several for-profit and non-profit boards including the Brookline Community Foundation and the Board of Overseers at the Brigham and Women's Hospital.
- While at Cymfony, DoD awarded him Top Secret Clearance

EVERETT W. TATELBAUM
VICE PRESIDENT

Mr. Tatelbaum played key roles in the development, financing, due diligence, legal affairs, regulatory compliance, and asset management of all 31 operating Massachusetts Kearsarge Solar Projects and is currently involved in the development, financing, and construction of 16 development stage projects ranging from 1.4 MW DC to 10 MW DC in Rhode Island, Massachusetts, and New York.

- Leads strategic planning and development at Kearsarge, including overseeing project finance, due diligence, and regulatory affairs. In this role he has worked to permit, finance, construct and operate a portfolio of more than 60 MW and over $185 million of solar PV projects in Massachusetts and Hawaii.
- Previously worked in Research at BCK Law, P.C. with a focus on energy efficiency and renewable energy policy, regulatory affairs, local permitting, and project development and contributed to BCK's successful effort to secure Massachusetts' Department of Public Utilities approval for a major client's $87 million three-year Energy Efficiency Plan.
- BA, Wesleyan University

ADAM VOSKER, CPA
DIRECTOR, FINANCE & ACCOUNTING

Mr. Vosker's role is oversight over accounting and financial operations. His focus on project level financial management includes recognition and forecasts of PPA and SREC revenues, cash management, and all expenditures to accurately gauge project financial position. In addition, he handles all internal and external reporting requirements.

- Leads Kearsarge Energy's Finance & Accounting team, including financial modelling, project finance and accounting and strategic management.
- Over 10 years of accounting, financial and auditing experience large regional and multinational companies for government, non-profit and private sector clients
- Director of Accounting at Black Box Network Services, a $1b, publicly traded multinational communications solutions provider, where he oversaw accounting and financial report for government clients, including GAAP, SOX and Federal Acquisition Regulation compliance.
- Led auditing and tax filings for non-profit, manufacturing, and professional services firms clients at Alexander Aronson Finning CPAs, a large regional CPA firm based in Westborough, MA.
- Managed financial reporting, annual and monthly budgeting and annual audits for CCA USA, Inc.
- Certification: Certified Public Accountant
- BA, University of Massachusetts, Amherst, MA
- Master of Science in Accounting, Sawyer School of Management, Boston, MA

PATRICIA FENNESSEY
DIRECTOR, ASSET MANAGEMENT
Ms Fennessey is the Director of Asset Management concentrating on optimizing solar systems performance and Asset Management for Kearsarge Energy. Ms Fennessey held senior management and technology leadership roles in a variety of public and private firms in the management consulting, market intelligence, and high technology arenas.

- Ms. Fennessey was Managing Partner for Utopia Inc, taking the company to a successful acquisition by USWeb. At startup venture HUbX, Ms. Fennessey led Client Services until the company's acquisition by Synxis.
- At high tech social media company Cymfony, Ms Fennessey led the development of its flagship technology platform, in addition to managing its Fortune 500 Client Management practice.
- Most recently, Ms. Fennessey was Sales Director for Visible Technologies, (acquired by Cision, Inc), acquiring and managing its flagship portfolio of Pharmaceutical, Automotive, and high technology clients.
- Ms. Fennessey began her career as a Systems Analyst and DBA in the mainframe era, which instigated her career-long fascination with all things "tech". She is a graduate of Mount Holyoke College with honors.

ERIC PINSONEAULT, CPA
SENIOR ACCOUNTANT, FINANCE & ACCOUNTING

Mr. Pinsoneault is responsible for operational accounting and financial reporting at Kearsarge. He maintains the company's financial records and is responsible for ensuring that the company's financial

activities are properly recorded in accordance with Generally Accepted Accounting Principles (GAAP). He also assists the Director of Finance and Accounting in preparing quarterly and annual financial reports.

- Mr. Pinsoneault has four years of experience working as an auditor at the public accounting firm BDO USA, LLP. During his time with the firm he was the lead Senior Accountant on numerous audit engagements, including audits of both private companies and publicly traded corporations. Mr. Pinsoneault's clients included medical device manufacturers, biotechnology companies, and sports/entertainment related companies.
- Mr. Pinsoneault also has experience preparing and reviewing partnership tax documents, including schedule K1.
- Mr. Pinsoneault holds an MBA and an MSA from the University of Massachusetts, and is a Certified Public Accountant in the state of Massachusetts.

HENRY BARRETT
DEVELOPMENT MANAGER

Mr. Barrett focuses on business development, due diligence and asset management for Kearsarge's portfolio of solar PV projects. He is currently focused on the development of new Massachusetts, Rhode Island and New York projects, with projects ranging from 400 kW DC to 6 MW DC, as well as managing existing solar production

- Previously worked at start-ups in Massachusetts with a focus on market analysis for the residential solar market and business development and regulatory affairs for a small-scale hydro firm.
- Researched and helped determined sustainability initiatives for a range of corporate and nonprofit organizations.
- Worked as Legislative Aide in the Massachusetts State House, focusing on statewide energy policy, including permitting and siting wind facilities, changes to the net metering program and energy efficiency programs.
- Received his BA from Colorado College and MA in Energy Policy and Business from the Fletcher School at Tufts University.

PAUL RADUCHA, CPA
SENIOR DEVELOPER

Mr. Raducha has over 13 years of experience in Renewable Energy, starting with Lux Research, one of the top "Clean Technology" research firms in the world. Paul has a broad base of experience including development, financing, analysis, due diligence, crafting of renewable energy legislation, project management, and asset management. He has worked on the successful development of over 95MW of installed renewable energy projects, including landfills, brownfields and Landfill gas-to-energy and landfill gas-to-vehicle fuel.

- Director of Project Development, Clean Energy Collective LLC. Focused on developing solar projects in the Northeast ranging in size from 1-10MW. Directly involved with development of 25 MWs of projects
- Chief Financial Officer / Quality Control Head, Modular Thermal Technologies, LLC. Performed Acquisition of two companies, revenues in excess $24 Million on behalf of investors. Managed accounting, finance, and administration functions and Implemented Quality Management System to comply with FDA's Medical Devices Quality System Regulations.

- Principal, Providence Energy / NPTRE. Advisor to clients looking to make investments in renewable energy. Projects developed include the 33 MW Energy Park that included of landfill gas and solar energy and the first municipal landfill solar project (1.8MW) permitted in North Carolina.
- Chief Financial Officer, Alteris Renewables Inc. One of the largest design-build renewable energy company in the northeast, with more than 30 megawatts installed for over 3,000 customers during the past 30 years and more than a dozen offices across seven states. Alteris specializes in Solar Electric (photovoltaic or PV) and Wind Energy solutions for commercial, residential, education, government, and institutional clients.
- Certified Public Accountant (CPA) at the international accounting firm of KPMG Peat Marwick
- Graduated from Clarion University of Pennsylvania with honors.

MICHAEL MCNELEY
PROJECT DEVELOPER

Mr. McNeley focuses on originating and developing solar projects. With his specialized experience in next generation energy storage technology, as well as his background in system modeling and financial analysis, Mr. McNeley also leads Kearsarge's storage initiatives in new markets.

- His renewable technology expertise was honed as a product development expert for Ambri, Inc, an MIT spin-off innovating in next generation battery storage. As a Field Engineer for VionX Energy Corp, Mr. McNeley was part of the advance guard to commercialize long duration flow batteries.
- In the community, Mr. McNeley has consulted in the renewable energy arena for microgrids as well as providing advice and guidance to local city commissions and towns on climate change, sustainability, and rural electrification.
- Mr. McNeley received his B.S. in Material Science and Engineering from Rutgers University.

ALEX DENG
ASSOCIATE, FINANCE & ACCOUNTING

Mr. Deng has four years' experience both evaluating equity investments in energy assets for private firms and performing financial planning and analysis for a publicly-traded internet company. At Kearsarge, Mr. Deng is responsible for strategic modeling and analysis, helping Kearsarge continue its expansion both in solar and other renewable energy opportunities.

- Mr. Deng joins Kearsarge after working at Cimpress doing revenue reporting and capital allocation for a portfolio of international brands. Prior to this, he was an analyst for Soltage, a solar development company where he worked on new project assessment and asset management. Prior to Soltage, Mr. Deng was an analyst for Glenfarne Group, an energy and infrastructure developer, principal investor, and long-term asset manager based in New York City where he evaluated new projects and assessed risk.
- Mr. Deng holds a BA of Economics from New York University while having pursued finance coursework at the Stern School of Business.

Please see Appendix 4 for resumes of GZA and NEI key personnel.

The Project Team has permitted, designed, financed, constructed, operated and maintained a combined more than 150 MW DC of solar PV arrays. Projects include ground-mounts, car canopies, rooftop,

ballasted ground-mounts on capped landfills, and ground-mounts on EPA Superfund sites and other environmentally sensitive areas.

As a result of this track record of developing solar PV arrays on public and private land, the Project Team has significant experience and knowledge of working with local authorities such as Planning Boards, Conservation Commissions, Public Works and other local bodies, as well as state Environmental Agencies, Endangered Species Programs, and the Federal EPA.

b. Public-Private Partnerships

One of Kearsarge's advantages and strengths is our ability to work with public entities to successfully design, permit, construct, own and operate solar projects and execute leases and Net Metering Agreements. Kearsarge has worked with a variety of public bodies, including school districts, water departments, law enforcement, housing authorities, cities and towns. Please see below for a table of successful Public-Private partnerships Kearsarge has executed and is currently developing:

Location	Size (kW DC)	Project Type	Contract Type	Year of Completion
Haverhill	3,500	Ballasted Landfill	Lease & NMPPA	2019 (Under Development)
Hardwick	6,000	Ground-mount	Lease & NMPPA	2019 (Under Development)
Bellingham	5,000	Ground-mount	Lease	2019 (Under Development)
Norfolk County	6,000	Ground-mount	Lease & NMPPA	2018 (Under Development)
Amesbury	4,300	Ballasted Landfill	Lease & NMPPA	2018 (Under Development)
Great Barrington	2,600	Ground-mount	Net Metered PPA (NMPPA)	2018 (Mechanically Complete)
South Kingstown, RI	9,300	Ballasted Landfill and Ground-mount across three (3) sites	License & NMPPA	2018 (Mechanically Complete)
Montague	6,000	Ballasted Landfill and Ground-mount	Lease & NMPPA	2018 (Mechanically Complete)
Uxbridge	2,700	Ground-mount	NMPPA	2018 (Mechanically Complete)
Bellingham	4,124	Ballasted Landfill and Ground-mount	Lease & NMPPA	2016
Concord	5,564	Brownfield	Lease & PPA	2016
Granby	3,200	Ground-mount	NMPPA	2016

Athol	645	Ground-mount	NMPPA	2016
Rehoboth	762	Ground-mount	NMPPA	2016
Norwell	576	Carport	NMPPA	2016
Westborough	990	Ground-mount	Energy Management Services	2016
Duxbury	693	Rooftop	Energy Management Services	2016
Sunderland	315	Ground-mount	Energy Management Services	2016
Southwick	4,925	Ground-mount	NMPPA	2015
Barre I	2,400	Ground-mount	NMPPA	2014
Concord	1,723	Ballasted Landfill	Lease & PPA	2014
Barre II	1,900	Ground-mount	NMPPA	2014
Hubbardston	2,500	Ground-mount	NMPPA	2013
Grafton	1,720	Ground-mount	Lease & NMPPA	2013
Canton	370	Rooftop	Energy Management Services	2013
Canton	417	Rooftop	Energy Management Services	2013
Franklin	4,800	Ground-mount	NMPPA	2012
Franklin	3,600	Ground-mount	NMPPA	2012
Salisbury	5,740	Ground-mount	NMPPA	2011
Total	**92,364**			

In addition to the projects listed above, Kearsarge is developing a robust RI portfolio of remote net metered solar energy projects throughout the state.

Project	Size (kW DC)	Current Land Use	Project Status	Construction Start Date	Completion Date
Portsmouth 1	5,200	Previously disturbed, vacant land; previously used as lay down and fill transfer area	• No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes special permit; completion of local permitting anticipated August, 2018 • Site under Kearsarge control • Interconnection Impact Study in process	Q4 2018	Q1 2019
Portsmouth 2	5,800	Vacant land; commercially zoned	• No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes special permit; completion of local permitting anticipated August, 2018 • Site under Kearsarge control • Interconnection Impact Study in process	Q4 2018	Q1 2019
South Kingstown	3,800	Vacant land; former waste disposal site	• Site was remediated and a well monitoring program in place • No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes zoning ordinance change and site plan review; completion of local permitting anticipated August, 2018. • Site under Kearsarge control • Interconnection Impact Study in process	Q4 2018	Q1 2019
Scituate 1	5,000	Vacant land; Existing utility transmission corridor, easement and infrastructure	• No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes zoning variance and special permit; completion of local permitting anticipated October, 2018 • Site under Kearsarge control • Interconnection	Q1 2019	Q3 2019

			application submitted		
Scituate 2	12,000	Vacant land; Existing utility transmission corridor, easement and infrastructure	• No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes zoning variance and special permit; completion of local permitting anticipated October, 2018 • Site under Kearsarge control • Interconnection application submitted	Q1 2019	Q3 2019
Westerly	8,000	Vacant land; zoned industrial and sited on active quarry	• No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes special permit; completion of local permitting anticipated October, 2018 • Site under Kearsarge control • Interconnection Impact Study in process	Q1 2019	Q3 2019
Coventry	12,000	Vacant Land, existing utility transmission corridor	• No Federal Incidental Take Permit (ITP) or Habitat Conservation Plan will be needed • Local permitting includes special permit; completion of local permitting anticipated October, 2018 • Site under Kearsarge control • Interconnection application submitted	Q2 2019	Q4 2019
Total	**51,800**				

Kearsarge Principals that will be assigned to the PW's projects have been involved in the development, financing, construction and operations of the following completed projects:

Kearsarge Energy Completed Solar Projects				
Year	**MW DC**	**Project**	**State**	**Type**
2011	0.2	Lahaina	HI	Rooftop
2011	0.1	Mililani	HI	Rooftop
2012	5.7	Salisbury	MA	Ground-Mount
2013	3.6	Franklin	MA	Ground-Mount
2013	4.8	Franklin	MA	Ground-Mount
2013	0.4	Canton	MA	Rooftop
2013	0.4	Canton	MA	Rooftop
2013	1.7	Grafton	MA	Ground-Mount
2013	0.1	Lahaina	HI	Rooftop
2013	2.5	Hubbardston	MA	Ground-Mount
2014	1.9	Barre	MA	Ground-Mount
2014	1.7	Concord	MA	Ballasted Capped Landfill
2014	2.4	Barre	MA	Ground-Mount
2014	0.9	Chicopee	MA	Ground-Mount
2014	6.0	Chester	MA	Ground-Mount
2015	4.9	Southwick	MA	Ground-Mount
2016	5.5	Concord	MA	Brownfield
2016	4.1	Bellingham	MA	Ballasted Capped Landfill
2016	0.65	Granby	MA	Ground-Mount
2016	0.65	Granby	MA	Ground-Mount
2016	0.65	Granby	MA	Ground-Mount
2016	0.65	Granby	MA	Ground-Mount
2016	0.65	Granby	MA	Ground-Mount
2016	0.6	Norwell	MA	Carport
2016	0.43	Duxbury	MA	Rooftop
2016	0.27	Duxbury	MA	Rooftop

2016	1.0	Westborough	MA	Ground-Mount
2016	0.8	Rehoboth	MA	Ground-Mount
2016	0.6	Athol	MA	Ground-Mount
2016	0.3	Sunderland	MA	Ground-Mount
2017	2.7	Gill	MA	Ground-Mount
2017	1.3	Shirley	MA	Ground-Mount
2017	1.2	Ayer	MA	Ground-Mount
2017	2.2	Wilmington	MA	Rooftop
TOTAL	**61.55**			

SECTION 3. FINANCIAL & COMPANY RESOURCES

Kearsarge is a financially strong partner with total assets exceeding $150 million. Additionally, we are held to the highest standards of creditworthiness and financial discretion in order to meet the requirements of our banks and are fully audited each year. Kearsarge has financed over $250 million of solar projects in Hawaii, Massachusetts, Rhode Island and New York and company principals have extensive experience structuring complex debt and tax equity transactions, as well as executing municipal net metering contracts.

Kearsarge's proposal for each Project will be structured according to our proven project finance Model:

- **100% of project equity funding has been pre-approved and reserved by the Kearsarge Investment Committee** for these Projects based on the project specifics detailed in this proposal and is available and reserved in our bank account.

- Kearsarge will form a Special Purpose Entity ("SPE") which will be the long-term owner of each Project and all appurtenant equipment, entitlements and will execute all project agreements.

- The SPE will be owned by Kearsarge and will take out a commercial loan from one or our established banking partners, **where we have preapproved financing for Rhode Island Projects**. **We do not use third parties to arrange financing as all of our relationships are direct—which further differentiates Kearsarge from many other competitors.**

In addition, on every project Kearsarge has several types of cash reserves to further enhance the financial stability of the individual project and therefore our entire portfolio over the long term:

1. **Working Capital Reserves for Regular Project Operations at Project Level.** These funds are calculated per project and are based on normal quarterly operating expense for each project.
2. **Restricted Cash Debt Reserves as required by Commercial Lender at Project Level.**
3. **Decommissioning Reserves at Project Level as required by certain municipalities.** These funds are either escrowed cash accounts, Letters of Credit, or other forms of sureties.
4. **Project Level Business Interruption Insurance.** Each Project that Kearsarge completes takes out a Business Interruption insurance coverage policy. Such policies enhance financial security of each Project by ensuring liabilities will be funded in the event of any unforeseen operational issues.

As noted above, Kearsarge will be the long-term owner of each project and will be responsible for all operations, maintenance and asset management requirements. All of the sponsor equity will be provided by Kearsarge Energy LP, project debt will be through our existing bank partners, and tax equity will be from one of our established corporate partners where we have existing relationships.

Kearsarge has extensive in-house resources to lead and manage the overall development of each project including permitting, regulatory approvals, interconnection, legal, administrative and accounting. Kearsarge will contract with 3rd party providers to assist on permitting efforts, manage Engineering,

Procurement and Construction (EPC), and Operations & Maintenance in conjunction with Kearsarge's in-house asset management team.

Public incentives available to help finance these projects include compensation through the Rhode Island Net Metering Program, and the 30% Federal Investment Tax Credit.

In summary, Kearsarge and its partners have a proven track record of delivering projects that consistently surpass the highest standards of economic, environmental and technical quality. Upon request we can provide any additional materials necessary to demonstrate our financing capability.

SECTION 4. RECENT RHODE ISLAND PROJECTS

Kearsarge is in the final stages of completing 9.3 MWs DC of solar photovoltaic projects across three different sites located in the Town of South Kingstown and on land owned by the University of Rhode Island. Each project is structured as a site license and Net Metered PPA with URI, South Kingstown and Narragansett as off-takers. Kearsarge was awarded the projects through the competitive procurement process, and working closely with GZA managed a complex design and permitting process with the Towns, URI, RIDEM and EPA as the projects are located on capped Superfund landfill sites.

Sample Rhode Island Projects

Project: South Kingstown Solar Consortium (SKSC)

Location: South Kingstown, RI

Installed Capacity: 9.3 MW DC

Type: Net Metered Credit Sales Agreement & License

Customer: URI, South Kingstown, Narragansett

Kearsarge Role: Lead Developer, Financier and Owner

Completion Date: Q2, 2018

Annual Production: 11,160,000 kWh (Year 1)

Description: Kearsarge is in the final stages of completing three solar sites in partnership with URI, South Kingstown, and Narragansett totaling 9.3 MW DC. Kearsarge was awarded the project following a joint RFP filed by the towns and university under the South Kingstown Solar Consortium. The three solar arrays are constructed across three landfill and former Superfund sites in South Kingstown, RI. Kearsarge serves as lead developer and will own the sites under a 25-year license with net metering sales agreements with the South Kingstown Solar Consortium. The project is expected to generate $9.4 million in forecasted energy savings for the off-takers with approximately 11 million kWh produced annually.

Kearsarge is in various stages of developing an additional 51 MWs of projects across seven projects throughout the Ocean State.

Project	Size (kW DC)	Anticipated Completion Date
Portsmouth 1	5,200	Q1 2019
Portsmouth 2	5,800	Q1 2019
South Kingstown	3,800	Q1 2019
Scituate 1	5,000	Q3 2019
Scituate 2	12,000	Q3 2019
Westerly	8,000	Q3 2019
Coventry	12,000	Q4 2019
Total	**51,800**	

Additionally, **Kearsarge has extensive experience of building and operating solar energy projects in partnership with water districts and wastewater treatment plants**. Kearsarge developed a 1.7 MW DC array on land owned by the Grafton, MA Water District, which is located adjacent to one of their pumping stations and was the first solar project built in MA within 400' of a wellhead protection zone. Kearsarge also executed a remote net metered PPA with the Grafton Water District with a solar array Kearsarge owns located in Granby, MA.

Kearsarge was also awarded a 1 MW DC project through the competitive procurement process with the Westborough Wastewater Treatment Plant for an onsite solar array, which was completed in 2016. The array is located adjacent to the Plant's facilities and directly offsets their energy use, providing substantial energy savings to the Plant. Kearsarge and its construction partners worked closely with the Plant to manage the siting, design and construction of the array so as to minimize any disruption to the Plant's ongoing activities as well as accommodate Town plans to build a bike path around the array and resident's use of the surrounding property for recreational activities.

SECTION 5. DEVELOPMENT CONCEPT AND TECHNICAL APPROACH

The Project Team understands that PW is looking to develop renewable energy projects located on PW-owned land and receive net meter credits from these projects. We applaud PW's approach and are excited to work with you to build, own and operate these projects. The Team reviewed the locations provided in the RFP and identified two locations at Field Hill Road and North Road in Scituate that are the best candidates for solar. Each project is approximately 7 MW DC as proposed and we have received preliminary information from National Grid that shows these projects are potentially technically feasible from an interconnection standpoint. Both projects have positive solar attributes, including cleared or partially cleared land, proximity to 3 phase power and a substation (Hope Furnace), and favorable topography. The concern, which was identified in Addendum 2, is obtaining permitting approvals.

Paul Raducha, based in our Bristol, RI office and Kearsarge's lead developer in Rhode Island, is very familiar with permitting considerations in RI as he is involved with multiple stakeholder groups working on permitting and siting issues statewide. Mr. Raducha has worked with numerous town planners throughout the state on permitting concerns, considerations and solutions, including the Town of Scituate.

Because of the long lead time and permitting uncertainty of developing projects on PW-owned land, Kearsarge is pleased to offer PW remote net meter credits from solar projects we are currently developing in South Kingstown and Portsmouth. As a result, PW will be able to receive net meter credits, and associated energy cost savings, well in advance compared to if PW waits to receive credits from projects developed on PW-land. These savings will be in addition to revenue earned on the development of the parcels in Scituate, allowing PW to unlock ***significantly more value than developing the PW properties alone***.

To fulfill PW's Phase I net meter capacity of 7.77 million kWh, Kearsarge can allocate credits from the following projects:

Project	Estimated Year 1 Output (kWh)	Guaranteed Output	Type	Size (kW AC / DC)	Capacity Factor	Warranties & Guarantees	Operations & Maintenance
Portsmouth 1	6,240,000	4,992,000	Solar	3,600 / 5,200	13.7%	• Panels: 20 years • Inverters: 10 Years • Racking: 20 Years • 80% Production Guarantee	Kearsarge will manage all Operations & Maintenance services. Please see Section 17 for additional details.
South Kingstown	4,560,000	3,648,000	Solar	2,900 / 3,800	13.7%	• Panels: 20 years • Inverters: 10 Years • Racking: 20 Years • 80% Production Guarantee	Kearsarge will manage all Operations & Maintenance services. Please see Section 17 for additional details.
Total	**10,800,000**	8,640,000		**6,500 / 9,000**			

Please see below for the proposed equipment for each project and Appendix 5 for equipment specification sheets.

Project	Inverters / Quantity	Panels / Quantity	Racking
Portsmouth 1	Solectria-Yaskawa PVI 60TL string / 60	LG 400W / 12,960	RBI Pile-Driven
South Kingstown	Sungrow 60KU-M string / 48	LG 400W / 9,504	RBI Pile-Driven

Please see below for a more detail construction schedule for each project

PORTSMOUTH 1	
MILESTONE	**MILESTONE DATE**
Submit Interconnection Application	02/20/2018
Interconnection Feasibility Study Complete	04/30/2018
Receive Impact Study result & sign Interconnection Agreement	08/13/2018
Design and Engineering Analysis • Existing conditions plan complete 06/18/2018	Current
Permitting • Permitting feasibility and initial Town review complete • Permit application to be submitted July	July-August 2018
Completion of Balance of System Design	08/31/2018
Secure System Equipment and Assets	08/31/2018
Commencement of Construction	10/01/2018
Mechanical Completion	01/30/2019
Commercial Operation **Final Placed in Service Date will depend on National Grid completing its system upgrade and modification work as determined by the Impact Study*	02/28/2019
Delivery of Net Meter Credits to PW	03/31/2019

South Kingstown	
MILESTONE	**MILESTONE DATE**
Submit Interconnection Application	1/17/2018
Receive Interconnection Feasibility Study	04/06/2018
Receive Impact Study result & sign Interconnection Agreement	08/03/2018
Design and Engineering Analysis	Current
Permitting • Permitting feasibility and initial Town review complete • Permit application to be submitted July	July-August 2018
Completion of Balance of System Design	08/31/2018
Secure System Equipment and Assets	08/31/2018
Commencement of Construction	10/01/2018
Mechanical Completion	01/30/2019

Commercial Operation **Final Placed in Service Date will depend on National Grid completing its system upgrade and modification work as determined by the Impact Study*	02/28/2019
Delivery of Net Meter Credits to PW	03/31/2019

Kearsarge, in partnership with GZA and Narragansett, has a clear path forward to obtain permitting approvals for each site. Mr. Raducha has had preliminary meetings with the representatives from each Town to preview the project and gather feedback to proactively address any concerns or issues that may arise.

The Portsmouth project is located on a previously disturbed gravel bed/fill area used for construction staging and other commercial activities.

The South Kingstown Project is located on a brownfield under RIDEM's jurisdiction. Kearsarge and the landowner are working closely with RIDEM and the Town to remediate the site and prepare it for solar development as all other activities are strictly limited due to the nature of the contamination. This is a prime example of turning an otherwise undevelopable, contaminated site into a revenue generating asset that will provide tax dollars to the town, and produce local, renewable energy.

Please see Appendix 6 for a preliminary layout of the proposed system and below for notes on the proposed projects:

Project	Location	Proximity to Grid	Notes
Field Hill Road, Scituate	South of Field Hill Road	3,200 ft (3 Phase located along Tunk Hill Rd	• Pre-Application Report received from NGRID • Connecting to 53-15F2 feeder to Hope Substation; • 4,537 of proposed and connected DG
North Road, Scituate	South of the treatment plant, along Route 116/North Rd	Adjacent to 3 Phase servicing Treatment Plant	• Will connect to same feeder and substation as the Field Hill Rd site

Financial Evaluation:

As noted in the Bid Form in Appendix 1, Kearsarge is offering solar remote net meter credits to PW from arrays owned and operated by Kearsarge, as well as to develop solar arrays through a public-private partnership on land owned by PW in Scituate and pay PW an annual lease.

The pricing for both the PPA and lease includes all costs and fees, which are incurred by Kearsarge. PW will have no upfront costs. Kearsarge is also pleased to offer PW the ability to buy out the projects on PW land at Fair Market Value at Year 7, 10, 15 or 20.

In conjunction with the on-site solar arrays, we would be pleased to work with PW to explore potential opportunities to incorporate battery energy storage systems to help reduce peak demand charges and provide other economic and environmental benefits to PW. Kearsarge is developing a portfolio of solar +

battery systems in Massachusetts and looks forward to working with PW to determine if this is a viable option.

a. Schedule

The Project Team is ready to begin work immediately on the PW-owned sites upon award, which, for the purposes of the below schedule we are assuming July 18, 2018. The first step will be submitting the interconnection application to National Grid as it is critical to start this process as soon as possible. Concurrent with the negotiations of the Lease, the Team will conduct further site diligence, including surveys, wetland flagging, permitting diligence and other work. This will ensure that the permitting process can begin as soon as possible. Once the permits are in place, the Team will begin construction, which will be expected to take approximately 4 months. Upon reaching Mechanical Completion, the Team will work with National Grid to schedule the witness testing and final commissioning as soon as possible in order to receive Permission to Operate.

The schedule below is subject to state incentive program eligibility, equipment availability, severe weather, timely local and state permitting approvals, receipt of System Impact Study from National Grid, interconnection upgrades, as necessary, completed by National Grid, and regulatory and legislative changes. As each project is similar in size and scope with similar timeframes, the schedule below can be used as a proxy for both projects:

Milestone	Milestone Date
Award & Contract Negotiation	07/18/2018
Submit Interconnection Application	07/25/2018
Design and Engineering Analysis • Includes completion of topographic survey and site diligence	09/26/2018
Permitting	October-December 2018
Completion of Balance of System Design	1/09/2019
Secure System Equipment and Assets	1/16/2019
Commencement of Construction	3/1/2019
Mechanical Completion	07/30/2019
LDC Interconnection **Final Placed in Service Date will depend on National Grid completing its system upgrade and modification work as determined by the Impact Study*	09/30/2019
Delivery of Net Meter Credits to PW	10/31/2019

SECTION 6: ASSET MANAGEMENT & OPERATIONS

a. Measurement & Verification Strategy

Kearsarge will have two sets of revenue grade meters on site as well as additional non-revenue grade inverter direct level meters. One will track production for the Net Metering Credit calculation and will be verified on a monthly basis against PW's National Grid bills. Kearsarge performs daily, weekly, and monthly reconciliation analysis of all three sets of meters to confirm each set is within its manufacturer specifications for margin of error. Any discrepancies are immediately checked by technical field personnel for potential issues with site generation or operation of the meters themselves.

Kearsarge verifies production using its Revenue Grade Production Meter approved by National Grid and NEPOOL GIS for verification of credits generated. This figure is then compared against guaranteed output level in the Power Purchase Agreement. Production is verified on a monthly and annual basis.

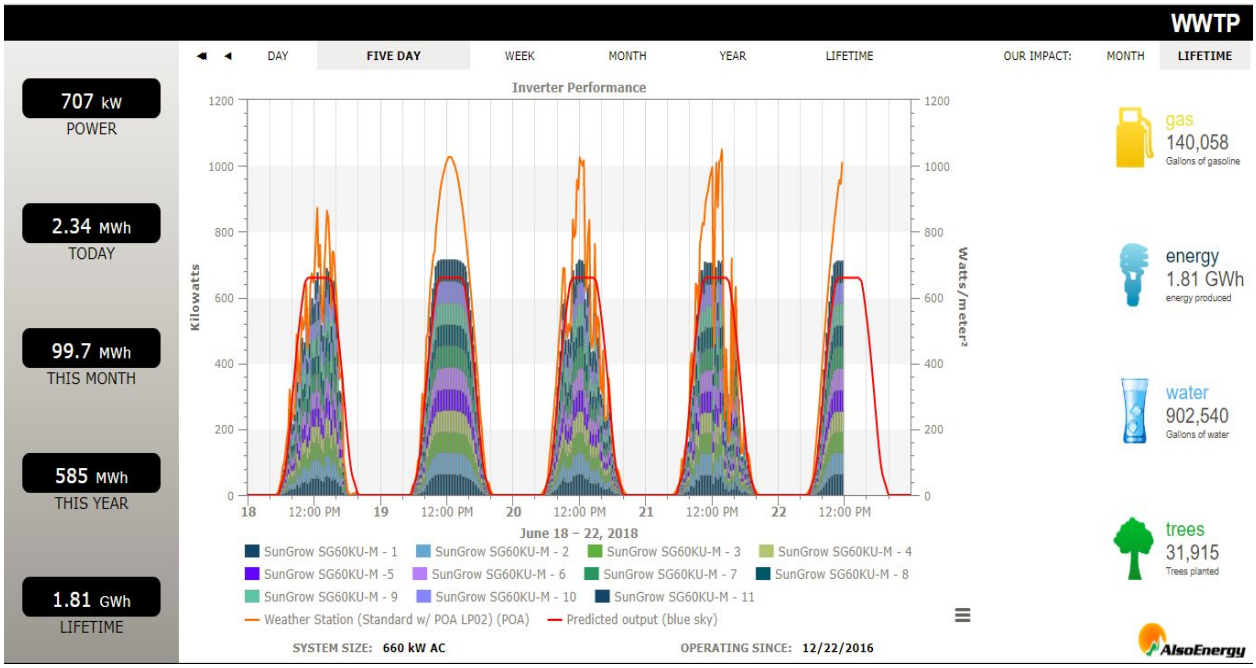
As Kearsarge has done with previous municipal partners for performance shortfalls, any shortfall of kWh vs. the guaranteed output will be valued at the difference between the PPA rate and the average retail rate paid per kWh by PW over the relevant period. Kearsarge will issue PW a bill credit for such Shortfall Amount to be applied to the next invoice. If any Shortfall Amount were to be left over at the end of the contract period, Kearsarge will pay PW this amount in liquidated damages.

Kearsarge employs state of the art monitoring software to track production across its portfolio using a monitoring solution from Also Energy, the industry leading asset management and monitoring provider. PW will also be able to track the production of its on-site solar arrays and their environmental benefits through this platform Each monitoring package includes a revenue-grade meter to measure generation, along with a gateway device to prepare data for the web. The system, which can handle a portfolio of projects, generates alerts and integrates with back office functions and public facing displays. AlsoEnergy is an ideal tool for Operations & Maintenance as it enables:

- Performance Analysis: AlsoEnergy's PowerTrack software offers the industry's most sophisticated tools for performance modeling, giving a clear picture of expected generation.
- Workflow Management: The Workflow Suite includes specialized tools for scheduling, work order ticketing, and generating reports.
- Project Management: Project management aids include automated performance alerts, customizable reports and displays, agency reporting, and many more tools.
- Support: AlsoEnergy leads the industry for responsive and knowledgeable support. From the resource library to dedicated phone support technicians, AlsoEnergy provides partner-level support at all times.

This monitoring system posts production data online in 15-minute intervals and offers custom reporting that can calculate average, accumulated and total output over a designated period of time. This system also measures environmental factors including ambient temperature, solar irradiation, as well as detailed weather conditions via a weather station installed at the solar arrays. This enables you to check how weather patterns are affecting production numbers and can promptly alert Kearsarge directly if there is an Irradiance-to-PV Production inconsistency. The monitoring interface also allows PW to track the environmental benefits of the renewable energy produced, such as equivalent gallons of gasoline saved and carbon emissions reduced.

Please see below for a screenshot of the interface from Kearsarge's Westborough Wastewater Treatment Plant project



To provide additional insurance against downtime and underperformance each inverter and segmented portions of the system (zones) report independently of the overall meter monitored production. The system is then configured with production alerts that are triggered in the event of a system failure or underperformance with a portion of the system, whether it stems from module or inverter malfunction, ground faults, DAS communication failure, loss of weather data, or another type of system error. If there is ever a problem with the system's production, Kearsarge will be notified immediately, assuring that all output issues are identified and addressed promptly. This real-time monitoring allows O&M crews to respond quickly to an event and coordinate with all necessary personnel to address the issue.

b. Operations & Maintenance

As the long-term owner and operator of its solar PV portfolio, Kearsarge has a vested interest to maintain its systems in optimal performance condition. The PV system will be monitored 24/7 through internet connectivity to observe overall system performance. In the event of any system or sub-system issue, an electronic alert is sent via e-mail to Kearsarge. Once the alert is received, Kearsarge will determine the extent of the problem and attempt to remotely resolve the issue. If the problem cannot be addressed in this manner, maintenance staff will be contacted and dispatched to the site within 24 hours where a solar technician will troubleshoot the system, isolate the problem area, and implement a solution.

The Project Team operates a comprehensive program of Operations and Maintenance services for its portfolio of operating projects. Please see below a sample Scope of O&M Services and Preventative Maintenance to be provided by the Project Team.

Description of Service	Sample Scope
Monitoring System	Operator will provide all labor, hardware and software to monitor System in order to respond and take action to maximize System performance
Notifications	Operator will promptly notify Operator Representative per the Communication Plan of System (a) faults, (b) performance below expected performance, (c) observed performance warnings or trends which may indicate developing performance problems.
Reports	Operator will provide reports containing the information as agreed by the Parties.
General Requests for System Information	System Owner may make reasonable requests and Operator will provide additional System information.
Licenses and Operating Permits	Operator will obtain and maintain all required licenses and permits required to operate and maintain the System.
Field Inspection	Operator will perform a minimum of one (1) field inspection per Contract Year.
Maintenance	Operator will perform all maintenance activities in accordance with the equipment manufacturer recommendations.
System Cleaning	Operator will monitor System and if required recommend System cleaning in accordance with the equipment manufacturer recommendations and industry standards; Operator and System Owner will agree to timing of cleaning to minimize disruption to Site Owner and System Output
Troubleshooting and repair of System	Operator will promptly perform all troubleshooting and repair of System in order to maximize System performance
Troubleshooting and repair of Site	Operator will promptly perform all troubleshooting and repair of Site caused by System design, installation or maintenance in order to maximize System performance
Warranty	Operator will perform all activities required to process all Equipment warranties.
Reporting	A.1.1 System Event Report After an automated System event notification, the Operator will provide a brief report via email to the System Owner explaining the event, activities, and resolution of the System event. A.1.2 System Performance Report Quarterly Reports will be provided to System Owner. A.1.3 Field Inspection / Maintenance Report Upon completion of inspection, troubleshooting and maintenance activities, a report will be provided to the System Owner providing evidence of the activities related to the site visit, repairs and maintenance performed on the System.
Services and Maintenance	Preventative maintenance will be carried out two to four times per year, depending on the site and weather conditions.
Additional Responsibilities (General)	1. Check vegetation control to maintain optimal performance of PV system and visual perception of the site 2. Vegetation control to maintain optimal performance of PV system and visual perception of the site. 3. Mowing of any grassy areas as necessary and applicable 4. Topping up of any gravel areas with matching gravel as necessary 5. Pruning of trees/bushes on property, or that overhang property that cause shading of the PV panels or potential damage to fencing/equipment. 6. Check fence/gate security. Operator to carry out repair/replacement of fence and security systems as appropriate. 7. Visually inspect all terminations for corrosion/tightness 8. Re-torque all power terminations/connections associated with the system eg DC combiner boxes, DC and AC disconnects, surge arrestors, inverters, PV modules, transformers etc. 9. Test surge arrestor operation 10. Test ground continuity, lightning protection and overall system safety, and correct any unsafe or abnormal issues. 11. Check mechanical and structural integrity of the system, and correct any issues

	where deviation from Final Acceptance has occurred
Additional Responsibilities (PV Modules)	1. As applicable and necessary, clean solar panels once or twice per year or as needed, depending on deposits on panels. 2. High pressure sprays may be used – Operator to provide own water and electrical supply. 3. Snow/ice on panels should not be cleared. 4. Check for physical damage on all PV modules 5. Check for loose or disconnected cable terminations between PV module wiring and cable condition 6. Check for shading obstructions on all PV modules 7. Check for fading/discoloration, burn marks, seal condition, frame damage or rust
Additional Responsibilities (Inverters & Associated Equipment)	1. Check all fuses in inverters/combiner boxes/DC & AC disconnects. 2. Check ventilation condition and clean/replace air filters 3. Check housing for dust/water ingress 4. Inspect inverter structures and enclosures (seals, rust, damage, door condition, switch/handle condition, locks) 5. Check functionality – e.g. auto disconnect upon loss of grip power supply, error & ground fault LED indicators 6. Check for abnormal operation temperature and noises
Additional Responsibilities (Transformer)	1. Operator will be responsible for attending site to check the terminations, etc. for the main transformer. 2. Any alarms raised by the public or the DAS should be immediately forwarded directly to Operator for action.
Additional Responsibilities (DAS & Weather Station)	1. Visually inspect and clean weather station as appropriate 2. Check calibration of weather station procedures
Additional Responsibilities (Operation of System)	1. Sub-array zones are to be monitored and their power production tracked the monitoring system shall detect any power discrepancies in the sub-array zone. For example, permanent partial shading or blown string fuses shall be indicated on the sub-array monitoring system. 2. The monitoring system shall have built-in algorithms to detect the standard trends of one sub-array against another, and when this trend is broken, depending on the magnitude, will trigger an alarm. Detection of individual module problems is not a requirement. 3. Detection and alarms notification of critical failures of the equipment or outside issues such as ground faults and fluctuations on the electrical grid shall be captured and reported. 4. Attend site to carry out a diagnosis of any alarm raised by software/monitoring system or 'phone call from Lessee or member of the public indicating that there is, or may soon be, a problem at the site 5. Within twenty-four 24 hours of arrival on site, the fault shall have been diagnosed and a replacement part ordered if required. Once the new part has been delivered, it shall be installed and the system re-commissioned within seventy-two (72) hours. 6. If no new part is required, the system shall be repaired and re-commissioned within seventy-two (72) hours of fault diagnosis. 7. Once the system is fully re-commissioned and operational, a full report shall be written by the Operator, showing, as a minimum: a. Date/time fault reported b. Method of reporting fault (type of system, or personnel details) c. Nature of fault reported d. Nature of fault diagnosed and repaired. e. Times of arrival at, and departure from, site f. Replacement equipment required g. Time to repair on site (start/finish times)

SECTION 7. APPENDICES

Appendix 1. Pricing Bid Forms

OPTION 1

BIDDER'S BLANK ATTACHMENT 1

Providence Water Supply Board Renewable Energy Projects

Photovoltaic Project(s) Purchased or PPA

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

In Figures: $ N/A /kWh

In Words: _____

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

Percentage: N/A %

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

In Figures: 6,720,000 (per PW on-site project) kWh/Year

In Words: six million, seven hundred twenty thousand

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

Date: 9/30/19 (for PW on-site projects)

5) 30% Discount with no floor. Please note that we also provide $/kWh options with Option 2 and 3 (below). Many of our public off-takers prefer the discount option as there is no risk to PW versus the fixed price option. Under the discount option, PW can never be "underwater" on the contract (i.e. paying an energy price on the PPA higher than the net metered credit rate provided by National Grid). In addition, by Kearsarge not requiring a floor price, PW will always be guaranteed savings no matter what the net metered price is.

OPTION 2

BIDDER'S BLANK ATTACHMENT 1

Providence Water Supply Board Renewable Energy Projects

Photovoltaic Project(s) Purchased or PPA

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

In Figures $ 0.111 /kWh
In Words eleven and one-tenth

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

Percentage 2.0 %

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

In Figures 6,720,000 (per PW on-siteproject) kWh/Year
In Words six million, seven hundred twenty thousand

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

Date 9/30/19 (for PW on-site projects)

OPTION 3

BIDDER'S BLANK ATTACHMENT 1

Providence Water Supply Board Renewable Energy Projects

Photovoltaic Project(s) Purchased or PPA

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

In Figures $ 0.138 /kWh
In Words thirteen and eight tenths

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

Percentage N/A %

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

In Figures 6,720,000 (per PW on-siteproject) kWh/Year
In Words six million, seven hundred twenty thousand

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

Date 9/30/19 (for PW on-site projects)

Kearsarge Energy - Providence Water Supply Board Financial Benefits Summary

Option 1: 30% Discount (No Floor)			Option 2: Fixed Rate w/ 2% Escalator			Option 3: Fixed Rate - Flat		
Total Savings	Lease	Cumulative Benefits	Total Savings	Lease	Cumulative Benefits	Total Savings	Lease	Cumulative Benefits
$ 346,500	$ -	$ 346,500	$ 299,754	$ -	$ 299,754	$ 93,628	$ -	$ 93,628
$ 355,111	$ 140,000	$ 495,111	$ 315,712	$ 140,000	$ 455,712	$ 127,636	$ 140,000	$ 267,636
$ 363,935	$ 140,000	$ 503,935	$ 332,194	$ 140,000	$ 472,194	$ 162,332	$ 140,000	$ 302,332
$ 372,979	$ 140,000	$ 512,979	$ 349,214	$ 140,000	$ 489,214	$ 197,732	$ 140,000	$ 337,732
$ 559,515	$ 140,000	$ 699,515	$ 536,887	$ 140,000	$ 676,887	$ 342,305	$ 140,000	$ 482,305
$ 573,419	$ 140,000	$ 713,419	$ 563,443	$ 140,000	$ 703,443	$ 396,265	$ 140,000	$ 536,265
$ 587,668	$ 140,000	$ 727,668	$ 590,857	$ 140,000	$ 730,857	$ 451,339	$ 140,000	$ 591,339
$ 602,272	$ 140,000	$ 742,272	$ 619,152	$ 140,000	$ 759,152	$ 507,555	$ 140,000	$ 647,555
$ 617,238	$ 140,000	$ 757,238	$ 648,353	$ 140,000	$ 788,353	$ 564,943	$ 140,000	$ 704,943
$ 632,577	$ 140,000	$ 772,577	$ 678,485	$ 140,000	$ 818,485	$ 623,534	$ 140,000	$ 763,534
$ 648,296	$ 140,000	$ 788,296	$ 709,575	$ 140,000	$ 849,575	$ 683,357	$ 140,000	$ 823,357
$ 664,406	$ 140,000	$ 804,406	$ 741,649	$ 140,000	$ 881,649	$ 744,446	$ 140,000	$ 884,446
$ 680,917	$ 140,000	$ 820,917	$ 774,736	$ 140,000	$ 914,736	$ 806,832	$ 140,000	$ 946,832
$ 697,838	$ 140,000	$ 837,838	$ 808,863	$ 140,000	$ 948,863	$ 870,549	$ 140,000	$ 1,010,549
$ 715,179	$ 140,000	$ 855,179	$ 844,060	$ 140,000	$ 984,060	$ 935,632	$ 140,000	$ 1,075,632
$ 732,951	$ 140,000	$ 872,951	$ 880,357	$ 140,000	$ 1,020,357	$ 1,002,114	$ 140,000	$ 1,142,114
$ 751,165	$ 140,000	$ 891,165	$ 917,784	$ 140,000	$ 1,057,784	$ 1,070,032	$ 140,000	$ 1,210,032
$ 769,832	$ 140,000	$ 909,832	$ 956,372	$ 140,000	$ 1,096,372	$ 1,139,423	$ 140,000	$ 1,279,423
$ 788,962	$ 140,000	$ 928,962	$ 996,155	$ 140,000	$ 1,136,155	$ 1,210,324	$ 140,000	$ 1,350,324
$ 808,568	$ 140,000	$ 948,568	$ 1,037,165	$ 140,000	$ 1,177,165	$ 1,282,774	$ 140,000	$ 1,422,774
$ 828,660	$ 140,000	$ 968,660	$ 1,079,436	$ 140,000	$ 1,219,436	$ 1,356,812	$ 140,000	$ 1,496,812
$ 849,253	$ 140,000	$ 989,253	$ 1,123,004	$ 140,000	$ 1,263,004	$ 1,432,480	$ 140,000	$ 1,572,480
$ 870,357	$ 140,000	$ 1,010,357	$ 1,167,903	$ 140,000	$ 1,307,903	$ 1,509,818	$ 140,000	$ 1,649,818
$ 891,985	$ 140,000	$ 1,031,985	$ 1,214,172	$ 140,000	$ 1,354,172	$ 1,588,870	$ 140,000	$ 1,728,870
$ 914,151	$ 140,000	$ 1,054,151	$ 1,261,847	$ 140,000	$ 1,401,847	$ 1,669,678	$ 140,000	$ 1,809,678

Providence Water Supply Board
Estimated Savings from Power Purchase Agreement

Assumptions	
Est. NMC Rate	$0.1500
kWh	7,700,000
Est. NMC Escalation	3.00%
Annual Degradation	0.50%

KEARSARGE ENERGY

Year	kWh	Estimated Net Meter Rate	Savings									Additional Lease Income	
			Option 1: 30% Discount off Net Meter Rate (No Floor)			Option 2: 25 Year with 2% Escalation			Option 3: 25 Year Fixed				
			PPA Rate - $/kWh	Total Savings	Cumulative Savings	PPA Rate - $/kWh	Total Savings	Cumulative Savings	PPA Rate - $/kWh	Total Savings	Cumulative Savings	Yrly Lease	Cumulative Lease
1*	7,700,000	$0.150	$0.105	$346,500	$346,500	$0.111	$299,754	$299,754	$0.138	$93,628	$93,628	$0	$0
2 **	7,661,500	$0.155	$0.108	$355,111	$701,611	$0.113	$315,712	$615,466	$0.138	$127,636	$221,264	$140,000	$140,000
3	7,623,193	$0.159	$0.111	$363,935	$1,065,546	$0.116	$332,194	$947,660	$0.138	$162,332	$383,596	$140,000	$280,000
4	7,585,077	$0.164	$0.115	$372,979	$1,438,524	$0.118	$349,214	$1,296,874	$0.138	$197,732	$581,328	$140,000	$420,000
5 ***	11,047,151	$0.169	$0.118	$559,515	$1,998,039	$0.120	$536,887	$1,833,761	$0.138	$342,305	$923,632	$140,000	$560,000
6	10,991,915	$0.174	$0.122	$573,419	$2,571,458	$0.123	$563,443	$2,397,204	$0.138	$396,265	$1,319,897	$140,000	$700,000
7	10,936,956	$0.179	$0.125	$587,668	$3,159,127	$0.125	$590,857	$2,988,062	$0.138	$451,339	$1,771,235	$140,000	$840,000
8	10,882,271	$0.184	$0.129	$602,272	$3,761,399	$0.128	$619,152	$3,607,213	$0.138	$507,555	$2,278,790	$140,000	$980,000
9	10,827,860	$0.190	$0.133	$617,238	$4,378,637	$0.130	$648,353	$4,255,566	$0.138	$564,943	$2,843,734	$140,000	$1,120,000
10	10,773,720	$0.196	$0.137	$632,577	$5,011,214	$0.133	$678,485	$4,934,051	$0.138	$623,534	$3,467,267	$140,000	$1,260,000
11	10,719,852	$0.202	$0.141	$648,296	$5,659,510	$0.135	$709,575	$5,643,625	$0.138	$683,357	$4,150,625	$140,000	$1,400,000
12	10,666,253	$0.208	$0.145	$664,406	$6,323,916	$0.138	$741,649	$6,385,275	$0.138	$744,446	$4,895,071	$140,000	$1,540,000
13	10,612,921	$0.214	$0.150	$680,917	$7,004,833	$0.141	$774,736	$7,160,011	$0.138	$806,832	$5,701,903	$140,000	$1,680,000
14	10,559,857	$0.220	$0.154	$697,838	$7,702,671	$0.144	$808,863	$7,968,874	$0.138	$870,549	$6,572,453	$140,000	$1,820,000
15	10,507,057	$0.227	$0.159	$715,179	$8,417,850	$0.147	$844,060	$8,812,934	$0.138	$935,632	$7,508,084	$140,000	$1,960,000
16	10,454,522	$0.234	$0.164	$732,951	$9,150,801	$0.149	$880,357	$9,693,291	$0.138	$1,002,114	$8,510,198	$140,000	$2,100,000
17	10,402,249	$0.241	$0.168	$751,165	$9,901,966	$0.152	$917,784	$10,611,074	$0.138	$1,070,032	$9,580,230	$140,000	$2,240,000
18	10,350,238	$0.248	$0.174	$769,832	$10,671,798	$0.156	$956,372	$11,567,447	$0.138	$1,139,423	$10,719,652	$140,000	$2,380,000
19	10,298,487	$0.255	$0.179	$788,962	$11,460,760	$0.159	$996,155	$12,563,602	$0.138	$1,210,324	$11,929,976	$140,000	$2,520,000
20	**10,246,995**	**$0.263**	**$0.184**	**$808,568**	**$12,269,327**	**$0.162**	**$1,037,165**	**$13,600,767**	**$0.138**	**$1,282,774**	**$13,212,750**	**$140,000**	**$2,660,000**
21	10,195,760	$0.271	$0.190	$828,660	$13,097,988	$0.165	$1,079,436	$14,680,203	$0.138	$1,356,812	$14,569,562	$140,000	$2,800,000
22	10,144,781	$0.279	$0.195	$849,253	$13,947,240	$0.168	$1,123,004	$15,803,206	$0.138	$1,432,480	$16,002,042	$140,000	$2,940,000
23	10,094,057	$0.287	$0.201	$870,357	$14,817,597	$0.172	$1,167,903	$16,971,110	$0.138	$1,509,818	$17,511,860	$140,000	$3,080,000
24	10,043,587	$0.296	$0.207	$891,985	$15,709,582	$0.175	$1,214,172	$18,185,282	$0.138	$1,588,870	$19,100,730	$140,000	$3,220,000
25	**9,993,369**	**$0.305**	**$0.213**	**$914,151**	**$16,623,733**	**$0.179**	**$1,261,847**	**$19,447,129**	**$0.138**	**$1,669,678**	**$20,770,408**	**$140,000**	**$3,360,000**

Average Yearly Energy Savings				Avg Yrly Lease Rate
20 yrs.	$613,466	$680,038	$660,637	$133,000
25yrs	$664,949	$777,885	$830,816	$134,400

** - Assumes initial 7,700,000 KWhs years 1 through 4*

**** - Assumes additional 3,500,000 kWhs added to address anticipated usage.*

*** - Assumes Lease for onsite projects start one year after NMC PPA starts at $10,000/MW DC with 14 MW DC Project*

Appendix 2. Bid Forms

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

BID FORM 1: Bidders Blank

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

Name of Bidder (Firm or Individual): Kearsarge Energy

Contact Name: Andrew Bernstein

Business Address: 1200 Soldiers Field Rd Suite 202 Boston, MA 02134

Business Phone #: 617-393-4222

Agrees to bid on (Items(s) to be bid): Renewable Energy Projects

If company is based in a state *other than Rhode Island*, list name and contact information for a local agent for service of process: Paul Raducha (401) 965-8443

Please visit http://www.naics.com/search/ and identify the NAICS Code(s) for items being bid on. Enter the NAICS code(s) here or in parentheses next to each item listed immediately above: 22, 23

Delivery Date (when applicable): _____

Name of Surety Company (if applicable): _____

Total Amount in Writing*: Unit Price Bid: Option 1 Thirty per cent discount/Option 2 eleven and one-tenth cent with two per cent escalation/Option 1 Thirteen and eight tenths cent

Total Amount in Figures*: 30% Discount/$0.111 w/ 2% escalator/$0.138

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

Use additional pages if necessary for additional bidding details.

Andrew Bernstein
Signature of Representative

Manager
Title

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

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

Upon behalf of Kearsarge Energy (Firm or Individual Bidding),

I, Andrew Bernstein (Name of Person Making Certification),

being its Manager (Title or "Self"), hereby certify that:

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

I affirm by signing below that I am duly authorized on behalf of Bidder, on this 21 day of June 2018.

Signature of Representative

Andrew Bernstein
Printed Name

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

Certificate Regarding Public Records

Upon behalf of Kearsarge Energy (Firm or Individual Bidding),
I, Andrew Bernstein (Name of Person Making Certification),
being its Manager (Title or "Self"), hereby certify an understanding that:

1. All bids submitted in response to Requests for Proposals (RFP's) and Requests for Qualification (RFQ's), documents contained within, and the details outlined on those documents become public record upon receipt by the City Clerk's office and opening at the corresponding Board of Contract and Supply (BOCS) meeting.
2. The Purchasing Department and the issuing department for this RFP/RFQ have made a conscious effort to request that sensitive/personal information be submitted directly to the issuing department and only at request if verification of specific details is critical the evaluation of a vendor's bid.
3. The requested supplemental information may be crucial to evaluating bids. Failure to provide such details may result in disqualification, or an inability to appropriately evaluate bids.
4. If sensitive information that has not been requested is enclosed or if a bidder opts to enclose the defined supplemental information prior to the issuing department's request in the bidding packet submitted to the City Clerk, the City of Providence has no obligation to redact those details and bears no liability associated with the information becoming public record.
5. The City of Providence observes a public and transparent bidding process. Information required in the bidding packet may not be submitted directly to the issuing department at the discretion of the bidder in order to protect other information, such as pricing terms, from becoming public. Bidders who make such an attempt will be disqualified.

I affirm by signing below that I am duly authorized on behalf of Bidder, on this 21 day of June 2018.

Signature of Representative

Andrew Bernstein
Printed Name

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

MINORITY AND WOMEN'S BUSINESS ENTERPRISE PROGRAM
BIDDER INFORMATION AND FORMS

The City of Providence encourages Minority and Women owned businesses to participate in bids to meet the City's procurement needs. Pursuant to the City of Providence Code of Ordinances, Chapter 21, Article II, Sec. 21-52 (Minority and Women's Business Enterprise) and Rhode Island General Laws (as amended), Chapter 31-14, et seq. (Minority Business Enterprise), Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) participation goals apply to contracts.

The goal for Minority Business Enterprise (MBE) participation is **10%** of the total bid value. The goal for Women's Business Enterprise (WBE) participation is **10%** of the total bid value. The goal for combined MBE/WBE participation is **20%** of the total bid value.

Bid Requirements:

Bidders that will hire subcontractors must include a commitment to utilize MBEs and WBEs at a percentage that equals or exceeds the contract goals stated above. The City of Providence would like to be able to identify those Bidders, as well as Bidders that are themselves certified as an MBE/WBE. Minority or women-owned Bidders and Subcontractors are encouraged to seek certification from the State of Rhode Island Minority Business Enterprise Compliance Office at: http://www.mbe.ri.gov/

Based on the category of Bidder, specific forms from this document must be included as part of the BID package, as indicated in the Bid Package Checklist on the first page of the Request for Proposals packet that the Bidder is responding to. To comply with the MBE/WBE guidelines, please:

1. Review the Bidder Category Worksheet (page M/WBE-2) and identify the category that describes your business.
2. Review the Form Matrix (page M/WBE-3) to see the forms required for your category
3. Print the required forms (found in this packet) or download an electronic, editable version from: http://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/
4. Complete the forms and include them with the other required documents listed in the Bid Package Checklist on the first page of the Request for Proposals packet.

For more information or for assistance with these forms or with M/WBE certification, contact:

- **Grace Diaz the MBE/WBE Outreach Director for the City of Providence**
- **(401) 680-5766**
- **gdiaz@providenceri.gov**
    - Please use subject line "**MBE WBE Forms**"

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

BIDDER CATEGORY WORKSHEET

IF THE BIDDING FIRM WILL SUBCONTRACT ANY PORTION OF THE GOOD(S) AND/OR SERVICE(S), SEE THE SECOND BLOCK BELOW.

A Bidder who is NOT subcontracting falls into one of the following four categories:

(1A) Solo M/WBE: An individual or sole-proprietor registered with the State of Rhode Island as an MBE or WBE, which will deliver all goods and services outlined in the bid being submitted.

(1B) Solo Non-M/WBE: An individual or sole-proprietor ***not*** registered with the State of Rhode Island as an MBE or WBE, which will deliver all goods and services outlined in the bid being submitted.

(2A) Firm M/WBE: A firm registered with the State of Rhode Island as an MBE or WBE, employing multiple staff. All goods and services outlined in the bid will be delivered by members of said firm.

(2B) Firm Non-M/WBE: A firm ***not*** registered with the State of Rhode Island as an MBE or WBE, employing multiple staff. All goods and services outlined in the bid will be delivered by members of said firm.

A Bidder who IS Subcontracting falls into one of the following four categories:

(3A) M/WBE-Prime, M/WBE-Sub A firm, individual or sole-proprietor registered with the State of Rhode Island as an MBE or WBE, who proposes to hire one or more subcontractors registered with the State of Rhode Island as an MBE or WBE to deliver a portion of the goods and services outlined in the proposal.

(3B) M/WBE-Prime, Non-M/WBE-Sub: A firm, individual or sole-proprietor registered with the State of Rhode Island as an MBE or WBE, who proposes to hire one or more subcontractors to deliver a portion of the goods and services outlined in the proposal, *none of which* are registered with the State of Rhode Island as an MBE or WBE.

(3C) Non-M/WBE-Prime, M/WBE-Sub: A firm, individual or sole-proprietor ***not*** registered with the State of Rhode Island as an MBE or WBE, who proposes to hire one or more subcontractors registered with the State of Rhode Island as an MBE or WBE to deliver a portion of the goods and services outlined in the proposal.

(3D) Non-M/WBE-Prime, Non-M/WBE-Sub: A firm, individual or sole-proprietor ***not*** registered with the State of Rhode Island as an MBE or WBE, who proposes to hire one or more subcontractors to deliver a portion of the goods and services outlined in the proposal, *none of which* are registered with the State of Rhode Island as an MBE or WBE.

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

FORM MATRIX

After determining the Bidder category, see the corresponding column below. A '□' in the matrix below indicates the form is always required and a '?' indicates that it is dependent upon the ability of the firm to meet MBE/WBE goals and how much outreach was conducted.

FORM	CATEGORY							
	1A	1B	2A	2B	3A	3B	3C	3D
Form A: M/WBE Participation Affidavit					□		□	
Form B: M/WBE Participation Disclosure					□		□	
Form C: Contractor Intent (one per sub)					□		☑	
Form D1: Contractor Waiver					?	?	?	□
Form D2: Independent Waiver	□	□	□	□				
Form E: MBE/WBE Outreach					?	?	?	?

Contractors falling into Category 3A, 3B or 3C who fully meet the MBE/WBE goals are not required to fill out the Contractor Waiver (Form D1) or Outreach (Form E). Depending upon the effort and results of the Bidder's outreach, the Outreach form may or may not be necessary for Category 3 Bidders.

Waiver Requests:

If a Bidder is unable to comply with a contract goal, a waiver request signed by the MBE/WBE coordinator must be submitted with the bid. The waiver request must be made on the MBE/WBE Participation Waiver Request Form (Form D1 or D2). If Bidder is Subcontracting a portion of the contract (Category 3) and will not meet MBE/WBE goals, no waiver will be granted unless the waiver request includes documentation that demonstrates that the Bidder has made good faith efforts to comply (which may include Form E, for Outreach).

Contract Requirements:

During the term of the contract, any unjustified failure to comply with the MBE/WBE participation requirements is a material breach of contract. Contractors in category 3A and 3C must submit the Subcontractor Utilization Form (Form F) quarterly (not with the bid package), or for contracts with a duration of less than 3 months, it must be submitted along with with the contractor's request for final payment. The form will include all subcontractors utilized on the contract, both MBE/WBE and non- MBE/WBE, the total amount paid to each subcontractor, and the owner's race/ethnicity and sex.

For category 3A and 3C, please thoroughly review the Participation Affidavit (Form A) for information regarding documentation submission requirements throughout the duration of the contract.

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

VERIFYING MBE/WBE CERTIFICATION

Each Bidder is responsible for verifying that each MBE/WBE named in a proposal and included in a contract is certified by the Rhode Island Minority Business Enterprise Compliance office. The current MBE/WBE directory is available at the State of RI MBE Office, One Capitol Hill, 2nd Floor, Providence, RI, or online at www.mbe.ri.gov (click "Directory Search" then search by "Product or Service" or "Company Name"). You can also call (401) 574-8670 to verify certification, expiration dates and services that the MBE/WBE is certified to provide. *NOTE: Companies identified as Portuguese are not included in the City of Providences MBE/WBE Program.*

Commercially Useful Function: The Bidder may count toward the contract goals only expenditures to a MBE/WBE that performs a commercially useful function in the execution of the contract. Commercially useful function means the performance of real and distinct work for which the business enterprise has the skill, expertise, and responsibility to perform, manage and supervise.

Subcontracting by MBE/WBE: A Bidder **MAY NOT** count toward its contract goal any agreement with a certified MBE or WBE subcontractor who intends to subcontract more than 10% of the dollar amount of the services to be performed under its agreement with the Bidder. This restriction does not apply to an MBE/WBE Contract for the purchase of materials, equipment, or supplies incidental to the performance of services under its agreement with the Bidder.

Manufacturers: The entire expenditure to a certified MBE/WBE manufacturer may be counted.

Non-Manufacturer Suppliers: A Bidder may count 100% of its expenditure to a certified MBE or WBE supplier. (However, only 10% of each contract goal may be attained by expenditure to MBEs or WBEs that are non-manufacturing suppliers.)

Insurance Companies and Travel Agents: A Bidder may count toward the contract goals only 10% of its expenditure to a MBE or WBE insurance company or travel agent.

Financial Institutions: Only fees charged/earned by MBE/WBE Financial Institutions may be counted.

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

Form A: MBE/WBE Participation Affidavit

The undersigned authorized representative of contractor does hereby make the following Affidavit:

Contractor acknowledges the MBE goal of 10% and the WBE goal of 10% for contract

(title) Renewable Energy Projects with the City of Providence.

My firm will make its best efforts to achieve the MBE and WBE participation goals for this contract. I understand that, if awarded the contract, my company must submit to the Minority and Women's Business Coordinator at the City of Providence MBE/WBE office, copies of all executed agreements with the Subcontracted Firm(s) being utilized to achieve the participation goals and other requirements of the RI General Laws. **I understand that these documents must be submitted prior to the issuance of a notice to proceed**.

I understand that, if awarded the contract, my firm must submit to the MBE/WBE Office canceled checks and any other documentation and reports required by the MBE and WBE Office on a quarterly basis verifying payments to the Subcontracted Firm(s) utilized on the contract.

I understand that if I am awarded this contract and I find that I am unable to utilize the Subcontracted Firm(s) identified in my statements of Intent, I must substitute other certified MBE and WBE firms to meet the participation goals. **I understand that I may not make a substitution until I have obtained the written approval of the MBE/WBE Office**.

I understand that, if awarded this contract, authorized representatives of the City of Providence may examine, from time to time, the books records and files of my firm to the extent that such material is relevant to a determination of whether my firm is complying with the MBE and WBE participation requirements of this contract.

I do solemnly declare and affirm under the penalty of perjury that the contents of the foregoing affidavit are true and correct to the best of my knowledge, information and belief.

Kearsarge Energy
Contractor Company Name

Signature

1200 Soldiers Field Rd Suite 202
Boston, MA 02134
Address

Andrew Bernstein, Manager
Print Name and Title

For more information on this program please contact Grace Diaz the MBE/WBE Outreach Director for the City of Providence, by phone at (401) 680-5766 or by email at gdiaz@providenceri.gov. (Please use subject line "MBE WBE Forms")

Appendix 3. Letters of Support

GWD

COMMISSIONERS
Robert Frederico
Michael Corda
Kenneth Grew

GRAFTON WATER DISTRICT
Sewing Your Water Needs

44 Millbury Street
Grafton, MA 01519

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MANAGER
Matthew E. Pearson

TREASURER
Joseph Meichelbeck

March 16, 2015

RE: Letter in Support of Kearsarge Energy

To Whom It May Concern;

Please accept this letter of support for Kearsarge Energy's proposed solar PV project. As the General Manager of the Grafton Water District, I worked very closely with Kearsarge's team during the development of a 1.7 MW DC solar PV array on Town of Grafton land that is leased by the Grafton Water District, and I can vouch for their professionalism, responsiveness and being a trust worthy partner throughout the project's development. Kearsarge worked very closely with me on the PPA and the land lease with the Town and supported me after the project was built when I had issues with net metering and the Schedule Zs with the utility. I even invited them to our annual vendor appreciation lunch!

The Grafton Water District had been working on a plan for a solar array for many years, as we viewed it as an attractive option to reduce our electricity bills. After issuing an RFP, we selected a local construction firm and an out-of-state financing party and owner for the project. Unfortunately, this did not work out as they could not deliver on their offer (not uncommon in the Solar industry) and backed out of the project. Fortunately, Kearsarge Energy stepped in with its own financing, took over the project and was able to get it back on track without any significant delays. In addition to the financing obstacles we faced, there were also numerous permitting and regulatory issues that Kearsarge had to work through, including;

- Site plan and design approval in a NHESP priority habitat for Wood Turtles;
- Town of Grafton Conservation Commission concerns;
- Challenging site layout; and most importantly,
- Obtaining DEP approval for the first Solar PV Project in the Commonwealth within the Zone I 400-foot protective radius of a Drinking Water Well in accordance with Guideline BRP 2011-1

From first-hand experience, I can say that Kearsarge Energy kept the communication channels open at all times and handled all of these issues with honesty and transparency, expediency, and respect for all parties involved. They presented to the Town on numerous issues and gained respect throughout the community. Throughout the process Kearsarge demonstrated their knowledge and experience in dealing with sensitive issues and working with local and state regulators and authorities.

The Kearsarge Team also showed great professionalism in helping the Water District understand and solve challenges with the implementation of the National Grid Virtual Net Metering Schedule Z process as

noted above. Overall, it was a pleasure working with them. We continue to reap the benefits of the solar array in the form of greatly reduced electricity rates, reduced greenhouse gas emissions, and general goodwill in our community for doing the right thing.

Given my experience with Kearsarge and their ability to execute, I recommend them for this or any other solar PV project. I would be happy to answer any questions or discuss any aspect of my experience with Kearsarge if you wish to contact me.

Sincerely

Matthew Pearson

General Manager, Grafton Water District

Concord Municipal Light Plant
1175 Elm Street • P.O. Box 1029
Concord, Massachusetts 01742-1029
978-318-3101 • FAX 978-318-3105 • www.concordma.gov
David G. Wood, Director

April 6, 2015

RE: Letter of Reference for Kearsarge Energy

To Whom It May Concern:

I am writing to attest to Kearsarge Energy's experience and professionalism in developing, owning and operating the 1.7 MW DC ballasted ground-mounted solar PV array at our capped Landfill in Concord, Massachusetts. As the Director of the Concord Light Department in the Town of Concord, I can highlight my experience working with Kearsarge Energy on the Project.

Like many municipalities in Massachusetts, our town has several properties, including a closed and capped landfill, which was previously unused and unproductive. Over a period that lasted several years we began the process of getting feedback from town officials and local stakeholders on the possibility of developing some of these parcels with the idea that solar might be a good use and an ideal way to generate clean, renewable energy for the town. As a community, we are concerned with our carbon footprint and are constantly looking for ways to reduce our energy bills, especially in these times of volatile energy prices. Through a very thorough and open stakeholder engagement process, we decided to issue an RFP for a solar project on our capped landfill. Kearsarge was part of the team that was awarded the RFP.

As a municipality, we were concerned about potential environmental, health and safety issues. We also wanted to make sure the integrity of the landfill was not compromised and ensure that we protected as much open space as possible. Kearsarge and their construction partners were proactive in giving us regular updates, allaying any concerns we had and working collaboratively with all relevant stakeholders to ensure all their concerns were heard and incorporated into the final project. Kearsarge secured all local and state permits and successfully worked with us on negotiating the interconnection and power purchase agreements. The solar PV array was completed in May, 2014 and as the long-term owner-operator, Kearsarge has been responsive to any issues that have arisen since the project's completion.

The solar industry is growing and continues to mature here in Massachusetts, and fortunately municipalities have the option of working with a number of highly qualified firms. Given the opportunity, I would work with Kearsarge again in the future.

Sincerely,

David Wood
Director
Concord Municipal Light Plant

CISTERCIAN NUNS
MOUNT SAINT MARY'S ABBEY

December 31, 2015

To Whom It May Concern:

On behalf of Mount Saint Mary's Abbey, in Franklin, Massachusetts, I write to offer my support for Kearsarge Energy and to highlight our positive experience working with their team to develop 8.4 MW of ground-mounted solar across two arrays on the Abbey's property.

Operating and maintaining an Abbey is difficult work. To improve our long-term financial position, we evaluated our existing assets with the goal of leveraging them to generate additional revenue for the Abbey. In addition to our Trappistine Candy business, we have a considerable amount of agricultural and undeveloped land. We were aware of the growing solar industry in Massachusetts and working with the Kearsarge team we realized that hosting a solar farm would be an ideal way of generating stable long-term revenues for the Abbey through annual land lease payments. We were impressed with Kearsarge's track record, references and overall proposal, and selected them as a partner to develop and build our 3.6 MW DC and 4.8 MW DC ground-mounted arrays.

Kearsarge Energy was an ideal partner because they took a holistic and comprehensive approach to the siting and construction of the array, as we were worried about the impacts on wildlife and the land. They were very considerate of our wishes and incorporated our feedback into the final design of the array. We appreciated their willingness to work together as a team throughout the construction of the project. During contract negotiations the Kearsarge team was extremely responsive and open with us and we felt that they were a trusted negotiating partner. When we had concerns about cutting trees, they were immediately responsive to our needs and worked to a solution that benefitted all stakeholders.

Kearsarge also managed all aspects of a highly complex interconnection process with National Grid and worked successfully to establish a long-term partnership with the Town of Franklin for the sale of the energy generated by the Projects and Tax Agreements on land that was now taxable. Overall, Kearsarge organized a landmark public-private partnership, significant energy cost savings and property taxes to the Town of Franklin, as well as stable lease revenues to the Abbey.

It was a pleasure working with Kearsarge and I highly recommend working with them if you have the opportunity.

Sincerely,

Mother Maureen McCabe

Mother Maureen McCabe
Abbess and President
Mount Saint Mary's Abbey
300 Arnold Street
Wrentham, MA 02093

300 Arnold St., Wrentham, MA 02093-1799, Phone: 508-528-1282 Fax: 508-528-5360

KEARSARGE ENERGY

Appendix 4. Resumes

RESUME

Education
B.S., 1985, Geology,
University of Rhode Island
Geological Field Methods, 1984, University of Texas at El Paso

Registrations & Certificates
Professional Geologist – 1994, Kentucky, # 1871

Affiliations
- Environmental Business Council, RI Chapter Board Member
- Solid Waste Association of North America, Landfill Gas Technical Division Member
- Association of Ground Water Scientists and Engineers
- Rhode Island Society of Environmental Professionals

Areas of Specialization
- CERCLA/RCRA/State List Sites
- Site Investigations
- Feasibility Studies
- Site Remediation
- Solid Waste & Landfill Gas

Specialized Training
- 2001, Queens University, Hydrogeology of Fractured Rock
- 1999, PSMJ Resources, Advanced Project Management Training Course
- 1997, ASTM, Risk Based Corrective Action (RBCA) Decision Making Training Course
- 1996, OSHA, Confined Space Entry Training Certification
- 1995, GSC, Contaminant Fate and Groundwater Transport Modeling Course
- 1995, EPA, Human Health Risk Assessment Guidance for Superfund Course

Edward A. Summerly, P.G.
Principal

Summary of Experience
Mr. Summerly is a Principal and Registered Professional Geologist. He serves as manager and technical lead on multi-disciplinary studies and design projects focusing on Solid Waste Management Facilities, landfill gas control and reuse, and contaminated sites requiring assessment of environmental contamination (soil, groundwater, surface water, air), human health and ecological risk management and hazardous waste remediation. His responsibilities include: technical direction, contract management, project planning, budget control, and quality assurance. Mr. Summerly has been involved with site investigations (soil, groundwater, surface water, air), environmental compliance issues, permitting, and testing at more than 30 solid waste management facilities in the northeast. He has managed several Superfund, RCRA Corrective Action and State lead studies involving remedial investigation (waste identification, groundwater, surface water and geologic characterization) groundwater contaminant migration evaluation, human health and ecological risk assessment/risk management, and public relations. Mr. Summerly has supervised and participated in the preparation and implementation of Superfund, RCRA, and State Remedial Investigation/Feasibility Studies, QAPPs, and subsequent site clean-up and Remedial Actions.

Mr. Summerly's more than 30 years of experience includes participation in RIDEM's regulatory Task Force for the redevelopment of Rhode Island's Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases and he is GZA's Technical Practice Leader for Solid Waste Services.

Solid Waste Management Facility Experience Includes:

Central Landfill, Johnston, RI
Fresh Kills Landfill, Staten Island, NY
Jamestown Landfill, Jamestown, RI
Richmond Landfill, Richmond, RI
Manton Avenue Landfill, Providence, RI
Rose Hill Landfill, South Kingstown, RI
Macera Landfill, Johnston, RI
Home Town Properties Landfill, Exeter, RI
Global Waste Recycling, Coventry, RI
Materials Recycling Facility, Johnston, RI
Plainfield Pike Recycling Facility, Johnston, RI
Tuckers Industrial Dump, Johnston, RI
Coventry Landfill, Coventry, RI
Cumberland Landfill, Cumberland, RI
Canton Landfill Solar Facility, Canton, MA
A Street Landfill Solar Facility, Johnston, RI
Kingston Landfill, Kingston, MA
Rocky Hill Landfill, East Greenwich, RI
Plainfield Landfill, Plainfield, MA
Oak Bluff Landfill, Martha's Vineyard, MA
Edgartown Landfill, Martha's Vineyard, MA
Vineyard Haven Landfill, Martha's Vineyard, MA
Tisbury Landfill, Martha's Vineyard, MA
Gay Head Landfill, Martha's Vineyard, MA
SeMass/American Ref-Fuel, West Wareham, MA
Rocky Point Landfill, Warwick, RI
Barrington Landfills 1 and 2, Barrington, RI
MOA Landfill, Atlanta, MI
Violia ES Landfill, Zion, IL
Charlestown Landfill, Charlestown, RI
Ravenbrook Landfill Solar Facility, Carver, MA
Forbes St. Landfill Solar Facility, E. Prov.,, RI

Relevant Project Experience is as follows:

SOLID WASTE FACILITY ASSESSMENT & DESIGN

Principal, Central Landfill Superfund Site RI/FS and RD/RA, Johnston, Rhode Island. This EPA mandated study involved evaluation of environmental conditions (air, soil, bedrock, groundwater, surface water, and sediment) at New England's largest solid waste management facility, which is also an EPA Superfund Site. Project elements included development and implementation of work plans for subsurface explorations, multi-media

Edward A. Summerly, P.G.

Principal

environmental sampling and analysis, geophysical studies and groundwater transport evaluation. The project culminated in the closure of the 121 acre Operable Unit 1 Landfill with a modified RCRA Subtitle C Cap, installation of a groundwater pump and treatment system in an identified Hot Spot and a finding of No Action Required for the Operable Unit 2 off-site area.

Principal, Fresh Kills Landfill Closure, Staten Island, New York. Mr. Summerly serves as technical lead for landfill gas collection and control on this multi-year design-build landfill closure project. This project involves closing and capping a 300 acre cell of the former Fresh Kills Landfill working as the design engineer for the construction contractor. Key elements of GZA's services are design of all closure elements including: the RCRA D synthetic membrane cap, stormwater control structures, landfill gas collection and conveyance systems, and roadways. Mr. Summerly's responsibilities also include coordination of operation of the new landfill gas collection and control systems, and integration of the new and existing gas systems with the DSNY's gas system operator who produces pipeline quality natural gas from the recovered methane for resale.

Principal, Coventry Landfill Assessment, Closure Design and Construction QA/QC, Coventry, Rhode Island. Mr. Summerly directed GZA's work on this CIRCLIS and State List landfill site which, to date, has consisted of extensive environmental investigations both on and off-site, landfill cap and closure design, remedial action planning, groundwater and landfill gas migration assessment, and meetings with State regulators. The closure design incorporates the use of 300,000 cubic yards of impacted soil from off-site sources under a Beneficial Use Determination (BUD) regulatory approval, the revenue from which will significantly reduce Site closure costs. The proposed future use of the facility is as a utility-scale solar energy farm. Final landfill closure grading and cap design integrates the needs of the solar farm to put this otherwise fallow land back into productive use.

Principal, Central Landfill Phase VI Landfill Design and Permitting, Johnston, Rhode Island. Mr. Summerly serves as contract manager and technical specialist on this 153 acre landfill expansion design and permitting project. Work to date has involved: conducting a pre-design geohydrologic investigation of the site, design of a double-composite synthetic baseliner system using HDPE, as well as a geocomposite clay liner and dual composite drainage nets to gain additional air space, leachate collection system design, operational and post-closure landfill gas collection and control system designs for regulatory compliance, gas mining for beneficial reuse, and preparation of landfill license application documents for regulatory approval.

Principal, Central Landfill Environmental Engineering General Services Contract, Johnston, Rhode Island. Mr. Summerly serves as contract manager and technical specialist on this multi-year task order contract. Work to date has involved the completion of more than 65 individual jobs/tasks with budgets ranging from $400 to $750,000 including portions of two broad based remedial investigations and feasibility studies. Other work performed under this contract has drawn upon more than 20 distinct environmental services areas such as: landfill permitting, air quality evaluation and permitting, landfill gas control, BUD soil/waste evaluation, emergency response, hazardous waste disposal, regulatory compliance auditing and monitoring, environmental monitoring, dredging, geotechnical soils testing and blast monitoring, technical support for public meetings and presentations, and environmental data interpretation and reporting.

Associate Principal, Rose Hill Landfill Superfund Site. Mr. Summerly directed GZA's work on this project which consisted of evaluating the results of a Remedial Investigation and Feasibility Study that was conducted by the EPA, for the Potentially Responsible Parties (PRP Group). The purpose of our work was to ensure that the regulatory agencies had selected the most cost-effective remedy (capping and landfill gas control) that was protective of human health and the environment. Our recommendations lead to additional field studies (completed by GZA), to better assess groundwater migration, landfill mining options, and landfill gas control. As a result of our work, the EPA and RIDEM changed the selected remedy to a more protective and cost-effective approach.

Principal, Jamestown Landfill Assessment and Closure. Mr. Summerly directed GZA's work which consisted of the completion of a site investigation work plan, site investigation, underground injection control closure, remedial action work plan preparation, landfill capping and closure design, landfill gas migration assessment, landfill capping and closure engineering oversight, site redevelopment as a Department of Public Works facility and quarterly environmental compliance monitoring of groundwater and soil gas. GZA assisted the Town in obtaining and/or

Edward A. Summerly, P.G.

Principal

evaluating off-site soils from a variety of sources which resulted in a significant reduction in landfill closure costs. This project has also included public relations work including public meetings, presentations, and participation in a citizen's advisory committee.

Principal, Barrington Landfills 1 and 2 Assessment and Closure. Mr. Summerly directed GZA's work which consisted of the completion of a multi-media site investigation, landfill gas migration assessment, survey and boundary determination, landfill capping and closure design and construction oversight. Our closure design incorporated the redevelopment of the Site as a recreational facility including two soccer fields, walking paths and paved parking.

Principal, A. Macera Landfill Assessment and Closure, Johnston, Rhode Island. Mr. Summerly directed GZA's work which consisted of the completion of a site investigation work plan, site investigation, landfill gas migration assessment, remedial action work plan preparation, landfill capping and closure design, and site redevelopment as an industrial park. As part of this closure design GZA worked with the Client and RIDEM to reduce the closed landfill footprint by 40%, and reuse excavated waste and soils in the capping project under a BUD approval. The Site reuse plan incorporates on-landfill bus parking for the Town of Johnston and passive recreation, and the recovered land has been developed into an industrial park.

Principal, Tucker's Industrial Dump Assessment and Closure Design, Johnston, Rhode Island. Mr. Summerly directed GZA's work which consisted of the completion of a site investigation work plan, site investigation, landfill gas migration assessment and control design, remedial action work plan preparation, landfill capping and closure design, and site reuse as a residential development. A significant component of this work included delineating a chlorinated solvent groundwater contaminant plume and associated vapor plume migrating from the dump below a proposed residential development.

Principal, Richmond Landfill. Mr. Summerly directs a team of environmental professionals conducting ongoing quarterly compliance monitoring of groundwater at this closed landfill and CERCLIS site. Work consists of Low Flow groundwater sampling, chemical analysis, statistical data evaluation, perimeter landfill gas monitoring for migration control, and reporting to the RIDEM's Office of Waste Management.

Associate Principal, Global Waste Recycling, Coventry, Rhode Island. Mr. Summerly directed GZA's work which consisted of the completion of a Construction and Demolition Debris Recycling facility permit and associated site investigations and environmental monitoring. This project included facility planning, groundwater and surface water assessment and protection, stormwater management and litigation support.

Project Manager, Manton Avenue Landfill Closure and Redevelopment, Providence, Rhode Island. Conducted environmental and geotechnical studies to assess present conditions and feasibility of a commercial development on a 16 acre former municipal solid waste landfill on the Woonasquatucket River. Supervised environmental studies (groundwater, soil, and landfill gas), regulatory negotiations and permitting/approval processes. Participated in development of landfill closure/commercial development plans which incorporated the use of deep dynamic compaction (DDC) for refuse densification; synthetic membranes, low permeability soils and pavement for landfill capping/leachate minimization; and interior/exterior landfill gas mitigation, venting and monitoring systems.

LANDFILL SOLAR DEVELOPMENT

Principal, Forbes Street Landfill Solar Facility Phase 1, East Providence, Rhode Island. Provided geotechnical and landfill engineering services addressed settlement and design issues for the system, which is installed over a membrane landfill cap prepared Post Closure Use Application, landfill gas/methane and safety monitoring and project management. The solar farm facility is located on 12.5± acres and provides a total of approximately 5.6 megawatts to the Town grid. The landfill consists of approximately 70 acres of a 220 acre property. The solar farm facility will be developed in three phases and will provide a total of approximately 10 megawatts to the Town grid. The first phase of the solar development consist of 3.7 megawatts with approximately 12,850 photo voltaic module solar arrays. GZA evaluated suggested earthwork requirements for the proposed solar array development and foundation loads.

Principal, A Street Landfill Solar Facility Development, Johnston, Rhode Island. Provided environmental, landfill closure and geotechnical design and support services to a private developer who will be closing the roughly 12 acre landfill in conjunction with the solar photo voltaic

Edward A. Summerly, P.G.

Principal

development. The system will ultimately supply approximately 2 megawatts to the Town grid.

Technical Consultant, Canton Landfill Solar Facility, Canton, Massachusetts. Provided geotechnical and landfill engineering services addressed settlement and design issues for the system, which is installed over a membrane landfill cap prepared Post Closure Use Application, landfill gas/methane and safety monitoring and project management. The solar farm facility is located on 12.5± acres and provides a total of approximately 5.6 megawatts to the Town grid with approximately 24,000 photo voltaic module solar arrays.

Technical Consultant, Ravenbrook Landfill Solar Facility, Carver, Massachusetts. Provided geotechnical and landfill engineering services addressed settlement and design issues for the system, which is installed over a membrane landfill cap prepared Post Closure Use Application, landfill gas/methane and safety monitoring and project management. The solar farm facility is located on 12.5± acres and provides a total of approximately 5.6 megawatts to the Town grid.

SUPERFUND/RCRA/STATE SITE ASSESSMENT AND REMEDIATION

Principal, Central Landfill, Johnston, Rhode Island Hot Spot Hydrodynamic Containment System Design and Relocation. Central Landfill is an EPA Superfund site with a bedrock aquifer contaminated with volatile organic compounds (VOCs). Provided direction and oversight of investigations that included deep bedrock borehole geophysical analysis and multi-level monitoring well installations. Managed the operation of a groundwater pump and treat remediation system with treatment of VOCs using an air stripper. Developed both a fractured bedrock flow model (FracMan/Mafic) and equivalent prous media flow model (using MODFLOW) and contaminant transport model (using RT3D) to evaluate the extent of contamination beneath the solid waste landfill and evaluate the capture zone of an initial and subsequently a relocated groundwater pump and treat remediation system.

Principal, Carroll Products RCRA Facility Investigation (RFI) and Site Remediation, Richmond, Rhode Island. This multiphase environmental study and site remediation project is being conducted, in part, under EPA and RIDEM Consent Orders to evaluate the nature and extent of soil, groundwater, and surface water contamination at a former chemical production facility. This project has included preparation and implementation of project work plans for remedial investigation, human health and ecological risk assessment, feasibility studies and remedial design/actions (RD/RA). Key RI project elements include field investigations, multi-media sampling and analyses (soil, groundwater, surface water, and sediment), data interpretation, and report preparation. RI activities supported focused risk evaluations, feasibility studies and site clean-up actions which, to date, have culminated in the remediation of two former hazardous waste disposal lagoons and removal of numerous leaking underground storage tanks.

Principal, JM Mills Superfund Site, Cumberland, Rhode Island. Mr. Summerly directed GZA's work for the Town of Cumberland, host community for the site, which included a detailed evaluation of landfill capping and remedial options for three landfills/waste cells located within the floodplain of a major river. Review comments and recommendations were presented to the Town Council and subsequently EPA and RIDEM.

Principal, Regal Plating, Providence, Rhode Island. Mr. Summerly directed GZA's turnkey site investigation, site remediation and redevelopment services at this former metals plating facility. Services include: asbestos and hazardous materials identification and abatement; building demolition; underground petroleum storage tank removals; petroleum and chlorinated hydrocarbon contaminated soils remediation using soil vapor extraction (SVE); bioremediation of chlorinated hydrocarbon contaminants in groundwater; and sire redevelopment as paved parking.

Principal, Charbert Facility Site Investigation and Remediation, Richmond, Rhode Island. Mr. Summerly directed GZA's work which consisted of the completion of multiple phases of site investigation work plans, multi-media site investigations focusing on soil, groundwater and bedrock contamination assessment. Primary contaminants of concern consist of chlorinated hydrocarbons and heavy petroleum. Key project elements include: complex hydrogeology associated with multiple active industrial groundwater supply wells, active unlined wastewater disposal lagoons, close proximity to private residential supply wells, and dense (DNAPL) solvent contaminants. Studies culminated in our design and installation of an extensive air sparge/soil vapor extraction (SVE) system both beneath and surrounding the facility; closure of five onsite wastewater treatment/disposal lagoons by wet dredging, and waste relocation/capping of

Edward A. Summerly, P.G.

Principal

four solid waste dumps. GZA is currently operating the SVE/AS system which is nearing its remedial goals.

Principal, Paul Cuffee School, Providence, Rhode Island. Mr. Summerly directed GZA's work for the charter school which included developing a remedial action work plan, preparing remedial/construction bid documents and construction management during implementation of the remedy and redevelopment of two parcels of land adjacent to the Paul Cuffee School. Key project objectives were to allow the school to remediate and redevelop the lead-impacted property in a safe and cost effective manner without impacting ongoing classes at the adjacent facility and meet all regulatory requirements to achieve site closure. GZA also assisted this non-profit organization in obtaining two EPA clean-up grants to implement the selected remedy. The remediation included insitu soil stabilization, limited soil removal and capping of the lead-impacted soil. The insitu stabilization allowed us to dispose of excess soil at a local landfill as opposed to a hazardous waste disposal facility; a significant cost savings for the client. GZA submitted the Remedial Action Closure Report to RIDEM in June of 2012, began remedial construction in August 2012 and received a Letter of Compliance on July 12, 2013.

Associate Principal, Former INGE Facility Site Investigation, Providence, Rhode Island. Mr. Summerly directed GZA's work which consisted of the completion of multiple phases of site investigation work plans, multi-media site investigations focusing on soil and groundwater contamination assessment. Key project elements include: complex subsurface conditions associated with historic filling with MGP waste and construction and demolition debris, potential migration of off-site contaminants below existing site structures, and management of on-site stockpiles of contaminated soils.

Senior Technical Specialist, Former Melina Mill Facility Site Investigation and Pre-Demolition Assessment, Providence, Rhode Island. Mr. Summerly was involved in the completion of an extensive multi-media site investigation focusing on subsurface conditions and the evaluation of hazardous building materials and asbestos within the facility. Key project elements include: complex interior exploration program, leaking underground storage tanks, asbestos and PCB containing materials evaluation, as well as demolition and site redevelopment planning.

Principal, Peterson Puritan/Pacific Anchor Superfund Site, Cumberland, Rhode Island. GZA performed several phases of environmental due diligence studies in support of two property transactions. Our services included evaluation of existing documentation, assessment of the ongoing remedial measures and identification of outstanding/potential environmental issues. Preliminary human health risk evaluation of indoor air quality impacts and design recommendations for an active sub-slab depressurization to control vapor intrusion related risk. Mr. Summerly also provided technical support for negotiation of a bona fide prospective purchaser agreement and covenant not to sue with EPA.

Project Geologist, Stamina Mills Superfund Site, North Smithfield, Rhode Island. Implemented residential groundwater well sampling program in surrounding neighborhoods to assess off-site contaminant migration patterns.

Project Geologist, Western Sand & Gravel Superfund Site, Burrillville, Rhode Island. Participated in quarterly groundwater monitoring program as part of an EPA-mandated remedial investigation.

Project Geologist, Confidential Industrial Client, Norwood, Massachusetts. Developed equipment and methodology for the determination of bedrock-groundwater interaction characteristics by extraction packer test methods with remote data acquisition. Developed and maintained a computer database for the management and interpretation of long-term quarterly groundwater monitoring program.

Project Geologist, Wyman-Gordon Facility, North Grafton, Massachusetts. Developed and implemented a work plan for RCRA Solid Waste Management Unit (SWMU) study involving extensive soil sampling, chemical testing and computer based statistical data analysis.

RESUME

Todd R. Greene, P.E.

Senior Project Manager

Education

B.S., 1996, Civil Engineering, Norwich University

Registrations & Certificates

Professional Engineer – 2008, Rhode Island, 8567

Areas of Specialization

- Civil Engineering
- Landfill Engineering and Construction
- Construction Management & Oversight
- Stormwater Management & Design
- Hydrologic and Hydraulic Analysis
- Environmental Engineering
- Soil and Groundwater Remediation
- Groundwater Hydrology
- Solid and Hazardous Waste Disposal
- Wastewater Treatment – OWTS Design
- Topographic Survey

Summary of Experience

Mr. Greene's has 15 years of experience primarily on civil, landfill and environmental engineering projects. Specific project experience includes hydrology, stormwater management, site grading, structural steel design and analysis, landfill baseliner design and landfill construction oversight, landfill capping design and cap construction oversight, landfill gas collection system design, trouble shooting small industrial wastewater pretreatment facilities, construction layout and surveying utilizing GPS, geohydrological studies, industrial wastewater permitting, site remediation (pump and treat, bioremediation and soil vapor extraction with air sparging) and various air, water and soil sampling techniques.

Relevant Project Experience

Landfill Engineering Projects

Project Manager / Project Engineer, Fresh Kills Landfill Closure, Staten Island, New York. Mr. Greene serves as project manager and lead designer to develop construction drawings and details for Section 6/7 of the Fresh Kills Landfill located in Staten Island New York. The landfill closure design included, grading, geosynthetic design, storm water conveyance and management, maintenance road layout and design, erosion control design and specification, gas collection and conveyance design. This project involves closing 285 acre cell of the former Fresh Kills Landfill under a five phase construction sequence and schedule, working as the design engineer for the construction contractor, Tully Construction. Key elements of GZA's services are design of all closure elements and preparing construction drawing submittals as follows: Initial Working Drawings and details for the 285 acre closure and Temporary and Final Working Construction drawings for each specific construction phase. Mr. Greene work directly for Tully Construction and interact and communicated with the New York Department of Sanitation (DSNY) and DSNY's engineering consult to address and incorporate site and design considerations into the project. As part of the Temporary Working Drawing submittals value engineering was conducted for the geosynthetic layering, geosynthetic drainage details, gas system and earthwork activities.

Project Manager, Central Landfill, Johnston, Rhode Island. Providing multiple general and daily engineering services for the Rhode Island Resource Recovery Corp. at the Central Landfill Facility in Johnston, RI; services include environmental, site civil, solid waste and landfill engineering services for the following tasks:

- Review and oversight of the implementation of the erosion control and sediment monitoring;
- Trash and construction material volume estimates;
- Develop grading plans;
- Property acquisition evaluations;
- Landfill planning;
- Landfill settlement and filling monitoring;
- Review, evaluate and prepare RFP / RFQ packages;
- Waste Compaction evaluation;

Todd R. Greene, P.E.

Senior Project Manager

- Construction layout;
- Construction oversight of horizontal methane extraction lines;
- Construction as-built surveys;
- Utility installation construction oversight;
- Haul road design and layout;
- Perform Topographic surveys;
- Drafting / design utilizing Autodesk Civil design series;
- GPS trouble shooting; and
- Facility design modifications and trouble shooting.

Project Manager / Project Engineer, Central Landfill, Johnston, Rhode Island. Performed multiple design and layout modifications to the tipping facility; projects included construction as-built and layout for the relocation of the tarping racks and bollards located on the northern and eastern side of the facility, performed a structural analysis to determine if the existing trash shoot areas could support the operation of knuckle booms, designed an alternative trash shoot curtain to minimize air-born litter, designed alternative trash pit covers and push wall protection plates and performed several field evaluations on the facility.

Project Manager / Project Engineer, Central Landfill, Johnston, Rhode Island. Phase V 110 Acre landfill design modification and construction drawing preparation. Project include incorporating alternative geo composites to increase landfill air space and reduce construction cost and time to the base cell area and utilizing the existing OU-1 cap construction materials for the secondary containment system to minimize construction cost of the Phase V piggy back area.

Project Manager / Project Engineer, Central Landfill, Johnston, Rhode Island. Phase II / III RCRA 30 acre capping project. Project included construction oversight of the cap subgrade and overall cap construction. In addition the project required grading and bench design modifications to minimize slope cuts and constructability issues. The project also required GPS file modification to create grid and triangulation files compatible to the corporations Gradestar GPS software and the implementation of leachate controls to dewater the caps anchor trench to expose the existing baseliner system.

Project Manager / Project Engineer, Central Landfill Phase VI Landfill Design and Permitting, Johnston, Rhode Island. Phase VI landfill expansion permit application submittal and performed associated calculations and designs corresponding with the landfill gas collection system, leachate collection and conveyance systems, base cell subgrade design and developed permitting drawings and prepared the overall landfill cell permitting submittal for RIDEM review and comment.

Project Manager, Town of Barrington Landfills 1 & 2 Site Investigation (SIR), Barrington, Rhode Island. Mr. Greene provided the Town with engineering services to conduct a site investigation at the former Barrington landfill. The site investigation included, waste delineation and characterization, characterization of cover materials, groundwater sampling and monitoring, evaluate groundwater flow direction, soil gas monitoring and proposed site redevelopment alternatives and preparation of the SIR for submittal with to RIDEM. Once the SIR was approved, GZA prepared a Remedial Action Work Plan, which has subsequently been approved by the Department. GZA services included construction drawings and specifications and full time construction oversight.

Project Manager, Town of Barrington Landfill 1 & 2 Closure Design & Construction Oversight, Barrington, Rhode Island. Mr. Greene was the project manager and certifying engineer for the closure and landfill capping of Barrington's landfills 1 & 2. The landfills were approximately 9 acres divided by a town roadway. The closure required the preparation of a Remedial Action Work Plan for review and approval by the Rhode Island Department of Environmental Managements (RIDEM). In addition Mr. Greene prepared construction drawings, details and specifications and contractor bid packages and assisted the town in contractor selection. Mr. Greene was responsible for all construction administration & management of the project through construction on behalf of the Town of Barrington. Full time construction oversight and landfill closure certification was also conducted and prepared, respectively. Value engineering was performed to obtain regulatory approval of reducing the minimum cap slope requirement from 3 to 5 percent to 1 percent, which will with beneficial re- use of the properties as recreational sports fields.

Project Manager, Town of Jamestown Landfill Closure, Jamestown, Rhode Island. Mr. Greene provided engineering services to close and cap the former town landfill. As part of the landfill closure, design plans were developed to site the Town's Department of Public Works Facility (DPW) on the landfill. Design and permitting services included the landfill closure, site grading, stormwater management, waste management plan, ELUR, water supply and sewer / ISDS design, wetlands permitting and development of a remedial action work plan. The project included providing the Town with engineering cost estimates and closure and site redevelopment

Todd R. Greene, P.E.

Senior Project Manager

alternatives. This project required a close working relationship with RIDEM's Department of Waste Management.

Project Manager, Hartford Landfill, Connecticut Resource Recovery Corporation (CRRA), Hartford, Connecticut. Mr. Green performed an operational and site audit on the Hartford landfill. The landfill operates in two separate areas: The Bulky Waste Cell and The Ash Landfill, which receives ash from CRRA's Mid Connecticut Project trash to energy plant. Engineering services include an overall evaluation of the landfill including site staff and management, filling sequencing, filling procedures, available equipment, stormwater management, daily cover practices, site erosion and sediment controls, leachate breakouts, methane extraction, overall site maintenance and long term planning. The results of the evaluation was summarized and presented to CRRA for their use to modify the landfill operation to function more efficiently and potentially extend the overall life of the landfill.

Project Manager, Hi-Lo Landfill Redevelopment, Johnston, Rhode Island. GZA's provided third party engineering review of proposed environmental remediation and closure activities associated with the Hi-Lo landfill property. In addition, we reviewed the Pocasset River flood plain maps and information as delineated by FEMA and identified potential re-development issues for the property as they pertain to the current flood plain delineation. GZA prepared an M-1 Form to request for Letter of Map Revisions based on Fill (LOMR-F) to submit to FEMA and prepared a wetland edge verification request to RIDEM.

Project Reviewer / Technical Specialist, Former Coventry Landfill, Coventry, Rhode Island. Project involved the design remedial actions and a final closure system for the former Coventry Landfill located on Arnold Road in Coventry, Rhode Island. The landfill was subject to two RIDEM regulatory programs; the Solid Waste Program (due to the former use of the properties as solid waste disposal facility) and the Site Remediation Program, and the RIDEM policy memorandum entitled "Closure Policy for Inactive or Abandoned Solid Waste Landfills". GZA develop a Remedial Action Work Plan (RAWP) and Landfill Closure Design consisting of a soil vapor extraction system, 24-inch thick soil cap and associated stormwater management system, designed in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual Dated: December 2010.* The landfill closure and associated remedial activities include a Beneficial Use Determination to import slightly contaminated soils to the site to prepare the landfill cap subgrade and a Construction Stormwater Pollution Prevention Plan (SWPPP).

Project Manager, Providence & Worcester Railroad (P&W) / JM Mills Landfill / Peterson & Puritan Super Fund Site, Mendon Road to Martin Street Rail Siding. GZA provided engineering and environmental consulting services to assist P&W in obtaining RIDEM and EPA approvals to construct a new 8000 foot long railroad siding within the OU-2 area associated with the Peterson & Puritan Super Fund Site and associated JM Mills Landfill. The proposed rail side is located adjacent to the eastern edge of the JM Mills Landfill Site. GZA prepared a Field Investigation Work Plan (FIWP) for submittal to EPA and RIDEM to perform a series of test pits along the eastern perimeter of the JM Mills Landfill to delineate the extent of the buried waste within P&W's ROW and or adjacent to, the area of the proposed rail siding. Following EPA and RIDEMs approval of the FIWP, GZA conducted the test pitting program and obtained field data to delineate the extent of buried waste adjacent to the proposed rail siding. The result of the test pitting program was utilized to assess if construction of the proposed rail siding may be completed without requiring the removal of significant amounts of buried waste material and to identify construction techniques and details that would be compatible with available alternatives for a RCRA C landfill closure. Based on GZA's evaluation, EPA accepted the proposed rail siding concept and the rail siding is currently under construction.

Project Manager, Former Rocky Hill Fair Grounds Landfill Closure, East Greenwich, Rhode Island. GZA designed and prepared a corresponding remedial action work plan, which received RIDEM approval to construct a landfill cap and implementation of an Environmental Land Use Restriction (ELUR). The approved remedial action complied with the RIDEM policy memorandum entitled "Closure Policy for Inactive or Abandoned Solid Waste Landfills". The landfill closure consists of consolidating the landfill to a 0.4 acre area within the interior limits of the existing utility easement constructing a 24-inch thick engineered soil cap consisting of 6-inches of loam, 18-inches of gravel borrow (vegetative support) and an underlying high visibility permeable geotextile warning barrier. GZA prepared construction drawings, specifications and construction bid documents to solicit contractor bids to construct the proposed landfill cap.

RESUME

Stephen L. Lecco, A.I.C.P, C.E.P.

Senior Environmental Planner

Summary of Experience

Mr. Lecco is a Senior Environmental Planner with 30 years of experience in planning, permitting and environmental analysis for marine construction, airport, highway, utility, site development, recreation, natural resource management, energy facility and site remediation projects. His role in these projects has been in project management, agency coordination, public participation, report writing, technical analysis and mapping. He has been involved in numerous large scale planning efforts throughout the Northeastern United States, Illinois, California and the Caribbean. His broad knowledge of many technical elements allows him to successfully manage large-scale interdisciplinary and complex projects that are required to comply with NEPA, Section 404/401 Clean Water Act, Coastal Zone Management, National Historic Preservation Act, Endangered Species Act, Magnuson-Stevens Act and other federal, state and local laws, regulations and policies.

Relevant Project Experience

Project Manager, Various Eversource Projects in Connecticut. Managed and/or co-managed environmental permitting aspects of several transmission line upgrades, distribution line replacement and substation projects for Eversource in Connecticut. Managed resource mapping, cultural resource studies, permit applications and Connecticut Siting Council Petitions for the following projects:

- Towantic Line Upgrades/Switching Station, Oxford/Middlebury/Waterbury
- 1710/1730 Line Upgrades, Milford & Stratford
- 1622/1770 Transmission Line Replacement, Southbury
- 1975 Line Upgrade, Middletown & Durham
- 1655/1537 Line Split, Branford
- 11Y3-11Y7 ROW Distribution Rebuild, Old Lyme
- Right-of-Way Vegetation Management, Branford to Wallingford
- 1256 Line Structure Replacements, Canton & Simsbury

Project Manager, U.S. Coast Guard Academy Waterfront Improvements, New London, Connecticut. Managed preparation of State and Federal environmental permit applications for demolition and construction of Jacob's Rock Causeway and Main Pier as well as improvements to shoreline road and revetment structures as part of Design-Build team. Prepared Essential Fish Habitat Analysis and coordinated with NMFS, CT DEEP, USACE and other agencies.

Project Manager, U.S. Coast Guard New London Station Waterfront Improvements, New London, Connecticut. Managed preparation of State and Federal environmental permit applications for demolition of existing pier, construction of a floating wave attenuator, extension of floating docks and shoreline protection as part of Design-Build team. Prepared Essential Fish Habitat Analysis and coordinated with NMFS, CT DEEP, USACE and other agencies.

Project Manager, Charles River Dredging, Brighton, Massachusetts. Managed feasibility study, design and permitting for removal of 7,500 cy of accumulated sediment along the southern shoreline of the river for the MA Department of

Education

M.S. Environmental Science, University of New Haven
B.A. Geography/Urban & Regional Planning, Central Connecticut State University (cum Laude)

Registrations & Certificates

Certified Planner, American Institute of Certified Planners
Certified Environmental Professional, National Association of Environmental Professionals
Transportation Worker Identity Certification (TWIC)

Affiliations

- National Association of Environmental Professionals
- American Planning Association/American Institute of Certified Planners
- Visiting Lecture – University of New Haven Environmental Reports & Impact Assessment Class

Areas of Specialization

- Environmental Impact Evaluation
- Federal/State/Local Permitting
- Wetland Assessment
- Trail Assessment & Planning
- Sediment Assessment
- Ecological Risk Assessment

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Conservation and Recreation. Project includes bathymetry survey, sediment sampling, disposal alternatives analysis, permitting and dredge design.

Project Scientist, Seawolf Homeporting EIS, Groton/New London, Connecticut. Technical manager of $2 million EIS for 1.1 million cubic yard dredging project for U.S. Navy Northern Division. Analyzed environmental and socioeconomic impacts of dredging and disposal impacts in Groton/New London, CT, Norfolk, VA and Kings Bay, GA. Provided technical information to the Navy in successful legal defense of the project in federal court.

Project Scientist, Pier 17 Environmental Assessment, Groton/New London, Connecticut. Project manager and principal author for U.S. Navy project involving reconstruction of pier to accommodate submarine floating dry dock. Designed sampling and testing plan for testing of sediments.

Project Planner, Bulkhead Repair at Joseph Seymour Power Plant, Brooklyn, New York. Prepared City, State and Federal permit applications for 140 feet of bulkhead repair in Gowanus Bay. Coordinated with NYDOS, NYDEC, Army Corps of Engineers and City Planning Department to develop a preferred plan. Assisted in the preparation of an alternative analysis to support the preferred plan.

Project Planner, Bulkhead Replacement along Gowanus Canal, Brooklyn, New York. In process of coordinating permitting efforts for a proposed 600-foot steel bulkhead along the shore of the Gowanus Canal, an EPA Superfund Site. The bulkhead and associated upland NAPL recovery will be designed to impede groundwater contamination from further degradation of the canal in this area. This project is part of the overall proposed remedy for the canal cleanup which will also include a major sediment dredging, treatment and capping effort.

Project Manager, Consue Springs Dredging and Stormwater Improvements, Nantucket, Massachusetts. Mr. Lecco is managing this project which involves the dredging of Goose Pond, a tidally influenced pond in the Consue Springs section of Nantucket. The project involves restoration of full tidal flow to the pond via changes to the existing culvert that connects the pond to The Creek. Stormwater improvements along the perimeter of the pond are also being evaluated and designed.

Environmental Scientist, Shoreline Erosion Repair, New London, Connecticut. Prepared permit applications for repair of severely eroded shoreline that affected an existing sewage pump station. Local Planning and Zoning approval was attained and coordination with DEEP Office of Long Island Sound was carried out to avoid impacts below the Coastal Jurisdiction Line (CJL).

Project Manager, Milford Pond Aquatic Habitat Restoration, Milford, Massachusetts. Assisted in the preparation of an EIR that addressed impacts of restoring (dredging) Milford Pond for recreational and ecological benefit. Project involves the dredging of 250,000 cy of sediment from the middle/lower pond and hydraulically pumping sediments to a 30-acre containment area to be constructed and managed as Atlantic White Cedar swamp and cattail marsh habitat. Prepared MA DEP and Town of Milford permit applications in close coordination with the project sponsor, the USACE. Coordination with MA Natural Heritage Endangered Species Program regarding potential project impacts and benefits.

Project Scientist, New London Disposal Site Monitoring Plan, Long Island Sound, Connecticut/New York. For the U.S. Navy and the U.S. Army Corps of Engineers, developed a comprehensive disposal monitoring plan for proposed disposal of sediments at the New London Disposal Site, a designated open water site under the Corps' Disposal Area Monitoring System. Developed plan for hydrographic survey, benthic sampling, side-scan sonar and sediment profile imaging.

Project Planner, Waterfront Improvements at PSEG Bridgeport Harbor Station, Bridgeport, Connecticut. Evaluated permitting requirements associated with proposed repair/replacement of fuel dock and shoreline protection structures damaged by Superstorm Sandy.

Environmental Scientist, Proposed Sediment Disposal Policy Changes for the Historic Area Remediation Site (HARS), New York Harbor. As part of an international marine sediment team, Mr. Lecco prepared a detailed response to the USACE/EPA proposal to limit sediment disposal at the HARS. The proposal called for a modification to the subaqueous capping procedure being proposed by the agencies.

Project Scientist, Maintenance Dredging at Piers 2 & 3, Naval Weapons Station Earle, New Jersey. Developed and

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Senior Environmental Planner

implemented sediment sampling and testing plan for proposed maintenance dredging to support Naval surface ship homeporting. Testing included chemical and biological tissue analysis of PCBs, dioxins and furans to determine suitability for disposal at the HARS.

Project Scientist, Dredged Material Management Plan/Environmental Impact Reports for Gloucester, Salem, Fall River, New Bedford, Massachusetts. For the Massachusetts Office of Coastal Zone Management, Mr. Lecco developed and managed a 167-station sediment sampling and testing program for state and federal projects within Salem, Gloucester, New Bedford and Fall River harbors. He assessed impacts to submerged aquatic vegetation, lobsters and fisheries from various disposal alternatives in each of the harbors. He also participated in the development of new Dredging Regulations for the Commonwealth, particularly the adoption of new sediment quality guidelines. He prepared and presented sediment quality workshops in all four harbors.

Project Scientist, Enighed Pond Marine Terminal, St. John, U.S. Virgin Islands. Managed environmental studies and permitting for a proposed new marine terminal within an existing salt pond. Studies included sediment transport analysis, wetland and coral impacts and development of a mangrove sediment forebay

Environmental Scientist, Biological Assessment for the Shortnose Sturgeon, Connecticut River, Massachusetts. Assisted in the preparation of a Biological Assessment as required under the Endangered Species Act for U.S. EPA Region I in support of a basinwide program for renewal of NPDES permits for discharges to the CT River in MA.

Project Manager, Pine Creek Dredging Feasibility Study, Fairfield, Connecticut. Managed feasibility study for dredging and disposal of sediments from a 2-mile section of lower Pine Creek. Managed bathymetric and sediment sampling surveys, compared test results to open water and upland disposal criteria and identified/evaluated disposal options.

Project Scientist, Bass Creek Restoration Project, Marshfield, Massachusetts. Developed a 5-year post-construction monitoring program involving the removal of phragmites and accumulated sediments within a 4,600 segment of Bass Creek, a tributary to Green Harbor in Marshfield, MA. The project was designed to improve tidal flow to the creek to improve anadromous fish habitat and reduce inland flooding. Preliminary results indicate a significant increase in tidal exchange throughout the project area. Results will be coordinated with MA CZM monitoring efforts downstream.

Windsor Locks Canal Dredging Feasibility Study, Windsor Locks, Connecticut. Managed hydrographic survey and evaluated permit needs for proposed dredging of historic canal. Several shoal areas were identified as hydraulic barriers to flow needed for downstream industrial processing facility. Total length of the study area was approximately 2 miles.

Project Scientist, Ash Creek Pedestrian Bridge Feasibility Study, Bridgeport/Fairfield, Connecticut. Managed environmental portions of the study to determine natural resource issues associated with crossing over a tidal stream that includes an extensive mud flat and upland coastal meadow habitat. Evaluated the potential for constructing the bridge within an ELUR and Conservation Easement associated with the remediation of the Fairfield Metro Center.

Project Manager, Naval Training Center Great Lakes Boat Basin Dredging EA, North Chicago, Illinois. Managed a federal Environmental Assessment for the proposed dredging of the boat basin at the Navy's largest Naval Training Center in the Midwestern U.S. Evaluated sediment results and impacts to aquatic biota. Compared sediment data to applicable upland disposal criteria.

Project Manager, Marina Dredging, Westbrook, Connecticut. Secured permits for a proposed 2,000 cubic yard maintenance dredging project at Bill's Marina in Westbrook, CT. Coordinated sediment sampling and testing plan.

Environmental Planner, Shoreline Protection at DeMarco Park, Queens, New York
Prepared City, State and Federal permit applications for repair of 1,500 linear feet of revetment damaged by Superstorm Sandy.

Project Scientist, South Branch Park River Maintenance, Hartford/W. Hartford/Newington, Connecticut. For the CT DEEP, developed sampling and test Powering plan for sedimentation areas along 7 miles of river including Park

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River, Trout Brook and tributaries. Delineated wetlands in and near proposed work areas.

Project Planner, Breakwater Repair EA, North Chicago, Illinois. Principal author of a federal Environmental Assessment for the repair of a breakwater at the Naval Training Center Great Lakes harbor on Lake Michigan. The existing stone breakwater was undermined in several locations and required repair to project the Navy's boat basin.

Project Planner, Power Plant Upgrade, Queens, New York. Identified and evaluated permit requirements for proposed expansion of major power plant facility on a tidal river in Queens. Principal author of comprehensive permitting guidance document that evaluated the requirements and time frames for local, state and federal permit requirements including SEQR and Article IX.

Project Scientist, Marginal Wharf Design, Tiltonsville, Ohio. Developed and implemented sediment sampling and testing plan along portion of Ohio River shoreline for the purpose of constructing a marginal wharf for off-loading of sand to a sand processing facility. Managed preparation of environmental permits to Corps of Engineers and Ohio EPA.

Environmental Planner, Waterfront Improvements at Hess Marine Terminal, Perth Amboy, New Jersey. Assisted in preparing permit applications for proposed bulkhead, pier and floating dock improvements at oil terminal facility on the Raritan River in NJ. Permits included Waterfront Development Permit from NJDEP and Nationwide Section 404 Permit from the USACE.

Environmental Impact Assessment Project Manager, Quinebaug Regional Technical Park EIE, Putnam, Connecticut. Managed preparation of EIE that evaluated environmental impacts of construction a new vehicular bridge to access 267 acres of land for development of a regional technical park including a regional YMCA. Project involved endangered species surveys for herpetiles and Phase I/II archaeological surveys as required by SHPO. Project set-aside 92 acres along the Quinebaug River for conservation. Project was sponsored by the Connecticut Department of Economic and Community Development, the Town of Putnam and the Greater Hartford YMCA.

Project Manager, Marshfield Airport Master Plan EA/EIR, Marshfield, Massachusetts. Managed the natural resource section of the document that addressed impacts to rare species (eastern box turtle), wetlands, water quality and coastal zone consistency associated with the Airport Master Plan Update that included runway extensions and new Part 77/TERPS surfaces. Managed the development of an updated Vegetation Management Plan (VMP) that was customized to minimize impacts to eastern box turtle habitat and wetlands.

Harbor Brook Flood Control and Linear Trail Project EIE, Meriden, Connecticut. Managed Environmental Impact Evaluation (EIE) for proposed flood improvement master plan along 4 miles of stream that cuts through the City's Central Business District under contract to the Connecticut Department of Energy and Environmental Protection (DEEP). Project involves a host of flood mitigation activities including: upstream detention, creation of floodplain shelves, stream profile modifications, daylighting of culverts, property acquisitions and floodproofing. Evaluated several other alternatives including an alternate design event, upstream and underground detention and mass property acquisitions and floodproofing. The project also involved a third party review of hydrologic & hydraulic analyses performed by others.

Project Planner, AST Construction at Windham Airport, Windham, Connecticut. For the Connecticut Airport Authority, prepared environmental review to determine if construction of two above-ground fuel storage tanks would trigger the need for an Environmental Impact Evaluation. Site is proximal to endangered species habitat, floodplain and public water supply watershed land.

Project Manager, DESPP Firearms Training Facility Siting Study, Connecticut. Managed siting analysis that involved a geodatabase analysis of over 4,000 potential sites in CT to support the construction of a new outdoor Firearms Training Center for the State Department of Emergency Services and Public Protection (DESPP, a.k.a. State Police). The existing facility is frequently flooded and inadequate to support current firearms training programs. Developed a scoring system used to develop a shortlist of sites including parcels greater than 100-acres, Brownfield sites, quarries, existing shooting ranges, underutilized/vacant airports and other land uses potentially compatible with the proposed use. Managed on-line ArcGIS system that was used by DESPP, CT DCS and CT DAS to evaluate and select alternatives for further evaluation during the Connecticut Environmental Policy Act process.

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Project Manager, Infrastructure Improvements/Rentschler Field Development EIE, East Hartford, Connecticut. Managed a $1 million EIE involving transportation and land development impacts associated with a $5 billion Master Plan for the former United Technologies Corporation 750-acre airfield. He managed technical studies on the economic impacts, endangered species impacts/mitigation and property impacts of the project including a REMI model analysis of local and regional economic impacts of the project. Assisted in the evaluating a proposed elementary magnet school's impact on local town budget.

Project Manager, Interstate 84 Expansion EIS, Waterbury to Danbury, Connecticut. Managed natural resource sections of EIS involving construction of additional lanes and interchange configuration modifications for 32-mile section of I-84. Evaluated impacts to wetlands, state/federally-protected species, water resources, prime farmlands and contaminated sites. Coordinating with regulatory agencies and prepared draft Section 404 permit applications.

Project Manager, New Engineering & Science Building EIE, University of Connecticut, Storrs, Connecticut. Managed preparation of an EIE for the construction of a 115,000 SF building within the engineering/science quad on campus. Project included demolition of an existing warehouse. Site is within a historic floodplain that was not updated on FEMA maps. Shadow and groundwater contamination were key issues on the project.

Project Manager, Digital Airport Surveillance Radar System EA, NASJRB Willow Grove, Pennsylvania. Principal author of EA prepared for the U.S. Navy for a new radar system at the Naval Air Station Joint Reserve Base in Willow Grove, PA. The key issue for the project was the evaluation of potential electromagnetic fields on a nearby hotel.

Project Planner, Pocassett River Flood Control EIS, Johnston/Cranston, Rhode Island. Assisted in preparation of EIS for flood control improvements proposed by the U.S. Department of Agriculture. Improvements involved construction of flood walls and property buyouts. Evaluated impacts to wetlands, wildlife, land use and aesthetics.

Project Manager, Downtown Mansfield Master Plan and UConn Graduate Student Housing EIE, Storrs, Connecticut. Deputy Project Manager for the preparation of EIE for joint usage of property on the fringe of UConn's main campus. Project involved commercial development and 400 units of student housing. Key issues included housing, traffic, water supply, vernal pools, and stormwater runoff.

Project Manager, Eastern Connecticut State University Parking Garage EIE, Willimantic, Connecticut. Mr. Lecco managed the EIE for a new 950-space parking garage on the main campus and a new NCAA Women's Softball Field at the University's Athletic Complex. Key issues included traffic, stormwater management and wetlands.

Project Planner, Repair/Improvements to BayPark One and Two Apartments, Coney Island, New York. Prepared NEPA environmental review for major repair of two large residential apartments damaged by Hurricane Sandy. Prepared NEPA review in accordance with federal HUD regulations to support the determination of a Categorical Exclusion.

Environmental Scientist, Wickford Junction Station EA, Wickford, Rhode Island. Conducted a mobile source air quality analysis using MOBILE and CAL3QHC software to evaluate impacts of increased motor vehicle track on roadways and intersections surrounding the proposed AMTRAK station south of Providence, RI.

Project Manager Western Connecticut State University Master Plan EIE, Danbury, Connecticut. Managed an Environmental Impact Evaluation, Stormwater Master Plan and State Traffic Commission Certificate application for the proposed 15-year Master Plans at the Midtown and Westside Campuses.

Project Manager, Army Training Readiness Center EA/EIE, Windsor Locks, Connecticut. Managed a federal EA and state EIE for the proposed ATRC at the Army Aviation Support Facility near Bradley International Airport.

Project Planner, Power Plant Expansion, New Haven, Connecticut. Prepared Land Use and Environmental Information Report and permit applications for the proposed expansion of an existing power plant along New Haven Harbor.

Project Manager, Litchfield Judicial District Courthouse at Torrington EIE, Torrington, Connecticut. For the CT Department of Public Works, Mr. Lecco managed an EIE that evaluated 9 potential courthouse sites in Torrington. He evaluated impacts at the three shortlisted sites and assisted in preparing concept plans for each of the candidate sites.

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Evaluated EMF impacts from electrical substation near one of the proposed sites.

Planner, Route 101A Bypass Study/Environmental Impact Statement, Nashua, New Hampshire. Planned and managed transportation Origin & Destination surveys at 7 locations in the Nashua area to determine travel patterns in support of a proposed bypass of Route 101A.

Project Manager, Steele Brook Flood Control EIE, Watertown, Connecticut. Mr. Lecco is the Project Manager for this DEP-sponsored project involving 3,000 linear feet of stream restoration to control flooding in a commercial/industrial area of Watertown, CT. Key issues include utility and recreation impacts and the creation of an improved riparian habitat with collateral flood protection features.

Project Manager, Osborn Correctional Facility Expansion EIE, Somers, Connecticut. Managed controversial prison expansion project for CT Department of Correction and CT Department of Public Works. Managed supplemental comprehensive water and sewage flow monitoring study to determine system leakages and cross connections. Recommended corrective measures that have resulted in significant reductions in water usage and sewage discharge.

Project Manager, Seaside Regional Center Development EIE, Watertown, Connecticut. Managed CEPA document for proposed state sale of land to private developer. 30- acre site included four historic structures designed by Cass Gilbert, several other support structures and coastal resources including beaches, dunes and adjacent freshwater wetlands. Key issues included historic preservation and coastal zone consistency/public access.

Project Manager, Integrated Natural Resources Management Plan, MCRC, Syracuse, New York. Managed an INRMP at the Marine Corps Reserve Center in Syracuse NY. Delineated federal wetlands for 300-acre property, conducted bird surveys and developed a long-term management plan for the natural resources on the property. Evaluated impacts of implementing the INRMP to comply with NEPA.

Environmental Scientist, Reed Putnam Urban Redevelopment EA, Norwalk, Connecticut. Conducted microscale air quality analysis at intersections affected by large-scale urban redevelopment project in downtown Norwalk.

Environmental Scientist, Route 66 EA and permits, Middlefield, Connecticut. Delineated wetlands along a 2-mile corridor within a public water supply watershed, Higby Reservoir. Designed wetland mitigation plan to replace 1.7 acres of freshwater wetland lost due to highway construction. Prepared state and federal wetland permit applications.

Environmental Scientist, Route 82/85/11 EIS, Southeastern Connecticut. Evaluated energy impacts associated with the proposed extension of Route 11. Analysis included construction and vehicular energy consumption for various new alignment and roadway upgrades over a 20-year span.

Project Planner, Fire Training/Hull Repair Training EA, North Chicago, Illinois. Principal author of EA that evaluated impacts of constructing a new fire training and hull repair facility at the Great Lakes Naval Training Center.

Project Planner, Pettibone Creek Environmental Assessment, North Chicago, Illinois. Evaluated the impacts of erosion and slope stabilization measures along Pettibone Creek at the Great Lakes Naval Training Center. Evaluated sediment and water quality data to determine if erosion control measures would exacerbate water and sediment quality.

Project Planner, Community Health Center EAs, MA/VT/NH. Prepared and reviewed NEPA EAs for several community health center capital improvement projects in New England as part of the Health Resources and Services Administration (HRSA) stimulus package.

WETLAND/LAND USE PERMITTING

Project Planner, Plainridge Park Casino, Plainville, Massachusetts. Primary facilitator and organizer of RFA-2 application to the Massachusetts Gaming Commission for the construction of a new all-slots casino at the existing Plainridge Park Raceway. Applicant was successfully awarded a license to operate, one of four licensed casinos in the Commonwealth. The key issue was site access and traffic.

Project Scientist, Various Dam Repair Projects, Connecticut. Prepared state and federal wetland applications and performed wetland delineations for several dam repair projects in Connecticut including: Grupes Pond Dam,

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Norwalk; Bogues Brook Dam, Norwich; and Bristol Reservoirs 2,3 and 4 in Harwinton, CT.

Project Scientist, Bogue Brook Reservoir Dam Reconstruction, Montville, Connecticut. Prepared DEEP Dam Construction and USACE permit applications for reconstruction of an existing concrete dam for the New London Water Department. Project included wetland delineation and a field survey for two state-protected species (one fish and one bird) within the project area.

Project Scientist, Grupes Reservoir Dam, New Canaan, Connecticut. Delineated and assessed wetlands associated with dam and spillway repairs. Assisted in preparation of DEEP Dam Construction Permit.

Project Manager, Camp Hartell Master Plan STC Certificate, Windsor Locks, Connecticut. Managed preparation of a CT State Traffic Commission Certificate application and conceptual drainage analysis/design for the proposed Master Plan at this CT National Guard facility.

Project Scientist, Algonquin Power Plant Improvements, Windsor Locks, Connecticut. Prepared local inland wetland permit application for the installation of a crane pad along the top of slope of the Connecticut River. The pad was needed to support a large crane needed to place a new boiler inside the power plant which is located adjacent to the river.

Project Manager, Proposed Retail Development, East Hartford, Connecticut. Project Manager for assessing stream habitat to assess the feasibility of constructing a big box retail store.

Project Manager, Wetland Mitigation Design, East Hartford, Connecticut. In response to a Section 404 violation, Mr. Lecco designed a 1/2-acre wetland to replace wetlands filled for a residential subdivision project. Prepared local and federal wetland applications.

Project Manager, Residential Subdivision, Longmeadow, Massachusetts. Managed design and permitting for controversial 4-lot subdivision in Longmeadow, MA. Critical issues included Riverfront, wetland, stormwater and neighborhood impacts. Assisted developer in successfully challenging the Planning and Zoning Commission's initial denial ruling.

Environmental Scientist, Shaws Supermarket Retail Development, Wallingford, Connecticut. Responsible for local and state permitting for redevelopment of retail site involving stream relocation and mitigation.

Planner, Plan of Development Updates for Enfield and Monroe, Connecticut. As part of their Plan of Development updates, evaluated existing socioeconomic data and forecasted future build-out scenarios for these two municipalities.

Planner, Water Supply Plans for Various Connecticut Water Companies. Conducted population and land use analysis of existing and future service areas for water utility companies in Norwich, Middletown, Meriden and Watertown, CT. Developed emergency contingency plans for various drought scenarios.

Residential Development Planning & Environmental Review, Hopkinton, Rhode Island. Provided third party review of proposed major residential subdivision project for the Town Planning Department. Project proposed over 300 residential units including affordable housing on property containing wetlands and steep slopes within the sensitive Wood River watershed. Presented and defended findings at public hearings.

I-95 Stormwater Improvements, Southern Rhode Island. Evaluated the adequacy of stormwater outfalls along 10-mile stretch of I-95 in support of proposed highway improvements. Designated BMP measures to be implemented for each outfall during maintenance process.

TRAIL ASSESSMENT

Project Manager, CT DEEP Trails Study, Connecticut. Managed the assessment of trail conditions along 150 miles of trail within Shenipsit, Nipmuck, Cockaponsett and Pachaug State Forests. Developed a geodatabase for use by the CT Trails Manager for use in future permitting of Off-Highway Vehicle events. Also prepared an analysis of potential new ATV sites within DEP property.

Project Manager, ATV Trail Siting Study, Connecticut. Managed siting study for a proposed ATV trail system on State DEP land. Developed exclusionary and discretionary siting criteria that incorporates user needs, physical and environmental impact characteristics. Conducted screening level GIS analysis of all DEP lands in the State and ranked potential ATV trail locations in the State.

Project Manager, DCR Trail System Condition Assessment and Restoration Plan, Massachusetts. Managed project involving the analysis of trail condition assessment data

Stephen L. Lecco, A.I.C.P., C.E.P.

Senior Environmental Planner

contained within an ArcView geodatabase for all DCR property within the Commonwealth, 150± properties. Developed trail restoration plans for Pittsfield State Forest, Wendell State Forest and the Holyoke Range that included a strategic plan for implementing repairs based on a variety of factors including: damage severity, cost and trail usage. Recommended alternative permitting approaches to DCR for securing permits at the State and local level. Recommended rerouting of trail segments based upon trail damage and the availability of suitable soils, topography and rare/endangered species habitat presence.

Ecological Risk Assessment, Project Scientist, Ecological Risk Assessment, Plainville, Connecticut. Prepared a Screening Level Ecological Risk Assessment at a plating facility with historic discharges of metals and PAHs to wetlands and waterbodies in the Pequabuck River watershed.

Project Scientist, Ecological Risk Assessment, Naugatuck, Connecticut. Prepared Screening Level Ecological Risk Assessment at a chromium plating facility with discharges to Fulling Mill Brook. Performed a 7Q10 analysis to estimate contaminant concentrations in receiving waterbody.

Project Scientist, Ecological Risk Assessment, Thompson, Connecticut. Prepared Scoping and Screening Level Ecological Risk Assessment for former manufacturing facility with historic discharges of metals and PAHs to a tributary of the French River. Also developed a Work Plan for conducting a Baseline Ecological Risk Assessment to directly assess ecological risk to aquatic and avian species.

Presentations, Publications & Abstracts

"Under the Gun – The Search for a New Firearms Training Facility in Connecticut". GZA Technical Conference Practice Excellence Award, 2013.

"An Assessment of Trail Conditions Along Off-Highway Motorcycle Routes within Connecticut State Forests". GZA Technical Conference Practice Excellence Award, 2009.

"New Dredged Material Disposal Techniques in the Northeastern United States" In *Proceedings of the 25th Annual National Association of Environmental Professionals Conference*, June 2000.

"Utilizing Salt Pond Sediments in a Marine Terminal Project in St. John, USVI". *In Proceedings of the Fifteenth World Dredging Congress, July 1998.*

"Massachusetts Dredged Material Management Plan: Twenty Year Forecast of Dredging Needs, Sediment Characterization and Resuse/Disposal Options". International Workshop on Dredged Material Beneficial Uses, July 1997, Baltimore MD.

"NEPA at Work – Seawolf Homeporting on the East Coast of the United States". In *NAEP 21st Annual Conference Proceedings – Practical Environmental Directions: A Changing Agenda*. National Association of Environmental Professionals, Washington, D.C., 1996. pp. 360-374.

RESUME

Doug Le Do

Senior Project Manager

Summary of Experience

Mr. Do's experience includes a variety of soil, foundation, dam and waterfront engineering projects. He has acted as project manager or project engineer for projects involving geotechnical site investigations, testing and instrumentation, and construction monitoring. Relevant experience includes:

Relevant Project Experience

GEOTECHNICAL ENGINEERING

Project Manager, Canton Landfill Solar Facility, Canton, Massachusetts. Provided geotechnical subsurface exploration program, addressed geotechnical construction and design issues for the system, prepared Post Closure Use Application, and project management. The solar farm facility is located on 12.5± acres and will provide a total of approximately 5.6 megawatts DC to the Town grid with approximately 24,000 photo voltaic module solar arrays. GZA evaluated suggested earthwork requirements for the proposed solar array development and foundation loads, and prepared information for the Post Closure Use Application.

Project Manager, Ravenbrook Landfill Solar Facility, Carver, Massachusetts. Provided geotechnical subsurface exploration program, addressed geotechnical construction and design issues for the system, prepared Post Closure Use Application, and project management. The solar farm facility is located on 14± acres and will provide a total of approximately 6 megawatts DC to the Town grid. GZA evaluated suggested earthwork requirements for the proposed solar array development and foundation loads, equipment laydown area settlement loads, and prepared information for the Post Closure Use Application.

Project Manager, Forbes Street Landfill Solar Facility Phase 1, East Providence, Rhode Island. Provided geotechnical evaluation, addressing geotechnical construction and design issues for the solar array foundation system, provided landfill engineering consultation, and project management. The landfill consists of approximately 70 acres of a 220 acre property. The solar farm facility will be developed in three phases and will provide a total of approximately 10 megawatts DC to the Town grid. The first phase of the solar development consist of 3.7 megawatts DC with approximately 12,850 photo voltaic module solar arrays. GZA evaluated suggested earthwork requirements for the proposed solar array development and foundation loads.

Project Manager, Landfill Solar Facilities, Various Sites in Massachusetts. Currently providing geotechnical subsurface exploration programs, addressing geotechnical construction and design issues for the systems, preparing Post Closure Use Applications, and project management. The solar farm facilities ranging in size from approximately 2 to 6 megawatts DC to the Town grid.

GZA will be evaluating suggested earthwork requirements for the proposed solar array developments and foundation loads, equipment laydown area settlement loads, and prepare information for drafting the Post Closure Use Application.

Education

B.S., 1995, Civil and Environmental Engineering,
University of Rhode Island

Registrations & Certificates

OSHA 40-Hour – HAZWOPER
OSHA 10-Hour Construction Health and Safety
Q/C Resource Nuclear Moisture-Density Gauge Training
CPR, AED and First Aid Training
Transportation Worker Identification Credential Cardholder (TWIC)
RAPIDGate Cardholder

Areas of Specialization

- Geotechnical Engineering
- Civil Engineering
- Dam Engineering
- Waterfront Engineering
- Environmental Engineering

Doug LeDo

Senior Project Manager

- North Carver Landfill in Carver, Massachusetts
- Acushnet Landfill in Acushnet, Massachusetts
- Berkley Landfill in Berkley, Massachusetts
- Chicopee Burnett Road Landfill in Chicopee, Massachusetts
- Hudson Stow Sanitary Landfill in Stow, Massachusetts
- Pepperell Landfill, Pepperell, Massachusetts

Project Manager, Solar Facilities, Various Sites in Massachusetts. Provided geotechnical evaluation, addressing geotechnical construction and design issues for the solar array foundation system, provided foundation engineering consultation, and project management. The solar development sites will provide solar power plants ranging from 1 to 6 megawatts DC to the Town grid. GZA evaluated suggested earthwork requirements for the proposed solar array development and foundation loads, recommended foundation support systems, soil permeability evaluation for storm water design, and will be providing pile testing for the selected foundation system.

- Dartmouth, Massachusetts
- Webster, Massachusetts
- Dudley, Massachusetts
- Fitchburg, Massachusetts
- Monson, Massachusetts
- Upton, Massachusetts
- Oakham, Massachusetts
- Wales, Massachusetts
- New Braintree, Massachusetts
- Hubbardston, Massachusetts
- Palmer, Massachusetts
- Fitchburg, Massachusetts
- Granby, Massachusetts
- Rutland, Massachusetts
- Westminster, Massachusetts
- North Kingstown, Rhode Island
- Foster, Rhode Island
- Coventry, Rhode Island

Project Manager, Naval Submarine Base New London (Connecticut) and Newport Naval Station (Rhode Island). Provided geotechnical subsurface program and project management for renovations to existing and new security gates, buildings, waterfront piers/bulkheads, culvert replacements, roadway repairs, bridges and geothermal evaluation.

The security gate projects required development of new guard house, inspection canopy areas, active and passive gates, and roadway improvements. The building/culvert replacement/roadway repair projects required geotechnical subsurface program which included report summarizing subsurface explorations and foundation recommendations, and provided Auto-Cad plans and project management. The bridge project included geotechnical evaluation, geotechnical design of drilled shafts, specification development, construction observation and inspection of the drilled shafts. The geothermal project included installation and testing of a single closed loop geothermal well at the above-referenced project site. The objective the work was to evaluate the geothermal properties of a single geothermal closed loop test well for design and construction of a proposed geothermal well field for the proposed building.

Completed Projects at the Naval Bases include the following:

- Naval & Marine Corps. Reserve Training Center Addition, NMCRC Lehigh Valley, Allentown, PA
- Vehicular Replacement Bridge, Naval Station Newport, Newport, RI
- Building 1112 Renovations, Naval Station Newport, Newport, RI
- Defense Highway Road Repair, Naval Station Newport, Newport, RI
- Third Street Culvert Repair, Naval Station Newport, Newport, RI
- Building 990-Roadway Improvements, Naval Station Newport, Newport, RI
- Maritime Subsurface Sensor Operations Building Addition – Building 1176, Naval Station Newport, Newport, RI
- Bachelor Enlisted Quarters, Naval Academy Prep School, Naval Station Newport, Newport, RI
- Building 370 Renovations, Naval Station Newport, Newport, RI
- Dental Clinic Addition – Building 1173, Naval Station Newport, Newport, RI
- Gate 1 Pass and Identification Card Office Building, Naval Station Newport, Newport, RI
- Fuel Oil Storage Tanks, Naval Station Newport, Newport, RI
- Security Improvements – Gate 1, Naval Station Newport, Newport, RI

Doug LeDo

Senior Project Manager

- Security Improvements – Gate 2, Naval Station Newport, Newport, RI
- Security Improvements – Defense Highway Gate (North Gate), Naval Station Newport, Newport, RI
- Proposed Pier 34, Naval Submarine Base New London, Groton, CT
- Proposed Indoor Small Arms Range Building and Geothermal Evaluation, Naval Submarine Base New London, Groton, CT
- Waterfront Operations Small Craft Facility, Naval Submarine Base New London, Groton, CT
- Commissary Improvements, Naval Submarine Base New London, Groton, CT
- Tomahawk Missile Magazine Building, Naval Submarine Base New London, Groton, CT
- Security Improvements – Gate 1, Naval Submarine Base New London, Groton, CT
- Security Improvements – Gate 2, Naval Submarine Base New London, Groton, CT
- Security Improvements – Gate 3, Naval Submarine Base New London, Groton, CT
- Security Improvements – Gate 7, Naval Submarine Base New London, Groton, CT

Project Manager, USACE Drilling and Instrumentation Services, New England. Provided geotechnical drilling and instrumentation for various projects throughout various sites in New England. As part of the work subsurface exploration borings, including piezocone and seismic testing; installation of piezometers, observation wells, monument survey markers, and geotechnical laboratory testing and data reporting were conducted.

Project Manager, Brown University Projects, Providence, Rhode Island. Provided geotechnical subsurface programs and project management at various sites within The Brown University Campus. Developed earthwork and support of excavation design drawings and specifications for construction. The projects included project management of construction observation. The construction may include coordination of environmental sampling of excavated urban fill material that contained slightly elevated levels of lead. GZA coordinated sampling of the material stockpiles for acceptance at a local landfill as alternate daily cover.

Project Manager, Freetown Stop and Shop Warehouse Distribution Facility, Freetown, Massachusetts. Provided geotechnical subsurface program and project management for a new 619,000 square foot one-story "Dry Warehouse" building, a 650,000 to 750,000 square foot one-story "Perishable Warehouse" building, 9,500 square foot salvage building, wash facility, fuel facility, infiltration/detention basins, access roads, retaining walls, and associated parking areas. Five infiltration/detention basins and eight retaining walls were constructed around the facility. The development also includes a 21,000 square foot one-story maintenance building. The site was a former synthetic natural gas processing plant complex, with an earthen dam, propane storage area, a naphtha storage tank area and paved and unpaved roadways. Approximately 20 feet of fill and approximately 45 feet of cut was required to construct the Perishable and Dry Warehouse buildings, respectively. Managed site excavation for the reuse of approximately 600,000 cubic yards of silty soils located below the groundwater table which included the movement of approximately 1,200,000 cubic yards cut and fill material. GZA provide design and specifications for approximately 2,000 liner feet of retaining walls around site and under slab subsurface drainage system within the Dry Warehouse building.

Project Manager, Stop & Shop Developments, Rhode Island and Massachusetts. Provided geotechnical subsurface programs and project management at various sites in Rhode Island and Massachusetts. Developed earthwork and retaining wall design drawings and specifications for construction. The projects included project management of construction observation. The construction may include coordination of environmental sampling of excavated urban fill material that contained slightly elevated levels of lead. GZA coordinated sampling of the material stockpiles for acceptance at a local landfill as alternate daily cover.

RESUME

Sara Haupt, E.I.T

Assistant Project Manager

Education

B.S., 2011, Civil and Environmental Engineering, University of Washington, Seattle Washington

M.S. (in progress) Chemical Engineering
University of Rhode Island
North Kingstown, Rhode Island

Registrations & Certificates

Engineer in Training, 2011

Areas of Specialization

- Civil Engineering
- Environmental Engineering
- Regulatory Permitting
- Phase I Environmental Site Assessments
- Stormwater

Certifications

- OSHA 40 Hour Training Hazardous Waste Operations
- USDOT/IATA Trained for Transportation/Shipment of Hazardous Materials
- Basic Plus CPR, AED and First Aid for Adults

Summary of Experience

Sara has been with GZA GeoEnvironmental Inc. since April 2012. As an Engineer, Sara is responsible for preparing reports, permit applications and assisting clients in complying with their permits, by conducting sampling, documenting compliance status, conducting field inspections and providing this documentation to regulatory agencies.

Relevant Project Experience

Project Engineer, Landfill Solar Facilities, Various Sites in Massachusetts. Sara coordinated with the solar development design team, landfill property owners, and regulators with the Massachusetts Department of Environmental Protection (MassDEP) to obtain environmental permits for development of solar farms on various landfills in Massachusetts. The environmental permits for these projects included Post Closure Use Permits, and Release Abatement Measures. During construction of the solar arrays, Sara conducted facility inspections for compliance with the environmental permits and coordinated any necessary corrective actions with contractors.

Project Engineer South Street Substation Providence Rhode Island. Sara worked with National Grid to prepare all of the environmental permits for the replacement of the South Street Substation in Providence. The environmental permits required included a Water Quality Certification with the Rhode Island Department of Environmental Management (RIDEM), a RIPDES stormwater permit for Construction Activities, and a Coastal Resources Management Council Assent. Sara is currently performing Site inspections in accordance with the RIPDES permit and provides oversight for compliance with environmental regulations for the project.

Project Engineer Rhode Island LFG Genco Inc., Johnston, Rhode Island. Sara has worked with Rhode Island LFG Genco to obtain and comply with the permits needed for the new Landfill Gas to Energy facility. The environmental permits included a Municipal Industrial Pretreatment Program application to discharge wastewater to the Cranston Sewer System, Freshwater Wetlands insignificant alteration permit, and a RIPDES multi sector general permit for industrial activities. Sara also performs inspections of the stormwater management systems at Genco's facilities, collects stormwater samples when necessary, and prepares the annual report for submittal to RIDEM.

Project Engineer BB&S Treated Lumber of New England, North Kingstown, RI. Sara worked with representatives of BB&S to prepare a Stormwater Management Plan for their Facility in North Kingstown. Sara conducts the semi-annual stormwater sampling and performs site inspections for BB&S in accordance with their stormwater permit and prepares the annual report for submittal to RIDEM.

Project Engineer Alexion Pharmaceuticals Inc., Smithfield, Rhode Island. GZA performs the necessary requirements for Alexion to maintain compliance with their environmental permits. Sara prepared Alexion's Spill Prevention Control and Countermeasure Plan as well as their Stormwater Management Plan. Recently, as part of the GZA team working with Alexion Sara has been addressing issues with permit compliance requirements on behalf of Alexion.

Key Personnel Summary

Neal Hingorany

Neal Hingroany is President of Narragansett Engineering, Inc. ("NEI") and Project Manager. He is responsible for all aspects of projects from Feasibility assessments to completion. He manages the practice, staff and subcontractors (Engineers, Architects and Surveyors). Neal is in charge of client interface and all survey reviews. He is experienced in managing numerous local and state projects as well as commercial and residential projects. Throughout his career at NEI, Neal has managed numerous local and state bridge survey projects and is responsible for project proposals, coordination, overall project management, and quality control. He has testified and represented clients at various Town Planning and Zoning Board meetings pertinent to subdivisions, regulatory variances and special exceptions. Demands include designing and supervising Town sanitary sewer systems.

Neal obtained his FAA Remote Pilot license in 2017 and UAV flights for surveys and NEI provides this service for survey contracts. Neal has been the Project Manager for numerous RIDOT surveys completed including those projects currently in progress.

Andrew Peterson

Andrew Peterson is our Survey Party Chief at Narragansett Engineering, Inc. Andrew has been employed with Narragansett Engineering, Inc. ("NEI") for over 30 years. He has both field and office experience and his duties include but not limited to field surveys, preparation of subdivision and construction plans, utility designs using CAD system, deed research and training and supervision of field staff. Andrew is experienced using Total Station Transit, GPS Equipment, Data Collectors and Surveying systems. He is responsible for field surveys, land evidence research, survey plan preparation and reconciliation along with survey crew oversight and training.

Kamal Hingorany

Kamal Hingorany has been the key person in establishing Narragansett Engineering, Inc. His field and office experience in Civil Engineering and Surveying has created an all-rounded company. His skills in other facets of management, such as accounting and knowledge of the complete CAD system, has brought Narragansett Engineering, Inc. to become the most successful and largest engineering company on Aquidneck Island in Rhode Island. He has successfully procured contracts from the Rhode Island Department of Transportation, Narragansett Bay Commission and local towns. Due to his efforts, the company is experiencing a rapid growth as larger projects are being procured. Kamal assisted in all phases of metes and a bound survey projects and was involved with all cost estimates on surveying projects and their completion. Prior to immigrating to the United States, Kamal had gone through unit conversions from the British System (foot/pound) to the Metric System, while working in his father's consulting firm in India.

NEAL K. HINGORANY

Portsmouth, RI 02871

Office. 401.683.6630
Fax. 401.683.6638
Nhingorany@nei-cds.com

Professional Experience:

Narragansett Engineering Inc. Portsmouth, RI 2002-Present
Positions: Project Manager, Vice President, President (acting - current)

Responsible for all aspects of project management from Feasibility Assessments to Completion.
Management and construction in various fields.

Scope Includes:

Property and Topographical Surveys
Subdivision and Major Land Developments
Environmental Analysis, Permitting, Impact Avoidance and Design
Wastewater and Utility Systems Design
Flood Hazard, Coastal Resource Analysis and Design
Framing Systems.

Residential + Commercial Design
Building Construction and Site Construction Supervision of projects of $10M+

Responsible for management and practice of staff and subcontractors (Engineers, Architects, Surveyors)

Qualifications and Registration:

Professional Land Surveyor, RI [Registration No. 2515]

Soil Scientist, Class IV Soil Evaluator [RIDEM No. D4089]*

Building Construction Supervisor, Massachusetts* + Rhode Island

RS, REHP Massachusetts [Registration No. 1362]*

Proficiency in AutoCAD and CAD Design (Focus on Civil 3D, ADT, Sketchup, Revit)
Microsoft Office Suite (Excel, Access Database Management, etc.)
Windows SB Server, office network management.

Educational Experience:

University of Massachusetts at Amherst. 1998-2001
College of Civil Engineering, prior to transfer

University of Massachusetts at Dartmouth 2003-2007
B.A. Economics (cum laude)
Selected coursework relative to RI Land Surveyor
Educational Requirements RIGL 5-8.1

University of Rhode Island 2010-2015
Masters of Environmental Science
Environmental Policy.

Focus on Coastal Systems, FEMA, building code, insurance and regulatory response to Sea Level Rise.
Prepared Work Entitled: Coastal Regulations Response to Sea Level Rise and Increasing Storm Intensity in Southern RI.

Volunteer Work:

Portsmouth RI Dog Park, Site Selection + Park Design
Committee Member*

Rhode Island Builders Association, Legislative Committee Member.

Trustee, Common Fence Point (Land Trust) Portsmouth RI

Selected Projects:

SeaFare Residences, Portsmouth RI 2011 - 2017
SeaFareLiving.com
Principal Designer for all Site and Building Construction, along with Project Management.
Development Partner in 33 Unit Condominium Development, with Low to Moderate Income Housing Component.
(ongoing)

University of Rhode Island - Anna Fascitelli Fitness and Wellness Center. 2009- 2013
with Kite Architects. Land Surveying, Civil and Environmental Engineering for alteration and expansion of Roger Williams Building. LEED Accredited.

Aquidneck Land Trust Sakonnet Greenway Trail 2004-2008
2+ Mile Greenway trail (phase 1)

KAMAL HINGORANY
President
Narragansett Engineering Inc.
khingorany@nei-cds.com

Years of Experience
30

Education
B.S. Civil Engineering, University of Rhode Island, 1973.

Professional Affiliations
Rhode Island Society of Professional Land Surveyors (RISPLS)

Professional Registrations Professional
Engineer/Massachusetts Professional
Engineer/Rhode Island Professional Land
Surveyor/Rhode Island

Key Qualifications
Kamal Hingorany has been the key person in establishing Narragansett Engineering, Inc. He is in charge of client interface and all engineering reviews. His field and office experience in Civil Engineering and Surveying has created an all-rounded company. His skills in other facets of management, such as accounting and knowledge of the complete CAD system, has brought Narragansett Engineering, Inc. to become the most successful and largest engineering company on Aquidneck Island in Rhode Island. He has successfully procured contracts from the Rhode Island Department of Transportation, Narragansett Bay Commission and local towns. Due to his efforts, the company is experiencing a rapid growth as larger projects are being procured. Kamal assisted in all phases of metes and bounds survey projects and is involved with all cost estimates on surveying projects and their completion. Prior to immigrating to the United States, Kamal had gone through unit conversions from the British System (foot/pound) to the Metric System, while working in his father's consulting firm in India.

April, 1985 - Present
Narragansett Engineering, Inc., (N.E.I.) Portsmouth, RI President
Involved with all phases of residential, commercial and industrial projects. Supervisor of all projects and interface with clients. Projects consist of Civil and Structural design and detailing. Experienced in Civil, Structural and Environmental Engineering. Has testified and represented clients at various Town Planning and Zoning Board meetings pertinent to subdivisions, regulatory variances and special exceptions. Demands include designing and supervising Town sanitary sewer systems. NEI is currently involved with projects for RIDOT.

April, 1982 - April, 1985
United Engineers & Constructors, Inc. Seabrook, New Hampshire
Senior Engineer- Supervision of design and installation of nuclear piping, pipe supports and electrical cable trays. As this project was a combination of design and field supervision, much of the time was spent in reviewing structures and connections in the field. Assignment also included review of documents for code conformance. The following code applications were practiced in this job assignment: AISC, ASME, Nuclear Piping Class I,II, III & B31.1.

April, 1981 - April, 1982
Stone & Webster Engineering Corp., Boston, Massachusetts
Worked as a Senior Analyst on nuclear piping. Supervised and analyzed Class I Piping for Shoreham Nuclear Power Plant. Class I analysis also requires evaluation of pipe welding and any attachment made to piping (lugs for pipe supports). Welding connections were analyzed as per AWS standards.

January, 1980 - March, 1981
Engineering Analysis Services, East Greenwich, Rhode Island
Worked as a Senior Analyst on nuclear piping and pipe supports. Assignment included analysis of Nuclear Piping Class II & III and designing pipe supports. I was also involved with field inspections and reviewing welding and bolt connections on site. This assignment enabled me to understand the procedures of weld certification and different methods used to evaluate defective welds.

December, 1977 - January, 1980
ITT Grinnell Corp., Providence, Rhode Island
Began as a Analyst and was promoted to Senior Analyst to design pipe supports. Work included analysis of Nuclear Piping Class II & III. Job description also included periodical site inspections of piping and pipe supports. Largest project on which I worked was for Bechtel at San Onofre Nuclear Power Plant. At times, long durations were spent at the site to review and resolve field problems. Welding seminars sponsored by Lincoln Electric were attended.

August, 1974 - November, 1977
Scientific Design Co., New York, New York
Began as a Structural Engineer. Worked on design of Petrochemical projects. My assignments consisted of designing various structural and reinforced concrete structures. These structural designs included designs of welded and bolted connections. These assignments provided me with a thorough knowledge of AISC, ACI, ASME and AWS codes and standards.

January, 1973 - August, 1974
Romano Corp., East Providence, Rhode Island
Project Engineer of industrial and commercial site development projects.

Surveying Experience:

Gray Craig Estates -
1988 to 1993 - This project has been a most complex surveying project. Portions of subdivided land need to be dedicated and the easement rights are to be granted to the Town of Middletown and to the State of Rhode Island Department of Environmental Management. All aspects of the project were managed and survey documents reviewed for submission to appropriate agencies for land valuation.

Bittersweet Farm Subdivision -
1986 to 1988 - Performed deed research; ran traverse and produce a metes and bounds survey; prepared subdivision plans for Planning Board approval; produced utility easements documents and dedication to the Town of Portsmouth, RI. Subsequent to this phase, he performed road and easements layout for construction and final dedication.

Sisson Pond Subdivision -
1987 to 1988 -Performed deed research; prepared subdivision plans for Planning Board approval by the Town of Portsmouth.

In addition to the above mentioned projects, he has also reviewed many other large and small surveys, and deed descriptions.

ANDREW J. PETERSON

Bristol, RI

Office: 401.683.6630
Fax. 401.683.6630
E. ajpeterson@nei-cds.com

Professional Experience:
Position: Surveyor, Party Chief
20+ years of field surveying experience, property line surveying, land evidence research, survey plan preparation and reconciliation along with survey crew staff oversight and training.

Summary of Professional Experience

Narragansett Engineering, Inc. (March 1987 to Present):

- Surveyor; duties include field surveys, preparation of subdivision and construction plans with utility designs using CAD system, training and supervision of field staff.
- Operations control of Total Station Transit, GPS Equipment, Data Collectors and Surveying Systems. Focus on surveying efficiency, one person survey systems.

Haley & Aldrich-CSO East and West - Providence - Geological Inspector

- Monitored test soils; classified soils and bedrock for a ten-month period. Willett Avenue Project
- Party Chief for East Providence field survey crew to provide controls for aerial photogrammetry and performed cross-sections survey.
- Route 6 Upgrade - Party Chief for field survey crew to provide controls for aerial photogrammetry. Performed numerous surveys and prepared CAD plans for residential, commercial and industrial projects

Newport City Hall [Engineering Division] (October 1983 to March 1987):

- Employed as draftsperson. Duties included preparation of construction plans and profiles, details, and various city maps. Prepared and checked plans and specifications of work to be performed by the city as well as those designed by consulting engineers.

Education

- 1996 Community College of Rhode Island (CCRI) Continued Course Work in Engineering
- 9/90 to 1993 Community College of Rhode Island

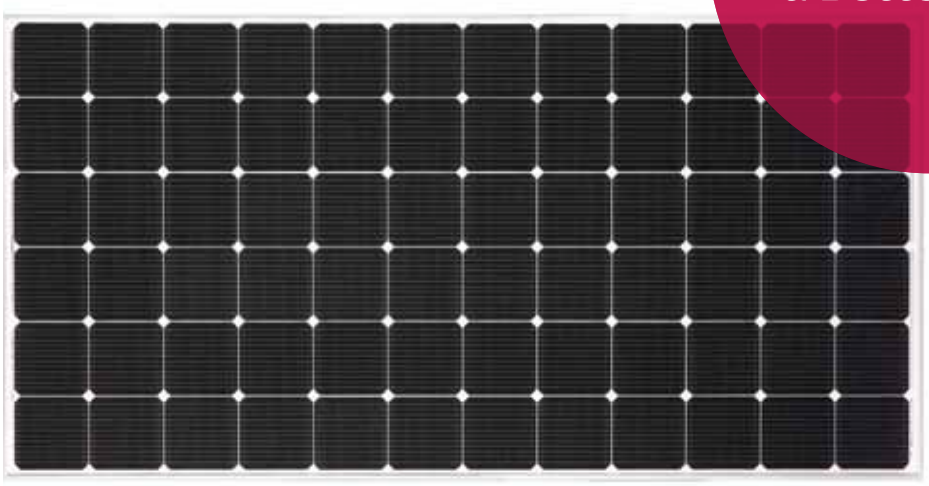
Course Work in Engineering

- 10/85 to 12/86 Community College of Rhode Island Course Work in Engineering and Math
- 9/84 to 5/85 Hall Institute, 120 High St., Pawtucket, RI Graduated in the Mechanical Tool Design Drafting Program.
- 6/84 Graduated from Rogers High School, Newport RI References available upon request.

Appendix 5. Equipment Specification Sheets

LG
Life's Good

Innovation for a Better Life



LG NeON™ 2 72cell

LG400N2W-A5

72 cell

LG's new module, LG NeON™ 2, adopts Cello technology. Cello technology replaces 3 busbars with 12 thin wires to enhance power output and reliability. LG NeON™ 2 demonstrates LG's efforts to increase customer's value beyond efficiency. It features enhanced warranty, durability, performance under real environment, and aesthetic design suitable for roofs.

APPROVED PRODUCT
KM 564573 BS EN 61215 Photovoltaic Modules

Enhanced Performance Warranty

LG NeON™ 2 has an enhanced performance warranty. The annual degradation has fallen from -0.6%/yr to -0.55%/yr. Even after 25 years, the cell guarantees 1.2%p more output than the previous LG NeON™ 2 modules.

High Power Output

Compared with previous models, the LG NeON™ 2 has been designed to significantly enhance its output efficiency, thereby making it efficient even in limited space.

Aesthetic Roof

LG NeON™ 2 has been designed with aesthetics in mind; thinner wires that appear all black at a distance. The product may help increase the value of a property with its modern design.

Outstanding Durability

With its newly reinforced frame design, LG has extended the warranty of the LG NeON™ 2 for an additional 2 years. Additionally, LG NeON™ 2 can endure a front load up to 5400 Pa, and a rear load up to 4300 Pa.

Better Performance on a Sunny Day

LG NeON™ 2 now performs better on sunny days thanks to its improved temperature coefficiency.

Double-Sided Cell Structure

The rear of the cell used in LG NeON™ 2 will contribute to generation, just like the front; the light beam reflected from the rear of the module is reabsorbed to generate a great amount of additional power.

About LG Electronics

LG Electronics is a global player who has been committed to expanding its operations with the solar market. The company first embarked on a solar energy source research programs in 1985, supported by LG Group's vast experience in the semi-conductor, LCD, chemistry, and materials industries. In 2010, LG Solar successfully released its first Mono X® series to the market, which is now available in 32 countries. The LG NeON™ (previously known as Mono X® NeON) and the LG NeON™2 won the "Intersolar Award" in 2013 and 2015, which demonstrates LG Solar's lead, innovations and commitment to the industry.

LG NeON™ 2 72cell LG400N2W-A5

Mechanical Properties

Cells	6 x 12
Cell Vendor	LG
Cell Type	Monocrystalline / N-type
Cell Dimensions	161.7 x 161.7 mm / 6 inches
# of Busbar	12 (Multi Wire Busbar)
Dimensions (L x W x H)	2024 x 1024 x 40 mm 79.69 x 40.31 x 1.57 inch
Front Load	5400Pa
Rear Load	4300Pa
Weight	21.7 kg
Connector Type	MC4
Junction Box	IP68 with 3 Bypass Diodes
Cables	1200 mm x 2 ea
Glass	High Transmission Tempered Glass
Frame	Anodized Aluminium

Certifications and Warranty

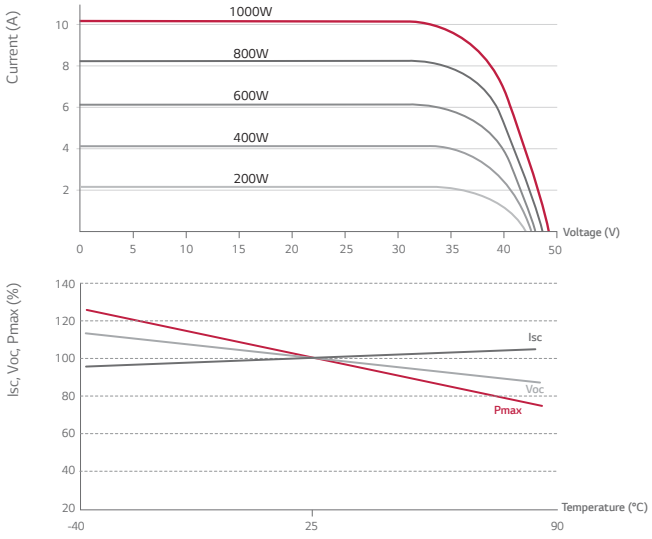
Certifications	IEC 61215, IEC 61730-1/-2
	UL 1703
	IEC 61701 (Salt mist corrosion test)
	IEC 62716 (Ammonia corrosion test)
	ISO 9001
Module Fire Performance (USA)	Type 1
Fire Rating (CANADA)	Class C (ULC / ORD C1703)
Product Warranty	12 years
Output Warranty of Pmax	Linear warranty**

** 1) 1st year : 98%, 2) After 2nd year : 0.55% annual degradation, 3) 25 years : 84.8%

Temperature Characteristics

NOCT	45 ± 3 °C
Pmpp	-0.36%/°C
Voc	-0.26%/°C
Isc	0.02 %/°C

Characteristic Curves



Electrical Properties (STC *)

Module	**400W**
Maximum Power (Pmax)	400
MPP Voltage (Vmpp)	40.6
MPP Current (Impp)	9.86
Open Circuit Voltage (Voc)	49.3
Short Circuit Current (Isc)	10.47
Module Efficiency	19.3
Operating Temperature	-40 ~ +90
Maximum System Voltage	1500 (UL)
Maximum Series Fuse Rating	20
Power Tolerance (%)	0 ~ +3

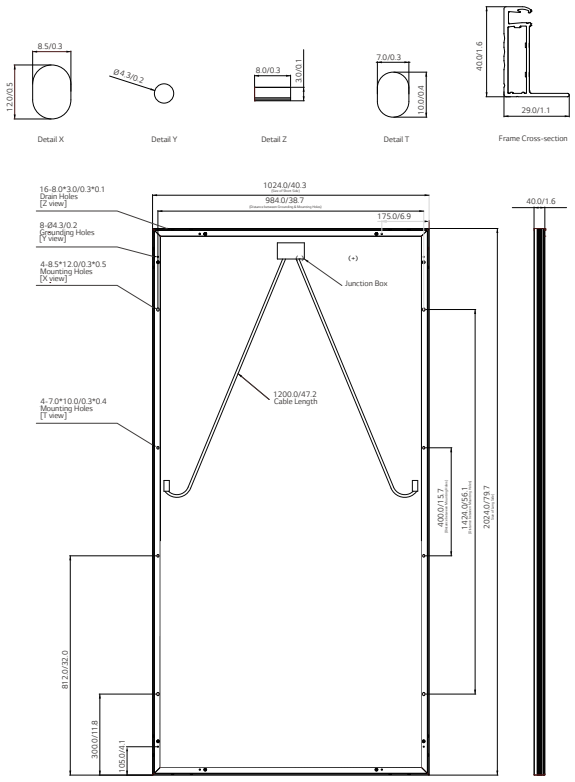
* STC (Standard Test Condition): Irradiance 1,000 W/m², Ambient Temperature 25 °C, AM 1.5
* The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion.
* The Typical change in module efficiency at 200W/m² in relation to 1000W/m² is -2.0%.

Electrical Properties (NOCT*)

Module	**400W**
Maximum Power (Pmax)	296
MPP Voltage (Vmpp)	37.6
MPP Current (Impp)	7.88
Open Circuit Voltage (Voc)	46.1
Short Circuit Current (Isc)	8.41

* NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², ambient temperature 20 °C, wind speed 1m/s

Dimensions (mm/in)



* The distance between the center of the mounting/grounding holes.

LG Life's Good

North America Solar Business Team
LG Electronics U.S.A. Inc
1000 Sylvan Ave, Englewood Cliffs, NJ 07632

Contact: lg.solar@lge.com
www.lgsolarusa.com

Product specifications are subject to change without notice.

01/01/2017

Innovation for a Better Life

YASKAWA
SOLECTRIA SOLAR

3-PH TRANSFORMERLESS
STRING INVERTERS

PVI 50TL
PVI 60TL

FEATURES

- NEC 2014 compliant (arc fault and rapid shutdown)
- Compliant with UL1741SA
- 3 MPPTs with 5 inputs each
- Integrated DC and AC disconnects
- AC terminals compatible with copper and aluminum conductors
- Modbus communications
- Internal data logger
- 0 - 90° installation orientation
- Remote firmware upgrades
- Remote diagnostics

OPTIONS

- H4 wiring box
- Shade cover
- DC combiners bypass
- Web-based monitoring

3-PH TRANSFORMERLESS STRING INVERTERS

Yaskawa - Solectria Solar's PVI 50TL and PVI 60TL are grid-tied, transformerless three-phase inverters designed for ground mount, rooftop and carport arrays and can be installed from 0 - 90 degrees. The PVI 50/60TL inverters are NEC 2014 compliant and are the most reliable, efficient and cost effective in their class. They come standard with AC and DC disconnects, three MPPTs, a 15-position string combiner, remote diagnostics, remote firmware upgrades and various protection features. Options include H4 wiring box, shade cover, DC combiner fuse bypass, and web-based monitoring.

SOLECTRIA.COM

SPECIFICATIONS	PVI 50TL	PVI 60TL
DC Input		
Absolute Maximum Open Circuit Voltage	1000 VDC	
Operating Voltage Range	200-950 VDC	
Max Power Input Voltage Range (MPPT)	480-850 VDC	540-850 VDC
MPP Trackers	3	
Maximum Operating Input Current	36 A per MPPT (108 A)	38 A per MPPT (114 A)
Maximum Available PV Current (Isc x 1.25)	60 A per MPPT (180 A)	
Maximum PV Power	75 kW (25 kW per MPPT)	90 kW (30 kW per MPPT)
Start Voltage	330 V	
AC Output		
Nominal Output Voltage	480 VAC, 3ø+/PE/N	
AC Voltage Range (Standard)	-12%/+10%	
Continuous Output Power	50 kW	60 kW
Maximum Output Current	61 A	73 A
Maximum Backfeed Current	0 A	
Nominal Output Frequency	60 Hz	
Output Frequency Range	57-63 Hz	
Power Factor	Unity, ›0.99 (adjustable 0.8 leading / 0.8 lagging)	
Fault Current Contribution (1 Cycle RMS)	55 A	
Total Harmonic Distortion (THD) @ Rated Load	‹ 3%	
Performance		
Peak Efficiency	99.0%	
CEC Efficiency	98.5%	
Tare Loss	‹ 2 W	
Ambient Temperature Range	-22°F to +140°F (-30°C to +60°C) Derating occurs over +122°F (+50°C)	
Storage Temperature Range	No low temp minimum to +158°F (+70°C)	
Relative Humidity (non-condensing)	0-95%	
Audible Noise	‹ 60 dBA @ 1 m at room temperature	
Operating Altitude	13,123 ft (4,000 m) Derating from 9,842.5 ft (3,000 m)	
Safety Listings & Certifications	UL 1741:2010, UL 1699B, CSA-C22.2 #107.1-01, IEEE1547; FCC PART15; UL 1741SA	
Testing Agency	ETL	
Mechanical		
15 Fused Positions (5 positions per MPPT)	15 A standard (20, 25, 30 A accepted*)	
AC/DC Disconnect	Standard, fully-integrated	
Enclosure Rating	Type 4X	
Enclosure Finish	Polyester powder coated aluminum	
Mounting Method**	0-90˚ from horizontal (vertical, angled, flat)	
Dimensions (H x W x D)	39.4 x 23.6 x 10.24 in. (1,000 x 600 x 260 mm)	
Weight	Inverter: 123.5 lbs (56 kg); Wiring Box: 33 lbs (15 kg)	
Communications		
Data Logger Hardware	Standard, Internal	
SolrenView Monitoring Service	Optional	
Revenue Grade Meter/Monitoring	Optional, External	
Communication Interface	RS-485 Modbus RTU	
Remote Firmware Upgrades	Standard	
Remote Diagnostics	Standard	
Features & Protections		
Arc-Fault Detection	Standard	
Smart Grid Features	L/HVRT, L/HFRT, Soft Start, Volt-Var, Frequency-Watt and Volt-Watt	
Warranty		
Standard	10 year	
Optional	15, 20 year; extended service agreement	

*Yaskawa - Solectria Solar does not supply the optional fuses
**Shade cover accessory required for installation angles of 75 degrees or less

YASKAWA SOLECTRIA SOLAR www.solectria.com | inverters@solectria.com | 978.683.9700

SUNGROW

SG60KU-M

String Inverter For North America

High Yield

- Max. efficiency 98.9 %, CEC efficiency 98.5 %
- Long-term overload at 1.1 Pn
- Up to 4 MPP trackers

Easy O&M

- Integrated string current monitoring function for fast trouble shooting
- Compact design and light weight for easy installation
- Plug-in design of fan and SPD, easy for on-site maintenance

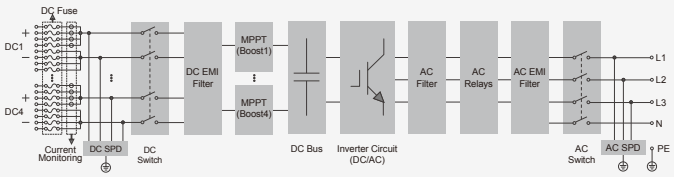
Saved Investment

- Max. DC/AC ratio up to 1.5
- Integrated DC combiner box, DC/AC switch and DC/AC overvoltage protection

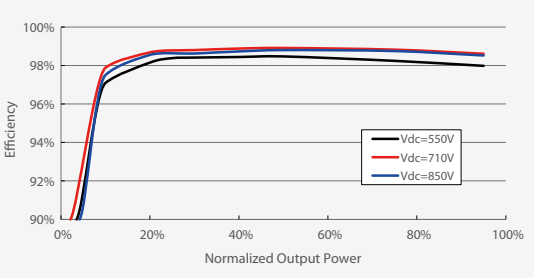
Grid Support

- Compliance with standards: UL1741, IEEE 1547, IEEE 1547.1, CSA C22.2 No.107.1-01
- Low/High voltage ride through (L/HVRT)
- Active & reactive power control and power ramp rate control

Circuit Diagram



Efficiency Curve



SUNGROW

SG60KU-M

Input (DC)	SG60KU-M
Max. PV input voltage	1000 V
Min. PV input voltage / Startup input voltage	300 V / 300 V
Nominal input voltage	710 V
MPP voltage range	300 – 950 V
MPP voltage range for nominal power	550 – 850 V
No. of independent MPP inputs	4
Max. number of PV strings per MPPT	4
Max. PV input current	112 A (28 A / 28 A / 28 A / 28 A)
Max. current for input connector	12 A
Max. DC short-circuit current	200 A (50 A / 50 A / 50 A / 50 A)

Output (AC)	
Nominal AC power (at 45 ˚C)	60000 W
Max. AC output power at PF=1 (at 45 ˚C)	66000 W
Max. AC apparent power (at 45 ˚C)	66000 VA
Max. AC output current	80 A
Nominal AC voltage	3 / N / PE or 3 / PE, 277 / 480 V
AC voltage range	422 – 528 V
Nominal grid frequency / Grid frequency range	60 Hz / 55 – 65 Hz
THD	< 3 % (at nominal power)
DC current injection	< 0.5 % In
Power factor at nominal power / Adjustable power factor	> 0.99 / 0.8 leading – 0.8 lagging
Feed-in phases / Connection phases	3 / 3

Efficiency	
Max. efficiency / CEC. efficiency	98.9 % / 98.5 %

Protection	
DC reverse connection protection	Yes
AC short-circuit protection	Yes
Leakage current protection	Yes
Grid monitoring	Yes
DC switch / AC switch	Yes / Yes
DC fuse	Yes (positive and negative, 15 A)
PV string current monitoring	Yes
Arc fault circuit interrupter (AFCI)	Yes
Overvoltage protection	DC Type II / AC Type II

General Data	
Dimensions (W*H*D)	665*915*276 mm 26.2"*36.0"*10.9"
Weight	70 kg 154.3 lb
Isolation method	Transformerless
Degree of protection	NEMA 4X
Night power consumption	< 1 W
Operating ambient temperature range	-25 to 60 ℃ (> 45 ℃ derating) -13 to 140 ℉ (> 113 ℉ derating)
Allowable relative humidity range (non-condensing)	0 – 100 %
Cooling method	Smart forced air cooling
Max. operating altitude	4000 m (> 3000 m derating) 13123 ft (> 9843 ft derating)
Display / Communication	Graphic LCD / RS485, Ethernet
DC connection type	Screw clamp terminal (10 AWG, Cu or Al)
AC connection type	Screw clamp terminal (2/0 AWG, Cu or Al)
Compliance	UL1741, IEEE 1547, IEEE1547.1, CSA C22.2 No.107.1-01
Grid support	LVRT, HVRT, active & reactive power control and power ramp rate control
Type designation	SG60KU-M-10

Appendix 6. Preliminary Site Layouts

Design 1 Pvd Water Co, Trunk Hill Rd Clayville, RI

Report

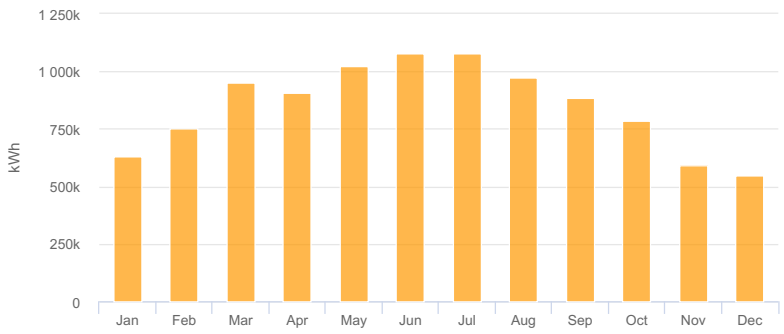
Project Name	Pvd Water Co
Project Address	Trunk Hill Rd Clayville, RI
Prepared By	Everett Tatelbaum etatelbaum@kearsargeenergy.com

System Metrics

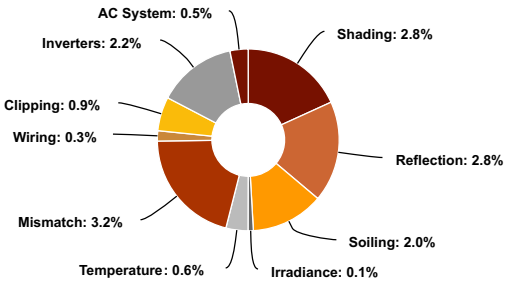
Design	Design 1
Module DC Nameplate	7.08 MW
Inverter AC Nameplate	5.68 MW Load Ratio: 1.25
Annual Production	10.21 GWh
Performance Ratio	85.6%
kWh/kWp	1,441.4
Weather Dataset	TMY, 10km Grid (41.75,-71.65), NREL (prospector)
Simulator Version	eb6a592e71-e365b1f550-bf7b0dc412-b5e908c126

Project Location

Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,436.6	
	POA Irradiance	1,684.4	17.2%
	Shaded Irradiance	1,637.0	-2.8%
	Irradiance after Reflection	1,591.6	-2.8%
	Irradiance after Soiling	1,559.8	-2.0%
	Total Collector Irradiance	**1,559.6**	**0.0%**
Energy (kWh)	Nameplate	11,055,187.1	
	Output at Irradiance Levels	11,039,150.4	-0.1%
	Output at Cell Temperature Derate	10,972,198.3	-0.6%
	Output After Mismatch	10,619,239.9	-3.2%
	Optimal DC Output	10,589,349.6	-0.3%
	Constrained DC Output	10,490,659.6	-0.9%
	Inverter Output	10,262,100.0	-2.2%
	Energy to Grid	**10,210,800.0**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		11.8 °C
	Avg. Operating Cell Temp		19.4 °C
Simulation Metrics			
	Operating Hours		4685
	Solved Hours		4685

Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid (41.75,-71.65), NREL (prospector)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module	Characterization										
	LG400N2W-A5_Rev002 (LG Electronics)	LG400N2W-A5_Rev002.pan, PAN										
Component Characterizations	Device	Characterization										
	Sunny Tripower 24000TL-US (SMA)	Modified CEC										

Components

Component	Name	Count
Inverters	Sunny Tripower 24000TL-US (SMA)	236 (5.68 MW)
Strings	10 AWG (Copper)	1,180 (194,561.9 ft)
Module	LG Electronics, LG400N2W-A5_Rev002 (400W)	17,710 (7.08 MW)

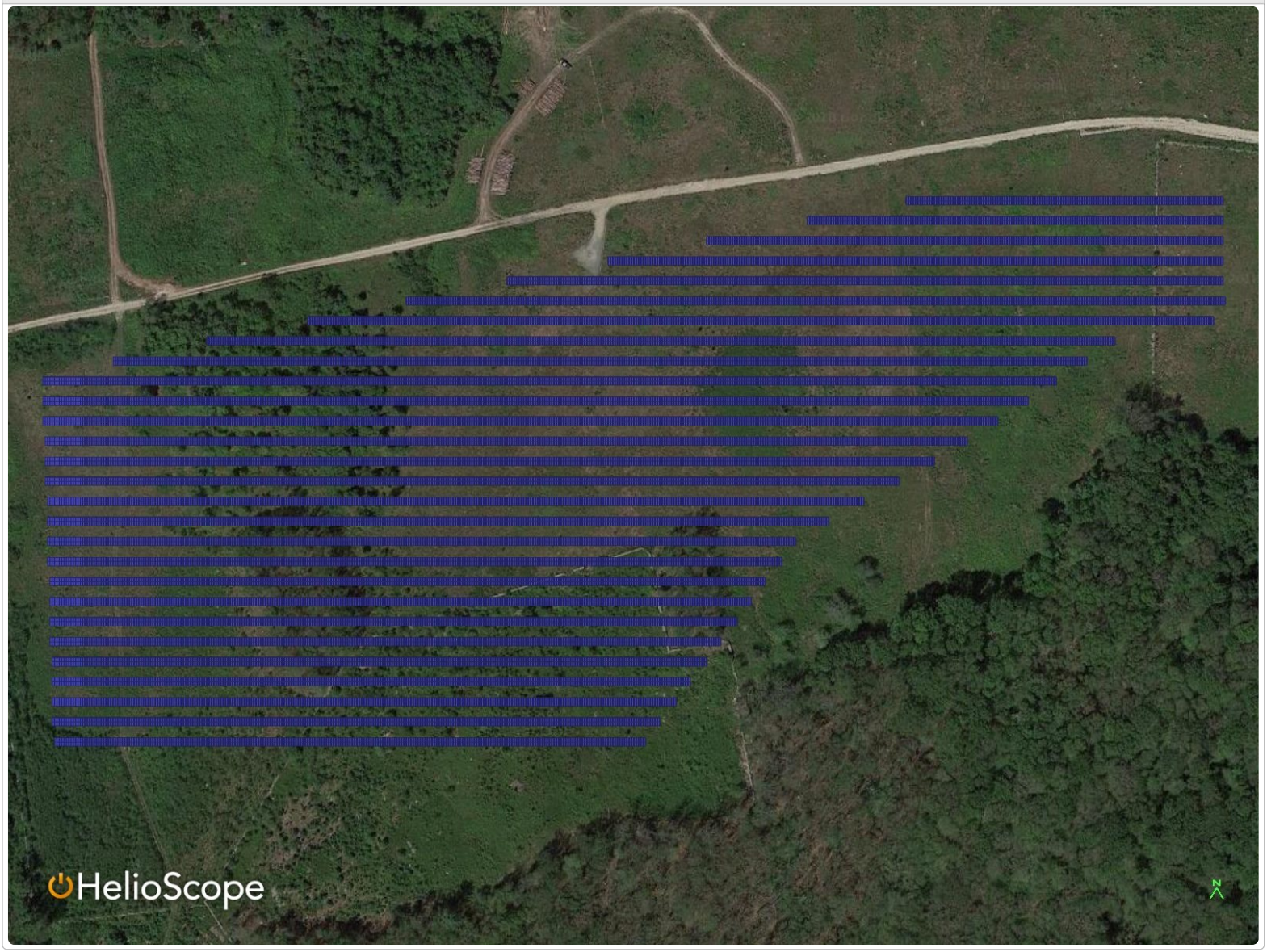
Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	4-18	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 2	Fixed Tilt	Portrait (Vertical)	25°	180°	16.9 ft	2x1	8,855	17,710	7.08 MW

Detailed Layout



Design 1 PWC - North Rd, 61 North Rd Hope, RI 02831

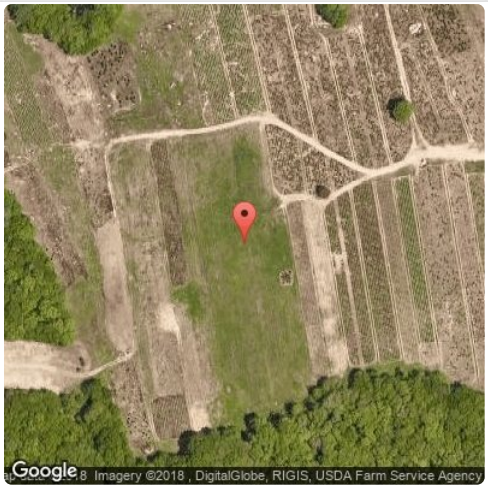
Report

Project Name	PWC - North Rd
Project Address	61 North Rd Hope, RI 02831
Prepared By	Everett Tatelbaum etatelbaum@kearsargeenergy.com

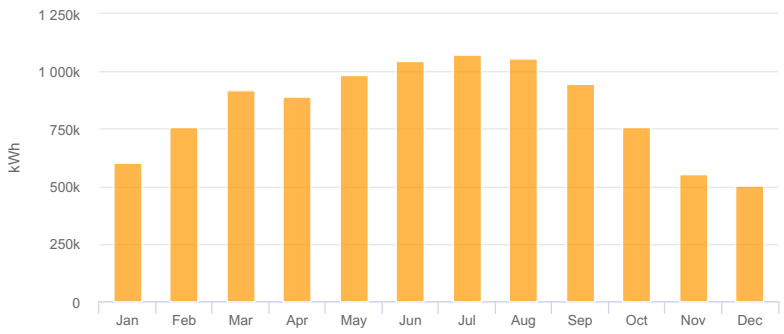
System Metrics

Design	Design 1
Module DC Nameplate	7.05 MW
Inverter AC Nameplate	5.65 MW Load Ratio: 1.25
Annual Production	10.10 GWh
Performance Ratio	85.5%
kWh/kWp	1,431.8
Weather Dataset	TMY, 10km grid (41.75,-71.55), NREL (prospector)
Simulator Version	eb6a592e71-e365b1f550-bf7b0dc412-b5e908c126

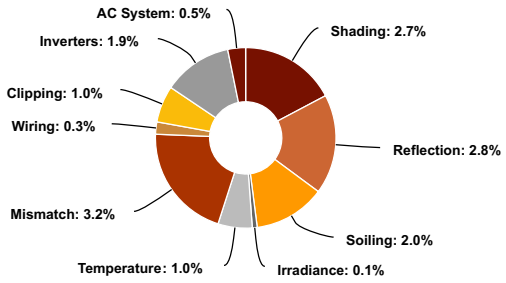
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,432.8	
	POA Irradiance	1,675.2	16.9%
	Shaded Irradiance	1,630.2	-2.7%
	Irradiance after Reflection	1,584.8	-2.8%
	Irradiance after Soiling	1,553.1	-2.0%
	Total Collector Irradiance	**1,553.0**	**0.0%**
Energy (kWh)	Nameplate	10,961,319.3	
	Output at Irradiance Levels	10,946,354.8	-0.1%
	Output at Cell Temperature Derate	10,842,053.2	-1.0%
	Output After Mismatch	10,492,531.7	-3.2%
	Optimal DC Output	10,456,655.2	-0.3%
	Constrained DC Output	10,349,601.6	-1.0%
	Inverter Output	10,150,200.0	-1.9%
	Energy to Grid	**10,099,400.0**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		12.6 °C
	Avg. Operating Cell Temp		20.1 °C
Simulation Metrics			
	Operating Hours		4691
	Solved Hours		4691

Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km grid (41.75,-71.55), NREL (prospector)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module	Characterization										
	LG400N2W-A5_Rev002 (LG Electronics)	LG400N2W-A5_Rev002.pan, PAN										
Component Characterizations	Device	Characterization										
	SG60KU-M (50kW) (Sungrow)	Custom - derated to 50kW										

Components

Component	Name	Count
Inverters	SG60KU-M (50kW) (Sungrow)	113 (5.65 MW)
Strings	10 AWG (Copper)	1,136 (294,226.0 ft)
Module	LG Electronics, LG400N2W-A5_Rev002 (400W)	17,634 (7.05 MW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	8-17	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	25°	180°	14.4 ft	2x1	8,817	17,634	7.05 MW

Detailed Layout