

PV RFP Town Henniker**October 5, 2019**

Town of Henniker, NH
 Request for Qualifications & Proposals
 Municipal PV Systems for the Town of Henniker
 October 5, 2019

I. Selection Process Overview

The Town of Henniker, NH, seeks proposals and qualifications from qualified Contractor/Vendors (Providers) to design and build, and potentially operate, municipal turn-key Grid Interactive Photovoltaic Solar Energy Systems (PV Systems) on Town-owned land to provide approximately 449,600 kWh annually of the electrical usage on meters servicing Henniker municipal facilities as listed below in Section VI.

Sealed, written proposals printed on paper and an electronic copy must be received by the Town at the address below no later than 4 pm Monday November 18, 2019. Five (5) copies of all submissions must be included. Each envelope must be clearly marked "Henniker Municipal PV System Proposal" with the proposing company's name and address.

**Town Administrator
 Henniker Municipal PV System Proposal
 Town of Henniker
 18 Depot Hill Road
 Henniker, NH 03242**

Proposals may be changed or withdrawn by a Provider in writing on paper and in an electronic copy until the proposal deadline. Finalist(s) will be invited to present their proposals in a meeting with the Town Administrator, Selectmen, Henniker Energy Committee, and/or other representatives of the Town.

The Town reserves the right to hold additional interviews with finalists to discuss and negotiate, if applicable, the price and terms prior to making a final selection. The Town reserves the right to withdraw this RFP before or after receiving proposals, accept any or reject all proposals, to waive minor irregularities, and to make a selection, if any, as it deems to be in the best interest of the Town. The Town also reserves the right to reject the selected Provider and contract with another Provider if the Town and the selected Provider cannot successfully negotiate a contract for the proposed work. The Town reserves the right to approve all plans prior to installation.

The Town shall not be liable for any cost incurred by any Provider during the selection process. If Town Property is altered in any way by a Provider during the selection process, the Town may require the Provider to restore the property to its prior condition.

The Board of Selectmen expects to bring the winning proposal to Town Meeting in March 2020 for approval. All proposals must be valid for at least 3 months after Town Meeting Day (3/14/2020). The selected Provider shall attend Town Meeting and support their proposal. In addition, the Provider shall make presentations at two public outreach meetings (one on a weeknight and the other on a weekend) and be present at the Selectmen's Budget Hearing to answer questions.

II. Electrical Energy/PV System Procurement

The Town welcomes proposals offering a variety of procurement methods:

- a. Outright purchase of the PV Systems from the outset by the Town using a 20-year bond.
- b. Power Purchase Agreements, leases, or other options that may utilize a third party to finance the PV Systems. These options may include the opportunity for the Town to purchase the PV Systems from the Provider or third party in the future.

Providers may present the one procurement method they believe to be most financially beneficial to the Town or they may provide two or more options. The Town will use the metrics listed next to analyze and compare the proposals.

All proposals must present the projected year-by-year cost per kWh of electricity provided by the PV Systems, the projected year-by-year cost per kWh of electricity purchased from the utility, the average cost per kWh over the first 25 years of operation, the year-by-year savings, and the total savings over the first 25 years of operation. Proposals shall also discuss whether the production of the PV Systems will reduce charges based on kW power demand and what these savings might be, if any. Proposals utilizing outright purchase by the Town will also include the payback period and return on investment after 15 and 25 years of operation.

Providers may present other metrics they deem to have value in portraying the financial benefit to the Town.

Providers shall state all financial assumptions made and list all sources of funding and revenue to be utilized in their proposals.

III. Scope of Project

The Town of Henniker seeks proposals from Providers for PV Systems to be located on Town owned property identified in Section VII. The PV Systems may utilize a variety of module and mounting technologies including but not limited to flat and curved modules/collectors, roof, fixed ground, or tracking mounting, and module-level power electronics. These PV Systems will be sized to offset annually approximately 449,600 kWh of the electrical usage on meters servicing Henniker municipal facilities as listed below in Section VI.

The PV Systems must be turnkey systems. The Provider must:

1. design,
2. engineer,
3. permit,
4. finance or facilitate financing,
5. install,
6. commission,
7. interconnect,
8. furnish complete as-built documentation,

9. operate or provide guidance for operating,
10. monitor or facilitate monitoring,
11. maintain or provide guidance for maintaining these PV Systems, and
12. decommission or provide a plan for the decommissioning of the systems at the end of their lifetimes.

If the proposal incorporates outright purchase of the system from day one by the Town using bonding, the Provider shall furnish:

1. training to town employees for operating, monitoring, and maintaining the PV Systems,
2. on-going customer support,
3. manufacturers' specification sheets and instruction manuals for equipment,
4. all manufacturer and Provider warranties for parts and labor, and
5. a schedule of maintenance, if any, including anticipated costs, such as for inverters or tracker systems.

Or, alternatively, a Provider may present a maintenance and service contract for the life of the system and include the cost for such in the PV Systems' cost or offer the contract and cost separately as an option.

If the proposal incorporates leasing or a Power Purchase agreement, the Provider shall list all services provided to the Town at no additional cost and list all services the Town must provide or contract for and the costs of these services on an annual and system lifetime basis.

IV. Evaluation Criteria and Selection of a Provider

The Town of Henniker is seeking best value for these PV Systems. Best value is a combination several factors including:

1. financial savings resulting from a net cost per kWh of electrical energy that is lower than projected conventional purchase costs,
2. technically accurate, aesthetically pleasing, secure, and minimally disruptive design,
3. efficient, safe, environmentally sound, and on-schedule construction and operation of the system,
4. quality and longevity of workmanship and system components,
5. utilization of American-made components to the greatest extent feasible,
6. provision of convenient monitoring of system operation for diagnostics and educational purposes,
7. comprehensive and reliable system maintenance resulting in minimal system down-time over the system lifetime, and
8. courteous, knowledgeable, and readily available customer support and service over the life of the system.

Each Provider must demonstrate the knowledge, skill and experience necessary to design, permit, construct, operate and maintain the system, as well as provide information regarding the contracts let in the past five years, accompanied by contact information.

A final Provider will be selected based on the thoroughness and quality of the information it provides in its proposal regarding the Required Proposal Elements listed below through which the Provider will demonstrate its ability to provide superior value to the Town as described above.

V. Required Proposal Elements:

1. Name and address of company and person/s responsible for contract. Include contact information.
2. Number of employees working on project site/s.
3. Qualifications and experience of:
 - a. principal members,
 - b. designer engineers
 - c. project managers and installers
 - d. subcontractors, if any
4. Names of any Town officials or employees who are related to any of the partners, officials or directors of the firm or have any ownership interest in the firm.
5. Experience with PV System installations of similar size and type including a list of three or more municipal projects in NH or northern New England. Summary of performance of each system including actual kWh generation versus projected generation. Brief company history.
6. Experience with customer training and service.
7. Three municipal customer references with contact information.
8. Project schedule, from town vote in March to interconnection with utility (turn-on).
9. PV System design consisting of preliminary site plan layouts showing:
 - a. the approximate location of the PV modules and inverters,
 - b. type and number of PV modules, inverters, and mounting,
 - c. the area of land covered by ground mount arrays and the percent of the area of each tax map lot covered by ground mount arrays
 - d. PV system sizes in kW DC STC and kW AC maximum continuous, and
 - e. expected average monthly and annual production of each PV System.
10.
 - a. Cost quote that covers all costs including design, engineering, permitting, equipment, building structural work (if necessary), installation, interconnection, financing (if any), internet-based production monitoring, and periodic maintenance (if any) costs if procurement by outright purchase of PV Systems. If it is not possible to quantify any of the above costs at the proposal stage, please explain why. State how these costs will be specified and at what stage of the process.
 - b. Complete pricing for Power Purchase Agreements, leases, or other procurement methods, including but not limited to maintenance costs, if any, and buyout pricing if that option is available.
 - c. In addressing the use of American-made components, the Provider may (but is not required to) submit two proposals, one utilizing American-made products to the greatest extent feasible, and a second suggested alternative with a lower percentage of American-made products.
11. PVWatts Energy Report or Helioscope Energy Report for the PV Systems.
12. Financial benefit analysis which includes, among other things, yearly and 25-year payments and savings, and average cost per kWh of electricity over 25 years.

13. Statement of all financial assumptions made and list of all sources of funding and revenue to be utilized.
14. Environmental benefit analysis which includes, among other things, the weight of CO2 emissions and of other pollutants eliminated by the production of the PV Systems.
15. Manufacturers' specification sheets for equipment.
16. Manufacturer and installation company warranties for parts and labor.
17. Schedule of maintenance, if any, such as for tracker systems.
18. Proof of general liability and professional liability Insurance and current good standing with the State of NH Secretary of State office.
19. Proof of ability to bond the cost of the proposed project with payment and performance bonds.

VI. Town Facilities Electricity Usage

The Town facilities listed below used the following amounts of electricity in kWh in 2018.

Academy Hall	Maple Street	3531
Community Center	Main Street	25,893
Fire Station	Maple Street	36,930
Grange	Western Ave.	8298
Highway Dept.	Ramsdell Road	25,020
Police Station	Western Ave.	31,891
Town Hall	Depot Street	15,189
Transfer Station	Weare Road	29,931
Tucker Free Library	Western Ave.	31,116
Cogswell Springs Water Works Davison Road and Route 114		94,608
Waste Water Treatment Plant	Ramsdell Road	294,423
Annual PV Systems Production Target		449,600

The Town has chosen an annual target that equals one half of the consumption of the Waste Water Treatment Plant plus the sum of the consumption of all the other listed Town facilities.

VII. PV System Sites

The Town of Henniker has identified the Town properties listed below as potential locations for PV Systems.

Lot #	Address	
1-665	1393 Weare Road	Transfer Station
2-501	250 Weare Road	Cogswell Springs Water Works
2-96-H	146 Davison Road	“ ”
2-509-A	209 Ramsdell Road	Highway Department
2-509-B	199 Ramsdell Road	Charles E. Damour Waste Water Treatment Plant

However, no PV Systems are to be constructed on the historic town buildings or lands listed below:

Henniker Town Hall
 Grange Hall
 Henniker Community Center
 Henniker Historical Society Building
 Tucker Free Library

All Providers are required to attend guided site visits at the properties listed above scheduled for October 17, 2019 at 9:00 AM. Please meet at the Highway Garage located at 209 Ramsdell Road in Henniker.

VIII. Insurance

Prior to commencing work, and throughout the term of this contract, the Provider shall obtain and maintain, in the limits and under the conditions set forth below, insurance coverage naming the Town, its officers, employees, volunteers, and assigns, as Certificate Holder and Additionally Named Insured, for the following types and levels of coverage:

- Workers Compensation Statutory
- Automobile and Equipment \$1 Million/\$2 Million
- Property Damage \$1 Million/\$2 Million
- Commercial General Liability \$1 Million/\$2 Million
- Contractual Liability;
- Products and Completed Operations;

The Provider shall furnish the Town, at the time the contracts are returned to the Provider for execution, Certificates of Insurance and/or policies. This coverage shall be primary to the Additionally Insureds' existing insurance and shall not be contributing with any other insurance or similar protection available to the Additionally Insureds' whether other available insurance be primary, contributing or excess.

All coverage shall be with insurance carriers licensed and authorized to do business in New Hampshire. If any of the above coverages expire during the term of this contract, the Provider shall deliver renewal Certificates and/or policies to the Town at least ten (10) days prior to the expiration date.

Sixty (60) days advance written notice of cancellation, non-renewal, reduction and/or material change shall be sent to: The Town of Henniker, New Hampshire, Attn. Town Administrator 18 Depot Hill Road, Henniker, NH 03242.

If a sub-Contractor is used for any portion of the work, the Provider will supply to the Town similar certificates, in similar amounts and under similar conditions, from the sub-Contractor.

Should the Provider fail to maintain Workers' Compensation insurance, and should the Town be found liable to principals, officers, employees and agents of the Provider, the Town may recover from the Provider the amount of any medical costs and compensation paid to or on behalf of the principals, officers, employees and agents of the Provider and any expenses relating to claims filed under the provisions of Workers' Compensation.

IX. Indemnification and Litigation

The Provider agrees to indemnify, pay on behalf of, defend and hold harmless the Town and its officers, agents, employees, and volunteers from and against any and all claims, demands, suits, actions, costs, judgments, whatsoever, including reasonable attorney's fees, which may be imposed upon, incurred by, or asserted against the Town by reason of (a) any failure on the part of the Provider or a subcontractor under this contract, or (b) for the death, injury or property damage suffered by any person on account of or based upon the act, omission, fault, negligence or misconduct of any person whomsoever other than the Town of Henniker. The Town agrees that the Provider will not be responsible for any suit, action or claim of loss or expenses because of bodily injury, including death caused by the Town and its agents and employees.

The foregoing indemnity and hold harmless agreement shall include indemnity against all costs, expenses, and liabilities incurred in or in connection with any such claim or proceeding brought here on, and the defense thereof with counsel acceptable to the Town or counsel selected by an insurance company which has accepted liability for any such claim.

This covenant shall survive the termination of this Contract.

Bid contact email: hennikerpvrfp@henniker.org

PROPOSAL FOR

DESIGN, INSTALLATION, MAINTENANCE AND FINANCING OF SOLAR ENERGY SYSTEMS

TOWN OF HENNIKER, NH

November 18, 2019



MOCK-UP OF PROPOSED SOLAR ENERGY SYSTEMS AT HENNIKER WASTEWATER PLANT

PRESENTED BY



Barrington Power
PO Box 738
Barrington, NH 03825
603-973-9798
ATTN: Jack Bingham

CONFIDENTIAL AND PROPRIETARY –This entire proposal is confidential and proprietary and includes significant intellectual property information and shall not be shared with anyone other than town employees or energy committee members who are involved with deciding on a solar partner for this project.

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APPENDICES:

Appendix 1 – Helioscope designs showing production, layouts and equipment

Appendix 2 – KW Management Qualifications

Appendix 3 – Barrington Power Qualifications

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EXECUTIVE SUMMARY

PLACE HOLDER

SECTION 1. PROPOSED SYSTEM

1.1. System Specifications

System Type:	Net-metered photovoltaic power systems with group net-metering
DC System size:	Please see Helioscope designs, Appendix 1
AC System size:	Please see Helioscope designs, Appendix 1
Estimated energy production:	Please see Helioscope designs, Appendix 1
Modules:	Hanwha 300-watt, 60-cell, all black for Fire Station and Police station, Hanwha 380-watt, 72-cell, for Waste water buildings. 25 year warranty
Mounting:	Iron Ridge Solar Mounting system, or equivalent. 25 year warranty
Inverters:	Solar Edge inverters and optimizers, or equivalent. 12 year warranty
Data Acquisition System (DAS):	Solar Edge or equivalent.
Balance of System Equipment:	Included
System Warranty:	The system will be free from defects in materials and workmanship for a period of one (1) year from the date of installation.

1.2. Equipment Selection

Our proposed designs use equipment that predominates in projects of this scale and type in New England. The proposed 72-cell modules are commercial grade with a larger size (more cells) than the 60-cell modules. We propose string inverters because they provide excellent cost efficiency and production efficiency and have a long track record of success. Iron Ridge solar racking provides high-quality racking for projects across the US and we have had excellent results with their equipment and service.

We enjoy strong relationships with several industry-leading solar PV equipment manufacturers, we are not beholden to any one manufacturer, nor restricted by dealer quotas. The components we have proposed are perfectly suited for this site. All components used for this installation will be UL listed and compliant with all applicable IEEE, local, state and federal standards. This system will utilize only new, unused, equipment.

MONITORING

The Solar data acquisition system that we propose provides web accessible data for system performance and production metrics. This data will be regularly monitored by our staff to confirm that the system is operating properly. This data is also readily available on any web browser for monitoring by town staff and teachers and students. We encourage the use of this data and the system in general in the school curriculum and we will help the schools in town with this as part of our Solar On Schools program, please see section 5 of this proposal.

Many towns and schools choose to place a dedicated monitor in a prominent location that displays the production data and environmental benefits of the use of solar energy that is shown on the home page of this data system. Our price includes installation of a monitor for this purpose.

1.3. Design

The following factors influenced our design methodology. Under each factor are comments on how our design attempts to respond to those factors;

- Minimize the effects of snow soiling
 - By using a 35-degree tilt angle rather than a traditional 25-degree angle for the ground mount our design allows the panels to self-shed snow more frequently ensuring that you get maximum production from your investment.
 - For ground mounts we use a 42" average clearance from bottom edge of panels to the ground. While this costs us more money this extra clearance minimizes the effects from snow sliding from the panels and piling up and eventually shading the bottom edge of the panels which would create significant reduction in production.
- Design for low cost maintenance and Safety
 - We have selected equipment that we are very familiar with and that has good track record for low-cost of maintenance
- Design for reliability and durability
 - We use ONLY metal conduit for any conduit that is exposed to the sun. Despite the fact that PVC conduit is code compliant we do not use PVC because it warps, leaks and does not last in the sun for the 25-year life of the system. Metal conduit is more costly but it is the only way we will install a system.

INTERCONNECTING THE SOLAR ENERGY SYSTEM

Based on the size of the solar energy systems and the size of the existing electrical systems we believe that we can either interconnect into the existing electrical panel or if not we will use a line side tap.

GROUP NET-METERING

Because we have sized these systems to produce most or all of the energy used at the facility or in the case of the town garage, more energy we propose to use group net-metering to allow excess energy from the solar energy system to be credited to other town accounts including those at the WWTP.

NO THIRD PARTY SUPPLY

Net-metering requires that the building where the solar energy system is interconnected buy default supply from the utility, which means you cannot buy 3rd party supply. For Group Net Metering the host cannot buy 3rd party supply but the members can.

ENERGY STORAGE

There have been dramatic changes in energy storage pricing in the last few years. Any organization with substantial demand charges or need for the ability to be energy independent for long periods of time should be looking seriously at energy storage solutions. Barrington Power has been actively working with customers to evaluate the benefits of batteries. We would look forward to do the same with Henniker along with a solar electric project.

OTHER DESIGN CONSIDERATIONS

For any of the proposed rooftop systems the town will need to ensure that the roof has at least 25-years of life left before the roof needs to be replaced.

For the police station ground mount the area shown is just an educated guess at this point, if the town would like to investigate this further we would want to meet with staff and discuss cost/benefits of shifting the array location one way or another and possibly removing some of the trees to the east of the parking area.

The information contained in this proposal is confidential and proprietary. It is intended for, and limited to, the use of specific decision makers at the town of Henniker during the process of evaluating a solar contractor.

Section 2. Maintaining Your Solar Asset: Operations and Maintenance (O&M)

Monitoring and proactive maintenance of a PV system maximizes the production of the array, helps avoid unexpected operating and maintenance costs, and enables the system to achieve the lowest life-cycle cost for solar generation. Barrington Power has the expertise and knowledge and will use trained technicians to provide comprehensive and full-service maintenance for the solar energy system. Reports will be generated to compare actual vs estimated performance. Also, automatic e-mail alerts can be set up so that one or several representatives at the town can be automatically notified of system anomalies.

Even though we propose to own and maintain the system, ensuring good performance and longevity benefits the town by ensuring maximum production which equals maximum \$ savings but also if the town decides to purchase the system they will be purchasing well maintained systems.

SECTION 3. TURN-KEY CONSTRUCTION PROCESS

The following sections list the various items associated with designing and installing a solar photovoltaic system, with a corresponding explanation of the methodology behind our standard practices.

3.1. Scope of Work

Our scope of work includes all permitting, design, construction, procurement, testing and commissioning of the solar energy system described in this proposal

Excluded from Scope of Work

- A. Internet or data connection for Data Acquisition System data
- B. Any additional protective relay requirement and testing that may be required by the utility. We have included an allowance to cover the cost of standard equipment for a project of this size.
- C. No provisions for site lighting, telephone or security system are included in the price.
- D. Prevailing wages for electricians are NOT included.
- E. Snow plowing of site is excluded.

3.2. Professional Project Management

Each of our professional project managers has years of experience coordinating the on-time and on-budget installation of solar and electrical projects. A senior project manager with significant solar PM experience will oversee the project team for this project. Our teams have successfully implemented projects for utilities, corporate headquarters, airports, colleges and universities, public and private schools, and in numerous other sectors, and take great pride in their work, which is evidenced by the superior craftsmanship of our installations. Our partners and employees are among the most skilled and talented professionals in the Northeast. Our internal standards of excellence ensure that our systems will continue to produce reliable energy savings year after year. From inception to completion, this project will be handled by highly trained designers, engineers, analysts, project managers, and technicians, guaranteeing a high quality installation.

3.3. Consistent Communication

The Project Manager submits weekly progress reports and maintains regular contact with all relevant parties for the customer through weekly progress meetings to ensure that the system is installed according to the proposed schedule and customer needs.

Project Kick-Off Meeting – The Project Manager will meet with Owner representatives upon successful awarding of the contract to develop a strategy for implementation of the solar installation.

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Weekly Progress Meeting – The Project Manager is responsible for scheduling and instituting regular meetings to apprise all relevant parties of the project progress.

Daily Safety Meeting – The Foreman or Project Manager holds daily on-site safety meetings to ensure that all crew members, including subcontractors, are aware of any specific safety hazards, as well as the location of safety equipment.

3.4. Established On-Site Safety Policies

Training

Our installation contractors recognize safety to be an issue of premier importance. Therefore, all employees working on our projects undergo rigorous safety training to ensure constant awareness of potential hazards and necessary precautions. A Safety Director and on-site Foreman are responsible for ensuring all employees and subcontractors have had the necessary training and carry their OSHA cards on the job site as required.

Internal Safety Audits

The Project Manager and on-site Foreman will be responsible for ensuring that all safety procedures are followed accordingly. To ensure that these standard safety practices are carried out, the Safety Director and members of his team conduct random and unannounced safety audits of installation sites. The auditor checks for several items, including:

- | | |
|---|---|
|  Crew informed of unsafe areas/conditions |  Proper warning signs and labels posted |
|  Crew informed of first aid/eyewash stations |  At least one person trained in CPR/First Aid |
|  Work area has adequate lighting |  Lifts in proper operating condition/inspected |
|  Tools in proper condition |  Guardrails installed/utilized on all lifts |

Site-Specific Safety Plans

Our Project Manager will work with the facility representative and other decision makers to develop a site-specific Safety Awareness Plan geared towards keeping the general public and employees safe. The Safety Plan will address standard safety issues, as well as site-specific concerns presented by the site decision makers. All of these issues will be addressed by the Project Manager and facility representative when creating the Safety Plan, ensuring an organized, successful project.

3.5. Security

We will be responsible for maintaining the security of the system equipment. We will determine the best means of securing the modules, inverters, and balance-of-system components to prevent theft or vandalism.

3.6. Precise Project Scheduling

We have significant experience successfully implementing projects that meet our client's desired timeline, including numerous school projects. The Project Manager will coordinate closely with the owner's representative to ensure smooth schedule coordination.

3.7. Successful Interconnection Strategies

We have successfully worked with numerous utilities throughout New England including Eversource. We believe that early and thorough communication with Eversource will ensure a successful and safe system interconnection.

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3.8. Commissioning and Warranty

Comprehensive Operation Manual

Upon completion of the system installation, a representative will conduct a thorough system walkthrough, training the facility staff on the proper operation and maintenance of the system. We will provide an Operation and Maintenance Manual, and deliver this manual to the facility staff upon system completion. All relevant maintenance functions will be clearly stated in this manual.

Fine-Tuned Commissioning Process

An in-house employee conducts a detailed testing and commissioning for every system we install. This technician conducts the commissioning with a client representative present, if they wish. We use an industry standard testing and commissioning process that includes notation of all system component information, detailed electrical test results, thorough array performance assessment, and a final walkthrough. This method ensures the quality and reliability of our systems, and an informed client. Items checked include but are not limited to:

- Confirmation that inverter performs in accordance with UL 1741 anti-islanding test
- Assessment of DC and AC circuits at the Max Power Point at available combiners, Line Amps
- IV curve testing of DC source circuits between the combiner and each string

Comprehensive Warranty Coverage

All major components come with a manufacturer's warranty. This is the warranty that will support any equipment failure. We offer a full workmanship warranty for installation work for the first five (5) years following the commissioning of the system. This warranty coverage includes, but is not limited to, general workmanship, weather-related wiring integrity, and communication between inverter(s) and monitoring equipment.

SECTION 4. PRICING

Please see Section 6 for PPA pricing and terms as well as Outright purchase pricing.

SECTION 5. EDUCATIONAL AND INSTRUCTIONAL ASSISTANCE

Along with our partner, NEC Solar Services, we offer a New Hampshire Solar On Schools educational resource package with each solar PV energy system installed for a town or school. This package includes;

- Solar Energy and Energy Curriculum resources
- Training for teacher(s) on;
 - use of the Solar Data Acquisition System that is provided with the solar PV energy system,
 - how solar energy works and ways to include solar energy exercises into curriculum.
 - Solar Energy Kit to use in hands-on experiments
- A monitor to be located at a public facility to display the website that shows the energy production from the system and other system and energy related information.

SECTION 6. RESPONSES TO REQUIRED PROPOSAL ELEMENTS

From RFP, Para. V. Required Proposal Elements:

1. Name and address of company and person/s responsible for contract. Include contact information.

*If Power Purchase Agreement: Barrington Power
Attn: Jack Bingham, 603-973-9798, jack@barringtonpower.com
226 Merry Hill Road, Barrington, NH 03825*

*If Outright Purchase: KW Management
Attn: Mark Weissflog, 603-598-0181, mweissflog@kwmanagement.com
55 Lake Street, Nashua, NH 05801*

2. Number of employees working on project site/s.

Depends on site but typically four electricians

3. Qualifications and experience of:

- a. principal members: See attached qualifications for KW Management & Barrington Power*
- b. designer engineers: See attached qualifications for KW Management*
- c. project managers & installers: See attached qualifications for KW Management*
- d. subcontractors, if any: None*

4. Names of any Town officials or employees who are related to any of the partners, officials or directors of the firm or have any ownership interest in the firm. NONE

5a. Experience with PV System installations of similar size and type including a list of three or more municipal projects in NH or northern New England. See attached qualifications for KW Management & Barrington Power

The information contained in this proposal is confidential and proprietary. It is intended for, and limited to, the use of specific decision makers at the town of Henniker during the process of evaluating a solar contractor.

e. **expected average monthly and annual production of each PV System.** *Please see attached Helioscope Reports.*

10. a. **Cost quote that covers all costs including design, engineering, permitting, equipment, building structural work (if necessary), installation, interconnection, financing (if any), internet-based production monitoring, and periodic maintenance (if any) costs if procurement by outright purchase of PV Systems.**

Turnkey Outright Purchase Price: (DOES NOT INCLUDE ANNUAL O&M COST as there are many options, TBD)

Location	Type	DC kW	Turnkey Price	\$/watt DC
Police station	Ground	9.88	\$24,206	\$2.45
Police Station	Sloped roof	24.30	\$54,918	\$2.26
Fire Station	Sloped roofs	33.10	\$72,820	\$2.20
WWTF bldg	Sloped roofs	23.40	\$48,906	\$2.09
Town Garage	Sloped roof	57.60	\$120,384	\$2.09
Salt shed	Sloped roof	12.60	\$26,334	\$2.09
TOTAL		160.88	\$347,568	\$2.16

b. **Complete pricing for Power Purchase Agreements, leases, or other procurement methods, including but not limited to maintenance costs, if any, and buyout pricing if that option is available.**

The Following summarized the PPA rate and terms. Please see attached Terms Sheet for more details. Barrington Power is responsible for all system maintenance. Specific buyout pricing is not able to be determined at this time according to IRS tax law, more information is available in the Terms Sheet.

ASSUMPTIONS	
PPA \$/kWh Rate	\$0.1075
Production Degradation	0.99075
PPA Escalator	1.0185
PPA Term (yrs)	25

c. **In addressing the use of American-made components, the Provider may (but is not required to) submit two proposals, one utilizing American-made products to the greatest extent feasible, and a second suggested alternative with a lower percentage of American-made products.** *All racking components and hardware will be American Made. At this time we plan to use Hanwha solar PV modules made in their new plant in Georgia. Because there are different system sizes and some on roof and some on ground we may use different inverter manufacturers and models for each project. Most of the higher quality inverters that we work with are designed in the US and manufactured in asia.*

11. **PVWatts Energy Report or Helioscope Energy Report for the PV Systems.** *Attached as Appenix 1*

The information contained in this proposal is confidential and proprietary. It is intended for, and limited to, the use of specific decision makers at the town of Henniker during the process of evaluating a solar contractor.

12. Financial benefit analysis which includes, among other things, yearly and 25-year payments and savings, and average cost per kWh of electricity over 25 years.

All proposals must present the projected year-by-year cost per kWh of electricity provided by the PV Systems, the projected year-by-year cost per kWh of electricity purchased from the utility, the average cost per kWh over the first 25 years of operation, the year-by-year savings, and the total savings over the first 25 years of operation.

Town of Henniker Solar for multiple buildings SOLAR RATE TABLE									
November 18, 2019				Parking Area System - If built as standalone					
YEAR	ASSUMPTIONS			Annual Production	Rate	Annual Charges	Current rate \$/kwh	Current Charges	Annual Savings (Cost)
1	\$/kWh Rate	\$0.1075		184,270	\$0.1075	\$19,809	\$0.136	\$25,061	\$5,252
2	Production Degradation	0.99075		182,565	\$0.1095	\$19,989	\$0.139	\$25,325	\$5,337
3	PPA Escalator	1.0185		180,875	\$0.1115	\$20,170	\$0.141	\$25,593	\$5,423
4	Utility Escalator	1.02		179,201	\$0.1136	\$20,353	\$0.144	\$25,863	\$5,510
5	Current \$/kWh Rate	\$0.136		177,543	\$0.1157	\$20,538	\$0.147	\$26,136	\$5,598
6				175,900	\$0.1178	\$20,724	\$0.150	\$26,412	\$5,688
7				174,272	\$0.1200	\$20,912	\$0.153	\$26,691	\$5,779
8				172,659	\$0.1222	\$21,102	\$0.156	\$26,973	\$5,871
9				171,061	\$0.1245	\$21,294	\$0.159	\$27,258	\$5,964
10				169,478	\$0.1268	\$21,487	\$0.163	\$27,546	\$6,059
11				167,910	\$0.1291	\$21,682	\$0.166	\$27,837	\$6,155
12				166,356	\$0.1315	\$21,878	\$0.169	\$28,131	\$6,252
13				164,816	\$0.1339	\$22,077	\$0.172	\$28,428	\$6,351
14				163,291	\$0.1364	\$22,277	\$0.176	\$28,728	\$6,450
15				161,780	\$0.1390	\$22,480	\$0.179	\$29,031	\$6,552
16				160,282	\$0.1415	\$22,683	\$0.183	\$29,338	\$6,654
17				158,799	\$0.1441	\$22,889	\$0.187	\$29,648	\$6,758
18				157,329	\$0.1468	\$23,097	\$0.190	\$29,961	\$6,864
19				155,873	\$0.1495	\$23,307	\$0.194	\$30,277	\$6,970
20				154,431	\$0.1523	\$23,518	\$0.198	\$30,597	\$7,079
21				153,002	\$0.1551	\$23,732	\$0.202	\$30,920	\$7,188
22				151,586	\$0.1580	\$23,947	\$0.206	\$31,246	\$7,300
23				150,183	\$0.1609	\$24,164	\$0.210	\$31,576	\$7,412
24				148,793	\$0.1639	\$24,383	\$0.214	\$31,910	\$7,526
25				147,416	\$0.1669	\$24,605	\$0.219	\$32,247	\$7,642
	TOTAL			4129670		\$553,097			\$159,634
	Avg \$/kWh over 25 yrs				\$0.1339				

Proposals shall also discuss whether the production of the PV Systems will reduce charges based on kW power demand and what these savings might be, if any. *Demand savings cannot be guaranteed so we do not model them.*

Proposals utilizing outright purchase by the Town will also include the payback period and return on investment after 15 and 25 years of operation. *Our main proposal is for a PPA, although we have included outright purchase prices should the town want this, but we have not included payback analysis for an outright purchase. It is very rare for a town to choose the outright purchase because they cannot take advantage of the Federal Investment Tax Credit. A better approach, which is preferred by most municipalities, is to buyout the system after year 5 of the PPA at fair market value which is typically less than 50% of initial installation price.*

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13. Statement of all financial assumptions made and list of all sources of funding and revenue to be utilized.

Primary Sources of Funding

Barrington Power, LLC (Barrington) supports its projects with three sources of funding; conventional commercial debt financing, tax equity investment and direct investment from the company.

Barrington's contact with community based and regional banks make it somewhat unique in the renewable energy business since we have been working with local banks for over seven years and while this funding source is somewhat more costly than going out of the region, we recognize that it keeps money in the community.

Barrington has developed a network of local investors who are able to take advantage of the federal tax credits that we leverage to provide as much cost savings as possible for your projects. While the Town may not be able to use these credits they are an important piece of the funding equation.

Barrington invests in each project that it takes on. Since the company takes a long term view to its own financial benefits, reinvesting profits in its projects is simply one way of reinforcing confidence in its business model.

Other Sources

New Hampshire Rebates: The NH C&I rebate program is currently closed and there is no indication that it will open soon. Therefore our proposal is not dependent upon being awarded a rebate.

Grants: A USDA grant would potentially be available for these projects. Although we have been quite successful at obtaining these grants for our clients they are in no way guaranteed and therefore this proposal is not dependent upon obtaining a USDA Grant.

Should either of these grants/rebates appear to make sense for this project at the time of project award we would be happy to apply on behalf of the town and adjust the PPA rate/terms accordingly.

14. Environmental benefit analysis which includes, among other things, the weight of CO2 emissions and of other pollutants eliminated by the production of the PV Systems.

Town of Henniker Proposed Solar	
Environmental Benefit Analysis	
LOCATION	Annual CO2 Eliminated
Fire Station	38.87 Tons
Police Station	36.12 Tons
Waste Water	122.64 Tons
TOTAL	197.63

15. Manufacturers' specification sheets for equipment. *Attached*

16. Manufacturer and installation company warranties for parts and labor. *Manufacturer's warranties are described on the equipment spec sheets. Workmanship is warranted for 1 year.*

17. Schedule of maintenance, if any, such as for tracker systems. *For system of this size it is recommended that they get inspected annually. Rarely is any maintenance required but annual inspections, and any required inverter maintenance, is recommended to ensure that warranties remain valid.*

18. Proof of general liability and professional liability Insurance and current good standing with the State of NH Secretary of State office. *Attached*

19. Proof of ability to bond the cost of the proposed project with payment and performance bonds. *Attached*

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Response to Town of Henniker PV RFP

Submitted by Revision Energy

November 18, 2019

ReVision Energy Inc.
An Employee-Owned Solar Company
John Dunster, Commercial Solar Consultant
7 Commercial Drive
Brentwood, NH 03833
www.ReVisionEnergy.com
(978) 384-0651



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Qualifications Summary

ReVision Energy is New Hampshire's leading full-service solar company and a certified B Corporation. Since 2003, ReVision has grown from two guys in a garage to over 250 employee-owners with nearly than 50 megawatts and 8,000 solar energy systems installed to-date across New Hampshire, Maine, Massachusetts, and Vermont. We are locally-owned and staffed with nearly half our team living and/or working in New Hampshire. We are proud of the many turnkey systems we have developed, financed, and installed locally in recent years, including low-cost Power Purchase Agreements for tax-exempt municipalities and nonprofit institutions in every region of New Hampshire

Today, ReVision Energy delivers unparalleled in-house expertise in all aspects of solar development, design, and installation across five locations in New Hampshire, Maine, and Massachusetts. By attracting and retaining exceptional people who are motivated by our mission to transition society to clean renewable energy, ReVision Energy consistently achieves superior results for our clients. As a certified B Corporation, we adhere to the highest standards of respect for people, the community, and the environment. Our 2017 transition to a 100% ESOP ensures that every member of the team shares in the financial success of the company, part of our comprehensive commitment to long-term sustainability.

Mike French, an employee and co-owner of ReVision energy is a member of the Henniker Energy Committee and has informed us of his recusal from any Town decision making process regarding this RFP. Mike has no additional interest in the outcome of this RFP other than as a Henniker resident who want to see the Town make the best decision for their future electrical needs.

Technical Expertise

ReVision Energy is uniquely qualified to deliver turnkey solar projects to the Town of Henniker in a professional and timely fashion utilizing state-of-the-art solar technologies. Our experience in handling projects of any scale is unmatched in Northern New England. Responsiveness, honesty, and technical competency are at the forefront of our business philosophy and permeate every level of the company to ensure a positive solar energy investment experience. Over the past decade, our in-house engineering and development team trained has successfully designed and installed thousands of solar arrays, including several hundred rooftop systems and nearly a hundred ground mounted systems for commercial and institutional clients across the region. We are proud to call schools, municipalities and nonprofits like Dartmouth College; Town of Durham, NH; City of Nashua, NH; City of Lebanon, NH; Colby-Sawyer College, Proctor Academy, and New Hampshire's largest school rooftop array (912 kW) at Dover High School our customers. Throughout those installations, our in-house crews have maintained a clean track record of installing solar on our client's facilities without damage. We are also a founding member of the nationwide Amicus Solar purchasing cooperative, which enables us to secure the highest-quality and most recent components at the most competitive pricing available through group volume purchasing direct from manufacturers in the United States and overseas.

In recognition of our technical excellence, ReVision Energy has been listed in Solar Power World's Top 500 North American Solar Contractors list since 2014 and in 2018 was named #1 Rooftop Solar Installer in New England and #5 in the United States. We were also named the 2018 "Business of the Year" by Business NH Magazine for the Real Estate, Construction, and Engineering sector (the first time a solar company has received the coveted award) and "Best Solar Company in New Hampshire" by NH Business Review in 2018.

ReVision has also pioneered a full-service mechanical contracting approach to the design and installation of solar energy systems and complementary technologies. We provide a complete scope of services from project design to post-commissioning system maintenance.

Municipal Solar Development Capabilities

ReVision Energy is the leading provider of turnkey solar Power Purchase Agreements (PPAs) in northern New England with over 110 PPA custom projects engineered, financed, installed, and maintained over the past decade years for municipalities and other tax-exempt institutions. As evidence of our commitment to providing cost-saving solar solutions to nonprofits, ReVision Energy has invested its own tax equity and in-house expertise in developing and financing over 75 of our solar PPA projects, totaling more than 5 MW of installed capacity valued at \$15 million. Many of those projects were deemed un-financeable in the private market but our in-house legal and financing team has become adept at lowering PPA development costs and leveraging low-cost impact investor capital for the purpose. Indeed, we consider it our mission as employee owners to make solar accessible to as many educational, social service, and public-sector organizations as possible.

Sample of Municipal Solar Projects in New Hampshire and Maine¹

Municipal Solar Array	Capacity (DC)	Install Year	Installation Type
Brunswick Air Base - MRRA	1,528 kW	2017-18	Driven Post Ground Mount
City of South Portland Landfill	1,016 kW	2017	Ballasted Ground Mount
Kennebec Water Treatment Dist.	962 kW	2018	Driven Post Ground Mount
City of Portland Landfill	954 kW	2018	Ballasted Ground Mount
City of Dover - High School CTC	912 kW	2018-19	Ballasted Roof Mount
City of Lebanon WWTP, Roofs	836 kW	2019	Driven Post + Rooftops
Town of Durham Pump Station	651 kW	2016	Driven Post Ground Mount
City of Keene Public Works	643 kW	2018	Ballasted Roof Mount
Village District of Eastman	260 kW	2016	Driven Post Ground Mount
City of Claremont WWTP	151 kW	2018	Driven Post Ground Mount

When it comes to larger-scale solar projects for nonprofits and municipalities, ReVision is well-placed to offer highly-competitive PPA financing by engaging our network of mission-motivated solar investors. Considering the upfront time and expense involved in raising capital, negotiating PPA contracts, obtaining

¹ The absence of projects over 1 MW (AC) or 1.5 MW (DC) is a result of net metering limitations which have prevented the development and installation of larger projects in New Hampshire and Maine..

town permits and site plan approval, completing utility interconnection and state rebate applications, REC sales, group net metering registration, etc. we are uniquely capable of meeting those requirements for municipal clients in an efficient manner.

Industry Licenses and Certifications

- North American Board of Certified Energy Practitioners (NABCEP) Certified Solar Photovoltaic (PV) Installers & Solar Thermal Installers
- Master Electricians
- Journeyman Electricians
- Electrical Apprentices
- Master Plumbers
- Licensed Professional Engineers
- Certified Welders
- Massachusetts Home Improvement Contractor
- Massachusetts Construction Supervisor License
- Department of Labor Certified Electrical Apprenticeship Program
- American Society of Mechanical Engineers (ASME)
- American National Standards Institute (ANSI)
- Emergency Safety and Care Institute (ESCI) AED and CPR Certified
- Occupational Safety and Health Administration (OSHA) Construction Courses
- Hilti and Ramset Power Tool Certifications

PV System Design

Based on the RFP documentation, the site walk, and ReVision's in-house engineering recommendations, we are proposing one large system for consideration, which is outlined below. After careful analysis of each site proposed by the Town, we believe that the Wastewater Treatment Plant provides the most beneficial site to locate solar for the Town of Henniker. Larger loads, like the WWTP, provide the best location for solar because more of the solar production can be used on site. This allows the Town to offset utility charges that are otherwise not monetized when electricity is exported under New Hampshire net metering rules. The following chart indicates our assessment of each site, based on our preliminary site walk, and our rationale for proposing a system at the Wastewater Treatment Plant.

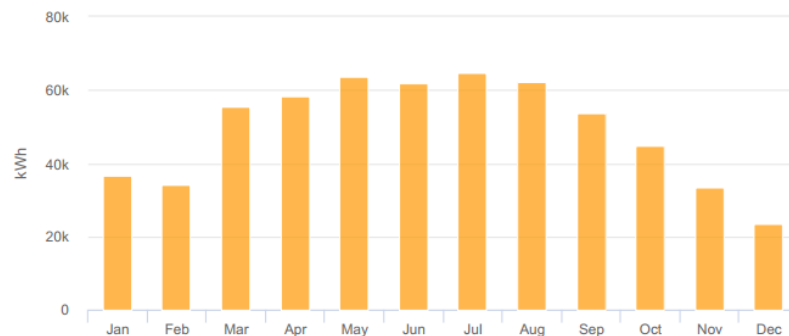
Site	Assessment
Wastewater Treatment Plant	<p>This site has sufficient load and appears to have the electrical infrastructure to support a sizable system. The roof of the plant appears to be able to accommodate 30-50 kW.</p> <p>The area north of the plant might be suitable for a ground mount system. Depending on the property line and the ability for work around some existing obstructions there may be room for a 120-130 kW system</p> <p>The wooded area east of the plant may be suitable for a system to offset 100% of the Town's kwh usage. It is unclear from the GIS map who owns the property. This may also present an opportunity to build a system that could accommodate the Town and the Schools if there is interest</p>
Pump House	<p>This site has a fair amount of load and 3 phase electrical service. The area between the first two building appear to be able to accommodate a 100-130 kW system which could be a good option.</p> <p>The wooded area to the west may be an opportunity to site a larger system that could offset the Town's load, but we may need to work around a stream that run through it. The clearing and grading of the site could also be expensive</p>
Highway Department Garage	This garage roof's south facing section is not very deep and would not be suitable for more than 20-25 kW which would be too expensive for a PPA
Cogswell Springs Water Works	This site offers little opportunity for solar. The building roof accommodate a small residential type system
Transfer Station	<p>The capped landfill has is crowned and has a significant slope which is not conducive to a ballasted GM system.</p> <p>The largest of the roof reportedly has leaking problems and would accommodate less than 50 kW.</p>

Our proposed system is designed to provide the most cost-effective solar installation for the Town and achieve the lowest overall cost of electricity. The 486 kW DC, (375 kW AC) system would be located on the ground to the north east of the WWTP, be connected behind the existing plant meter and produce an estimated 593,246 kWh per year of solar electricity (Helioscope file attached). That amount of electricity generation is equivalent to offsetting 627,654 pounds of CO2 emissions every year. While the area identified in figure 1 might belong to the adjacent mill, we are under the impression that they would be willing to entertain a nominal lease to site solar on their property. The system would consist of (1,296) REC 375 W solar modules, (6) SMA Core1 62 kW inverters, RBI driven pile racking, and a Locus RGM with online monitoring functionality. The total area of the array will be roughly 90,000 square feet. Spec sheets for all equipment are attached.

Figure 1 Engineer's Rendering of Proposed Array



Figure 2 Estimated Monthly Production



Cost Quote and Solar Power Purchase Agreement

We expect the cost of the 486 kW DC system to be around \$1,010,000 should the Town wish to purchase the system through bond financing. This cost includes design, engineering, permitting, equipment, installation, and monitoring for the system. We have not included costs for utility upgrades that would be imposed by Eversource as a precondition to interconnection or potential upgrades to the existing electrical infrastructure at the Wastewater Treatment Plant. Interconnection costs would be known after the utility completes a study based on a final system design. There is a wide range of potential outcomes for those costs, and because we have no control over the process, we prefer not to speculate on what those costs could be. While we do not expect there to be costs associated with upgrading the electrical infrastructure at the plant, we would confirm this at a second site visit where we take a more detailed inventory of the electrical equipment and its ability to handle the solar production.

An alternative to the purchasing the system through bond financing is to enter a long term Power Purchase Agreement. Under a Power Purchase Agreement (PPA), there would be no upfront cost to the Town for this 486 kW DC system. Instead, an investor partner engaged by ReVision Energy will finance, own, and operate the solar array for a minimum contract term of 25 years. The Town will simply agree purchase all the electricity generated by the solar array of **\$0.092** per kWh in year 1 with a 2% annual escalator starting in year 3, as shown below. Meanwhile, ReVision Energy will complete all required permitting with local and state authorities, prepare the interconnection application for filing with the utility, purchase the equipment, and complete the installation. The investor will monetize the tax credit and depreciation benefits associated with the system. We have not assumed any other rebates or incentives being used to fund the project. The table below shows the revenue (savings) to the Town under both a long term PPA and under a buyout of the system in year 6.

Figure 3 Financial Benefit Analysis

Year	Generation (kWh)	Utility \$/kWh	PPA Rate per kWh	Term PPA		PPA w/ Early Buyout		
				Annual Revenue	Cumulative Revenue	Buyout Payment	Annual Revenue	Cumulative Revenue
1	593,246	\$0.0920	\$0.0920	\$0	\$0	\$0	\$0	\$0
2	590,280	\$0.0943	\$0.0920	\$1,358	\$1,358	\$0	\$1,358	\$1,358
3	587,328	\$0.0967	\$0.0938	\$1,655	\$3,012	\$0	\$1,655	\$3,012
4	584,392	\$0.0991	\$0.0957	\$1,962	\$4,974	\$0	\$1,962	\$4,974
5	581,470	\$0.1016	\$0.0976	\$2,279	\$7,253	\$0	\$2,279	\$7,253
6	578,562	\$0.1041	\$0.0996	\$2,607	\$9,860	(\$606,526)	(\$544,970)	(\$537,716)
7	575,670	\$0.1067	\$0.1016	\$2,945	\$12,806	\$0	\$62,455	(\$475,261)
8	572,791	\$0.1094	\$0.1036	\$3,295	\$16,100	\$0	\$63,390	(\$411,871)
9	569,927	\$0.1121	\$0.1057	\$3,656	\$19,756	\$0	\$64,361	(\$347,510)
10	567,078	\$0.1149	\$0.1078	\$4,028	\$23,784	\$0	\$65,368	(\$282,143)
11	564,242	\$0.1178	\$0.1099	\$4,412	\$28,196	\$0	\$66,331	(\$218,611)
12	561,421	\$0.1207	\$0.1121	\$4,808	\$33,004	\$0	\$67,394	(\$153,818)
13	558,614	\$0.1237	\$0.1144	\$5,217	\$38,221	\$0	\$68,461	(\$87,737)
14	555,821	\$0.1268	\$0.1167	\$5,639	\$43,860	\$0	\$69,534	(\$20,343)
15	553,042	\$0.1300	\$0.1190	\$6,073	\$49,933	\$0	\$70,613	\$48,390
16	550,277	\$0.1332	\$0.1214	\$6,522	\$56,455	\$0	\$71,709	\$118,489
17	547,525	\$0.1366	\$0.1238	\$6,983	\$63,438	\$0	\$72,822	\$189,980
18	544,788	\$0.1400	\$0.1263	\$7,460	\$70,898	\$0	\$73,951	\$262,892
19	542,064	\$0.1435	\$0.1288	\$7,950	\$78,848	\$0	\$75,096	\$337,253
20	539,353	\$0.1471	\$0.1314	\$8,456	\$87,303	\$0	\$76,256	\$413,091
21	536,657	\$0.1508	\$0.1340	\$8,976	\$96,280	\$0	\$77,431	\$491,277
22	533,973	\$0.1545	\$0.1367	\$9,512	\$105,792	\$0	\$78,622	\$570,158
23	531,303	\$0.1584	\$0.1394	\$10,065	\$115,857	\$0	\$79,828	\$650,086
24	528,647	\$0.1623	\$0.1422	\$10,633	\$126,490	\$0	\$81,049	\$731,335
25	526,004	\$0.1664	\$0.1451	\$11,219	\$137,708	\$0	\$82,286	\$813,621

Should the Town wish, the PPA provides the opportunity to purchase the system from the investor beginning in year 6. Purchasing the system from the investor provides the greatest lifetime savings of any option. As shown above, our estimate for the buyout price in year 6 is \$606,000. A year 6 buyout of the system would likely produce a 25-year savings of \$785,000 for the Town and result in an average cost of electricity of \$.0686 per kWh.

Project Timeline

From expected approval of the project at the March 2020 town meeting, the project should take eight months to permit and construct. Our timeline provides for the system beginning operations before the end of 2020. We will honor our proposed pricing until three months after the March 2020 town meeting. Please see below for a preliminary timeline for the proposed Town solar array.

Event	Date
Town Meeting	March 2020
Permitting and Utility Interconnection Application	April-July 2020
System Installation	August-October 2020
System Inspection	November 2020
Utility Interconnection	November 2020
Commercial Operation	November 2020

Project Approach

ReVision Energy is New England's most experienced solar design, installation, and service company committed. Our more than 250 in-house solar professionals have completed more than 8,000 solar installations totaling nearly 50 megawatts (DC) of installed capacity in New Hampshire, Maine, and Massachusetts since 2003, including over 25 megawatts currently under development for 2019-20. ReVision's key personnel below, representing a typical project team for larger municipal and nonprofit solar arrays, bring over a century of combined experience and take pride in navigating the many technical and financial hurdles that arise to see complex projects from conception to completion. The following stages constitute a standard project approach when working with commercial, institutional, and industrial clients in New Hampshire.

Design & Engineering

Under the leadership of Director of Engineering Geoff Sparrow, the Design & Engineering team has completed designs for over 1,400 individual municipal, commercial and institutional solar projects since 2016, including detailed engineering for nearly 1,000 systems and For Construction plan sets for hundreds of fully-installed projects. Common project types include ballasted rooftop arrays on flat roofs with no mechanical attachments to the roof membrane; flush-mounted arrays on pitched asphalt shingle or metal roofs; and ground-mounted solar arrays with either pile-driven racking or concrete ballasts suitable to landfill caps. Examples of ReVision Energy projects include the largest megawatt-scale solar arrays in our service territory on municipal landfills in Portland and South Portland, ME and several megawatt-scale New Hampshire municipal projects either recently installed, contracted, or under development. Our engineers have also designed thousands of rooftop, wall-mounted (awning), and carport solar PV systems, along with thermal systems, electric vehicle chargers, LED lighting retrofits, battery systems, and other complementary technologies.

Our design process fully considers our clients' financial goals, system reliability, longevity, and sustainability. We ensure every project meets or exceeds standards set by the National Electric Code (NEC), the North American Board of Certified Energy Practitioners (NABCEP), the Project Engineer, and the Local Inspector(s). The overall design strategy for our systems is to provide the longest lasting, highest quality installations available that give our clients the best financial and environmental return on their investment.

Permitting & Interconnection

Our in-house permitting and administration team, reporting to General Manager Dan Clapp and collaborating with Director of Market Development Dan Weeks and Director of Financing Sam Lavallee, has successfully shepherded thousands of solar projects through the local permitting process in a majority of New Hampshire's 234 cities and towns (including hundreds of projects in southern New Hampshire). They are highly adept at navigating the intricacies of local permitting requirements on our clients' behalf – especially for more complex municipal and commercial projects like the ones contained in this RFP – including preparing detailed engineering submittals/plan sets for and appearing before local zoning or planning boards when necessary.

In addition to local permitting, our team takes direct responsibility for filing utility interconnection applications in all four of New Hampshire's electric utility service territories (as well as municipal utilities, where applicable).

Installation, Operations & Maintenance

Although the majority of ReVision's more than 8,000 completed installations are residential rooftop systems, our in-house installation teams of licensed electricians and apprentices, led by Director of Operations James Hasselbeck, have also successfully installed hundreds of municipal and nonprofit projects across our primary New Hampshire, Maine, and Massachusetts territory. In addition to common rooftop installations, the team has completed hundreds of pile-driven, earth screw, or concrete ballast-mounted ground systems, and an increasing number of parking canopy and vertical wall awning mount solar arrays. The team is also expert in navigating the unique challenges associated with capped landfill projects, such as reinforcing access roads to accommodate concrete trucks for pouring concrete ballasts; designing and installing new 3-phase electrical interconnections to adjacent utility lines; completing Environmental Site Assessments; decommissioning landfill vents as necessary, etc.

Each municipal and nonprofit project we install receives day-to-day oversight from contract through commissioning and post-inspections by a dedicated commercial project manager (Steve Dzuback or Bobby O'Brien) and from an on-site installation project manager.

ReVision's in-house O&M service division actively serves more than 100 renewable energy systems installed throughout northern New England, including every one of the dozens of municipal projects we have installed to date and dozens that are owned and operated by third-party investor partners. As part of the final design and project closeout, we develop a detailed, site-specific O&M plan to maximize system longevity and productivity, executed by O&M technician and Master Electrician Chris Lee or other members of the ReVision Service Department. Chris and our other Service technicians all bring decades of experience installing and maintaining solar systems, backed by ReVision's industry-leading Design & Engineering team. Our standard process is to monitor system performance on a weekly basis and quickly mobilize service personnel to address any issues.

Organizations such as Dartmouth College and New Hampshire municipalities like Claremont, Keene, Dover, Grantham, Durham, Stratham, Kensington, etc. all rely on ReVision for maintenance services on their solar systems. A detailed listing of our O&M Service Offerings is available upon request.

Energy Data Monitoring & Reporting

Each ReVision solar energy system comes standard with detailed production monitoring and reporting capabilities enabled by our Solar Edge and other industry-leading inverters, our installation team sets up on behalf of each client. By applying module-level monitoring, we make it possible for our clients to track the real-time system performance of each individual solar panel and rapidly identify any performance issues that may occur from time to time. In addition to the standard monitoring offers available on any internet-connected device, certain of our clients opt for public display monitors and/or websites, which we are pleased to provide through our Marketing department, as a means of public/community engagement. Our O&M department also provides real-time remote monitoring and onsite inspections for more than 100 installed municipal and commercial solar arrays, and can dispatch service technicians around the clock to meet clients' needs.

Key Personnel

ReVision Energy has over 250 full-time employee-owners who each play an important role in our success as a full-service solar engineering, procurement, and construction (EPC) company and a developer and financier of solar projects for municipalities and other tax-exempt entities. We have completed thousands of rooftop and ground-mounted solar installations throughout New Hampshire, including dozens of municipal, commercial, and residential projects in northern New Hampshire, where several of our employee-owners currently live. This extensive experience and track record of success has earned ReVision the ranking of #1 rooftop solar installer in New England by Solar Power World magazine for the last two consecutive years (2017-18) and ensure we will be able to deliver top-quality solar energy systems at maximum value to our municipal and nonprofit clients.

From our primary New Hampshire location in Brentwood and our Upper Valley location in Enfield, we are able to reach most areas of the state in under two hours to not only provide efficient and high-value development and installation services but also meet any maintenance needs our clients may have in the future. In fact, our project development specialists and service technicians already make multiple trips to northern New Hampshire each month, where we are in the process of installing larger municipal systems and are actively developing dozens of others.

The following key personnel represent a typical project team for larger nonprofit and municipal projects and have direct involvement in performing the required project development and management services, along with approximately ten highly-qualified members of our in-house solar installation team during the construction phase. Brief resumes of the key project team members are below highlighting relevant experience; full resumes are available upon request. Our expertise also extends to the policy and regulatory domain, with multiple employee-owners who formerly worked in state government (including senior positions at the NH Public Utilities Commission) developing and improving net metering and other clean energy legislation/regulations.

As a certified B Corporation, we are proud to count many women, veterans, and people from disadvantaged backgrounds among our employee owners, each enjoying a full and equal stake in the success of the company as we continue to grow. We are also committed to expanding opportunities for young people in the trades through the recently-launched ReVision Energy Technical Center, our in-house school for solar electricians. We are fully eligible to contract with any federal, state, or local agencies.

William Behrens, PhD, Co-Founder and Managing Partner

As a managing partner at ReVision Energy, Bill provides oversight to both the Engineering and Finance divisions which work extensively with our nonprofit and municipal clients. Bill earned a PhD in Environmental Economics and a BS in Electrical Engineering from Massachusetts Institute of Technology (MIT), where he co-authored the seminal book *Limits to Growth* (1972), a systematic examination of the emerging challenge of global resource constraints. He taught Resource Economics at Dartmouth College before moving to Maine and entering the solar industry.

- Cofounded the Green Store in Belfast, ME, from which developed Energyworks and then ReVision Energy
- Oversaw the design and installation of tens of megawatts of solar PV in northern New England's relatively harsh climate over the last 20 years
- Spearheaded ReVision's initiatives in providing solar to more than 100 municipalities and other tax-exempt institutions throughout New England via solar PPAs



Dan Clapp, General Manager and Partner

Since joining ReVision Energy in 2010, Dan has served as a partner and was instrumental in launching and growing the New Hampshire and Massachusetts branches. After earning his BS in Environmental Science from the University of New Hampshire, Dan worked as an energy consultant prior to joining ReVision Energy as General Manager of the New Hampshire operation.

- Oversaw the addition of more than 75 values-driven employees and the rapid growth of the company's New Hampshire and Massachusetts operations
- Manages the New Hampshire team that successfully designed and installed over 2,000 renewable energy systems and has been recognized as NH "Business of the Year" in 2018 by Business NH Magazine and "Best Solar Company in New Hampshire" in 2018 by NH Business Review
- NABCEP solar PV technical sales certification



Stephen Hinchman, Esq., Chief Counsel & Director of Development

Steve has served as the director of ReVision Energy's Finance division since 2011. A 2003 summa cum laude graduate of the Vermont Law School, Steve specializes in developing financial and tax-advantaged investment models to achieve the most cost effective financial structures for municipal solar development for municipalities and nonprofits. Steve brings more than 40 years of legal and public policy experience to ReVision, including a decade of energy and environmental law practice in New England.

- Guided the company in the development of \$10+ million company-owned, and \$5+ million investor-owned solar PPA projects
- Admitted to the bar in Maine, the U.S. District Court of Maine, and the First and D.C. Circuit Courts of Appeals, and has participated in climate cases before the Second and Ninth Circuit Courts of Appeals
- Practiced before the Maine Board of Environmental Protection, the Land Use Regulatory Commission, the Maine Ethics Commission, and the Legislature's Joint Standing Committees on Natural Resources and Energy and Utilities



Sam Lavalley, Director of Financing

Sam has been involved in the solar energy industry since 2007. After graduating from the University of Vermont, Sam began his professional career at Mercury Solar Systems, Inc., a startup focused on the design and construction of residential, commercial, and utility scale solar. He was responsible for commercial and industrial project pricing, sales operations, management of financial partners, and procurement for projects ranging from \$100,000 to \$10 million. Sam joined ReVision Energy in 2013.

- Managed the growth of commercial and industrial sales and annual revenue at ReVision from under \$1 million in 2013 to over \$15 million in 2018
- Directs the organizational leadership and strategic direction of ReVision's Commercial & Industrial (C&I) program
- Oversees the C&I project financing program, including managing ReVision's major project financing partners, project due diligence, and placement of capital for project finance



Geoff Sparrow, P.E., *Director of Engineering*

Geoff is one of the most knowledgeable and experienced solar professionals in northern New England, having guided the design and installation of thousands of solar energy systems since joining ReVision Energy in 2006. After graduating with a BS in Mechanical Engineering from the University of New Hampshire, he worked for one of the largest mechanical contracting firms in the state before starting his own small construction firm before joining ReVision Energy.

- Manages the commercial engineering team and ensures that the final system design and installation exceed all NABCEP and National Electric Code requirements
- NABCEP certified solar PV and solar thermal installer
- Licensed Professional Engineer (PE)



James Hasselbeck, *Director of Operations*

James has been involved in the design, engineering, and construction of public and private renewable energy projects since 2006. After graduating from the University of Vermont, he was the Electrical Division project manager of Waterline Industries, a general contractor focused on the design and construction of water and wastewater treatment facilities throughout New England. There he managed infrastructure projects ranging from \$200,000 to \$12 million and taking 3-24 months to complete. Joining ReVision Energy in 2013, James maintains responsibilities for all construction operations for our New Hampshire and Massachusetts installation teams.

- Oversees design, estimating, project management, and commissioning for our municipal and commercial installations
- NABCEP certified solar PV installer and has completed over 120 hours of Interstate Renewable Energy Council (IREC) certified Advanced Solar Design courses.
- Oversaw the expansion of ReVision's O&M division to more than triple its size and workload
- Energy Council (IREC) certified Advanced Solar Design courses



Dan Weeks, Director of Market Development

Dan first began working on solar as a member of the award-winning Monadnock Solar Race Car Team in the 1990s and brings over 15 years' experience raising capital, working with policymakers, and managing complex projects in the nonprofit and public sector. As ReVision Energy's Director of Market Development since 2017, Dan is responsible for developing large-scale solar projects with municipal and other C&I partners, advancing policy solutions to accelerate the clean energy transition, and educating the public about climate change and clean energy. A cum laude graduate of Yale and Oxford University (Marshall Scholar), Dan has written on clean energy in state and national media.



- Managed nearly \$5 million in completed municipal and institutional solar projects in New Hampshire in 2018 with \$15+ million in projects under development for 2019
- Oversaw project development and financing for more than a dozen Dartmouth College solar installations and New Hampshire's largest municipal solar projects to-date in Dover
- Raised over \$3 million in investor capital in 2018 to help seed ReVision Solar Impact partners, an innovative impact investing initiative to make solar accessible for municipalities and other tax-exempt entities across New England

Bill Levay, Master Electrician

Bill has over 12 years of electrical construction experience and has been a vital part of ReVision Energy's team since 2011. Bill earned his AAS in Electrical Construction from Kennebec Valley Community College in 2006 and his BA in Business from the University of Maine in 2010. Prior to joining ReVision, Bill worked for solar startup Vox Energy Solutions in Pittsburg, PA. He splits time between all four offices, establishing companywide standards and implementing industry-best installation practices.



- Oversaw hundreds of residential and commercial installations as ReVision Energy's companywide Master Electrician
- Holds Revision's Corporate Electrician license in Massachusetts and New Hampshire and Master Electrician license in Maine, Vermont, and Connecticut
- Certified NABCEP solar PV installer
- Member of the International Association of Electrical Inspectors (IAEI)

Christopher Lee, *O&M Specialist & Master Electrician*

Chris has been involved in the design, engineering, and construction of public and private renewable energy projects since 2008. After getting degrees in International Business and Management Science, he served as an officer the US Army. This last experience had lead him into renewable energy sector. Since joining ReVision Energy in 2012, Chris has managed over 100 PV installation projects. He currently fulfills system inspection and repair responsibilities for our O&M operations for PV energy systems located in Maine, New Hampshire, Vermont, and Massachusetts.

- NABCEP certified installation professional
- Holds his Master Electrician license in Maine, New Hampshire, Vermont, and Massachusetts
- Solar Energy International PV O&M 350 and 351 course Graduate
- Forklift Operator License



Bobby O'Brien, *Commercial Project Manager*

Bobby has been passionate about protecting the environment since studying environmental science in high school. After graduating from Plymouth State University in 2011 with a degree in Environmental Science & Policy, Bobby spent a few years living, skiing, and traveling in northern California. The impact of climate change in this part of the country was extremely evident. Hoping to combat climate change, Bobby has worked for Revision Energy since 2015 and in 2017 moved into the position of Commercial Project Manager.

- Oversees all project execution steps from contract through design, engineering, permitting, utility interconnection, procurement, construction, and commissioning for municipal and commercial solar projects, including Dartmouth College (2018)
- 4th year electrical apprentice with over 7,000 hours of on-the-job training and 500 hours of classroom training, on track to become a Journeyman Electrician by mid-2019



Project Profiles & References

Colby Sawyer College



Camden Hills Regional High School



Proctor Academy



City of Belfast, ME



Town of Durham, NH



Town of Windham, ME



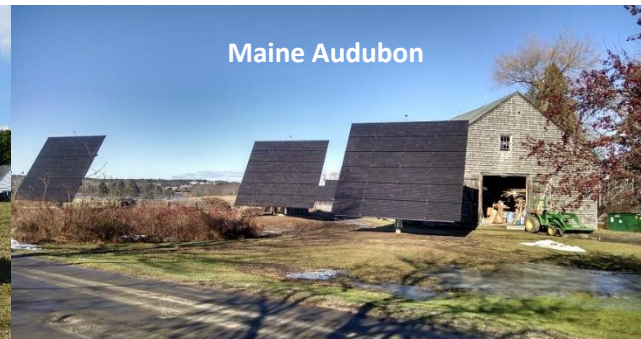
The Nature Conservancy



Avesta Housing



Maine Audubon



Throwback Brewery



Grandy Oats



Eastman's Corner



Town of Durham Pumping Station - Durham, NH

ReVision Energy initially installed three rooftop solar PV systems at the Town of Durham's Churchill Ice Rink, Police Department, and Public Library totaling 120 kW (DC). In 2015, the Town undertook to offset all of its electricity load with solar via group net metering of a 651 kW (DC) ground-mounted solar array at the Durham pump station and gravel pit in Lee, the second largest solar array in New Hampshire through 2016. Because of the lack of meaningful onsite load at the Gravel Pit, ReVision had to install new 480V electrical service, including a 750kVA utility transformer, for interconnection to the medium voltage utility grid.

Project Location: Packers Falls Road, Lee, NH

Commercial Operation Date: June 15, 2016

Project Details:

- Installed 2,100 QCell 310W solar modules and 21 SMA Sunny Tripower inverters
- Installed RBl driven post ground-mounted racking system, with 14,700 feet of galvanized steel rails and 245 galvanized steel posts with an embedment depth of 8'
- Integrated the new PV system into new electrical infrastructure; the PV system interconnection involved a 1,200A 480V combiner panel and disconnect and a new 750kVA transformer to allow connection into the 34.5kVA medium voltage utility grid
- Installed a DECK revenue grade data acquisition system



Reference: Todd Selig, Town Administrator, tselig@ci.durham.nh.us, (603) 868-5571

City of South Portland Landfill - South Portland, ME

The South Portland municipal landfill project was installed on a closed municipal landfill located off Highland Avenue in South Portland. This project utilized a closed landfill which was otherwise un-usable space to permit and build a flagship solar array for the City of South Portland. Construction on this project began in late June 2017 and the system was interconnected and commissioned in Fall 2017.

Project Location: 929 Highland Ave, South Portland, ME

Commercial Operation Date: October 13, 2017

Project Details:

- 1,015.7 kW (DC) grid-tied ground mounted solar array
- Installed 2,944 REC 345W solar modules
- Installed 22 SMA Sunny Tripower 30000TL-US inverters mounted directly to PV racking
- Installed Solar Flex Rack concrete ballasted foundation racking system consisting of 480 ballasted foundations which were formed and then poured in place on the landfill cap utilizing pump trucks and concrete buggies
- Permitted in-house and maintained compliance with stringent Maine Department of Environmental Protection (MDEP) regulations for installing solar on a landfill cap
- Installed Also Energy revenue grade data acquisition system with weather station
- Installed and maintained erosion control which was inspected weekly by the City
- Installed 1,000A service to net meter on nine City of South Portland utility accounts

Reference: Julie Rosenbach, Sustainability Director, City of South Portland, 207-347-4148
jrosenbach@southportland.org, 25 Cottage Road, Portland, ME, 04106



Commercial Operation Date: December 20, 2018

Project Details:

- 968.8 kW (DC) grid-tied ground mounted solar PV system
- Installed 2,808 REC 375W solar modules
- Installed 13 SMA STP Core 1 50 kW three phase grid tied inverters

- Installed RBI driven pile racking
- Installed a Locus Energy revenue grade meter



Reference: Tim LeVasseur, Superintendent, tLeVasseur@kstd.com, (207) 873-0611

City of Claremont Wastewater Treatment Facility - Claremont, NH

The City of Claremont purchased a 151 kW (DC) ground-mounted solar array as a turnkey installation to power the municipal wastewater treatment plant. ReVision was selected through a competitive RFP process to install the system, which was completed in summer 2018. The land near the wastewater treatment facility was a prime site to locate solar because of the close proximity to a large source of load and the clear and level nature of the site.

Project Location: 338 Plains Road, Claremont, NH 03743

Operational Status: Operational as of June 5, 2018

Project Details:

- Ground-mount solar PV system with a 151 kW (DC) array rating
- Installed 432 SPR 350W PV solar panels
- Installed 2 Sungrow 60 kW inverters mounted to PV Racking
- Installed Schletter driven post ground-mounted racking system, with galvanized steel mounting rails and galvanized steel posts with an embedment depth of 6 feet

- Integrated the new PV system into existing electric grid
- Installed a Locus L-Gate 360 revenue grade data acquisition system

Reference: Victor St. Pierre, Assistant Director of Public Works, (603) 542-7020,
vstpierre@claremontnh.com



City of Dover - High School & Career Technical Center - Dover, NH

ReVision Energy is currently completing a 912 kW (DC) array on the roof of the new Dover High School, the largest rooftop system in New Hampshire. After winning the project via competitive RFP, ReVision engaged in extensive planning and logistics with City, School, and Eversource officials to ensure that no part of the installation (including extensive crane work) interfered with the active school in session. As with all membrane roofs, utmost care had to be taken to avoid damage and ensure the roof conformed to all manufacturer requirements for the warranty preservation. ReVision is also providing extensive solar education programming at the Career Technical Center and other public benefits, and we continue to work with the City of Dover on expanded solar opportunities to meet their sustainability commitments.

Project Location: 25 Alumni Dr, Dover, NH

Commercial Operation Date: Spring 2019

Project Details:

- Grid-tied roof mounted solar PV system
- Installed 2,851 REC 320W solar modules
- Installed 7 SolarEdge 100k and 1 SolarEdge 66.6k three phase grid tied inverters

- Installed Ecolibrium Ecofoot 2+ ballasted roof racking
- Installed a Locus Energy revenue grade meter

Reference: Christopher Parker, Asst. City Manager, c.parker@dover.nh.gov, (603) 516-6008



City of Keene Municipal Solar Complex - Keene, NH

ReVision installed a 632-kW array in Fall 2018 on the City of Keene Public Works building and ice rink after winning a competitive RFP in Summer 2018. The system is financed by a local impact investor who sells the electricity generated by the system to the City at below-market rates through a standard Power Purchase Agreement (PPA). ReVision also completed a series of smaller rooftop solar arrays for the Monadnock Housing Authority in 2018 and is slated to install 26 more in 2019. Discussions are underway with Keene leaders regarding expanded municipal solar opportunities to meet the City's 100% clean energy commitment.

Project Location: 350 Marlboro St, Keene, NH 03431

Commercial Operation Date: January 2019

Project Details:

- 643.2 kW (DC) grid-tied roof mounted solar array
- Installed 2010 Hanwha QCells 320W solar modules
- Installed 4 SolarEdge (SE) 100kW, 1 SE 66.6kW, and 1 SE 20kW grid tied inverters
- Installed Ecolibrium Ecofoot 2+ ballasted racking on the membrane flat roof
- Installed Locus revenue grade data acquisition system



Reference: Duncan Watson, Public Works Director, dwatson@ci.keene.nh.us, (917) 445-4131

Phillips Exeter Academy Field House - Exeter, NH

ReVision Energy installed a 535.4 kW (DC) ballasted rooftop solar array on Phillips Exeter's new 84,574-square-foot field house in 2018, the largest school rooftop system in NH at the time. Installing a system during the fall and winter in New England always presents challenges and the Ayer installation crew and ReVision project managers had deal with rain, snow, and high winds while installing this project. The array was also part of new construction, requiring us to be in constant communication with the general contractor Harvey Construction regarding timing of the installation and delivery of materials.

Project Location: Exeter, NH

Commercial Operation Date: October 29, 2017

Project Details:

- Grid-tied roof mounted solar array
- 535.4 kW (DC) array rating
- Installed 1552 REC 345W solar modules
- Installed 8 SMA Core 50kW inverters
- Installed Ecolibrium Ecofoot 2+ ballasted racking on the roof
- Installed Also Energy revenue grade data acquisition system



Reference: Mark Leighton, Director of Projects and Building Systems, mleighton@exeter.edu, 603-777-4529, 4 Chadwick Lane, Exeter, NH 03833

Dartmouth College Campus Solar Conversion - Hanover, NH

In 2016, ReVision Energy bid for and was awarded Dartmouth College's first solar RFP to install solar on the roofs of Dartmouth College's Barry Sports Center, MacLean Engineering Sciences Center, and Davis Varsity House. ReVision completed the highly-visible on-campus installations in 2017 and was also selected to install two off-campus solar projects for the college that same year. In March 2018, ReVision was again awarded a competitive RFP contract to install eight additional on-campus solar projects totaling over 500 kW across more than a dozen rooftops as the College continues its ambitious plan to reduce carbon emissions by 50 percent by 2025. For each of the 13 Dartmouth solar projects spanning over 20 roof surfaces, the College has elected PPA financing provided by ReVision Energy and its impact investors.

Project Location: Multiple on-campus buildings on Hanover, NH

Commercial Operation Date: December 20, 2017 (Phase 1); October 31, 2018 (Phase 2)

2017-18 Project Details:

- McLaughlin Residences - 133.4 kW dc with (417) 320-watt panels and SolarEdge (SE) 3-phase inverters
- Berry Sports - 137.25 kW dc with (450) 305-watt panels with SolarEdge (SE) 3-phase inverters
- McLean Engineering- 53.7 kW dc array with (179) 300-watt panels with SE inverters
- Additional facilities include: Class of '53 Commons, Sudikoff Building, Silsby Building, Russell Sage Building, Kemeny-Haldeman Building, Haldeman Building, Moore Hall, Fahey-McLane Building, Dartmouth Organic Farm, Dartmouth Outing Club



Reference: Abbe E. Bjorklund, PE, Director of Engineering and Utilities
Abbe.E.Bjorklund@Dartmouth.edu, 603-646-1790, 6 Vox Lane, Hanover, NH 03755

Children's Museum of New Hampshire - Dover, NH

ReVision installed two solar arrays on the adjacent rooftops of the Children's Museum of New Hampshire (33 kW) and the Dover Indoor Pool (67 kW), supported by a 103-panel donation by ReVision. Although the two facilities operate independently of one another, the presence of a common master meter and electrical service made a multi-system integrated solar array the most financially-advantageous option. To overcome the advanced age of the Museum roof without the high cost of a full roof replacement, ReVision and the Museum's professional roofing contractor recommended a re-sealing of the seams prior to installation, with is expected to add 30 more years to the roof life according to the roofing contractor.

Project Location: Dover Pool and Children's Museum, 6 Washington Street, Dover, NH 03820

Operational Status: Mechanically complete as of December 2018

Project Details:

- Grid-tied ground mount solar PV system with a 101 kW (DC) array rating
- 318 Hanwha QCells 320W solar modules
- 2 SolarEdge 33.3k and 1 SolarEdge 20.0K inverters
- Installed a SolarEdge revenue grade data acquisition system
- Electrical conduit run from Pool roof to Museum to interconnect in electrical room



Reference: Christopher Parker, Asst. City Manager, c.parker@dover.nh.gov, (603) 516-6008

SUPPLEMENTAL INFORMATION

Vision, Mission, and Values

Our Vision

ReVision Energy is trusted as the industry leader in solar design, installation, and service in northern New England. Our vision is to ensure that our kids, grand-kids and future generations enjoy a clean environment and just society throughout New England.



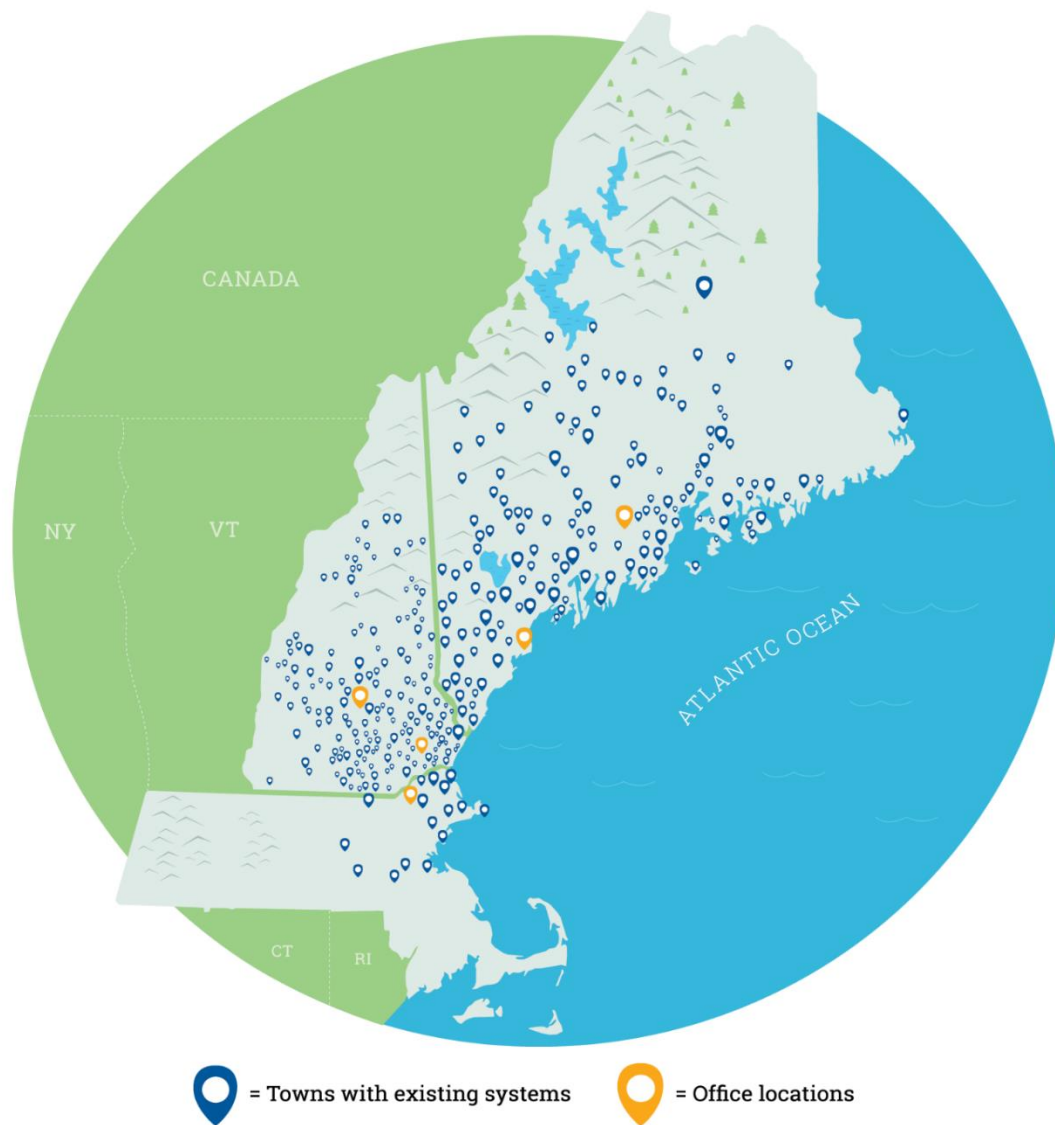
Our Mission

ReVision Energy exists to help society transition from fossil fuels to sustainable solar energy. Our mission is to lead our community in solving the environmental problems caused by fossil fuels while alleviating economic and social injustice.

Our Values

- **Humanity:** Treat everyone with respect and kindness to help build the better future we know is possible.
- **Learning:** Educate everyone with the knowledge and skills to change the world; foster personal & professional growth in a cohesive, team-oriented atmosphere.
- **Passion:** Aspire for excellence in everything we do because it advances our mission and sustains our employee-owned B Corp solar company.
- **Communication:** Listen first, be honest, and deliver clarity to our colleagues and community.
- **Stewardship:** We love being in nature with our families and friends and we are doing everything in our power to protect it.

Locations and Installations



New Hampshire

7 Commercial Drive
Brentwood, NH 03833

78 Main Street
Enfield, NH 03748

Maine

758 Westbrook Street
South Portland, ME 04106

91 West Main Street
Liberty, ME 04949

Massachusetts

1980 Turnpike Street, #2
North Andover, MA 01845

Memberships & Partnerships

Maine

350 Maine
American Society of Civil Engineers
Appalachian Mountain Club
Bicycle Coalition of Maine
Blue Ocean Society for Marine Conservation
Boothbay Region Land Trust
Environmental & Energy Technology Council of Maine (E2Tech)
Envision Maine
Friends of Casco Bay
Greater Portland Council of Governments
Great Works Regional Land Trust
GrowSmart Maine
Habitat for Humanity of Greater Bangor
Island Institute
Leadership Seacoast
Maine Conservation Voters
Maine Audubon
Maine Association of Building Efficiency Professionals (MABEP)
MaineBiz
Maine Farm Bureau
Maine Farmland Trust
Maine Milk Commission
Maine Organic Farmers and Gardeners Association
Maine Public Broadcasting Network (MPBN)
Maine State Chamber of Commerce
Maine Sustainability Network
Maine Yogafest
Midcoast Conservancy
Morris Farm Trust
Natural Resources Council of Maine (NRCM)
Portland Buy Local
Portland Regional Chamber of Commerce
Portland Society of Architecture
Sebasticook Regional Land Trust
Sheepscot Wellspring Land Alliance
Southern Maine Conservation Collaborative
US Green Building Council Maine
WERU Community Radio
York Region Chamber of Commerce

New Hampshire

American Institute of Architects NH
BearPaw Land Trust
Beaver Brook Association
Blue Ocean Society
Clean Tech Council
Concord Chamber of Commerce
Dover Chamber of Commerce
Dover Children's Museum
EBC (Environ Business Council)

Exeter Area Chamber of Commerce
Five Rivers Conservation Land Trust
Greater Concord Chamber of Commerce
Green Concord
Homes for Heroes
Leadership Seacoast
MacDowell Colony
Main Street Concord
NextGen Climate
NH Audubon
NH Building Officials
NH Businesses for Social Responsibility (NHBSR)
NH Clean Tech Council (NHCTC)
NH Home Builders Association
NH Preservation Alliance
NH Residential Energy Performance Association
NH Sierra Club
NH Society of Protection of Forests
NH Sustainable Energy Association (NHSEA)
NH Public Radio
Plan NH
Residential Energy Performance Association (REPA)
Seacoast Science Center
Souhegan Chamber of Commerce
Southeast Habitat for Humanity
Southeast Land Trust (SELT)
Southern NH Builders & Remodelers Assoc.
US Green Building Council NH

Massachusetts

US Green Building Council MA
Amesbury Chamber of Commerce
Cape Ann Chamber of Commerce
Center for EcoTechnology
Change is Simple
Coastal Trails
Concord Consortium
Go Green Consortium
GreenBelt Land Trust
MA Audubon
MassCEC
Merrimack Chamber of Commerce
MOFA
Newburyport Chamber of Commerce
North Shore Chamber of Commerce
North Shore Tech Council
Pan-Mass Challenge
River 9.5
Salem Chamber of Commerce
US Green Building Council MA

Regional

350.org
Amicus Solar Cooperative
Appalachian Mountain Club (AMC)
Association for Facilities Engineering (AFE)
Conservation Law Foundation
Independent Schools Association of Northern
League of Conservation Voters
New England (ISANNE)
New England Grassroots Environmental Fund
New England Women in Energy and the Environment
(NEWIEE)
New England Solar Energy Market Coalition (NESEMC)
Northeast Organic Farming Association (NOFA)
Northeast Sustainable Energy Association (NESEA)
Seacoast Women's Network
Sierra Club
Solar Energy Business Association of New England
(SEBANE)
The Nature Conservatory

Company Culture

Distributed Leadership

ReVision Energy rejects the idea that the only way to achieve efficient decision making and effective communication is through a conventional top down hierarchy. We believe that empowering all employees to innovate and to lead is consistent with our values and has the potential to unleash the great power of distributed leadership. Leadership is often enacted with those not in official leadership positions, thus distributed leadership defines leadership in terms of activity and actions rather than job titles. Distributed leadership can be more responsive and more flexible than a hierarchy, and it also fosters creativity as well as organizational strength through paralleling of critical functional roles.

Since our inception, the managing partners of ReVision have always practiced the distributed leadership model. Bill, Phil, Fortunat and Dan work together to solve key problems when necessary, but delegate internally to divide and conquer the myriad of everyday challenges whenever possible. Our branches are managed by a team of branch managers in each shop. The branch manager groups are responsible for setting shop level goals and developing and implementing strategic plans to achieve those goals, as well as maintaining the physical offices and all the resources within each shop.

We also have a number of functional groups related to job roles found in all of our branches, such as marketing, sales, and operations. These functional groups exist across the branches and are each supported by a distributed leadership team, typically consisting of one individual from each branch. Team leaders support the team in their branch and work together to address companywide questions related to their functional area of responsibility. The team leaders are also the primary conduit for communication between branches and between functional groups. The primary responsibilities of each distributed leadership group are embodying the values of ReVision Energy and supporting the team towards the achievement of our mission.



Sustainable Offices

At ReVision, we strive to practice what we preach—reducing our own carbon footprint in addition to helping our clients and business partners reduce theirs. Our Portland shop boasts two awning-mounted solar PV systems, two electric vehicle charging stations, a fully-automated pellet boiler, and air source heat pumps. The Portland office also participates in Garbage to Garden's compost program, and has its own outdoor gardening space installed and maintained by ReVision employees. Our Liberty branch boasts a rooftop solar PV system, solar hot water system, and gasifying wood boiler for space heating. Our Brentwood office boasts an awning-mounted solar PV system, electric vehicle charging station, solar hot water system, a fully-automated pellet boiler, and air source heat pumps for space heating.

ReVision's in-house "Green Team" is taking a comprehensive approach towards reducing the carbon footprint of each office, addressing everything from efficiency upgrades to improving waste streams. We offer incentives for employees who commute via bike, carpool, and on foot when possible, and we offer telecommuting options when applicable.



Employee Benefits



At ReVision Energy, we strongly believe in rewarding our employees for their dedication and exemplary work. The B Corp Declaration of Interdependence states that a B Corp is "purpose-driven and creates benefit for all stakeholders, not just shareholders."² This is why ReVision offers our employee-owners company-paid medical insurance, dental insurance, life insurance, disability insurance, 401(k) with company match, paid time off, paid volunteer time, and a direct and equal ownership stake in our company.

In accordance with our vision, mission, and values, ReVision Energy also offers our employees a renewable energy discount program, making solar more accessible to the dedicated people who help us move society from fossil fuels to renewable resources.

² B Lab, The B Corp Declaration. <https://www.bcorporation.net/what-are-b-corps/the-b-corp-declaration>

Volunteering

ReVision Energy is committed to making a difference in the communities in which we work and live. Driven by our core values, ReVision encourages employees to volunteer by offering eight hours of paid volunteer time each year and by organizing volunteer opportunities through which employees can take advantage of this offer. Our employees have been recognized as “Volunteers of the Year,” and ReVision has been repeatedly recognized for our dedication to social responsibility. (Image: ReVision employees participate in a local beach clean-up with the Surfrider Foundation.)



Employee Wellness

At ReVision Energy, we recognize that a work-life balance is an important part of mental health and well-being, and we appreciate that our employees have passions and hobbies outside of the workplace. We offer a flexible work week and telecommuting options when applicable, and we work to accommodate all requests for time off. We are happy to offer frequent company outings such as whitewater rafting, skiing, sailing, rock climbing, and other team-building adventures that allow us to get outside and enjoy the environment we are working to preserve. We are proud to have been recently named to the 2016 75 Best Places to Work in Maine list! (Image: ReVision Energy's 2015 annual companywide whitewater rafting trip, courtesy of North Country Rivers in Bingham, ME, a ReVision Energy customer.)



Community Investment

As a Certified B Corporation, ReVision Energy is committed to operating our business as a force for positive social change in the communities where we work. Our B Corp status means we are constantly focused on the "triple bottom line" of people, planet, and profits looking out for every opportunity to align our business ventures with education and community-based action. We carefully select our team members based not only on their skill and expertise, but on their deep commitment to the mission and their passion for helping others. When partnering with schools and municipalities, we frequently engage students and interested community members in hands-on system design and development work and provide public education presentations, tours of completed solar installations, electric vehicle test drives, and other in-kind benefits. Revision also completes major charitable projects each year such as:

- ReVision supported the Harbor Homes Veterans Housing project in Plymouth, NH with a \$100,000 pledge through CDFA
- ReVision supported NH Solar Shares, a low-income community solar project, by pledging \$25,000 through CDFA and providing design and installation support
- ReVision partnered with the Amicus Solar Cooperative and the nonprofit Amurtel to launch Power on Puerto Rico, involving the design, construction and transportation of Solar Outreach Systems to hard-hit areas of Puerto Rico after Hurricane Maria
- ReVision donated over 100 solar panels to enable the 101 kW (DC) solar array for the Children's Museum of New Hampshire in Dover
- ReVision employee-owners and their families regularly sponsor/volunteer at nonprofit organizations in the North Country and Mount Washington Valley
- ReVision's in-house PPA program, ReVision Solar Impact Partners, has provided below-market financing and secured grants for dozens of New Hampshire nonprofits including public housing developments, mobile home communities, soup kitchens, and schools

ReVision is also deeply committed to addressing New Hampshire's workforce challenge and providing living-wage clean tech jobs that can keep our young people in state and provide meaningful career opportunities for those who may not seek or be able to afford a traditional college degree. In Fall 2018, we launched the ReVision Energy Technical Center, a first-in-the-nation in-house training program for solar electricians. More than fifty full-time electrical apprentices currently participate in the four-year program to become a certified electrician while earning a strong wage and enjoying the full benefits of employee-ownership at ReVision.

Safety Policy

ReVision Energy is dedicated to meeting and exceeding OSHA standards. All of our installers and crew members go through regular safety training in order to maintain the safest of working environments. The following is our Safety Guidelines to a safe workplace. OSHA required programs are provided in further detail in our company safety manual.

Objective

The Safety Policy of ReVision Energy is designed to comply with the standards of the Occupational Safety and Health Administration, and to endeavor to maintain a safe and injury/illness free workplace. ReVision Energy's safety policy is set forth in this manual, designed to outline the potential safety hazards that may occur in and out of the field, to learn good safety practices so to avoid accident or injury and to make aware an action plan should an emergency occur. This manual is available for all employees for use and reference; a copy shall be kept in the office at all times and will be sent to the jobsite upon request.

Compliance with the following Safety Policy and all items contained therein is mandatory for all employees of the company. Employees of the company are responsible for knowing and understanding this policy. Employees should know and understand safe working procedure and work safety action plans and should ask the Safety Coordinator or an owner if any part of these procedures or an action plan is not made clear. Employees should know where safety tools such as first aid kits, fire extinguishers, eye glasses, ear plugs, hard hats and any other items mentioned within this manual are at all times, and should ask if they do not know. Employees should know what to do if an emergency occurs and should always be alert and aware of their surrounding so to avoid injury on the job site. The authorization and responsibility for enforcement has been given to the Safety Coordinator. The owners of the company share in this responsibility as well. The responsibility for maintaining a safe work environment is given to all employees of the company. A violation of the safety policy may be noted and can result in disciplinary action, including termination.

Implementation

- **Management Commitment to Safety:** There are a number of hazards in the workplace, especially in the field of work that ReVision Energy employees perform. It is the company's desire and commitment to identify the potential hazards on the jobsite and to implement work safety practices and policy to be adhered by all employees. Some hazards on the jobsite may include lifting and working with heavy objects, climbing on ladders and roofs, working with power tools, and working in inclement weather conditions. Wearing protective clothing and gear, learning proper lifting and carrying techniques, staying cool and hydrated are all ways to avoid workplace injury.
- **Effective Job Safety Training for all Categories of Employees:** As a part of the company's commitment to safety, the company is committed to ensuring that each employee is properly trained to know and understand all safety practices put into place. This includes but is not limited to knowing and understanding safe lifting and carrying practices, safe practices for climbing on roofs and ladders, working with power tools, working with electrical panels, and working in inclement weather or in small spaces.
- **On Site Safety Meetings at Commencement of Job:** At the commencement of each job the Project Manager will go over the details of the job at the job site and include with those details any and all potential safety hazards that may occur and clarify the safety practices that are in place so to avoid these hazards. Once gone over the members who are working on the job will sign off that they attended this safety meeting.

Basic Safety from A to Z

- A. Work smart and be aware of your surroundings. Please let a project manager or owner know if you are not feeling well or if there is any reason you may not be able to perform safely on the jobsite.

- B. Compliance with applicable federal, state, county, city, client, and company safety rules and regulations is a condition of employment.
- C. All injuries, regardless of how minor, must be reported to the Safety Coordinator immediately. An OSHA 301 form should be filled out with each incident of injury.
- D. Hard hats must be worn when: objects might fall from above and strike you on your head, when you may bump your head against fixed objects such as exposed pipes or beams, when there is a possibility of accidental head contact with electrical hazards. Alterations or modifications of the hat or liner are prohibited. Hats must be worn with the bill facing forward.
- E. Appropriate eye or face protection must be worn when exposed to eye or face: hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- F. Fall Protection Requirements: OSHA approved Fall Protection requirements must be adhered to at all times. Each employee engaged in any work activities on any surface 6 ft. or more above a lower level with unprotected sides or edges must be protected from falling through the use of guardrails, safety nets, or personal fall protection arrest systems.
 - 1. Only trained workers shall be allowed to work in attics and on roofs, and only as necessary to complete the construction of the system being installed.
 - 2. Materials and equipment for the work shall be located conveniently close to the workers.
 - 3. Materials and other object which could pose impalement hazards shall be kept out of the area below where workers are working, or properly guarded.
 - 4. While attic or roof work is in progress, workers not involved in such work shall not stand or walk below or adjacent to any openings in the ceiling where they could be struck by falling objects.
 - 5. When adverse weather, such as high winds, rain, snow, or sleet creates a hazardous condition, operations shall be suspended until the hazardous condition no longer exists.
- G. Clothing must provide adequate protection to the body. Shirts must have at least a tee sleeve. Shirts with sleeves and long pants will be worn at all times. No shorts are to be worn on projects. Sturdy work boots with rigid, slip resistant soles are required. No clogs, tennis shoes or loafers are permitted.
- H. All personnel will be required to attend safety meetings as stipulated by project requirements in order to meet OSHA Safety Standards.
- I. Firearms, alcoholic beverages or illegal drugs are not allowed on company property or in company vehicles at any time. When drugs are prescribed by a physician (that alters your physical performance), an owner must be informed. The use or possession of illegal drugs or alcoholic beverages on the jobsite will result in immediate termination.
- J. Housekeeping shall be an integral part of every job. All employees are responsible for keeping their work areas clean and hazard-free. Clean up is required when a job is finished at the end of the day.
- K. Burning and cutting equipment shall be checked daily before being used. Flash back arresters shall be installed at the regulators on both oxygen and LP bottles. All gas shall be shut off and hoses disconnected from bottles and manifolds at the end of the work day. Caps shall be replaced on bottles when gauges are removed. When gauges are removed and caps replaced, the oxygen and

LP bottles shall be separated into storage areas no less than 20 feet apart with a No Fire or Smoking sign posted and a fire extinguisher readily available. Makeshift field repairs will not be allowed.

- L. Drinking water containers are to be used for drinking water and ice only. Stay hydrated and cool when working in hot conditions. Wear sunscreen when working in sun for extended periods of time.
- M. All tools whether company or personal, must be in good working condition. Defective tools will not be used. Examples of defective tools include chisels with mushroomed heads, hammers with loose or split handles, guards missing on saws or grinders, etc.
- N. All extension cords, drop cords, and electrical tools shall be checked, properly grounded with ground fault interrupters (GFI=s), and color-coded by a designated competent person each month. This shall be part of the assured grounding program. Cords and equipment that do not meet requirements shall be immediately tagged and removed from service until repairs have been made.
- O. Horseplay on the jobsite is strictly prohibited.
- P. Glass containers or bottles of any kind are not permitted on jobsites or in company vehicles.
- Q. The jobsite speed limit is 10 MPH. No employee is permitted to ride in the bed of a truck standing up or sit on the outside edges of a truck. Employees must be sitting down inside the truck or truck bed when the vehicle is in motion. Riding as a passenger on equipment is prohibited unless the equipment has the safe capacity for transporting personnel.
- R. Adequate precautions must be taken to protect employees and equipment from hot work such as welding or burning. Fire extinguishing equipment shall be no further than 50 feet away from all hot work. Used fire extinguishers must be returned to the office to be recharged immediately. Use of welding blinds is required in high traffic areas.
- S. All scaffolding and work platforms must be built and maintained in accordance with OSHA specifications. All ladders must be in safe condition without broken rungs or split side rails. Damaged ladders shall be removed from service. Ladders shall be secured at the top and bottom and extend three (3) feet past the working surface. Metal ladders around electrical work are prohibited. A step ladder shall never be used as an extension ladder. A step ladder must only be used when fully opened with braces locked.
- T. Report all unsafe conditions and near accidents to the project manager so corrective action can be taken.
- U. All floor openings or excavations shall be barricaded on all sides to ensure employees are aware of the hazards. Floor holes shall be covered, with the covers secured and clearly marked.
- V. Warning signs, barricades, and tags will be used to fullest extent and shall be obeyed.
- W. All OSHA Safety Standards will be followed for job processes where respiratory protection is required, at jobs where we perform excavation, and when confined space entry is a concern.
- X. A fall protection plan must be written out for each commercial jobsite.
- Y. Know where all safety equipment is in the shop, or on the job site. Let the Safety Coordinator know if any safety equipment is running low, or not in working order.
- Z. Report any injury immediately and take action. Call 911 if you see an emergency happening; help the victim to the extent your training allows. Call the office if an emergency on the jobsite has occurred once all other appropriate measures have been taken. The Safety Coordinator will ensure the incident is documented and reviewed to determine if it could have been prevented.

Working smart and staying alert will help to prevent workplace injury. Understanding workplace hazards and how to prevent them is the underlining goal of ReVision Energy's Safety Policy. Understanding what to do if an emergency occurs can prevent confusion and can ensure that actions are taken appropriately, as quickly and as efficiently as possible. The Safety Coordinators from each branch will ensure that each employee understands the potential safety hazards and will ensure that each employee has been given proper training to safe working practices. Project managers will hold on site safety meetings at the commencement of each job. Other safety meetings will be held periodically as seeming necessary. ReVision Energy is committed to providing, maintaining, and continuously improving our safe work environment; it is the responsibility of each and every employee to maintain and regulate this policy.

Company Fleet

At ReVision Energy, we maintain an efficient fleet so that we can minimize the travel required to do our jobs. Our installers typically work 10-hour days to ensure that jobs are completed expeditiously, thereby also ensuring a minimum number of trips to a project location.

We use a fleet of vehicles smaller than is typical in the contracting industry— we use light duty trucks and vans wherever possible instead of heavy duty vehicles. Light trucks operate at 10% to 30% better efficiency than heavier trucks, and for most jobs, they are equally productive. Vehicle economy results in a savings of hundreds of gallons of gasoline and diesel fuel each year. ReVision sources biofuel for fleet vehicles through Maine Standard Biofuels and owns many full and hybrid electric vehicles (EV) – including the Chevy Bolt, the Chevy Volt, Nissan LEAF, and plug-in – that are all charged at our solar-powered EV charging stations.

Our 2018 fleet includes:

- 27 Sedans
- 8 Electric Vehicles
- 23 Vans
- 5 Pickup Trucks
- 18 Box Trucks
- 8 Flatbed Trucks
- 2 Trailers



Insurance

The following is a summary of ReVision Energy's insurance policies. For more information, please contact us.

Automobile

Zurich American Insurance

Broker: Murphy Agency

General Liability

Liberty Mutual

\$2 million aggregate, \$1 million per occurrence

Broker: United Insurance

GL Commercial Umbrella

Liberty Mutual

\$5 million annual aggregate, \$5 million per occurrence

Broker: United Insurance

Inland Marine

Acadia Insurance

Broker: United Insurance

Professional Liability & Pollution Incident Liability

Evanston Insurance Company

\$2 million aggregate, \$2 million per claim

Broker: Murphy Agency

Workers Compensation

Zurich American Insurance

Covered in ME, MA, and NH

Broker: Murphy Agency



TOWN OF

HENNIKER, NEW HAMPSHIRE

PV SYSTEM PROPOSAL

NOVEMBER 18 2019



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1. The Project Scope

The Town of Henniker, NH proposal is to select qualified Contractor/Vendors (Providers) to design and build, and potentially operate, municipal turn-key Grid Interactive Photovoltaic Solar Energy Systems (PV Systems) on Town-owned land. This PV system is to provide approximately 449,600 kWh of annual electrical usage on meters servicing Henniker municipal facilities.

These are the locations and usage communicated in the RFP and presented here to confirm understanding.

Location	Address	kWh used 2018
Academy Hall	Main Street	3,531
Community Center	Main Street	25,893
Fire Station	Maple Street	36,930
Grange	Western Avenue	8,298
Highway Department	Ramsdell Road	25,020
Police Station	Western Avenue	31,891
Town Hall	Depot Street	15,189
Transfer Station	Weare Road	29,931
Tucker Free Library	Western Avenue	31,116
Cogswell Springs Water Works	Davison Road and Rt. 114	94,608
Waste Water Treatment Plant	Ramsdell Road	294,423
Annual PV Systems Production Target		449,600

True Enterprises is a significant, high quality service provider in the New Hampshire and Maine with increasing activity in Massachusetts. True Enterprises has previously completed the Affinity LED Retrofit lighting project for Henniker, NH in October 2018.

2. The Team

Name	Company	Position	Role
Harry O Pollard IV	True Enterprises	President	RFP All Deliverables
Mike Koutelis	True Enterprises	Sales Manager	Account Management
Zachary Pollard	True Enterprises	Project Management	Daily Site Operations and Installation

True Enterprises may have up to 9 personnel working on the site at varying times. There will be an occasional Engineer, Quality Control or Interconnect Official resource at the site during critical times throughout the project life cycle. Please see the Addendum for a brief bio on this Leadership team

2.1. Company Information

True Enterprises LLC

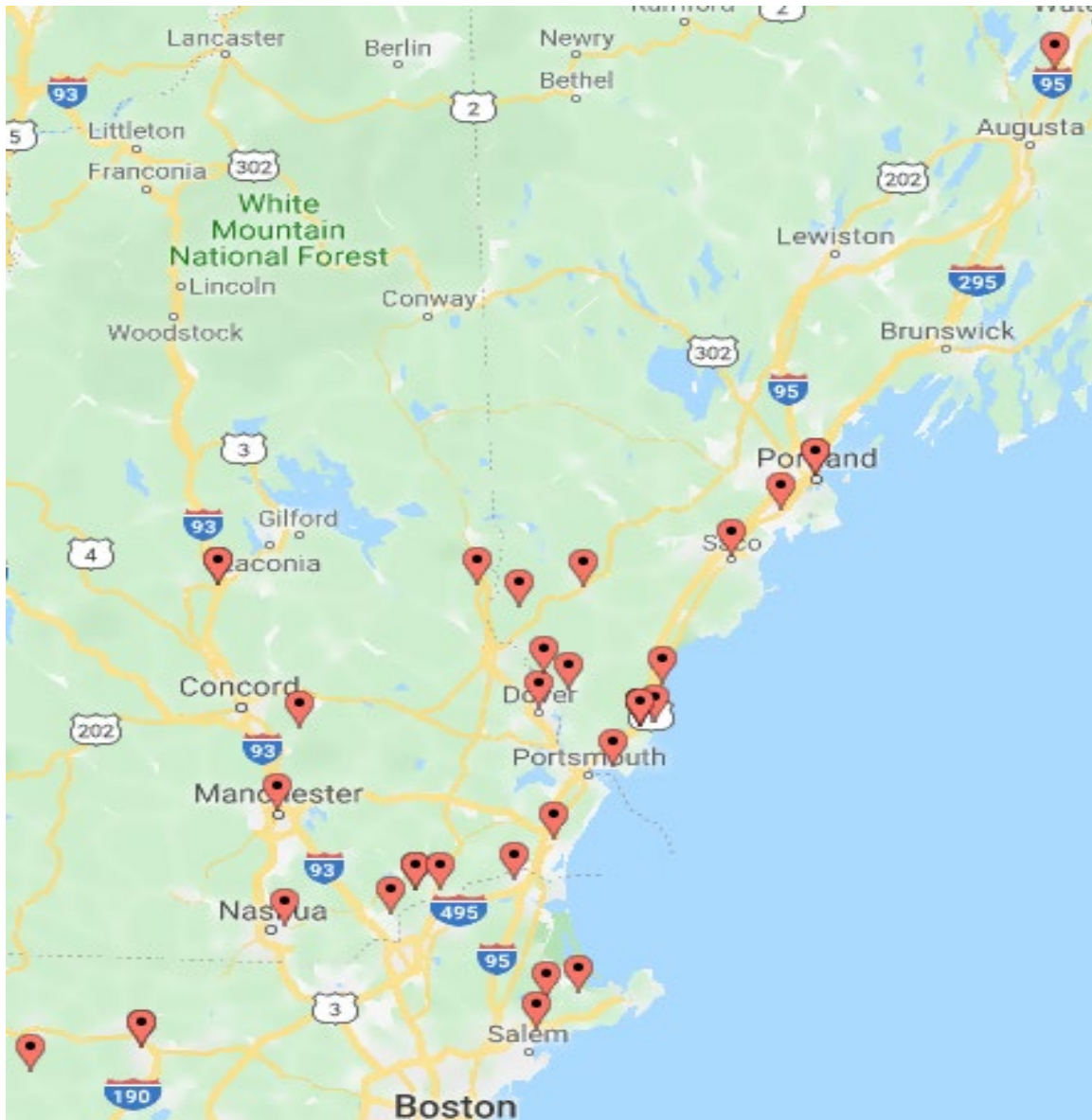
196 Chases Pond Road
York, ME 03909

Phone: 1.207.660.1455

True Enterprises is a full-service design build electrical and solar firm, established in 2013. We specialize in commercial and industrial projects. This includes both Solar and Wind Energy systems. Our team's well-versed knowledge comes from a variety of backgrounds creating a group of dynamic individuals.

True Enterprises is well versed in a variety of solar applications and have completed, thin film, roof mount, ground mount, dual and single access tracker installations. To see a video of a few of our recent projects visit: <http://trueenterprisesllc.com/solar/>

Lastly, per the RFP inquiry, there are no Town Officials or employees who are related to any of the Leadership and staff members of True Enterprises LLC.



2.2. Principal Members



Harry O Pollard, President

Cell: 207.660.1455

Email: harry@trueenterprisesllc.com

2.3. Financial Structures

True Enterprises believes that buying the system outright is the best option for the Town of Henniker. This financial model allows for a quicker return on investment and would bypass any additional interest obtained by 3rd party investors.

True Enterprises can facilitate a Power Purchase Agreement with one of our local lenders if necessary. This would allow for a third-party investor to own and operate the array take the tax credits, while the town would sign a 25-year contract to purchase the power at a reduced rate typically (2% Lower than current rates). This can be done with no upfront cost to the town.

2.4. Project Managers



Zachary Pollard - PV Project Manager

196 Chases Pond Road

York, ME 03909

Office: 207.660.1455

www.trueenterprisesllc.com

2.5. Installers and Project Personnel

The following named individuals will be on the project site full time or intermittently depending on the skill required and the phase of the work.

Name	Company
Harry Pollard IV	True Enterprises
Zachary Pollard	True Enterprises
Mike Koutelis	True Enterprises
Brent Phillips	True Enterprises
Alan Dziengeleksi	True Enterprises
Ben Allen	True Enterprises
Brendan Mahoney	True Enterprises
Kendrick West	True Enterprises
Joseph Tarnowski	True Enterprises

2.6. Subcontractors

There are no other subcontractor resources anticipated at this time.

3. The Design

3.1. Landfill Power to the Town of Henniker

The closed landfill adjacent to 1393 Weare Road. will produce as much energy as requested by the Town of Henniker. This landfill slopes east / west and is open to the sun from the south.

Per the Town of Henniker evaluation criteria, utilizing the closed landfill as a single source will meet all requirements. No other Henniker RFP identified locations for the PV system are required. The landfill is bounded by the east and west so as to provide an aesthetically pleasing, secure, and minimally disruptive design. The central location is efficient in several ways, including only one grid interconnection, central maintenance, economies of sourcing materials and construction scale. The proposed racking system meets environment EPA requirements in order to ensure the integrity of the landfill is maintained. Safety is maximized with this enclosed location with minimal exposure to people and operation activities. The ballast and connections that support the structural system is sourced in the USA. The central source minimizes system complexity and will have a variable impact on system maintenance, resulting in minimal system down-time.

The 375-kw design has the potential to produce 496.347kWac depending upon weather and sun exposure.

3.2. Value Proposition

True Enterprise will provide the racks and component parts for assembly; including supervision, training and installation planning to complete the installation of solar panels.

Capped Landfill Protection

The Closed Landfill adjacent to 1393 Weare Road is sloped. Care must be taken to ensure cover material integrity. That can be the result of significant reductions in activity that the ballast design ensures. Reduce clearing and grading activities will eliminate site preparation for dead weight loading, level surfaces for adequate system stability. Reduce or eliminate trenching that may impact gas-to-energy recovery infrastructure. Reduce material and labor in maintaining a minimum of trench soil specifications for electrical line placement. Reduce the risk of regulatory intervention and unauthorized disturbance per state and local statutes. Minimize site preparation, reduce the need for roads, heavy equipment access. Minimal site wide trenching for electrical conduit.

Weather Mitigation

Designing a PV system to local wind speeds requires considerations related to interactive effects of wind loading on PV array tilt angles, structural supports, and foundation systems. The consideration of design wind speed also should factor in the impacts of additional system design criteria such as landfill maintenance and snow loading factors.

Post Closure Maintenance and Monitoring Plan

Surface erosion and settlement can be easily monitored because the rack is raised in the rear. Any evidence of differential settlement can be managed.

The ballast is laid uniformly row by row and we expect little water flow disturbance from the current flow pattern. There are no large impenetrable areas that cause water to swale around and collect in significant volume. We can design the layout so the ballast lines support the drainage of water that follow the natural contours in different areas and point all the panels south.

The racks and ballast will be laid as to not interfere with the gas extraction system and maintenance. Above ground routing of conduit will eliminate trenching and that may interfere with the access and the existing gas extraction structure.

4. The Site and Solar Output

4.1. 325kw Install



PVWatts: Monthly PV Performance Data (325 kW)		
Requested Location:		1393 Weare Road, Henniker, NH
Location:		Lat, Lon: 43.17, -71.78
Latitude (deg N):		43
Longitude (deg W):		72
Elevation(m):		163
DC System Size (kW):		325
Module Type:		Standard
Array Type:		Fixed (open rack)
Array Tilt (deg):		31
Array Azimuth (deg):		181
System Losses:		14
Invert Efficiency:		96
DC to AC Size Ratio:		1
Average Cost of Electricity Purchased from Utility (\$/kWh):		0.163
Capacity Factor (%)		15.1
Panels		425w
Month	AC System Output (kWh)	DC array Output (kWh)
1	34,024	35,526
2	38,757	40,428
3	46,821	48,997
4	46,400	48,487
5	47,046	49,214
6	46,675	48,839
7	50,279	52,546
8	48,987	51,184
9	44,180	46,143
10	35,757	37,404
11	29,694	31,039
12	27,729	29,019
Total	423,277	518,826

4.2. Site Ground Coverage

Solar Option	Array Ground Coverage	Henniker Total Surface Acreage	Array Ground Coverage %
325	.733 Acres	13 Acres	6%

5. Provider Evaluation Criteria

5.1. True Enterprises

True Enterprises has been a major Solar Array provider for 5 years dating back to our first installation in 2015 in York Maine. Since that time, we have immerged as an easy to work with major installer with target markets of Maine and New Hampshire with occasional opportunities in Massachusetts. The table below summarizes our impact in this industry in just a few short years with 36 installations with more in process as this is being written.

Our largest installations are reflected in the table below:

Customer Name	Installed		Equivalent Units	Residential Municipal or Commercial
	City	ST		
Allenstown Fire Department	Allenstown	NH	60,000	Municipal
Morgan Self Storage	Salem	NH	319,000	Commercial
Baker Company/Revision*	Sanford	ME	212,000	Commercial
Morgan Self Storage	Manchester	NH	157,000	Commercial
MB Tractor	Tilton	NH	141,000	Commercial
MB Tractor	Plaistow	NH	140,000	Commercial
MB Tractor	Tilton	NH	140,000	Commercial
Royal Oak Apartments	Dover	NH	140,000	Commercial
Major Installations			1,309,000	

True Enterprises has successfully installed 46 Solar PV projects totaling 1,919,700 kWh as of this RFP. We will incrementally more before the end of Calendar 2019, exceeding over 2,000,000 kWh installed. True Enterprises did the design, installation and necessary documentation and corresponding Interconnect requirements for these sites*

Customer Reference Contact Information (3)

Customer	Contact Name	Position	Telephone
Allenstown Fire Department	Paul St. Germain	Fire Chief	603-485-9202
Morgan Self Storage	Charlie Morgan	Owner	603-589-5598
MB Tractor	Karen Ploux	CFO	603-658-9924

6. The Timeline

The timeline is presented in a format to provide the best-case scenario (authorization) within 5 business days of Henniker Town Meeting approval. This would mean the project could be formally authorized to commence on Monday, March 30, 2020.

The timeline has incremental information to provide further guidance should there be a delay in the PV Solar project approval.

The project timeline reflects Authorization to Sign off which acknowledges solar power generation.

Week Beginning	30-Mar	6-Apr	13-Apr	20-Apr	27-Apr	4-May	11-May	18-May	25-May	1-Jun	8-Jun	15-Jun	22-Jun	29-Jun	6-Jul	13-Jul	20-Jul	27-Jul	3-Aug	10-Aug
Cycle Time	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14	Wk15	Wk16	Wk17	Wk18	Wk19	Wk20
Authorization																				
Project Planning																				
File Interconnects																				
Procurement																				
Site Prep																				
Mobilization																				
Materials Delivery																				
Site Staging																				
100,000 Installed																				
200,000 Installed																				
300,000 Installed																				
400,000 Installed																				
49,600 Installed																				
Interconnects																				
Integration Tests																				
Sign Off																				

7. The Training, Support and Maintenance

7.1. Training

Training will be provided for up to 5 identified, skilled Henniker resources. The training plan is based on other similar engagements and plan on a full day's time.

Course	Summary Content	Duration	Materials
Design Review	Solar design, materials, static vs. moving parts, etc. How to use the system effectively.	1 hour	Mounting Systems, Switches, Shut down in emergencies, etc. Design documents provided at sign off and Manufacturers spec sheets
Monitor and Diagnostics	Remote/Internet fed signals, Events to launch Physical inspection and/or photo documentation. Troubleshooting, etc.	3 hours	Monitor, access and physical site walk through. Recommended tool box contents.
Corrective Action Techniques	Diagnostic feedback, physical inspection verification, etc.	2 hours	Actual events, case study, industry recommendation.
Wrap Up, Final Q&A Session	Any questions not answered or require further clarification, list of materials for reference, etc.	1 hour	As needed to further support system understanding

7.2. Support

We provide the package of product warranties when the project is completed. We are available to answer any questions on the job site during construction, by phone or email throughout the process. We are a local service provider, our offices are in York, ME. We experience much of the same weather Henniker does.

7.3. Maintenance

In the first year True Enterprises will schedule with Henniker Town Office to come and check your system to insure everything is functioning properly. This will be done with your assigned Maintenance staff to further their understanding and reinforce training. The first year Maintenance Check is included in the cost presented.

True Enterprises proposal provides Maintenance for the first two years. If Henniker desired to do so we may enter into a Maintenance Support Contract from year 3 and beyond in 3 year increments. This is incremental from the PV Solar proposal.

A 3 year Maintenance Contract would cost approximately \$8900 a year for 3 years, invoiced in January of each calendar year. Related material costs and technology advances would necessitate reviews every 3 year anniversary.

7.4. Decommission plan: Panels and inverters replace with current products and recycled properly.

8. The Finance Flows and Forecast

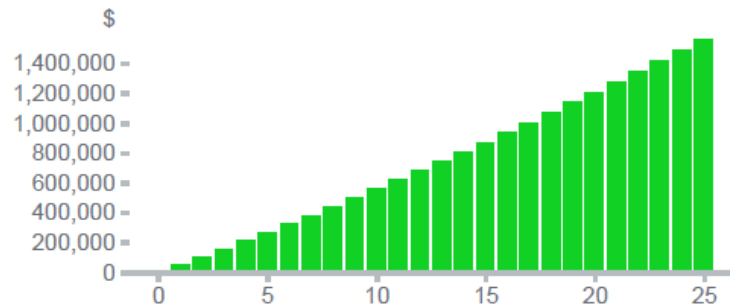
8.1. 25 Year Model

It saves

\$853,949

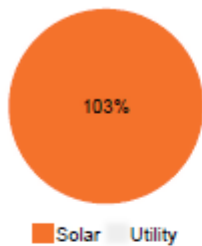
over the lifetime of the system -
including purchase cost

Cashflow over time



The Solar Energy Financial Model provides a simple framework to quickly analyze the financial feasibility of a solar project. The worksheet allows to evaluate the effect of any change in the assumptions on the IRRs and NPV and engineer an appropriate financing structure for a Solar Project.

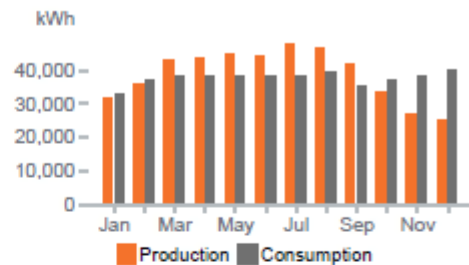
8.2. Estimated System Production



You would generate

103 %

of your energy from solar



Bill savings that start right away

	Year 1 Monthly Utility Bill	Year 1 Total Utility Costs
Without solar	\$ 9,189	\$110,270
With solar	\$78	\$931

A responsible choice

Your system would offset emissions equivalent to



Planting 115,699 trees



Driving 446,759 fewer miles per year



Taking 981 cars off the road

There are a number of factors affecting PV module performance, which in are implemented in the computation process in various steps. The simulation of the production is based on the provided technical details and assumptions.

8.3. Monthly Projected Cash Flows

Monthly Cashflows

(kWh)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Utility Consumption Pre-Solar	33k	37k	38k	38k	38k	38.3k	38.3k	39.3k	35.1k	37.1k	38.3k	40.2k	450.6k
Utility Consumption Post-Solar	1,500	1,361	(4,961)	(5,678)	(6,525)	(5,989)	(9,608)	(7,145)	(6,571)	3,617	11k	15.1k	(13.9k)
Solar Production	31.5k	35.6k	43k	43.7k	44.5k	44.3k	47.9k	46.4k	41.6k	33.5k	27.3k	25.1k	464.5k
(\$)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Utility Bill Pre-Solar	6,467	7,274	7,475	7,468	7,471	12k	12k	12.3k	10.9k	11.6k	7,525	7,913	110.3k
Utility Bill Post-Solar	261	181	16	16	16	16	16	16	16	16	16	344	931
Utility Bill Savings	6,206	7,093	7,459	7,452	7,455	12k	12k	12.3k	10.9k	11.5k	7,509	7,569	109.3k
Excess Credit	0	0	478	1,031	1,683	2,458	3,707	4,636	5,490	4,619	2,542	0	

A common way to analyze a potential investment is to look at the solar payback period. The system payback is the amount of time it will take to recover your cash outlay. This can also be referred to as the break-even point. Adjusting for inflation only, a standard system will have a break-even point of about 7 years.

Once you take utility price increases into account, the break-even point is only about 7 years. The PV system will pay for itself well before the warranted life of the panels is surpassed, allowing you to generate free electricity for the remaining life of the system!

9. Total Project Cost

325 kW DC Ground Mounted Solar Array – Henniker Landfill - 1393 Weare Rd

True Enterprises Furnish all labor, material, electrical permitting and supervision to install a 325kWDC Ground mounted solar array on the land fill at 1393 Weare rd. in Henniker, NH True Enterprises, LLC will install the components of the project as follows

True Enterprises LLC supplied components:

- (764) PV 425W solar panels/modules
- (4) Inverters
- A complete racking system to install the number of modules being quoted
- (4) SMA 62.5kW 480V three phase isolated string inverters
- (4) combiner splice boxes
- All necessary DC wiring and MC4 connectors
- utility grade SREC meter assembly
- SMA communication gateway
- 600A MCB NEMA 3R panelboard to utilize as the Main AC Combiner. .
- (4) 100A AC branch circuits to the appropriate SMA inverters
- 600A 3P NF safety switch (Utility PV System Disconnect)
- All necessary anchoring materials
- All mandated labels
- All necessary components to perform a line side tap of the electrical service
- All necessary permits, interconnection paperwork and submission.

Pricing: \$800,000.00

Terms & Conditions:

- 50% deposit to initiate ordering of equipment and material,
- 30% upon commencement and remaining
- 20% upon interconnection approval.
- In the event of changes required by the AHJ additional charges may be incurred
- An additional 3 1/2% charge will be added for all credit card purchases
- All charges over fifteen days are subject to a 2% finance charge per month

Bid Qualifications:

- The Procurement method of this proposal is based on an outright purchase of the PV system by the Town of Henniker, NH.
- This is a turnkey system proposal and is structured as such.
- All pricing is pending utility company approval of the design, products and interconnect method stated in this proposal.
- All utility interconnect applications will be done by True Enterprises. The cost for this is contained in our proposal based on best estimates.
- This work to be performed in a timely manner based on procurement times in a dynamic marketplace.
- 1 Kiosk will be provided to the Town of Henniker showing live solar production at a location of their choosing.

Material and Equipment:

All material and equipment shall be warranted by the manufacturer and installed in accordance with NEC guidelines and industry standard practices.

National and Local Codes:

Electrical installations shall meet the National Electrical Codes.

Performance:

True Enterprises LLC agrees not to exceed our proposed timeline which includes timely decisions from Town of Henniker and other Regulatory agencies.

Warranty:

Warranties apply exclusively to the electrical installation of the material, equipment, and other items supplied by True Enterprises LLC. Warranty shall commence from the final electrical inspection date for a maximum period of five years. Warranty does not apply if any outstanding payments have become past due.

Change Orders:

Any deviation or alteration of this proposal or the provided package will be executed only on receipt of written orders of same, and will become an extra charge. Said charges in no way affect or make void this proposal. Charges for extras will be billed at a rate of \$85.00/man-hour plus material. True Enterprises LLC written authorization prior to commencement of extra work.

10. The Go Live, Transfer and Project Wrap Up

The following will provide a structured checklist to support project conclusion and the transition to the Town of Henniker ownership.

Activity	Purpose
Interconnect Documents	All filed, accepted and part of Henniker Records to validate Regulatory compliance and completion.
Permits – State and Federal	All filed, accepted and part of Henniker Records to validate Regulatory compliance and completion
Kiosk Performing	Information Kiosk operating in selected visible location
Maintenance Training Completed	Henniker prepared to take over day to day operations
Site Walk Through and Hand off	Physical Walk thru Site with accountable Henniker Town Personnel
Future Site Access Defined	Who, What and How future access to the site is defined, including escalation processes
Town of Henniker Point of Contact Defined	Town of Henniker named individual that is authorized to engage, procure and manage the entire Array, maintenance and support. If alternates, provide contact information.
System Declared Operational	The actual day the system was turned on and performing correctly
True Enterprises Point of Contact Defined	True Enterprise define the process and personnel authorized to engage, procure and provide required maintenance. If alternates, provide contact info.
Account Reconciliation & Closure	Outstanding finance items - final Invoice/payments reconciled, Project declared completed by Town of Henniker and True Enterprises and the effective date

11. Terms and Conditions

TERMS AND CONDITIONS

These conditions form part of a quotation submitted by True Enterprises LLC (the "Contractor") to the Client named in the quotation. The Contractor will carry out "the Work" described

in this quotation for "the contract sum", which may be varied pursuant to these conditions.

1. Contract. Upon acceptance of the written proposal by Client, the terms and conditions contained herein shall be binding upon the parties. No change in the terms of the contract shall be effective unless agreed in writing by the Contractor. The waiver by the Contractor of a term or a breach of any of these terms shall not be deemed to be a waiver of any other term or any subsequent breach of that or any other term.

2. Payment Terms. The payment terms shall be as set forth in the quotation. If there is no such payment terms, or for any modification of services agreed upon the Client, the Client shall pay the Contractor within thirty (30) days of invoice. Any payment not received when due shall be subject to a late payment penalty of two percent (2%) per month until paid in full.

3. Change Orders. The parties hereto agree that Client may from time to time order changes in the Work provided the progress of the Work is at a stage which will accommodate such changes. In such event, the total estimated project cost shall be adjusted accordingly. All such orders and adjustments shall be in writing, signed by the parties hereto, and the adjustments to the total estimated project cost shall be set forth in writing. If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, then the contract time shall be extended by a reasonable amount.

4. Warranty. In addition to any additional warranties agreed to by the parties, the Contractor warrants that the Work will be free from faulty materials; constructed according to the standards of the building code applicable for this location; constructed in a skillful manner and fit for habitation. The warranty rights and remedies set forth in the Maine Uniform Commercial Code, if applicable, apply to this Agreement. The above language is required by the provision of 10 M.R.S.A. '1486, et seq. and the parties agree that the effect thereof shall be limited to that required under 10 M.R.S.A. '1487. Any notice of warranty claim must be presented to Contractor in writing within one (1) year

of completion of the Work. The Contractor shall transfer, set over and arising all warranties on materials, appliances and products incorporated into the Work which may have been given to General Contractor by any manufacturer or supplier.

5. Use and Occupancy of the Building. The Client assumes all risk for personal belongings stored at the work location while the Work is in progress.

6. Risk of Loss. The risk of loss to all improvements to be constructed at the Work location shall pass to the Client upon incorporation of such improvements into the Work location or, in the case of materials, equipment, or appliances, at the time of storage by the Contractor on the Client's property. The Client shall be responsible for maintaining adequate builders' risk insurance at all times.

7. Force Majeure. If the Contractor is delayed in the execution of the Work due to any cause beyond its control (including, but not limited to, acts of God, inclement weather, strikes, lockouts or other industrial disturbances, fire, flood, explosion and laws, rules, regulations or orders of any Government authority or delays caused by any other person, company or authority including the inability to obtain necessary materials, accessories, equipment or parts from the manufacturers thereof), the Contractor shall be entitled to a reasonable extension of time to complete the Work while such cause exists.

8. Limitation of Liability.

(a) The Contractor's liability to Client for damages from any cause whatsoever and regardless of the form of action, whether in contract or in tort, including negligence, shall not exceed the charges paid or payable hereunder.

(b) No action (whether in contract or tort, including negligence) arising out of the performance of Client under this Agreement may be brought by either party more than eighteen (18) months after the cause of the action has arisen except that an action for non-payment may be brought within eighteen (18) months of the date of last payment.

(c) In no event will the Contractor be liable for any lost profits or any other special, indirect or consequential damages even if the Contractor has been advised of or should have known of the possibility of such damages, or for any claim against Client by any other party.

(d) Client shall indemnify and defend the Contractor for any claims by third parties which are occasioned by or arising from any act by the Contractor pursuant to instructions of Client.

9. Collection Costs. Client shall pay all costs and expenses, including attorneys' fees, incurred by the Contractor in enforcing this Agreement.

10. Binding Effect. This Agreement is binding upon the heirs, personal representatives, administrators and successors of the respective parties and shall be construed in accordance with the laws of the State of Maine and the liability of Owner shall be joint and several.

Addendums

Addendum 1. Team Bio's

Harry Pollard

Harry is the Owner and Master Electrician. Harry has been an Electrician specializing in Solar and electrical technology for the last 12 years. True Enterprises was created in 2013 focused on the future of renewable energy designs and installations. Helping Companies, Businesses and Homeowners alike achieve great strides in their economic future via Green Energy products and services.

Zachary Pollard

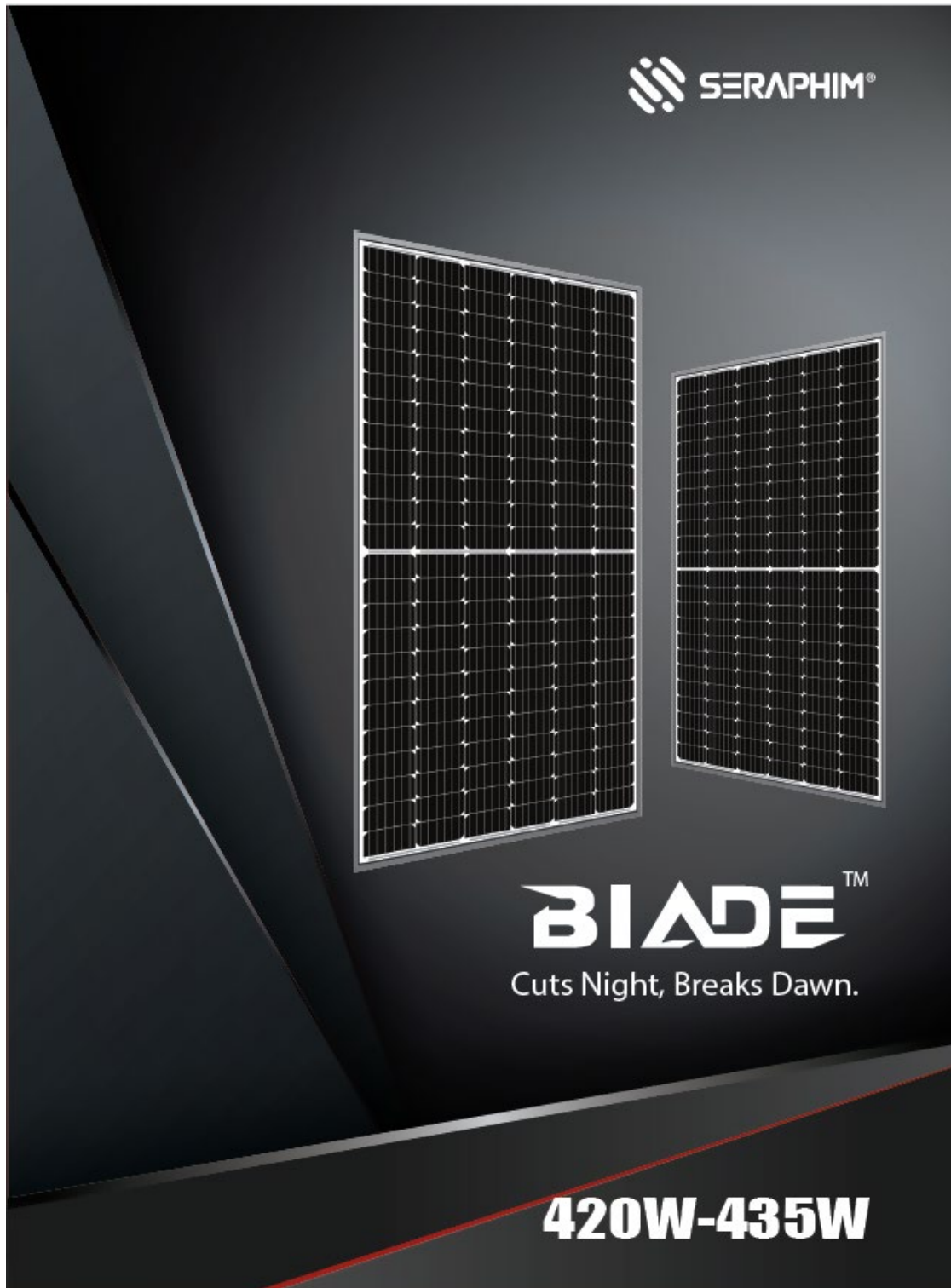
Zach is the Project Manager and the backbone, leading the on the ground operations of True Enterprises ensuring that projects run on time and on budget. This role is critical to ontime delivery and in parallel focused on Customer Satisfaction as an integrated service. Zach has been with True Enterprises for 6 years in this role.

Mike Koutelis

Michael Koutelis has worked for Spectrum Energy Sustainable Technologies these past 10 years. Mike has been a long-standing Member of the Association of Energy Engineers. This is covered over 30 years of experience working with Commercial, Industrial and Municipal customers in the United States supporting energy reduction goals.

Michael worked as Project Manager/Consultant for the City of Haverhill, MA overseeing the Smart Meter Deployment for 4 years. Mike was the Project Manager for Southern New Hampshire University Cogeneration Project in the Manchester, NH area.

Addendum 2. Manufacturers Specification Sheets





BLADE™ | Cuts Night, Breaks Dawn.

B BK: WHITE BACK-SHEET / SILVER FRAME PRODUCTS
W WB: WHITE BACK-SHEET / BLACK SILVER FRAME PRODUCTS
BW: BLACK BACK-SHEET / WHITE SILVER FRAME PRODUCTS
BB: BLACK BACK-SHEET / SILVER FRAME PRODUCTS

Electrical Characteristics

Module Type	SRP-BMA-430WV SRP-BMA-430WB SRP-BMA-430BS SRP-BMA-430BV	SRP-BMA-435WV SRP-BMA-435WB SRP-BMA-435BS SRP-BMA-435BV	SRP-BMA-430WV SRP-BMA-430WB SRP-BMA-430BS SRP-BMA-430BV	SRP-BMA-435WV SRP-BMA-435WB SRP-BMA-435BS SRP-BMA-435BV
	STC	STC	STC	STC
Maximum Power at STC (Pmp)	420	425	430	435
Open Circuit Voltage (Voc)	48.9	49.2	49.4	49.6
Short Circuit Current (Isc)	10.97	11.04	11.11	11.18
Maximum Power Voltage (Vmp)	40.7	40.9	41.1	41.3
Maximum Power Current (Imp)	10.32	10.40	10.47	10.54
Module Efficiency at STC(ηm)	18.88	19.10	19.33	19.55
Power Tolerance	(0,+4.99)			
Maximum System Voltage	1000 VDC / 1500 VDC			
Maximum Series Fuse Rating	20A			

STC: Irradiance 1000 W/m² module temperature 25°C AMF=1.5;

Temperature Characteristics

Pmax Temperature Coefficient	-0.37 %/°C
Voc Temperature Coefficient	-0.28 %/°C
Isc Temperature Coefficient	+0.05 %/°C
Operating Temperature	-40 ~ +85 °C
Nominal Operating Cell Temperature (NOCT)	45±2 °C

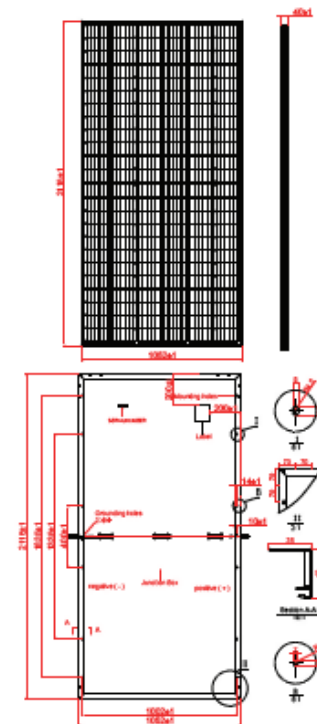
Mechanical Specifications

External Dimensions	2115 x 1052 x 40 mm
Weight	25.0kg
Solar Cells	PERC Mono crystalline 166 x 83mm (144pcs)
Front Glass	3.2 mm AR coating tempered glass, low iron
Frame	Anodized aluminium alloy
Junction Box	IP68, 3 diodes
Output Cables	12AWG,Portrait:255mm(+/-)355mm(-);Landscape:1300mm
Connector	MC4 Compatible
Mechanical Load	5400 Pa

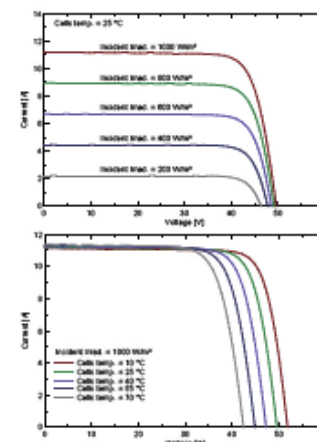
Packing Configuration

	2115 x 1052 x 40 mm		
Container	20'GP	40'GP	40'HQ
Pieces per Pallet	27	27	27*1*
Pallets per Container	5	22	22
Pieces per Container	135	594	616

* 27*1 pieces per pallet is the special package which only suits for container transport.
For details,please consult SERAPHIM.



I-V Curve





BLADE™ | Cuts Might, Breaks Down.

Blade™ – A Module re-Modeled

Seraphim's Blade™ Series solar module boasts two identical parts, which are composed of cells that are half the size of ordinary solar cells. By cutting cells into halves, these smaller currents will help reduce "Cell To Module" loss, which means higher output.

In the meantime, the overall space between cells are doubled, and more light will be transferred into power through multiple reflections. Compared to mainstream standard modules, the Blade™ series module has lower current and series resistance which helps minimize mismatch loss, internal power loss, and shadow effect, etc. Once one cell has EL defect or appearance defect, such as black edge or V sharp. After cutting, one intact half can be reused.



More Output



Higher Efficiency



Higher ROI

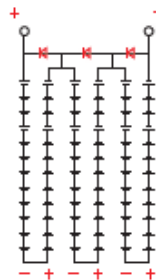
Less Mismatch loss

Instead of 6 internal strings of cells, the Blade series module has 2 x 6 shorter ones. This design effectively deals with the mismatch happened between cells caused by shadow, out of sync performance degradation, ect.

Standard Module / With 6 internal strings of cells



Design Sketch



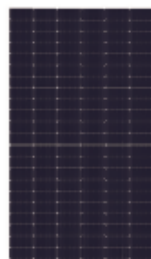
Circuit Diagram



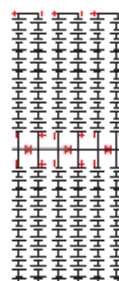
Electrical Mismatch

Module current output is 8.7A, current mismatch in series is **0.3A**.

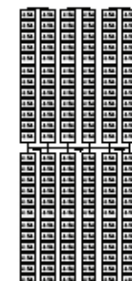
Blade™ / With 2 x 6 internal strings of cells



Design Sketch



Circuit Diagram

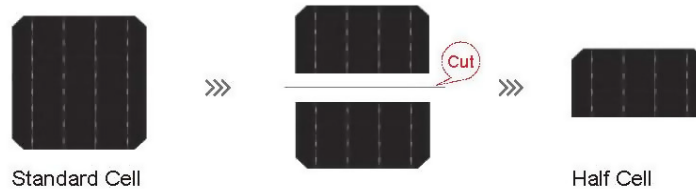


Electrical Mismatch

Module current output is 4.5+4.35=8.85A, current mismatch in series is **0.15A**.

BLADE™ | Cuts Night, Breaks Down.

Less Internal Power Loss



The ribbon length of half-cell is shorter than normal cell. Calculated by Joule's law and Ohm's law, the power loss reduction is nearly 6%.

Product Certificates



Insurance 

Warranty



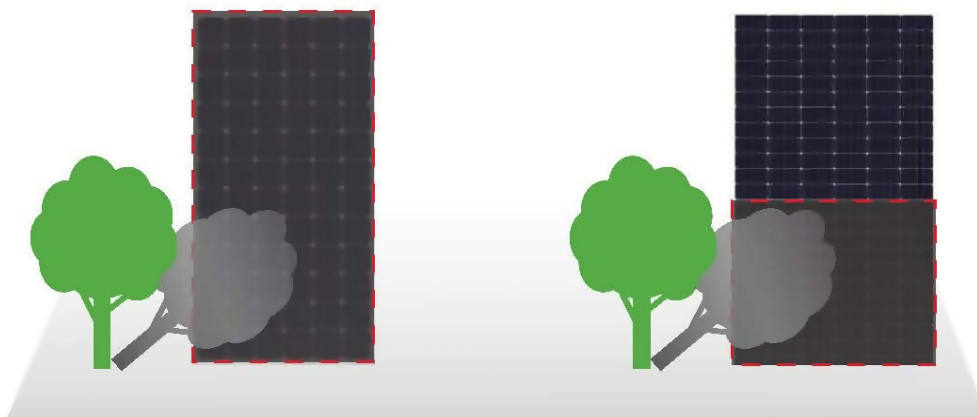
Higher Yield Due to Better Shading Response

Blade™ comprises two separated and identical solar cell arrays, which means the ordinary strings of cells are cut into halves, and these shorter strings compose arrays which has separated current paths. When a module is shaded, only one side shaded array's current will be impacted, while the other array will still be functionally producing power. Under this circumstance, when a module is shaded, the affected working areas of Blade™ will be 50% less.

By cutting solar cell into halves, the internal power loss will be lower and hot spot effect will also be reduced.

Standard Module

Blade™ Module



Specifications are subject to change without further notification | SEQ-DS-EN-2019V1.1 | © Copyright 2019 Seraphim



SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US



Fully integrated

- Innovative design requires no additional racking for rooftop installation
- Integrated DC and AC disconnects and overvoltage protection
- 12 direct string inputs for reduced labor and material costs

Increased power, flexibility

- Multiple power ratings for small to large scale commercial PV installations
- Six MPPT trackers for flexible stringing and maximum power production
- ShadeFix, SMA's proprietary shade management solution, optimizes at the string level

Enhanced safety, reliability

- Integrated SunSpec PLC signal for module-level rapid shutdown compliance to 2017 NEC
- Next-gen DC AFCI arc-fault protection certified to new Standard UL1699B Ed. 1

Smart monitoring, control, service

- Advanced smart inverter grid support capabilities
- Increased ROI with SMA ennexOS cross sector energy management platform
- SMA Smart Connected proactive O&M solution reduces time spent diagnosing and servicing in the field

SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US

It stands on its own

The Sunny Tripower CORE1 is the world's first free-standing PV inverter for commercial rooftops, carports, ground mount and repowering legacy solar projects. From distribution to construction to operation, the Sunny Tripower CORE1 enables logistical, material, labor and service cost reductions, and is the most versatile, cost-effective commercial solution available. Integrated SunSpec PLC for rapid shutdown and enhanced DC AFCI arc-fault protection ensure compliance to the latest safety codes and standards. With Sunny Tripower CORE1 and SMA's ennexOS cross sector energy management platform, system integrators can deliver comprehensive commercial energy solutions for increased ROI.

www.SMA-America.com



Technical data	Sunny Tripower CORE1 33-US	Sunny Tripower CORE1 50-US	Sunny Tripower CORE1 62-US
Input (DC)			
Maximum array power	50000 Wp STC	75000 Wp STC	93750 Wp STC
Maximum system voltage		1000 V	
Rated MPP voltage range	330 V ... 800 V	500 V ... 800 V	550 V ... 800 V
MPPT operating voltage range		150 V ... 1000 V	
Minimum DC voltage / start voltage		150 V / 188 V	
MPP trackers / strings per MPP input		6 / 2	
Maximum operating input current / per MPP tracker		120 A / 20 A	
Maximum short circuit current per MPPT / per string input		30 A / 30 A	
Output (AC)			
AC nominal power	33300 W	50000 W	62500 W
Maximum apparent power	33300 VA	53000 VA	66000 VA
Output phases / line connections		3 / 3, (N)-PE	
Nominal AC voltage		480 V / 277 V WYE	
AC voltage range		244 V ... 305 V	
Maximum output current	40 A	64 A	80 A
Rated grid frequency		60 Hz	
Grid frequency / range		50 Hz, 60 Hz / -6 Hz ... +6 Hz	
Power factor at rated power / adjustable displacement		1 / 0.0 leading ... 0.0 lagging	
Harmonics THD		<3 %	
Efficiency			
CEC efficiency	97.5%	97.5%	97.5%
Protection and safety features			
Load rated DC disconnect		•	
Load rated AC disconnect		•	
Ground fault monitoring: Riso / Differential current		• / •	
DC AFCI arc-fault protection		•	
SunSpec PLC signal for rapid shutdown		•	
DC reverse polarity protection		•	
AC short circuit protection		•	
DC surge protection: Type 2 / Type 1+2		o / o	
AC surge protection: Type 2 / Type 1+2		o / o	
Protection class / overvoltage category (as per UL 840)		I / IV	
General data			
Device dimensions (W / H / D)		621 mm / 733 mm / 569 mm (24.4 in x 28.8 in x 22.4 in)	
Device weight		84 kg (185 lbs)	
Operating temperature range		-25 °C ... +60 °C (-13 °F ... +140 °F)	
Storage temperature range		-40 °C ... +70 °C (-40 °F ... +158 °F)	
Audible noise emissions (full power @ 1m and 25 °C)		65 dB(A)	
Internal consumption at night		5 W	
Topology		Transformerless	
Cooling concept		OptiCool (forced convection, variable speed fans)	
Enclosure protection rating		Type 4X, 3SX (as per UL 50E)	
Maximum permissible relative humidity (non-condensing)		100%	
Additional information			
Mounting		Free-standing with included mounting feet	
DC connection		Amphenol UTX PV connectors	
AC connection		Screw terminals - 4 AWG to 4/0 AWG CU/AL	
LED indicators (Status / Fault / Communication)		•	
Network interfaces: Ethernet / WLAN / RS485		• (2 ports) / • / o	
Data protocols: SMA Modbus / SunSpec Modbus / Webconnect		• / • / •	
Multifunction relay		•	
ShadeFix technology for string level optimization		•	
Integrated Plant Control / Q on Demand 24/7		• / •	
Off-Grid capable / SMA Fuel Save Controller compatible		• / •	
SMA Smart Connected (proactive monitoring and service support)		•	
Certifications			
Certifications and approvals		UL 1741, UL 1699B Ed. 1, UL 1998, CSA 22.2 107-1, PV Rapid Shutdown System Equipment	
FCC compliance		FCC Part 15 Class A	
Grid interconnection standards		IEEE 1547, UL 1741 SA - CA Rule 21, HECO Rule 14H	
Advanced grid support capabilities		L/HVRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor	
Warranty			
Standard		10 years	
Optional extensions		15 / 20 years	
Optional features • Standard features – Not available			
Type designation	STP 33-US-41	STP 50-US-41	STP 62-US-41
Accessories			



SMA Data Manager M
EDM-US-10



SMA Sensor Module
MD.SEN-US-40



Universal Mounting System
UMS_KIT-10



AC Surge Protection Module Kit
AC_SPD_KIT1-10, AC_SPD_KIT2_T1T2
DC Surge Protection Module Kit
DC_SPD_KIT4-10, DC_SPD_KIT5_T1T2

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

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6061 Aluminum Alloy: Properties

General Characteristics

Characteristic	Appraisal
Strength	Medium to High
Corrosion Resistance	Good
Weldability & Brazability	Good
Workability	Good
Machinability	Good

Chemical Composition

Element	Minimum %	Maximum %
Magnesium	0.8	1.2
Silicon	0.4	0.8
Iron	No Min	0.7
Copper	0.15	0.4
Manganese	No Min	0.15
Chromium	0.04	0.35
Zinc	No Min	0.25
Titanium	No Min	0.15
Other Elements	No Min	0.05 each, 0.15 in total

Physical Properties

Property	6061-T4	6061-T6
Density	2.70 g/cc 0.0975 lb/in ³	2.70 g/cc 0.0975 lb/in ³

Mechanical Properties

Property	6061-T4	6061-T6
Tensile Strength	241 MPa 35000 psi	310 MPa 45000 psi
Yield Strength	145 MPa 21000 psi	276 MPa 40000 psi
Modulus of Elasticity	68.9 GPa 10000 ksi	68.9 GPa 10000 ksi

Thermal Properties

Property	6061-T4	6061-T6
Coefficient of Thermal Expansion @ 20.0 - 100 °C Temp	23.6 µm/m-°C 13.1 µin/in-°F	23.6 µm/m-°C 13.1 µin/in-°F
Thermal Conductivity	154 W/m-K 1070 BTU-in/hr-ft ² -°F	167 W/m-K 1160 BTU-in/hr-ft ² -°F

Gabrian International (H.K.) Ltd.

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<https://www.gabrian.com>



Alcoa Engineered Products

ALLOY 6005/6105

Understanding Extruded Aluminum Alloys

Among Alcoa Engineered Products' structural 6XXX series alloys, 6005 and 6105 are medium strength alloys that are very similar to alloy 6061 except they contain higher amounts of silicon. These alloys are used in designs that require moderate strength, but are generally not recommended for applications where the structure may be susceptible to impact or overloading.

When bending is required, the naturally aged -T1 temper is preferred. However, due to the excess silicon content, properties may increase more rapidly with room temperature aging than typically experienced with 6063 and 6061 alloys. In comparison to 6061, alloys 6005 and 6105 are easier to extrude and are less quench sensitive, allowing them to be used for more complex shapes. Alloys 6005 and 6105, when produced to a -T5 temper, have the same minimum tensile and yield strength as 6061-T6. In comparison to 6063, alloys 6005 and 6105 in -T5 tempers have better machinability and strength properties than 6063-T6.

Alloys 6005 and 6105 can also be welded or brazed using various commercial methods (caution: direct contact with dissimilar materials can cause galvanic corrosion). The heat from welding or brazing can reduce strength in the weld region. Consult the Material Safety Data Sheet (MSDS) for proper safety and handling precautions when using 6005 and 6105 alloys.

These alloys also offer good finishing characteristics and respond well to common anodizing methods such as clear, clear and color dye and hardcoat.

Typical applications for alloys 6005 and 6105 include:

- Automotive connector stock
- Structural members
- Hand rail tubing
- Seamless tubing
- Ladder structures

6005/6105 Temper Designations and Definitions

Standard Tempers	Standard Temper Definitions*
F	As fabricated. There is no special control over thermal conditions and there are no mechanical property limits.
T1	Cooled from an elevated temperature shaping process and naturally aged. (See Note A.)
T5	Cooled from an elevated temperature shaping process & artificially aged. (See Note A.)
Alcoa Special Tempers** (For 6005 Alloy only)	Alcoa Special Temper Definitions
T1S14	A maximum formability special temper for product that will be formed within 1 to 2 weeks after shipment. Samples are aged and tested in the -T5 condition to verify heat treat capability.
T5S3	An underaged temper to increase formability at a sacrifice of mechanical properties.
T5S11	Same mechanical property limits as -T5. Stretched 1-3% for stress relief.

*For further details of definitions, see Aluminum Association's *Aluminum Standards and Data* manual and *Tempers for Aluminum and Aluminum Alloy Products*.
 Note A: Applies to products that are not cold worked after cooling from an elevated temperature shaping process, or in which the effect of cold work in flattening or straightening may not be recognized in mechanical properties.

**Alcoa Special Temper designations are unregistered tempers for reference only and provided for customer use to identify unique processing, material, or end use application characteristics.

Alloy 6005 Chemical Analysis		Liquidus Temperature: 1210°F								Solidus Temperature: 1125°F		Density: 0.097 lb./in. ³	
Percent Weight		Elements								Others Each	Others Total	Aluminum	
		Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti				
Minimum		.6	—	—	—	.40	—	—	—	—	—		
Maximum		.9	.35	.10	.10	.6	.10	.10	.10	.05	.15	Remainder	

Alloy 6105 Chemical Analysis		Liquidus Temperature: 1200°F								Solidus Temperature: 1110°F		Density: 0.097 lb./in. ³	
Percent Weight		Elements								Others Each	Others Total	Aluminum	
		Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti				
Minimum		.6	—	—	—	.45	—	—	—	—	—		
Maximum		1.0	.35	.10	.15	.8	.10	.10	.10	.05	.15	Remainder	

Average Coefficient of Thermal Expansion (68° to 212°F)	
Alloy	
6005	13.0 X 10 ⁻⁶ (inch per inch per °F)
6105	13.0 X 10 ⁻⁶ (inch per inch per °F)



Alloy 6005/6105 Mechanical and Physical Property Limits

Temper	Specified Section or Wall Thickness (inches) ²		Tensile Strength (ksi)				Elongation ³ Percent Min. in 2 inch or 4D ⁴	Typical Thermal Conductivity at 77°F btu-in./ft ² hr°F	Typical Electrical Conductivity ⁵ (% IACS)
			Ultimate		Yield (0.2% offset)				
	Min.	Max.	Min.	Max.	Min.	Max.			
Alloy 6005 Standard Tempers ¹									
F	All		No Properties Apply					N/A	N/A
T1	—	.500	25.0	—	15.0	—	16	1250	47
T5	—	.124	38.0	—	35.0	—	8	1310	49
T5	.125	—	38.0	—	35.0	—	10	1310	49
Alloy 6105 Standard Tempers ¹									
F	All		No Properties Apply					N/A	46
T1	—	.500	25.0	—	15.0	—	16	1220	—
T5	—	.500	38.0	—	35.0	—	8	1340	50
Alloy 6005 Special Tempers*									
T1S14 ⁶	—	.124	38.0	—	35.0	—	8	1250	47
T1S14 ⁶	.125	—	38.0	—	35.0	—	10	1250	47
T5S3	All	—	35.0	—	30.0	—	8	N/A	N/A
T5511 ⁷	—	.124	38.0	—	35.0	—	8	1310	49
T5511 ⁷	.125	—	38.0	—	35.0	—	10	1310	49

① The mechanical property limits for standard tempers are listed in the Property Limits section of the Aluminum Association's Aluminum Standards and Data manual and Tempers for Aluminum and Aluminum Alloy Products. ② The thickness of the cross section from which the tension test specimen is taken determines the applicable mechanical properties. ③ For materials of such dimensions that a standard test specimen cannot be taken, or for shapes thinner than .062", the test for elongation is not required. ④ D=Specimen diameter. ⑤ Minimum, unless stated as typical. ⑥ These properties apply to the material after proper artificial aging. No properties apply to shipped product. ⑦ For stress-relieved tempers, the characteristics and properties other than those specified may differ somewhat from the corresponding characteristics and properties of material in the basic temper.

*Alcoa Special Temper designations are unregistered tempers for reference only and provided for customer use to identify unique processing, material, or end use application characteristics.

Comparative Characteristics of Related Alloys/Tempers¹

										General Corrosion Resistance				Weldability (Arc with Inert Gas)								Anodizing Response				Typical Conductivity (%IACS)		
		Formability				Machinability												Brazeability										
Alloy	Temper	D	C	B	A	D	C	B	A	D	C	B	A	D	C	B	A	D	C	B	A	D	C	B	A	40	50	60
6005	-T1				N/A				N/A				N/A															
	-T5, T511				N/A				N/A				N/A															
6105	-T1				N/A				N/A				N/A															
	-T5				N/A				N/A				N/A															
6061	-T4																											
	-T6																											
6063	-T4																											
	-T6																											
6262	-T6																											

① Rating: A=Excellent B=Good C=Fair D=Poor For further details of explanation of ratings for, see Aluminum Association's Aluminum Standards and Data manual.

Alcoa Distribution and Industrial Products

53 Pottsville Street
Cressona, PA 17929
Phone: 800-233-3165
FAX: 800-252-4646



Addendum 3 Copies of Insurance Certificates/Coverages

		TRUEE-1	OP ID: VT																																																																																																															
CERTIFICATE OF LIABILITY INSURANCE		DATE (MM/DD/YYYY) 11/14/2019																																																																																																																
<p>THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.</p> <p>IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).</p>																																																																																																																		
PRODUCER Spence & Mathews Inc Agency PO Box 715 - 4 Sullivan Sq Berwick, ME 03901 Vicki Turner		CONTACT NAME: Vicki Turner PHONE (AG, No, Ext): 207-698-1210 FAX (AG, No): 207-698-4324 E-MAIL ADDRESS: vicki@spenceandmathews.com																																																																																																																
INSURED: True Enterprises, LLC Harry Pollard 188 Chace Pond Road York, ME 03908		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">INSURER(S) AFFORDING COVERAGE</th> <th style="text-align: left;">NAIC #</th> </tr> <tr> <td>INSURER A: Maine Employers Mutual Ins</td> <td>11030</td> </tr> <tr> <td>INSURER B: Liberty Mutual Insurance</td> <td>18333</td> </tr> <tr> <td>INSURER C:</td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>		INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Maine Employers Mutual Ins	11030	INSURER B: Liberty Mutual Insurance	18333	INSURER C:		INSURER D:		INSURER E:		INSURER F:																																																																																																		
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ACORD 25 (2016/03)

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State of New Hampshire
Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that TRUE ENTERPRISES LLC is a Maine Limited Liability Company registered to transact business in New Hampshire on January 08, 2017. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: 762474

Certificate Number: 0004618593



IN TESTIMONY WHEREOF,

I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 15th day of November A.D. 2019.

William M. Gardner
Secretary of State



Ballasted Landfill Solutions | GM-BL

Our commitment to testing and innovation allows us to develop stronger, more cost-effective mounting solutions that can handle even the toughest site conditions. Non-penetrating ground mount solutions are now available as a precast foundation or cast-in-place. Pre-assembled post foundations and pre-assembled top chords reduce the amount of field connections to reduce installation labor time and costs.

Why choose RBI Solar?

- Precast or cast-in-place solutions
- Non-penetrating alternative to driven systems
- Racking is mechanically attached to concrete block foundations to allow for easy disassembly for future maintenance on landfill caps
- ETL classified to UL 2703
- Pre-assembly options available
- Customizable to site-specific requirements
- Options for providing concrete material, concrete placement and racking installation



Ballasted Landfill Ground Mount Solution Features

Foundation and racking design	Site wind speeds 170+ mph and ground snow loads 90+ psf
Signed and sealed drawings	Available in all 50 states
Proprietary on-site testing	Engineered for site specific coefficient of friction
Pre-assembled parts	On-site labor reduction
Variable slope	Accommodates slopes up to 30% (with topographic site map)
20-yr standard warranty	Proven rack reliability and bankability
G115 minimum galvanized coating	Exceeds ASTM and UL standards for 30% extended life
Post options	Cost-effective cee channel or I-beam posts
Driven post refusal alternative	Ability to address challenging soils or impenetrable sites
Module configurations	Portrait, landscape (all module types)
Raised purlins	Integrated bonding and grounding to UL 2703
Corrosion class	System available for all corrosion classes
Wire management and electrical	Integrated wire management and auxiliary mounting options



Precast Solution

- No weather delays and less susceptible to freeze/thaw cycles
- Reduces on-site man hours, ability to relocate or re-use
- Vast network of RBI Solar precasters
- Cleaner sites! Eliminates concrete trucks washout areas
- No risk for hidden costs such as accelerators, retarders, curing requirements, concrete pumps, or winter mixes



Cast-in-Place Solution

- Reduced initial lead time
- Independent of precaster's capacity or costs
- Heavy transportation equipment not required
- Option for remote areas or for international projects
- RBI Solar can assist in concrete mix design, QA/QC, and inspections to validate concrete meets ACI/ASTM standards

Contact us at info@rbisolar.com or (513) 242-2051

DESIGN • ENGINEERING • MANUFACTURING • INSTALLATION

5513 Vine Street, Cincinnati, OH 45217 | 513-242-2051 | info@rbisolar.com | www.rbisolar.com





Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts® Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide

any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEY'S FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location .

RESULTS

423,278 kWh/Year*

System output may range from 403,595 to 441,987 kWh per year near this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	3.01	25,305	3,695
February	4.05	30,042	4,386
March	4.90	39,510	5,768
April	5.47	41,265	6,025
May	5.55	42,911	6,265
June	5.92	43,448	6,343
July	6.26	46,859	6,841
August	5.80	43,400	6,336
September	5.28	38,901	5,680
October	3.65	28,719	4,193
November	2.91	22,803	3,329
December	2.41	20,114	2,937
Annual	4.60	423,277	\$ 61,798

Location and Station Identification

Requested Location	henniker nh
Weather Data Source	Lat, Lon: 43.17, -71.82 1.2 mi
Latitude	43.17° N
Longitude	71.82° W

PV System Specifications (Commercial)

DC System Size	325 kW
Module Type	Premium
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	182°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.146 \$/kWh
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Performance Metrics

Capacity Factor	14.9%
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MASTER ELECTRIC ENERGY SALES AGREEMENT

This Master Electric Energy Sales Agreement (this "Agreement") is entered into effective as of the 6th day of February 2019 (the "Effective Date") by and between ENGIE Resources LLC ("ENGIE") and TOWN OF HENNIKER ("Customer"). ENGIE and Customer are also referred to as "Party" and collectively as the "Parties."

SECTION 1. TRANSACTION TERMS AND CONDITIONS

- 1.1 **Purchase and Sale.** ENGIE shall sell and deliver and Customer shall purchase and receive Firm Full Requirements Service pursuant to a Sales Confirmation and the terms and conditions herein. Any conflict between the terms of this Agreement and an applicable Sales Confirmation shall be resolved in favor of the Sales Confirmation. During the term of this Agreement, should ENGIE fail to schedule the delivery of sufficient quantities of electricity to Customer by the local utility distribution company, Customer and ENGIE recognize: (i) the local utility distribution company, per the local utility distribution company's Tariff responsibilities, nevertheless is obligated to deliver sufficient electricity to satisfy Customer's needs and (ii) ENGIE shall settle with the ISO subject to Section 1.4 herein at no additional cost or expense to Customer with respect to the purchase of electricity to cover any such failure.
- 1.2 **Contract Price.** Customer shall pay ENGIE the Contract Price as specified in an applicable Sales Confirmation.
- 1.3 **Term.** This Agreement shall be effective on the Effective Date. Either Party may terminate this Agreement upon thirty (30) days prior written notice. Notwithstanding the foregoing, the termination of this Agreement shall not affect or excuse the performance of either Party pursuant to any provision of this Agreement that by its terms survives any such termination and provided, further, any Sales Confirmations executed pursuant to this Agreement shall remain in effect, and the provisions of this Agreement shall continue to apply until both Parties have fulfilled all obligations with respect to the underlying transactions. The termination of this Agreement does not terminate any Sales Confirmation executed pursuant to this Agreement.
- 1.4 **Billing and Payment.** Following the receipt of Utility Related Charges (as defined in the Sales Confirmation), ISO fees or charges, and Customer's metered electric energy consumption, ENGIE will deliver to Customer an invoice for the amount due for the preceding billing cycle. The invoice shall include the monthly charges for energy consumption and any other charges or fees imposed pursuant to the terms of this Agreement, and Taxes and Utility Related Charges. ENGIE may use estimated data for billing subject to future reconciliation upon receipt of actual data. Payment shall be due to ENGIE by check, electronic transfer or any other mutually agreed upon payment method in accordance with the payment terms of the Sales Confirmation. Overdue payments will accrue interest at the Interest Rate from the due date to the date of payment. If any amount of an invoice is disputed in good faith, the entire amount shall be paid when due. Any disputed amounts that are determined to be owed to Customer shall be re-paid by ENGIE with interest accrued at the Interest Rate from the date payment was due through the date of re-payment to the Customer. If ENGIE elects to utilize the applicable local utility to distribute invoices, Customer shall comply with the billing and payment requirements of the local utility.

SECTION 2. GENERAL TERMS AND CONDITIONS

- 2.1 **Notices.** Notices and correspondence shall be in writing and delivered by regular or electronic mail, or similar means and deemed received on the date transmitted or delivered (after business hours on next Business Day) and notice by overnight mail or courier is deemed received two (2) Business Days after it was sent. All notices shall be provided to the person and addresses specified in Section 4, or to such other person and address as a Party may specify in writing to the other Party.
- 2.2 **Taxes.** Taxes means all fees and taxes (other than income taxes) imposed by a governmental authority on the purchase and sale of electricity, including utility, gross receipts, sales, use, franchise and excise taxes. Customer is responsible for all Taxes and shall reimburse ENGIE for the cost of any such Tax without markup, whether levied directly on Customer or ENGIE. Customer will provide any applicable Tax exemption certificates, and until provided, no exemption will apply. ENGIE will not refund or credit previously paid Taxes, but will assign to Customer applicable refund claims.
- 2.3 **Title, Risk of Loss.** Title, liability and risk of loss associated with the electric energy purchased and sold hereunder shall pass from ENGIE to Customer at the delivery point specified in an applicable Sales Confirmation.
- 2.4 **Credit Assurances.** If requested by a Party, the other Party or its Guarantor shall provide copies of all its SEC Form 10-K and/or Form 10-Q reports or, if such reports are unavailable, copies of the Party's most recent audited financial statements. Such reports shall be prepared in accordance with generally accepted accounting principles. If either Party has reasonable grounds to believe the other Party has experienced a Material Adverse Change or the other Party's creditworthiness or performance under this Agreement has become unsatisfactory, then that Party shall provide the other with written notice requesting Performance Assurance in an amount determined in a commercially reasonable manner. Upon receipt of such notice, the receiving Party shall have three (3) Business Days to remedy the situation by providing such Performance Assurance. In the event the receiving Party fails to provide such Performance Assurance within three (3) Business Days of receipt of such notice, then an Event of Default shall be deemed to have occurred and the requesting Party shall be entitled to any remedies set forth in this Agreement.
- 2.5 **Force Majeure.** Force Majeure means an event that is beyond the reasonable control of the claiming party that could not have been prevented by the exercise of due diligence, including, but not limited to: acts of God; civil disturbances or disobedience; labor dispute or shortage; sabotage; explosions; accidents affecting machinery or power lines; lightning; earthquakes; fires; storms; tornadoes; floods, failure of transmission or distribution, failure of generation, acts of a public enemy; and the direct or indirect effect of governmental orders, actions or interferences. Nothing contained herein shall be

construed to require a claiming party to settle any strike or labor dispute. If either Party is rendered unable by Force Majeure to carry out, in whole or part, its obligations under this Agreement, such Party shall give notice and provide full details of the event to the other Party in writing as soon as practicable after the occurrence of the event. During such Force Majeure period, the obligations of the Parties (other than to make payments due) will be suspended. The Party claiming Force Majeure will make all reasonable attempts to remedy the effects of the Force Majeure and continue performance; provided, however, that no provision of this Agreement shall be interpreted to require ENGIE to deliver, or Customer to receive, electric energy at points other than the delivery point(s). Force Majeure shall not include (a) Customer's decision to shut down, sell or relocate its facilities or (b) economic loss due to Customer's loss of markets or suppliers.

- 2.6 Events of Default. An "Event of Default" means: (a) the failure to make, when due, any payment required under this Agreement if such failure is not remedied within five (5) Business Days after written, or (b) if Customer cancels a Sales Confirmation executed pursuant to this Agreement prior to the Sales Confirmation Start Date, terminates or discontinues service, switches service to another supplier, or transfers service to the default service provider during a Sales Confirmation Transaction Term; or (c) any representation or warranty made by a Party in this Agreement proves to have been false or misleading in any material respect when made or ceases to remain true during the Term; or (d) the failure by a Party to perform any covenant set forth in this Agreement and for which a remedy is not provided herein and such failure is not excused by the other Party in writing or by Force Majeure or cured within five (5) Business Days after written notice thereof; or (e) the failure of a Party to provide Performance Assurance in accordance with Section 2.4; or (f) absent agreement to the contrary the failure of Customer to utilize ENGIE as its sole supplier of electric energy for the facilities and accounts specified in an applicable Sales Confirmation (absent a failure to perform by ENGIE); or (g) a Party: (i) makes an assignment or any general arrangement for the benefit of creditors; or (ii) otherwise becomes Bankrupt or insolvent.
- 2.7 Remedies upon Event of Default. If an Event of Default occurs, the non-defaulting Party shall have the right (i) to liquidate and terminate any and all Sales Confirmations hereunder and/or (ii) suspend performance. If non-defaulting Party elects to terminate and liquidate, it shall calculate the aggregate amount of losses or gains it incurs in accordance with the following formula: Termination Payment = (Contract Price – Current Market Price) x (the amount of electricity remaining to be delivered under the terminated Sales Confirmations as shown in the Monthly Anticipated Consumption table attached thereto). The non-defaulting Party shall provide a written explanation of its calculation of the Termination Payment to the defaulting Party, and the Termination Payment shall be due within five (5) Business Days thereafter.
- 2.8 Limitation of Liability. FOR BREACH OF ANY PROVISION FOR WHICH A REMEDY OR MEASURE OF DAMAGES IS PROVIDED, LIABILITY IS LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER DAMAGES OR REMEDIES ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS PROVIDED, THE LIABILITY OF THE DEFAULTING PARTY IS LIMITED TO DIRECT ACTUAL DAMAGES ONLY AND ALL OTHER DAMAGES AND REMEDIES ARE WAIVED. IN NO EVENT SHALL EITHER PARTY BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, SPECIAL, EXEMPLARY OR INDIRECT DAMAGES IN TORT, CONTRACT UNDER ANY INDEMNITY PROVISION OR OTHERWISE.
- 2.9 Indemnification. Except as limited by Section 2.8, each Party shall indemnify, defend and hold the other Party harmless from claims, demands and causes of action asserted by any person arising from or out of any event, circumstance, act or incident first occurring or existing during the period when control and title to electric energy is vested in such Party as provided in Section 2.3.
- 2.10 Representations and Warranties. Each Party represents and warrants: (a) it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation and qualified to conduct its business in jurisdictions necessary to perform this Agreement; (b) it has all regulatory authorizations, permits and licenses necessary to legally perform its obligations under this Agreement; (c) the execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms or conditions in its governing documents or any contract to which it is a party or any law, rule, regulation, order, writ, judgment, decree or other legal or regulatory determination applicable to it; (d) this Agreement and each other document executed and delivered in accordance with this Agreement constitute its legally valid and binding obligation enforceable against it in accordance with its terms, subject to any equitable defenses; (e) it is not Bankrupt or insolvent and there are no reorganization, receivership or other arrangement proceedings pending or being contemplated by it, or to its knowledge threatened against it; and (f) it has read this Agreement and fully understands its rights and obligations under this Agreement, and has had an opportunity to consult with an attorney of its own choosing to explain the terms of this Agreement and the consequences of signing it. Customer further represents and warrants to ENGIE throughout the term of this Agreement that no facility or account listed on Attachment A, Exhibit 1 is classified by the applicable utility as a residential account. ENGIE and its successors and assignees make no warranty of any kind, either express or implied, including implied warranty of merchantability and fitness for a particular purpose with regard to the services ENGIE provides or activities Customer undertakes, pursuant to this Agreement. ENGIE has no duty to advise Customer or exercise judgment on Customer's behalf as to the merits or suitability of any transactions that ENGIE proposes to enter into with Customer.
- 2.11 Confidentiality. Neither Party shall disclose, unless authorized in writing by the other Party, the terms of this Agreement to a third party (other than the Party's employees or its lenders, advisors, insurers, counselors or accountants) except in order to comply with any applicable law, order, regulation or exchange rule, to collect debts owed or to obtain transmission, distribution, ancillary or other regulated services; provided, each Party will notify the other Party of any proceeding of which it is aware which may result in non-routine disclosure. The Parties shall be entitled to all remedies available at law or in equity to enforce, or seek relief in connection with, this confidentiality obligation; provided, all monetary damages shall be limited to direct actual damages and a breach of this section shall not give rise to a right to suspend or terminate this Agreement.

- 2.12 Modification. No amendment or modification will be enforceable unless reduced to writing and executed by the Parties.
- 2.13 Assignment and Binding Effect. Neither Party will assign this Agreement or any of its rights without the prior written consent of the other Party which shall not be unreasonably withheld. Any successor or assignee shall be subject to all the provisions of this Agreement to the same extent as though such were the original Party under this Agreement. An assignment shall be effective when the assignee or transferee agrees in writing to assume all of the obligations of the assignor or transferor and to be bound by all of the provisions of this Agreement. This Agreement will inure to the benefit of and be binding upon the Parties and their respective successors and permitted assigns. Any assignment in violation of this Section shall be void.
- 2.14 Billing Dispute Resolution. A Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice rendered under this Agreement within twenty-four (24) months of the date the invoice or adjustment to an invoice was rendered. In the event of any dispute, each Party will thoroughly investigate the matter and report the results of its investigation to the other Party. Any dispute with respect to an invoice is waived unless the other Party is notified in accordance with this Section 2.14 within twenty-four (24) months after the invoice is rendered or any specific adjustment to the invoice is made.
- 2.15 Change in Law. In the event that there is a change in law, administrative regulation, tariff, or any fees or costs imposed by the applicable ISO or by a Governmental Authority, or a change in ISO/RTO Operations, market structure, congestion zone design, or protocols, or a change in application or interpretation thereof, and such change causes ENGIE to incur any capital, operating or other costs relating to the provision of services contemplated herein, in order to maintain the same level and quantity of delivery of electric energy, ENGIE shall have the right to adjust the amounts payable by Customer under this Agreement to reflect, based on the type of change, Customer's pro rata share of ENGIE's incremental costs resulting from such change. If a change in law renders performance under this Agreement illegal, the Parties shall attempt to renegotiate this Agreement to comply with such change, and if unable, the Parties' obligations hereunder shall terminate upon the date the change in law becomes effective.
- 2.16 Governing Law. THIS AGREEMENT AND ALL MATTERS ARISING OUT OF OR RELATING TO IT SHALL BE GOVERNED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT REGARD TO ANY CONFLICTS-OF-LAW PRINCIPLE THAT DIRECTS THE APPLICATION OF ANOTHER JURISDICTION'S LAWS. EACH PARTY CONSENTS TO THE PERSONAL JURISDICTION IN ANY FEDERAL OR STATE COURT WITHIN HOUSTON, HARRIS COUNTY, TEXAS IN ANY ACTION OR SUIT COMMENCED IN SUCH COURT, AND EACH PARTY HEREBY WAIVES ANY OBJECTION THAT IT MAY HAVE BASED UPON LACK OF PERSONAL JURISDICTION, IMPROPER VENUE OR *FORUM NON CONVENIENS*. EACH PARTY WAIVES ANY RIGHT TO TRIAL BY JURY IN ANY ACTION RELATING TO THIS AGREEMENT.
- 2.17 Misc. This Agreement and a Sales Confirmation executed in accordance with this Agreement constitute the entire agreement. There are no agreements or representations affecting the same subject matter other than those herein. If any provision of this Agreement is found to be illegal or unenforceable, the other provisions remain effective and enforceable to the extent permitted by law. All confidentiality and indemnity rights survive the termination. This Agreement may be executed in several counterparts, each of which will be an original and all of which constitute one and the same instrument. Except as expressly provided otherwise in this Agreement, all remedies in this Agreement, including the right of termination, are cumulative, and use of any remedy shall not preclude any other remedy in this Agreement. In any action or proceeding to collect amounts due under this Agreement, the prevailing Party shall be entitled to recover its collection costs and expenses, including reasonable attorneys' fees, from the other Party.

SECTION 3. DEFINITIONS

Bankrupt means a petition or the commencement of a proceeding under a bankruptcy, insolvency, reorganization or similar law, makes an assignment or any general arrangement for the benefit of creditors, becomes insolvent (however evidenced), or has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets.

Business Day means any day except a Saturday, Sunday, or a Federal Reserve Bank holiday. A Business Day is 8:00 a.m. - 5:00 p.m. local time for the relevant Party (to whom the notice, payment or delivery is being sent to/received by) principal place of business.

Contract Price means the price in U.S. dollars as specified in an applicable Sales Confirmation.

Current Market Price means the wholesale price of electricity and any related services (e.g. capacity, ancillary services) that are available for sale at the time of a termination and liquidation. Such price may be based on quotes from leading brokers, and other sellers in the wholesale market; and the Non-Defaulting Party shall not be required to enter into any transactions in order to establish the Current Market Price.

Firm Full Requirements Service means that either Party shall only be relieved of its obligations without liability to the extent that, and for the period during which performance is prevented by Force Majeure or any type of curtailment as ordered by the applicable ISO.

Governmental Authority means any federal, state, local, municipal or other government, any governmental, regulatory or administrative agency, commission or other authority.

Guarantor means an entity providing a guaranty of payment in favor of the other Party.

Interest Rate means the lesser of one and 1 ½ % per month or the maximum rate permitted by applicable law.

ISO means an Independent System Operator to be specified on a Sales Confirmation.

Material Adverse Change shall mean credit rating has dropped below BBB- per Standard & Poors or Baa3 per Moody's Investors Service.

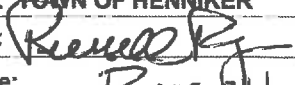
Performance Assurance is collateral in the form of cash, letter of credit, corporate guaranty, or other security acceptable to requesting Party.

Utility Transfer Date is date which the utility permits ENGIE to commence or discontinue Customer's service. ENGIE is not responsible or liable for any loss, cost, charge, damage, or fee incurred by or assessed to Customer for a delay in enrollment. Customer understands that third parties are, in part, responsible for enrollment timeliness.

SECTION 4. NOTICES

	BUSINESS NAME CONTACT NAME	BILLING CONTACT	ENGIE CONTACT	CUSTOMER PAYMENTS <u>Please wire payments to:</u> Mellon Bank <u>Account Title:</u> ENGIE Resources <u>Account Number:</u> 8-086-282 <u>ABA Number:</u> 031000037 For payment by check, please send to: ENGIE Resources P O Box 9001025 Louisville, KY 40290-1025
NAME: ATTN:	Russ Roy	Russ Roy	ENGIE Resources Inc. Attn: Retail	
STREET ADDRESS:	18 Depot Hill		1990 Post Oak Blvd.	
CITY, STATE, ZIP:	Henniker NH 03242		Houston, TX 77056	
PHONE #:	603-438-3221	603-438-3221	1-888-232-6206	
FAX #:	603-428-4366		(713) 636-0927	
EMAIL:	russroy@tds.net	russroy@tds.net	custserv@na.engie.com	
	Customer DUNS No. 031618176	Customer Federal Tax ID (EIN) 026000383		

IN WITNESS WHEREOF, the Parties, by their respective duly authorized representatives, have executed this Agreement effective as of the Effective Date. This Agreement will not become effective as to either Party unless and until executed by both Parties.

Customer: TOWN OF HENNIKER	ENGIE Resources LLC
Signature: 	Signature:
Print Name: Russell Roy	Print Name:
Print Title: Finance Director	Print Title:
Date: 2/6/19	Date:

**SALES CONFIRMATION
New Hampshire
Fixed Price RTC**

This Sales Confirmation is entered on 2/6/2019 ("Confirmation Effective Date"), by and between ENGIE Resources LLC ("ENGIE") and **Town Of Henniker** ("Customer") (hereinafter collectively referred to as the "Parties") regarding the purchase and sale of electric energy and related services pursuant to and subject to the Master Electric Energy Sales Agreement dated February 6, 2019 by and between the Parties (the "Master Agreement"). Terms not defined herein shall have the meaning given in the Master Agreement.

Transaction Term: This Sales Confirmation shall be effective on the Confirmation Effective Date and service shall commence at the Contract Price on the Utility Transfer Date immediately on or following the Start Date. Service shall remain in effect at the Contract Price through the Utility Transfer Date immediately on or following the End Date, but in no event later than the end of the Billing Cycle including such date. Customer's options for service beyond the Utility Transfer Date immediately following the End Date include: i) executing an agreement with ENGIE for new terms and conditions of service, ii) transferring to another competitive supplier or iii) providing a written request to ENGIE to transfer Customer's accounts to the default service provider. In the event Customer does not timely exercise an option, service by ENGIE may continue hereunder following the End Date (the "Post-Term Period"). For service during the Post-Term Period, Customer shall pay an amount equal to the applicable real time index price as posted by the ISO for the relevant delivery point, plus a per kWh Post-Term Charge as defined herein, plus all non-utility charges, including ancillary services, installed (or unforced) capacity, network integrated transmission, losses, and all other ISO charges or administrative fees incurred in connection with delivery of energy. Taxes and Utility Related Charges are additional and are separately listed in the Customer invoice.

Full Swing Transaction: Customer's electricity consumption is variable and is not subject to a maximum or minimum usage limit.

Contract Price: Customer shall pay ENGIE the applicable Contract Price as specified in Attachment A, Exhibit 1 per kWh of electric energy consumed in a Billing Cycle.

Except to the extent that a charge is separately listed as an obligation in this Sales Confirmation (e.g. Capacity, Congestion, Transmission), this Contract Price may include a broker fee and includes non-utility charges including energy, ancillary services, installed (or unforced) capacity, congestion, losses (including distribution and transmission losses (if applicable) incurred in connection with the delivery of energy to the meter at the Facilities/Accounts identified in Attachment A), network integrated transmission service (adjusted for tariff changes), and other ISO charges or administrative fees incurred in connection with delivery of energy to the delivery point specified in Attachment A, Exhibit 1.

The Contract Price does not include Reliability Must Run charges associated with ISO-NE's costs of resources retained for fuel security to real-time load obligation. When applicable and implemented, such costs will be charged to Customer by ENGIE in a commercially reasonable method. As of the Effective Date of this Sales Confirmation, the tentatively scheduled implementation date is June 1, 2022.

Taxes and Utility Related Charges: Taxes and Utility Related Charges are separately listed in the Customer bill and are not included in any other charge identified in this Sales Confirmation.

Facilities, Accounts and Quantities: See Attachment A.

Miscellaneous:

Utility Consolidated Billing (UCB). If ENGIE elects to utilize the applicable local utility to distribute Customer invoices through utility consolidated billing, Customer will receive an invoice from Customer's local utility that includes ENGIE's month electric energy service costs, utility related charges, and all applicable taxes. Customer shall comply with the billing and payment requirements of the local utility.

Payment Terms: 20 days.

IDR Meter Authorization: Customer shall, during the term of this Sales Confirmation, promptly provide all necessary authorizations to ENGIE in order to allow ENGIE to receive interval meter data (IDR) from Customer's facility(ies) listed on Attachment A. At its sole cost, ENGIE or its representative shall have the right to access or install telemetry from Customer's facility(ies) listed on Attachment A in order to track and evaluate Customer's usage on a regular basis for the purpose of load forecasting.

"Rate Ready" Accounts. For account(s) in which the applicable utility uses a "rate ready" billing system, the Contract Price during the Post-Term Period shall be a monthly variable rate set by ENGIE plus a post-term charge and any applicable non-utility related charges, ISO charges or administrative fees. Taxes and Utility Related Charges are separately listed in an invoice. Customer may terminate post-term service at any time without liability.

ON-SITE CUSTOMER GENERATION: The Contract Price is conditioned on Customer's representation that, except for emergency back-up generation used when the local utility is not capable of delivering electricity, Customer does not operate on-site generation or thermal storage facilities. If Customer does operate on-site generation or thermal storage, ENGIE shall calculate in a commercially reasonable manner the present value of any economic loss resulting from the reduced load caused by such operation, and such loss shall be due from the Customer.

Government/Public Entity Payment Terms and Indemnity Waiver. This Agreement may be subject to state mandated payment term requirements for government/public entities; Customer shall provide a written verification of the applicability of such provision(s) to ENGIE to receive such extended terms at an additional cost to be determined by ENGIE. To the extent prohibited by state law or other statute, the Indemnification provision set forth in Section 2.9 of the Master Agreement shall be inapplicable.

Independent System Operator (ISO) means the system operator that controls or governs the transmission and distribution system or any successor thereto for the location where the facility(ies) are physically located.

"Utility Related Charges" means tariff based charges or surcharges assessed by a local utility arising from or related to, including but not limited to, (i) transmission and distribution of energy (including network transmission); (ii) stranded costs or transition costs and any other similar types of charges associated with the opening of the applicable state's electric market to competition; (iii) system reliability, rate recovery, future payback of under-collections, amortization, of above market purchases or energy load repurchases, public purpose programs and all similar items.

"Post-Term Charge" means the \$/kWh charge of electric energy consumed as specified on the Attachment A. ENGIE may, at its discretion, charge an additional fee of up to \$0.0030/kWh of electric energy consumed if the number of accounts specified on the Attachment A exceeds 100.

Facility/Account Deletions Prior to End Date: The Parties intend that each of the Facilities listed on Attachment A will be continuously served by ENGIE through the End Date shown on Attachment A. However, should Customer close a Facility or otherwise discontinue electric service prior to the End Date, then ENGIE shall calculate in a commercially reasonable manner, the present value of any economic gain or loss it incurred thereby. Any gain or loss that ENGIE reasonably concludes is material shall be due to Customer (if a gain) or due from Customer (if a loss). Customer shall provide notice of any Facility closure to ENGIE as soon as practicable.

Billing Contact Information: All invoices to Customer for service under this Sales Confirmation shall be provided to the person and address specified in the chart following the signature block of this Sales Confirmation.

IN WITNESS WHEREOF, the Parties, by their respective duly authorized representatives, have executed this Sales Confirmation effective as of the Effective Date. This Sales Confirmation will not become effective as to either Party unless and until executed by both Parties.

THIS AGREEMENT MUST INCLUDE AN IDR DATA AUTHORIZATION FORM COMPLETED AND SIGNED BY CUSTOMER.

SIGNATURES	
Customer: TOWN OF HENNIKER	ENGIE Resources LLC
Signature: <i>Russ Roy</i>	Signature:
Print Name: <i>Russ Roy</i>	Print Name:
Print Title: <i>Finance Director</i>	Print Title:
Date: <i>2/6/19</i>	Date:
Customer: Please also sign the Attachment A. This Sales Confirmation will not be effective unless and until both documents (this Sales Confirmation and the Attachment A) are signed and returned to ENGIE.	

	BUSINESS NAME CONTACT NAME	* BILLING CONTACT	ENGIE Resources CONTACT	CUSTOMER PAYMENTS
NAME: ATTN:	Russ Roy	Russ Roy	ENGIE Resources	<u>Wire payments to:</u> Mellon Bank
STREET ADDRESS:	<i>18 Depot Hill</i>		1990 Post Oak Blvd.	<u>Account Title:</u> ENGIE Resources <u>Account No.</u> 8-086-282
CITY, STATE, ZIP:	<i>Henniker NH 03242</i>		Houston, TX 77056	<u>For payment by</u> <u>check please</u> <u>send to:</u>
PHONE #:	603-438-3221	603-438-3221	1-888-232-6206	ENGIE Resources P.O. Box 9001025 Louisville, KY 40290- 1025
FAX #:	<i>603-478-4366</i>		(713) 636-0927	
EMAIL:	russroy@tds.net	russroy@tds.net	custserv@na.engie.com	

Service Type:
☐ New Service
☐ Switching Service
☐ Provider Renewal

If switching service, current service provider is EDN

Authorization and Acknowledgement: Customer hereby acknowledges that it is changing its electricity supplier from that set forth above to ENGIE and hereby authorizes ENGIE, for the duration of this Agreement, to become its electricity supplier and to act as its limited agent to perform the necessary tasks to establish electricity service with ENGIE.

*Required Information

Customer: TOWN OF HENNIKER
Effective Date: 02/06/2019
Agreement #: 1-IDGVJ.1
PR #: 1-HQMFA5.3

ATTACHMENT A: AGREEMENT SUMMARY INFORMATION

Product Code: FP01
Product: Fixed Price RTC

Exhibit 1: Facilities and Accounts

#	Facility Name Service Address	City, State, Zip	County	Utility	Delivery Point	Account Number	Rate Schedule	Start Date	End Date
1	DEPOT ST	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56309190064_657460005	G	12/01/2019	12/31/2020
2	DEPOT HILL RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56531841054_513111005	G	12/01/2019	12/31/2020
3	108 FOSTER RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56925601056_009770007	G	12/01/2019	12/31/2020
4	209 RAMSDELL RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56269190047_067460003	OL	12/01/2019	12/31/2020
5	108 FOSTER RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56925601056_558770003	OL	12/01/2019	12/31/2020
6	DEPOT ST	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56189941024_997211005	G	12/01/2019	12/31/2020
7	UNKNOWN	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56202711099_753873008	OL	12/01/2019	12/31/2020
8	41 WESTERN AVE	HENNIKER, NH 03242-3242	UNKNO WN	PSNH	NEWHAMPSHIRE	56370711056_950780009	G	12/01/2019	12/31/2020
9	MAIN STREET	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56031211063_762280004	G	12/01/2019	12/31/2020
10	155 RAMSDELL RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56159190024_157460005	G	12/01/2019	12/31/2020
11	UNKNOWN	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56479427094_590263006	G	12/01/2019	12/31/2020
12	DEPOT ST	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56398190064_457460005	G	12/01/2019	12/31/2020
13	WEARE RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56294831086_369201007	G	12/01/2019	12/31/2020
14	216 MAPLE ST	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56476141031_887401002	G	12/01/2019	12/31/2020
15	0 WEARE RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56549190023_471460004	G	12/01/2019	12/31/2020
16	WESTERN AVE	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56897241099_601601000	G	12/01/2019	12/31/2020
17	146 DAVISON RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56430341008_644601009	G	12/01/2019	12/31/2020
18	WEARE RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56488190091_450460002	G	12/01/2019	12/31/2020
19	WESTERN AVE	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56614241081_153501002	G	12/01/2019	12/31/2020
20	?	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56869051011_850311002	OL	12/01/2019	12/31/2020
21	WESTERN AVE	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56202711099_040780000	G	12/01/2019	12/31/2020

Customer: TOWN OF HENNIKER
Effective Date: 02/06/2019
Agreement #: 1-IDGVVJ.1
PR #: 1-HQMFA5,3

ATTACHMENT A: AGREEMENT SUMMARY INFORMATION

Product Code: FP01
Product: Fixed Price RTC

Exhibit 1: Facilities and Accounts

#	Facility Name Service Address	City, State, Zip	County	Utility	Delivery Point	Account Number	Rate Schedule	Start Date	End Date
22	UNKNOWN	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56482396074_397253009	G	12/01/2019	12/31/2020
23	WEARE RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56569190036_118460007	G	12/01/2019	12/31/2020
24	MAIN STREET	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56759190028_332460009	G	12/01/2019	12/31/2020
25	UNKNOWN	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56412211047_562280004	G	12/01/2019	12/31/2020
26	WEARE RD	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56488190067_814460008	G	12/01/2019	12/31/2020
27	MAPLE ST	UNKNOWN, NH 00000-0000	UNKNO WN	PSNH	NEWHAMPSHIRE	56768931081_413301002	G	12/01/2019	12/31/2020

Contract Price (\$/KWh):	0.07935
Post Term Charge (\$/Kwh):	0.013

Customer: TOWN OF HENNIKER
Effective Date: 02/06/2019
Agreement #: 1-IDGVVJ,1
PR #: 1-HQMFA5,3

ATTACHMENT A: AGREEMENT SUMMARY INFORMATION

Exhibit 2: Monthly Anticipated Consumption (in MWh)

Delivery Point: NEWHAMPSHIRE

Month	Year	MWh
Dec	2019	69.57
Jan	2020	79.73
Feb	2020	66.62
Mar	2020	69.40
Apr	2020	63.04
May	2020	66.36
Jun	2020	72.71
Jul	2020	81.20
Aug	2020	75.67
Sep	2020	65.23
Oct	2020	63.04
Nov	2020	65.82
Dec	2020	68.60

ACKNOWLEDGMENT:

Customer has reviewed the Account Numbers on this Attachment A for accuracy and completeness and verifies that the facilities and accounts identified on this Attachment A are owned or under its control.

Signature:



Print Name:

Russell Roy

☐ Customer, please check this box if your accounts are tax exempt.
If tax exempt, please send your tax exemption certificates to custserv@na.angie.com
We cannot apply the tax exemption until we receive your certificates.

True Enterprises:

1. Please create a table for the financial benefit analysis of a 25 year Power Purchase Agreement (PPA) that includes the year-by-year electricity generated (kWh)
2. estimated year-by-year cost of utility electricity per kWh
3. year-by-year PPA rate per kWh, annual revenue, cumulative revenue, and similarly for the PPA with buyout at year six.

Please discuss the possibility of the need for upgrades to the electrical service at the transfer station and of associated utility upgrades.

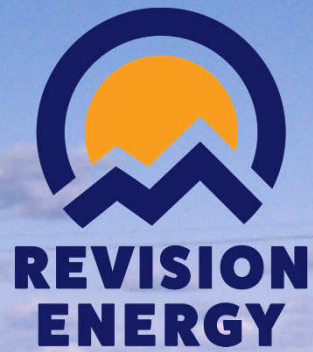
Please explain the following:

1. On page 11, the column labeled 'AC System Output (kWh)' does not add up to the total displayed
2. On page 18, Sec 8.3 "Monthly Projected Cash Flows" the line labeled "Solar Production" does not match the solar production numbers on page 11
3. Warranty – do manufacturer equipment warranties transfer to the town? What is the process?
4. Please provide PPA details including annual maintenance costs

Revision Energy:

1. Proposed location is unavailable
2. Warranty information missing from proposal

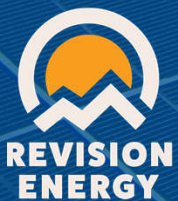
Also, prepare to discuss annual maintenance costs



Clean Energy Options *for* Henniker

ReVision Energy 2019

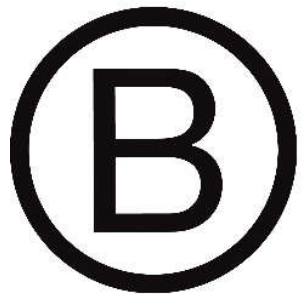
Who We Are *Solutions & Experience*





About ReVision Energy

Certified



Corporation

bcorporation.net

Team: 260+ employee co-owners in NH, ME, and MA designing and installing residential and CI&I clean energy systems

Experience: **8,000+** solar energy systems installed since 2003

Credentials: NABCEP, Master Trade Licenses, other certifications

Vision: Transition Northern New England to a clean, solar energy powered economy while creating positive social change

ReVision Energy PPA Experience

Developed by ReVision

- 100+ solar arrays for nonprofits, towns, schools in NH, ME, MA
- 7+ MW installed capacity
- \$25+ million solar investments



Owned/Operated by ReVision

- 60+ solar arrays in NH, ME, MA
- 5+ MW installed capacity
- \$12+ million solar investments



ReVision Projects for NH Towns include...

- 661 kW- Town of Durham
- 256 kW- Village District of Eastman
- 151 kW- City of Claremont
- 132 kW- Town of Brentwood
- 110 kW- Durham Ice Rink
- 58 kW- Hopkinton Fire Station
- 57 kW- Dept. of Motor Vehicles
- 50 kW- Town of Nottingham
- 20 kW- Town of Andover
- 15 kW- Durham Public Library
- Concord Central Fire Station (thermal)



ReVision PPAs for NH Schools include...

- ~900 kW- Dover High School
- 535 kW- Phillips Exeter Academy
- 346 kW- Inter-Lakes School
- 330 kW- Proctor Academy
- 200+ kW- Dartmouth College
- 127 kW- Colby-Sawyer College
- 123 kW- Tilton School
- 87 kW- East Rochester School
- 78 kW- Plymouth State University
- 62 kW- Cornerstone School, NH
- 55 kW- Sant Bani School
- 43 kW- White Mountain School
- 21 kW- Oyster River School Dist.



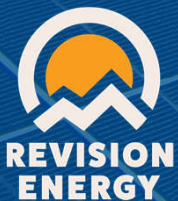
ReVision PPAs for NH Nonprofits include...

- 145 kW- MacDowell Colony (Peterborough)
- 900 kW- Dover High School (Dover)
- 72 kW- AMC (Alexandria)
- 67 kW- Eastman Community (Grantham)
- 66 kW- Second Start (Concord)
- 64 kW- Pine Haven Boys Ctr. (Allentown)
- 40 kW- Nashua Soup Kitchen & Shelter
- 26 kW- Farmington Children's Center
- 25 kW- Exeter Housing Authority
- 18 kW- Crossroads House (Portsmouth)
- 17 kW- Regional Econ Development Ctr.
- 12 kW- Friends Forever (Durham)

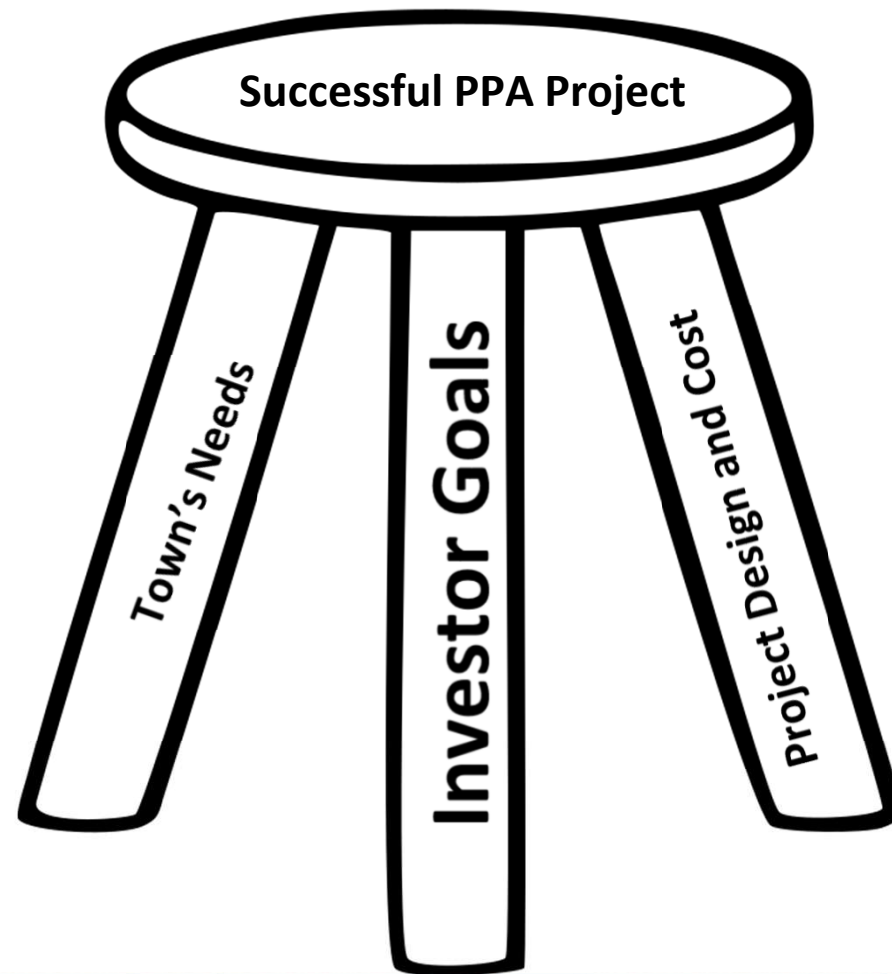


Solar Financing for Nonprofits

Solar Power Purchase Agreements (PPAs)



Solar PPA – The 3 Legged Stool

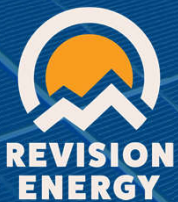


PPA Challenges for Henniker

- Low 3rd Party Supply rate
- Siting of project
- Behind the Meter Loads
- NH C&I Rebate Program on hold



Net Metering



Current Net Meter Program

- The value of the net meter credit depends on the system size.
- Systems under 100 kw ac; Small Generator
 - How credit is calculated
 - 100% of Supply
 - 25% of Distribution
 - 100% of Transmission
 - Credit is calculated on a monthly basis



Current Net Meter Program

- Systems Over 100 kw ac; Large Generator
 - How Credit is Calculated
 - 100% of Supply
 - Credit is Calculated in Real Time



Sample Eversource Bill

EVERSOURCE

Account Number: **5615 919 0024**

Customer name key: HENN

Statement Date: 08/07/19

Service Provided To:
TOWN OF HENNIKER TREATMENT PLA

Service Address: 155 RAMSDELL RD
HENNIKER NH 03242

Serv Ref: 157460005 Bill Cycle: 04

Service from 07/08/19 - 08/07/19 30 Days

Next read date on or about: Sep 06, 2019

Meter Number	Current Read	Previous Read	Current Usage	Reading Type
572922398	12437	12239	198	Actual

Dist provided ID: TREATMENT PLANT

Total Demand Use = 48.30 kW

198 X Meter Constant of 100 = 19,800 Billed Usage

Monthly kWh Use

Aug	Sep	Oct	Nov	Dec	Jan	Feb
22900	22000	21800	28000	36700	41200	40200
Mar	Apr	May	Jun	Jul	Aug	
40200	35700	32800	25700	22800	19800	

Contact Information

Emergency: 800-862-7764

www.eversource.com

BusinessCenter@HGEversource.com

Pay by Phone: 888-729-7764

Customer Service: 888-554-6025

For information or questions regarding your account, please contact Eversource at the number above. If, after contacting us, your billing dispute is still unresolved, you may call the New Hampshire Public Utilities Commission at 800-852-3793.

Total Amount Due
by 09/01/19

\$2,788.47

Electric Account Summary

Amount Due On 08/02/19	\$3,006.17
Last Payment Received On 07/19/19	-\$3,006.17
Balance Forward	\$0.00
Current Charges/Credits	
Electric Supply Services	\$1,502.03
Delivery Services	\$1,286.44
Total Current Charges	\$2,788.47
Total Amount Due	\$2,788.47

Total Charges for Electricity

Supplier

ENH POWER

Service Reference: 157460005

Allocated for 07/08/19 to 07/31/19

Generation Svc Chrg*** 15180.60kWh X \$0.07586 \$1,151.60

ENH POWER

Service Reference: 157460005

Allocated for 07/31/19 to 08/07/19

Generation Svc Chrg*** 4619.40kWh X \$0.07586 \$350.43

Subtotal Supplier Services \$1,502.03

Delivery

(RATE G GENERAL SERVICE)

Service Reference: 157460005

Allocated for 07/08/19 to 07/31/19

Customer Chrg 3-Phase \$29.7600 X 0.76670 \$22.82

KW Distrib Chrg, Over 5.0 43.30KW X \$8.72000 X 0.76670 \$289.49

KW Transmission Chrg, Over 5.0 43.30KW X \$5.26000 X 0.76670 \$174.62

KW Strnd Cst Recovery Chrg 43.30KW X \$0.96000 X 0.76670 \$31.87

Distribution Chrg 383.40kWh X \$0.06886 \$26.78

766.70kWh X \$0.01731 \$13.27

14030.50kWh X \$0.00612 \$85.87

Strnded Cst Recovery Chrg 4619.40kWh X \$0.01293 \$59.73

System Benefits Chrg 4619.40kWh X \$0.00586 \$27.07

Subtotal Delivery Services \$1,286.44

Total Cost of Electricity \$2,788.47

Total Current Charges \$2,788.47

← Supply

← Monthly Service fee

← Demand

← kWhs Charges

Supplier

ENH POWER

Service Reference: 471460004

Allocated for 07/08/19 to 07/31/19

Generation Srvc Chrg***	5136.80kWh X \$0.07586	\$389.68
-------------------------	------------------------	----------


ENH POWER

Service Reference: 471460004

Allocated for 07/31/19 to 08/07/19

Generation Srvc Chrg***	1563.20kWh X \$0.07586	\$118.58
-------------------------	------------------------	----------

Subtotal Supplier Services		\$508.26
----------------------------	--	----------

 100% of supply

Customer Chrg 3-Phase	\$32.3900 X 0.23330	\$7.56
-----------------------	---------------------	--------

KW Distrib Chrg, Over 5.0	25.60KW X \$9.49000 X 0.23330	\$56.68
---------------------------	-------------------------------	---------

KW Transmission Chrg, Over 5.0	25.60KW X \$5.78000 X 0.23330	\$34.52
--------------------------------	-------------------------------	---------

KW Strnd Cst Recovery Chrg	25.60KW X \$1.13000 X 0.23330	\$6.75
----------------------------	-------------------------------	--------

Distribution Chrg	116.60kWh X \$0.07604	\$8.87
-------------------	-----------------------	--------

	233.30kWh X \$0.01884	\$4.40
--	-----------------------	--------

	1213.30kWh X \$0.00666	\$8.08
--	------------------------	--------

Transmission Chrg	116.60kWh X \$0.02089	\$2.44
-------------------	-----------------------	--------

	233.30kWh X \$0.00786	\$1.83
--	-----------------------	--------

	1213.30kWh X \$0.00421	\$5.11
--	------------------------	--------

Strnded Cst Recovery Chrg	1563.20kWh X \$0.01293	\$20.21
---------------------------	------------------------	---------

System Benefits Chrg	1563.20kWh X \$0.00586	\$9.16
----------------------	------------------------	--------

 25% of distribution 100% of Transmission

Subtotal Delivery Services		\$659.15
----------------------------	--	----------

Total Cost of Electricity		\$1,167.41
---------------------------	--	------------

Total Current Charges		\$1,167.41
-----------------------	--	------------

How Net Metering works



Solar Production for Month: 10,000 kwhs



Behind the meter usage of
3,000 @ \$0.102 = \$306

7,00 kwhs sold back to the grid
@\$0 .093= \$651

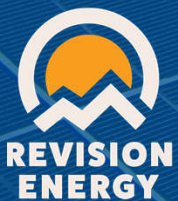
Henniker Proposed project



REASON FOR PROPOSING

- EFFICIENCY OF BUILD AND COST
- BEHIND LARGEST METER
- POTENTIAL TO ATTRACT INVESTOR

Proposed Potentials



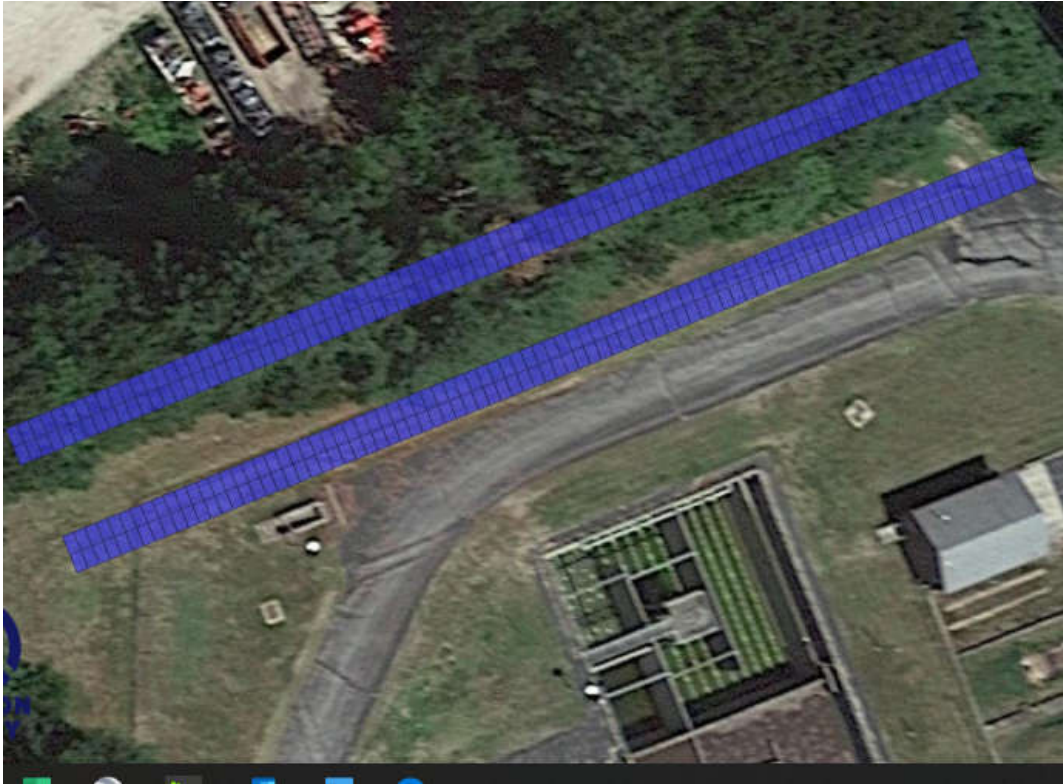
Henniker Potential Sites WWTP/PW Garage Roof Tops



SIZE 106.6 KW
YR. 1 PRODUCTION.....129,600



Henniker Potential Sites WWTP GM



SIZE 129KW
YR. 1 PRODUCTION.....165,400



Henniker Potential Sites: Pump House

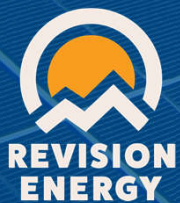


SIZE 120.8 KW
YR. 1 PRODUCTION.....159,100

Proposed Henniker Sites Summary

- Combined System Size.....357.8 KW DC
- Year 1 Production.....451,112 kWhs
- Year 1 PPA Rate.....\$0.115
- Year 1 cost.....\$7,947
- Annual Savings After Purchase.....\$50,451
- 25 Year Savings if Purchased.....\$542,707
- 40 Year Savings if Purchased.....\$1,740,669

Warranty



Warranty

3 Contractor Warranty Coverage.

- 3.1 For a period of five (5) years following installation, Contractor will repair, at no cost to the customer, equipment sold to the customer by Contractor in accordance with the terms of the equipment manufacturer's warranty. Thereafter, Contractor shall service warranties of manufacturers of equipment sold to the customer by Contractor but the customer shall be responsible to pay the cost of Contractor's then applicable standard labor rates.
- 3.2 For a period of five (5) years following installation, Contractor warrants its workmanship supplied in connection with equipment purchased from, and installed by Contractor. The customer shall pay the cost of Contractor's standard labor to service or repair equipment purchased from a supplier other than Contractor.
- 3.3 The customer shall be responsible to pay any costs other than labor to service or repair equipment installed by Contractor including, but not limited to, shipping charges in connection with parts that are not covered by the manufacturer's warranty.
- 3.4 The customer shall be responsible to pay all costs, including those for labor, equipment and materials, incurred by Contractor to repair or service equipment purchased from us, but installed by others.
- 3.5 The Owner shall pay all service, labor and materials costs for issues arising from failure of or problems with Internet or cellular service. In no case shall Contractor be responsible for any costs caused by failure of Internet or cellular service.



REVISION ENERGY

John Dunster
Commercial and Industrial Consultant
978 -384-0651
jdunster@revisionenergy.com
www.ReVisionEnergy.com

Henniker Potential Sites Landfill



SIZE 356KW
OF PANELS.....954
YR. 1 PRODUCTION.....451,112kWhs

YR 1 NET COSTS.....(\$7,669)
ANNUAL SAVING AFTER B/O...\$47,811
25 YEAR SAVINGS.....\$507,923
40 YEAR SAVINGS.....\$1,663,584



Henniker Potential Sites: Pump House



REASON FOR CONSIDERATION

- EFFICIENCY OF BUILD AND COST
- BEHIND 2ND LARGEST METER
- POTENTIAL TO ATTRACT INVESTOR

HENNIKER SITES:

Solar PPA Structure

Finance Partner

- ▶ Provide capital and form solar LLC
- ▶ Build, own, operate array 5+ years
- ▶ Recoup investment through:
 - Federal tax credit, depreciation
 - Energy payments from nonprofit
 - REC sales, rebates (if applicable)
- ▶ Pass on savings by selling array to nonprofit in year 6 or later (optional)

Town

- ▶ Provide roof/ground space for solar
- ▶ Purchase solar electricity produced on site at below-market rates
- ▶ Purchase solar array in year 6 or later (optional) at significant discount
- ▶ Maximize electricity cost savings by owning and operating solar array for full 40+ year lifespan

Finance Partner(s)

- *Tax Investor*
- *Major Donor*
- *ReVision Energy*

Special Purpose LLC

- *Build solar project*
- *Own, operate for 6+ yrs.*
- *Sell power to host org.*

Host Nonprofit

- *Lease space for solar*
- *Buy solar power*
- *Option to buy array*

PPA





HENNIKER SITES:

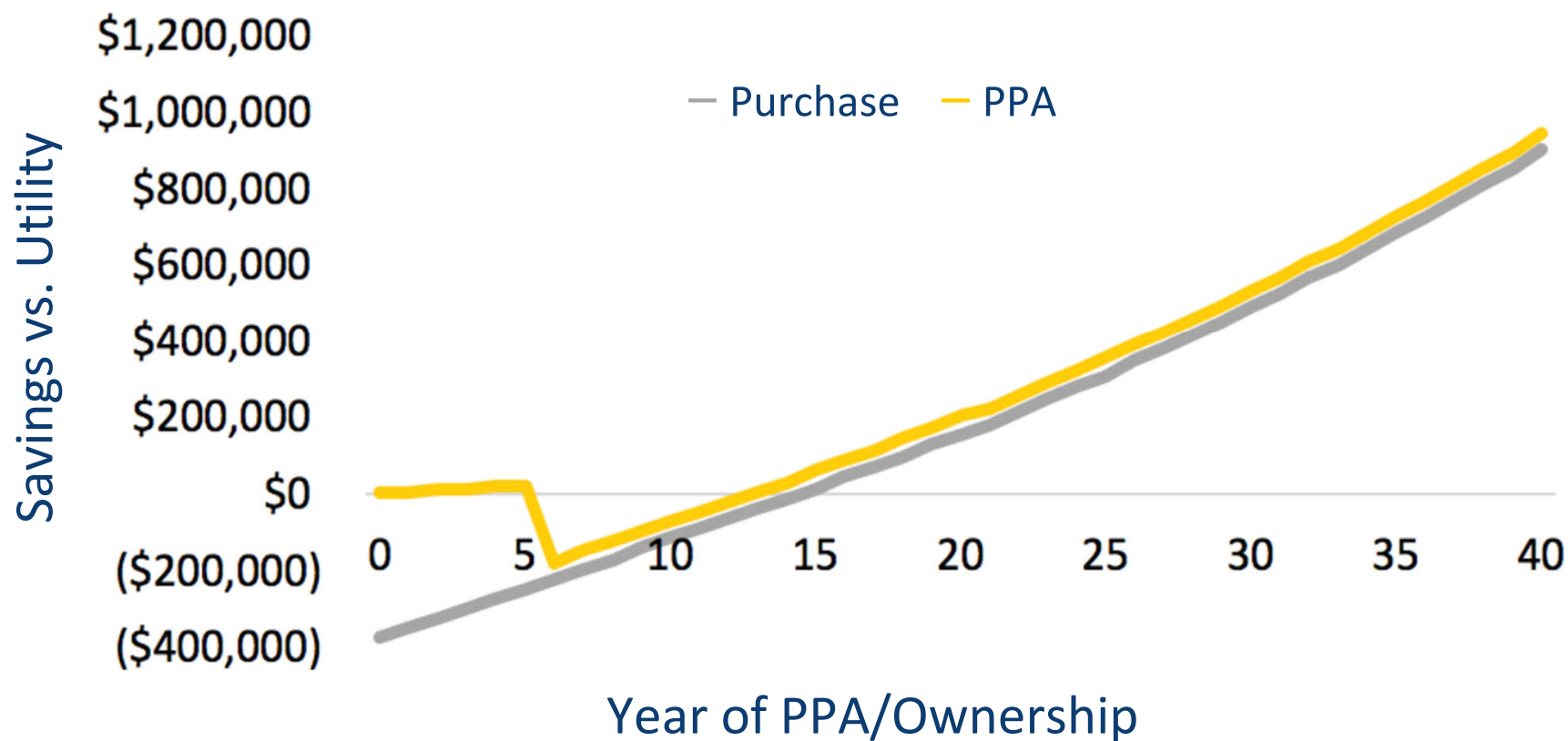
HENNIKER SITES:

HENNIKER SITES:

HENNIKER SITES:

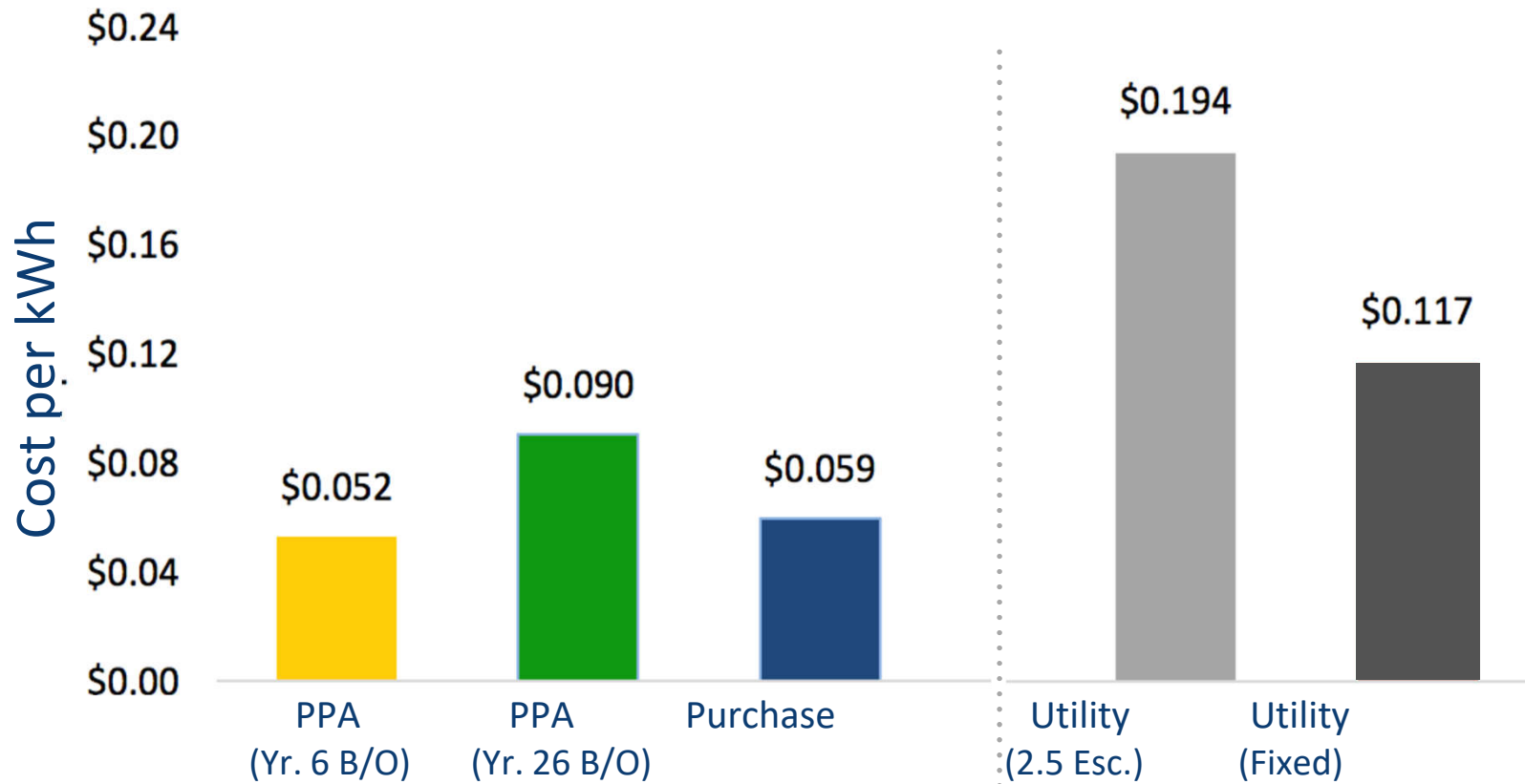
Sample NH Nonprofit Solar PPA

Savings Projection, Purchase or PPA - 142 kW



Sample NH Nonprofit Solar PPA

40 Year Cost of Electricity vs. Utility - 142 kW





Town of Henniker

12-18-19

Developer: True Solar Enterprises
EPC: True Solar Enterprises
Project: Town of Hennicker

<u>EPC Price (\$/Wdc)</u>	<u>Year 1 Price (\$/kWh)</u>	<u>Term (yrs)</u>	<u>Escalator</u>
2.464	0.1590	25	2.00%
\$800,000			

Assumptions

Additional Developer Fee Contemplated (\$/Wdc):	0.000		
Additional Utility-required Interconnection Costs (\$/W):	0.000		
Grant / Prepayment Capital	\$0		
Structural Considerations:	Ground Mount - Fixed		
Equipment:	All will be on Bloomberg "financeable" list		
Acquisition Timing:	NTP		
COD Year:	2020		
COD Quarter:	2		
ITC Eligibility:	26%		
Size of system (kW dc):	324.70		
# of separate sites:	1		
Production factor (kWh/kW):	1,304	Year 1 kWh:	423,377
Annual degradation on production factor:	0.50%		
This is assumed to be representative of a full turn-key project. EPC pricing and scope is inclusive of all of the following, but no be limited to: preliminary and construction designs, interconnection applications and studies, procure/install all equipment, soil reporting (geotech, push/pull) and any and all development related costs included (civil designs, SWPPP, other permits) etc., sales/use taxes, fencing, civil work, metering equipment, monitoring (Also or equivalent)			
EPC Price includes:			
Assumed Workmanship Warranty Period:	5 years		
PPA:	Details as listed above. Purchaser buys 100% of generation and covers any power generation-related taxes		
RECs:	Go to Purchaser		
Purchaser Credit Support:	Assume Investment Grade		
Personal Property Taxes (via PILOT):	\$1,750/yr		
Insurance Requirements:	Nothing unique, such as increased natural disaster risk, flood plain insurance, etc.		

<u>Year</u>	<u>P50 kWh</u>	<u>\$/kWh</u>
1	423,377	0.15900
2	421,260	0.16218
3	419,143	0.16543
4	417,026	0.16874
5	414,909	0.17211
6	412,793	0.17555
7	410,676	0.17906
8	408,559	0.18264
9	406,442	0.18630
10	404,325	0.19002
11	402,208	0.19382
12	400,091	0.19770
13	397,974	0.20165
14	395,857	0.20569
15	393,741	0.20980
16	391,624	0.21400
17	389,507	0.21828
18	387,390	0.22264
19	385,273	0.22709
20	383,156	0.23164
21	381,039	0.23627
22	378,922	0.24099
23	376,806	0.24581
24	374,689	0.25073
25	372,572	0.25574
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-

This document consists of the assumptions made for our pricing of the Town of Hennicker project. This non-binding letter of intent will be used as the basis for a term sheet and definitive documentation.



RESULTS

423,398 kWh/Year*

System output may range from 403,710 to 442,113 kWh per year near this location.

Cautions: Photovoltaic system performance predictions calculated by PVWatts[®] include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts[®] inputs. For example, PV modules with better performance are not differentiated within PVWatts[®] from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts[®] Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide

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The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	3.02	25,318	4,026
February	4.06	30,057	4,779
March	4.91	39,528	6,285
April	5.47	41,271	6,562
May	5.56	42,923	6,825
June	5.92	43,445	6,908
July	6.25	46,855	7,450
August	5.80	43,431	6,906
September	5.27	38,888	6,183
October	3.65	28,738	4,569
November	2.91	22,814	3,627
December	2.42	20,130	3,201
Annual	4.60	423,398	\$ 67,321

Location and Station Identification

Requested Location	henniker nh		
Weather Data Source	Lat, Lon: 43.17, -71.82	1.2 mi	
Latitude	43.17° N		
Longitude	71.82° W		

PV System Specifications (Residential)

DC System Size	325 kW
Module Type	Premium
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	180°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.159 \$/kWh
---------------------------------	--------------

Performance Metrics

Capacity Factor	14.9%
-----------------	-------

HENNIKER FIRE & RESCUE



Est. 1899
Phone: 603-428-7552
Fax: 603-428-7628
E-mail: rescue@henniker.org



Henniker Energy Committee
c/o Bruce Trivellini, Chairman
Henniker, NH 03242

October 23, 2017

Dear Chairman Trivellini,

The Chiefs of Fire and Rescue have received your letter dated September 28, 2017.

The Jordan Institute Energy Audit was received by these departments when issued. It was reviewed by current and former chiefs. Our building has undergone several upgrades / corrective measures suggested in the study that we deemed appropriate. We also currently continuing upgrades as appropriate and as funding allows. Whereas the report was issued circa 2011 we also contacted former Fire Chief Gilbert when considering our summary below.

In reviewing the Jordan Institute Report. We found the following discrepancies in the report that we would like to highlight as follows for accuracy:

- Pg 51 of 120 "There is a window however that connects the radio space to the garage space where cold air often makes its way into the conditioned space." The garage space is a conditioned space as well. The thermostat is set lower than the living quarters, but the cold air entering the radio room is minimal.
- Pg 52 of 129 "The rest of the building is heated by a Rheem Classic 90 Plus propane fired furnace". The rest of the building is actually heated by two furnaces. The first floor is heated by a Rheem Classic 90 Plus Premium Efficiency. It was installed in 1994 and is original equipment. The second floor is heated by a Rheem Classic 90 Plus. The burner was replaced due to failure in 2003.
- Pg 52 of 129 "The vents in the meeting room have been closed off to move more volume of air to other spaces." The vents are not closed.
- Pg 53 of 129 under HVAC Controls. The report fails to mention the thermostats in the living quarters. There is one for the first floor and one for the second floor. They are Honeywell knob thermostats.
- Pg 53 of 129 "The fire trucks need to be plugged in when not in use, and are a very large draw of electricity for the building." All in-service trucks in the bay are indeed plugged in but they are a low amperage trickle charge draw and not a large draw of electricity.

Mailing Address: 216 Maple Street, Henniker, NH 03242

- Page 57 of 129 “The garage can save energy and see a cost savings benefit from installing insulated garage doors.” The garage doors are already insulated.

We can report that some of the recommendations in the report have been accomplished. In addition to some of the report’s recommendations other energy improvements have been accomplished at the Fire/Rescue building.

The following are energy improvements at the Fire/Rescue Building: Where applicable the report recommendation number and page are supplied.

Recommended Building Envelope Energy Efficiency Measures

B1 – Air Seal and add insulation to the attic (pg 57). Repair of insulation and penetrations in the attic and prep for additional blown in insulation has occurred. Additional blown in insulation is in the works for FY2017 .

B2b-Replace garage doors with insulated garage doors (pg 57). Existing O/H doors are already insulated although the report indicated they were not.

B2b-Weather strip garage doors and exterior doors (pg 57). Replacement of all (5) exterior personnel doors and frames including weather stripping has occurred. Repair/replacement of overhead door weather-stripping has occurred. This has worn out again and needs to be replaced again. This project is in the works for FY2017.

New sills and UV shield on some window glass on the western side of the building to reduce solar gain.

Recommended Mechanical Energy Efficiency Measures

M1-Re-insulate and seal ducting (pg 57). Many of the ducts are within the existing controlled space and are inside walls or between ceilings and floors. Those will not be reinsulated or sealed due to the fact that realized cost savings do not outweigh the cost of the repairs. Other exposed ducts may be considered in the future.

M2-Install CO detectors in rooms adjacent to the garage for health and safety (pg 57). CO detectors have been installed.

M3-Install programmable thermostats (pg 57). The building is now staffed 24/7. For that reason set back thermostats were not installed.

Recommended Electrical Energy Efficiency Measures

E1-Replace refrigerators with Energy Star models when the appliances reach end of life (pg 57). The aged microwave was the only appliance that has been replaced and it is Energy Star.

Replacement of some T8 with LED tubes and reduction of the number of tubes in some fixtures. When T8 tubes are replaced they are being replaced with LEDs

All exterior lighting has been replaces with LED.

Metal halite lights in the apparatus bay are no longer used and have been disconnected.

Recommended Renewable Energy Efficiency Measures

R1-Consider installing photovoltaic panels to offset the electric use of the fire engines (pg 58). Solar electric panel were investigated and found not to be cost effective. As firefighters we are not in favor solar panels on roofing. The electrical draw by the apparatus is not as significant as the report indicates. Whereas we are a municipal building the tax incentives usually used to offset the capital costs are not available. The cost of installing the panels would not be offset by cost savings during the expected life of the panels.



Stephen C. Burritt
Chief, Henniker Fire Department



Thomas A. French
Chief, Henniker Rescue Squad

STATUS REPORT PV SOLAR BID REVIEW 2020

A Status Report

Henniker Energy Committee: Request for Proposal Photo-Voltaic Solar System Proposal Review
& Recommendations to Select-Board

January 2020

Bruce J. Trivellini, Chairman

Town of Henniker Energy Committee

On behalf of the Henniker Energy Committee January 2020

Prologue

In the fall of 2019, Town of Henniker sought proposals for a Photo-Voltaic Solar Energy System (**PVSolar**). Henniker received 3 bid proposals.

The bid information was transmitted successfully to all members of the committee via email. The bid information was reviewed at the Energy Committee's regularly scheduled November public meeting and two subsequent special meetings, one in December 2019 and one in January 2020.

The results of the committee's deliberations are made available through this report.

*Note: One member of the committee Michael French was identified as an owner of Revision Energy, which was one of the companies that submitted a proposal. While Mr. French was a valuable source of information during the development of a Request for Proposal for a Solar Energy System (**RFPSolar**), Mr. French did not take part in any deliberations of the three proposals that were received.*

Keywords: Photovoltaic, RFP Solar, PVSolar

Proposal Review & Recommendations to Select-Board

January 2020

Henniker, NH Energy Committee Mission Statement: The Energy Committee's mission is to encourage and facilitate energy conservation, energy efficient practices, and promote the use of renewable energy (solar, wind and hydroelectric) in the Town of Henniker, including public buildings and properties, businesses and homes.

Executive Summary

In 2019, the committee studied the possibility of using solar energy to reduce the overall electrical associated with providing the town's public services. The committee drafted the RFPSolar (**Exhibit 1**) The RFPSolar was approved and sent out October 5, 2019. Three bids were received.

- 1.) **Barrington Power: \$347,568** various sloped roof locations; Police. Fire, WWTF, Town Garage and Salt Shed and one ground mounted proposed at Police Station. PPA calculated at \$0.1075 per kWh (10.75¢ per kWh) with 1.0185% annual escalator.
[Our main proposal is for a PPA, although we have included outright purchase prices should the town want this, but we have not included payback analysis for an outright purchase. It is very rare for a town to choose the outright purchase because they cannot take advantage of the Federal Investment Tax Credit. A better approach, which is preferred by most municipalities, is to buyout the system after year 5 of the PPA at fair market value which is typically less than 50% of initial installation price.]
(Exhibit 2) (see bid note #1)

- 2.) **Revision Energy: “expect the cost of the 486 kW DC system to be around \$1,010,000.”** Initial submission on Army Corps property east of Wastewater

Treatment Facility (**WWTF**). PPA calculated at \$0.092 per kWh (9.2 ¢/kWh) in year 1 with a 2% annual escalator starting in year 3. (**Exhibit 3**) and amended proposal (**Exhibit 7**). (*see bid note #2*)

- 3.) **Truenterprises: \$800,000.00** ground mounted system located at capped landfill site. PPA calculated at \$0.1590 per kWh (15.90 ¢ per kWh) with 2% annual escalator. (**Exhibit 4**) (*see bid note#3*)

All three bidders provided the information requested in the RFPSolar. Barrington Power's proposal did not meet the requested electrical generation capacity in the RFP. However, their system's unique design and group net metering proposal deserves a more thorough examination. The committee would like to extend an invitation to Barrington Power to discuss their unique proposal.

The committee recognized that all three bidders were known contractors and had extensive expertise in this field.

The committee did not evaluate the proposed equipment. The committee assumes the equipment offered in each proposal meets the quality standards established by the industry.

All three proposals provided the requested financial data in order to review each proposal in the following fashion.

1. Outright purchase of the PV System or Net Metering (NM): Net-metering requires that the building where the solar energy system is interconnected buy default supply from the utility, which means you cannot purchase power from a 3rd party supplier. For Group Net Metering the host cannot buy 3rd party supply but the members can.

2. Power Purchasing Agreement (PPA), where the town would not own the PVSolar system but would enter a long-term contract to purchase the power created by the system, typically 25 years.
3. Combination of PPA for the first 5 years with option to purchase PVSolar system in year 6 at approximately 50% of the original cost.

The committee had a brief discussion about municipal financing. The committee does recommend to the Select Board that a detailed cost analysis to assess any penalty that could be imposed by the On Site Customer Generation penalty clause in current supplier contract (page 6, Exhibit 5), yearly maintenance contracts, municipal bond financing, including interest rates and replacement costs of the system, be concluded prior to approving any Solar System proposal.

Town of Henniker Finance Director, Russ Roy, provided the committee a copy of the Town's current supply purchasing agreement (**TPPA 2020**) (**Exhibit 5**). The town's current contract is for **\$0.7935 per kWh (7.9¢ per kWh)** Mr. Roy advised Chairman Trivellini that this rate is negotiated and reviewed periodically throughout the year and changes are suggested when energy markets favor the town. Mr. Roy mentioned that a possible adjustment may occur in February or March of 2020 and he will keep the committee apprised of the status of TPA2020.

After reviewing all data proffered to the committee, it was determined that the town's current electrical billing rate of **\$0.7935 per kWh (7.935¢ per kWh)** is substantially lower than what is being offered in all three PPA bids **1.) Barrington Power (\$0.1075 per kWh with a 1.00185% annual escalator) 2.) Revision Energy (\$0.092 per kWh with 2% annual escalator) 3.) Truenterprises (\$0.1590 per kWh (15.90 ¢ per kWh) with 2% annual escalator.)**

At this time the committee could not clearly see any benefits to the town by engaging in this project. Therefore, by consensus (1-recusal, 1-absent), the committee believes that the

proposals as submitted may not lower our energy costs below our current contracted rate of \$0.07935 per kWh.

In accordance with our mission to provide the taxpayers with the best value for their tax dollars, **the committee recommends that no action be taken to approve the three bids at this time.**

Bid notes: Two bidders were asked to clarify certain portions of their bid. The questions were emailed in advance of an appearance before the committee. (Exhibit 6)

1. The committee had no questions regarding Barrington Power's submission. Barrington Power produced a very easy to read well documented proposal.
2. Revision Energy Addendum (Exhibit 7): the initial bid was for a solar array to be built on land not owned by the town. However, the bid also contained information regarding other sites that Revision indicated would be suitable locations. (Exhibit 3, page 6).
3. Truenterprises submitted a ground mounted proposal for the capped landfill site (Exhibit 4). The committee submitted questions to Truenterprises requesting clarification of their bid. The questions were emailed in advance of an appearance before the committee (see exhibit 6). Truenterprises' response can be found in (Exhibit 8)

Additional Considerations:

The committee also took into consideration the comments made by Henniker Fire Chief Stephen C. Burritt and Henniker Rescue Squad Chief Thomas A. French in a report dated October 23, 2017 Department (Exhibit 9, page 3). In that report the Fire Department Chiefs stated the following. “As firefighters we are not in favor [sic] solar panels on roofing.”

The committee also considered security of the proposed solar array sites. Truenterprises stressed that their the capped landfill proposal provide a great deal of security for the proposed system.

Additional Recommendations:

The committee discussed possible reasons for such a small pool of bidders. Timing and RFPSolar content were the two areas noted. The committee will explore these two areas to see if adjustments can be made.

The committee anticipates that further technological advancements in the Solar Energy Industry will continue and future proposal could bring a satisfactory outcome for such a project in Henniker.

Respectfully submitted,

Bruce J. Trivellini, Chairman