DE10-024

Leighton, Adele

From: Matthew Marrazzo [matt@townlineequipment.com]
Sent: Tuesday, February 23, 2010 1:18 PM
To: Executive Director,
Subject: Written Comments for Upcoming Meeting

Good afternoon,

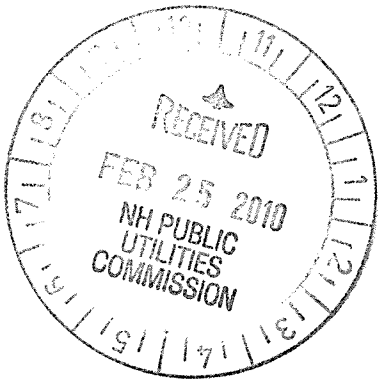
My name is Matt Marrazzo; I'm the General Manager at Townline Equipment in Plainfield, NH (www.townlineequipment.com). KW Management out of Nashua New Hampshire has helped us put together a proposal for an 80.48kW dc STC photovoltaic system to be installed on the roof of our new facility. I have attached a letter that outlines our project and our funding needs. I've also attached the detailed proposal from KW Management.

We will be attending the technical session on Friday to learn more about the state's Renewable Energy Fund and the opportunities that might become available for commercial projects likes ours. Please submit the information attached in this email as our comments to date.

Thank you for your time.

Sincerely,
Matt Marrazzo

Matt Marrazzo
General Manager
Townline Equipment Sales, Inc.
P: 603-675-6347
F: 603-675-2605



TOWNLINE EQUIPMENT SALES, INC
PO Box 300 – 1474 Route 12A
Plainfield, NH 03781
Telephone: 603-675-6347
Fax: 603-675-2605
Email: townlineequip@netscape.net
Website: www.townlineequipment.com

Located on Route 12A
South of Plainfield New Hampshire

2/23/2010

Jack Ruderman
Sustainable Energy Division
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 30301-2429

Dear Jack,

Over the last six months we have worked hard at finalizing plans for a solar photovoltaic (PV) system to be installed on the roof of our new 16,000 square foot facility in Plainfield, NH. In response to the available roof area, the Design/Build team at KW Management, Inc. in Nashua New Hampshire has proposed to install a 80.48kW dc STC photovoltaic system capable of producing approximately 82,471 kwhr per year that will equal 50% of the current energy usage of our business. This system will have a usable life of at least 30 years and the current, complete system cost including all installation is $440,000.

We feel this is a tremendous opportunity for our business and our town to make a positive impact on the environment and to promote the idea of green energy and sustainable technologies in the State of New Hampshire.

From a business perspective, projects like this require a lot of capital up front, while the payback is over a much longer period of time. Without Federal and State incentives, it's almost impossible for us to justify the investment in this project. Currently, we are in the process of applying for a USDA grant and for a Section1603 payment through the Federal Government.

While we know what opportunities exist in terms of Federal funding, we are disappointed in what the State of New Hampshire currently has available for commercial solar project incentives. We have been closely monitoring this situation for some time and at the moment, there is no timetable for a decision regarding the availability of funds for commercial projects. At the beginning of this process last summer, we had heard and were hoping for incentive payments of $.50 to $1.00 per installed watt. At this point, the bottom line is that we cannot count on the State of New Hampshire as a reliable source of funding.

Obviously each state is different, but compare the current commercial solar incentive situation in New Hampshire to our neighbors next door. Almost two years ago now, the State of Vermont, through a Vermont Clean Energy Development Fund, granted our friends at Farm-Way a $226,000 payment for a similar sized solar system in Bradford, Vermont. Massachusetts has

also made strong commitments to help fund commercial green energy projects. We would love to see incentives become available as soon as possible for businesses in the state of New Hampshire. In order for us to make the investment in this proposed solar PV system, we need a commercial incentive program that offers $1.00 per watt of generation capacity, equating to an incentive payment from the state of $80,000.

We look forward to attending the meetings on 2/26 and 3/18 to learn more about the State's Renewable Energy Fund, its funding constraints and the program funding options that are on the table. We truly hope that at the end of this process, there will be some incentives available for large commercial solar projects like ours.

Sincerely,

Robert A. Marrazzo
President, Townline Equipment Sales, Inc.

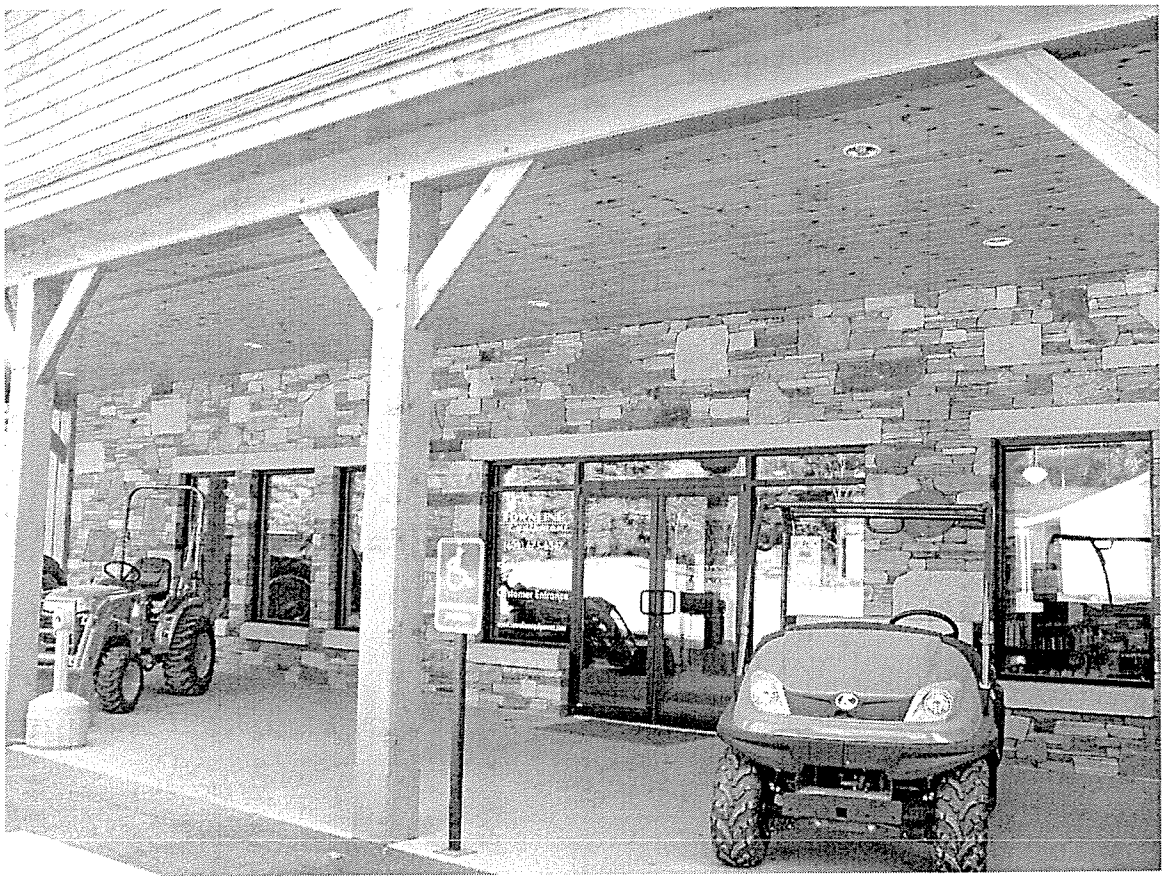
Enc.
Solar System Proposal from KW Management

KW MANAGEMENT, Inc.

For the Photovoltaic system at

Town Line Equipment
1474 Route 12a Plainfield, NH

Prepared by
KW MANAGEMENT, INC



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INTRODUCTION

Town Line Equipment is located at 1474 Route 12a in Plainfield, NH and is well situated for a solar photovoltaic (PV) system. In response to the available roof area, the Design/Build team at KW Management, Inc. has investigated and is pleased to provide this proposal to install an 80.48 k**W dc** STC photovoltaic system on a complete turn-key basis.

This includes:

- One fully operational 80.50 k**W dc** PV system
  - utilizing SunTech, Sharp or SunWorld 230W Watt PV modules
  - Solectria 82 kW inverter (mounted on the ground outdoors or near the main electrical room) Made in USA
  - mounted to the proposed standing metal seam roof (parallel to the roof slope) Made in USA
  - facing ~170 degrees east of True North
  - and producing roughly ~82,471 **kWh/yr**
- Data Acquisition System (DAS, description attached) Made in USA
- 10 year warranty provision on all the inverters
- 25 year warranty on the Canadian Solar modules
- 2 year warranty provision for the complete PV system

The proposal contains two different options, both we believe will meet the project's goals – however if the owner decides it would prefer a particular combination of components like other popular PV Modules and services which is not precisely described in this document, those preferences could be accommodated.

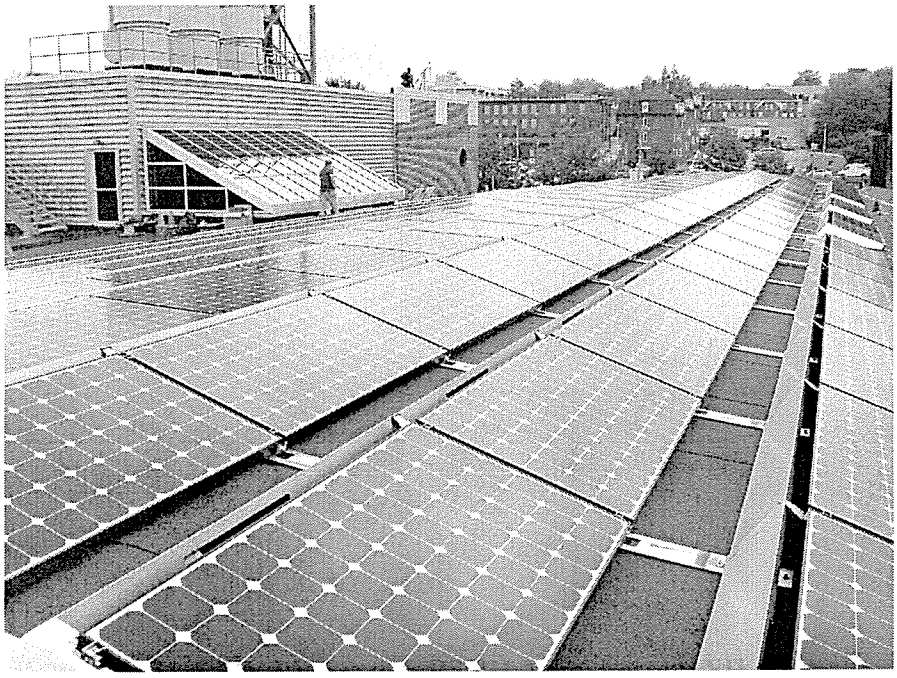
The outlined pricing does not include the 30% federal tax credit or the 5 year accelerated depreciation that is available for PV systems. We encourage you to have us speak to your tax professional to ensure you can take advantage of all available credits.

PV SYSTEMS PRICING – CORE COMPONENTS

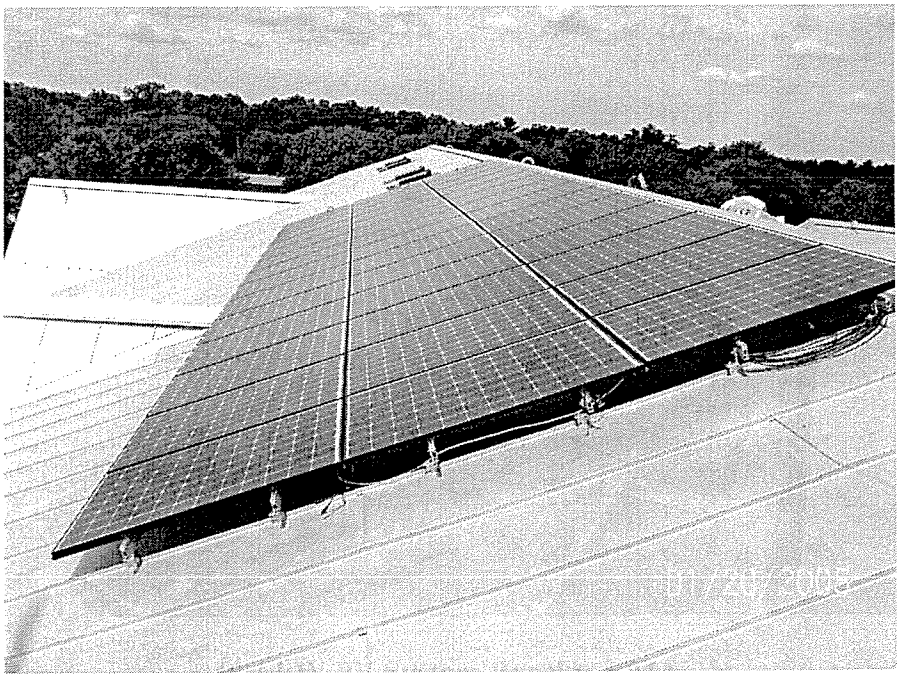
BASE PV – 80,500 Watt STC DC	
(350) SunTech, Sharp or SunWorld 230 watt Modules **(1) Solectria 82 kW Commercial solar inverter** **(2) Source circuit combiners** **(1) Complete automatic reporting DAS system** **(1) Complete standing seam metal roof mounted system** **Balance of System (wiring, disconnects, overcurrent protection, etc.)**	
BASE Price, 1 Systems, Installed	**$ 439.950**

Relevant Projects:

51.4 kW PV System PSNH Manchester, NH



40.1 kW PV System Brockton MA.



Building and Utilities

Town line Equipment and office building is a Butler steel building with a standing seam metal roof. The available South-facing area of the roof is approximately 170° east of True North. The

roof pitch is no more than 1/2 / 12 from horizontal and has an overall area of approximately 90 X 180 LF with a few mechanical obstructions and one tree that would currently cast any shadows. The proposed PV system has been optimized so there will be no significant shading

The available and usable roof area is sufficient for an array of 80.50 kW in size and potentially greater depending on the conversion efficiency of the photovoltaic modules selected. Based upon satellite imagery, it was determined that shading will not be a problem and the array shall be in the sun typically from 8am to 5 pm.

The existing roof is a metal standing seam system is new. This type of roof is suited for the installation of Photovoltaic using S-5 type clamps that attach to the seam of the roof. The modules are attached to the clamps using PV module end- and mid-clamps.

A few items that will have to be verified include the method of securement of the metal roof to the steel purlins, the added weight of approximately 4 lbs per square foot to the roof and building structure and the wind uplift and the potential approval of the holder of the roof warranty.

The electrical utility servicing this site is PSNH. The Rate Tariff that the building falls under is a "G" or General rate which is for all business customers with a system demand of fewer than 100 kW or between 30 and 55 kW in your case. Any excess energy produced by the array will be Net Metered per the New Hampshire's net metering laws.

The Solectria PVI82 inverter will be located in an area nearest practable to the interconnection panel and as agreed upon by both parties. A concrete housekeeping pad will be provided and if there is potential for physical damage to the inverter due to proximity to vehicular traffic, two 4" steel and concrete filled bollards shall be installed and painted yellow.

This point shall be considered the utility point of interconnection and a fusible disconnected switch shall be installing next to the meter as required by PSNH In addition the disconnect switch, service breaker and inverters shall have the appropriate labeling as required by the NEC and NH PUC interconnection standards.

The routing of the appropriately sized EMT conduit for the array output circuit shall be run on the roof over the stage area and potentially underground to the main service/meter location – unless a spare conduit can be located. The installation shall comply with the requirements of the NFPA 70 (NEC) and all conduits installed will be run outside of any class l or class ll areas. All conductors used on the project shall be Copper.

Regulatory requirement and Permits

1. Building permit – We believe that the town of Plainfield will require a building permit (minus electrical costs) for the project – an allowance of $500.00 is included in the outlined pricing. Drawings of the mounting details stamped by a structural engineer are included in the base price. Verification of the structural capability of the roof to support the solar system is not included and is responsibility of the owner.

2. Electrical permit – An electrical permit will be required by the town of Plainfield the cost allowance of is $200.00 and is included in the outlined price.

3. Zoning ordinances – We believe that the project complies with the town of Plainfield zoning ordinances – however final acceptance will be contingent upon award of contract and review by the town – one night meeting is included if required. All fees are excluded.

4. Historic district – We believe that the project lies outside of the Plainfield Historic district. Owner to confirm.

5. Conservation areas – we believe that the project lies outside of any conservation areas. Owner to confirm.

6. The new utility interconnection requirements will be met. We have not identified weather the system is on a network or radial distribution network this may affect system interconnection. The electrical 1-line will be stamped if required by the regulations. A not to exceed allowance of $1,250.00 for system interconnection application is included in the base price and any unused balance shall be deducted from the contract. Any Utility company cost for transformer or related upgrade shall be paid by the owner not KW Management, Inc.

7. PSNH – All inspections and documentation for final inspection are included. The design review is based on an annual peak load of more than 450 kva for the utility circuit feeding the Complex and the point of common coupling is on a radial distribution system.

8. OSHA – We agree to comply with all current OSHA standards. We will supply the owner's project manager a complete copy of our safety manual and all MSDS sheets. All personnel shall have completed as a minimum the OSHA 10 Training.

9. WASTE - All cardboard, wood pallets, metals and related waste shall either be turned over to the owner for recycling or we will ensure all waste is recycled. If necessary we will track the type of materials and weight for your records.

10. WARRANTY – All of the installed products will carry at a minimum the manufactures warranties – these include a 25 year power production warranty on the modules and a 10 year warranty on the inverters. In addition the installation shall carry a 2 year warranty.

11. PUC – When available we will assist in the completion of the renewable energy incentive application, including relevant details, drawings and calculations of the PV system.

12. USDA – We will assist in the completion of the USDA grant application, including relevant details, drawings and calculations of the PV system.

13. FEDERAL – We will assist regarding the technical aspects of required paper work for the Federal Tax credit or rebate, Accelerated deductions and REC sales. Please consult with your accountant regarding the 30% federal tax credit, the 5 year accelerated tax deduction and any other tax questions.

ENERGY PRODUCTION ESTIMATES – PVWATTS V.1

Production estimates are AC kWh per year, and were developed using Boston solar data and PVWatts v.1. The system size options shown do include a small production deductions for average annual snow cover.

		Estimated Annual Production in kWh AC
PV	Power	Array Tilt (degrees)
Option #	kW DC	0
BASE	80.50 kW	82,091

- Production estimates include 5% annual snow cover deductions.
- Base option solar energy fraction or percentage of your current electrical bill is approximately 51%.

TRAINING and Education

(One Day, on owner provided Site, 8:00 am – 12:00 pm)

KW Management's standard PV system training goes well beyond the minimum required. Of course, we include description of the details of the installed system, what to expect as normal system behavior, and how to tell if the system may need attention. System maintenance is discussed. Basic PV diagnostics and troubleshooting concepts are covered. System and component life expectancy and system warranty are discussed. We place a heavy emphasis on safety – including thorough review of the electrical hazards associated with DC systems and PV in particular, as well as fall safety for personnel working in elevated locations.

We also include a broad overview of PV technology, from the photovoltaic effect to how PV modules and PV arrays are built. We discuss the effects of temperature and irradiance on voltage and current output, and the effect of even partial shading on a PV array.

We review the Data Acquisition System (DAS) – using a live display of the system when available – and discuss how the DAS works, what it records, where the data is stored, and how to access it.

We always conduct a walk-through tour of the installed system, with appropriate personnel getting hands-on practice at operating the system.

At the completion of each training session (unless otherwise arranged) KW Management will distribute (3) copies of the bound Operation and Maintenance (O&M) manuals and CD's.

And, of course, there's always plenty of time for questions.

LOCAL COMMUNITY EDUCATION

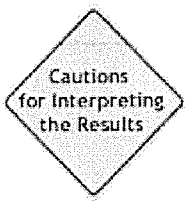
KW Management, Inc. has installed many educational based systems in New England. If the owners consent we would be able to facilitate a "field Trip" during the installation to give the local students some real world applications knowledge. As a safety item no one will be allowed on the roof except construction personnel. These opportunities are fertile for community and public relations.

APPENDIX A

ONE-LINE ELECTRICAL DIAGRAMS AND ROOF LAYOUT

APPENDIX B

AC Energy & Cost Savings



Station Identification	
City:	Concord
State:	New_Hampshire
Latitude:	43.20° N
Longitude:	71.50° W
Elevation:	105 m
PV System Specifications	
DC Rating:	80.5 kW
DC to AC Derate Factor:	0.770
AC Rating:	62.0 kW
Array Type:	Fixed Tilt
Array Tilt:	0.0°
Array Azimuth:	170.0°
Energy Specifications	
Cost of Electricity:	12.5 ¢/kWh

Results

Month	Solar Radiation ($kWh/m^2/day$)	AC Energy (kWh)	Energy Value ($)
1	1.96	3508	438.50
2	2.84	4922	615.25
3	3.80	7384	923.00
4	4.84	8707	1088.38
5	5.68	10163	1270.38
6	6.08	10289	1286.12
7	5.99	10345	1293.12
8	5.30	9193	1149.12
9	4.08	6906	863.25
10	2.77	4931	616.38
11	1.85	3098	387.25
12	1.52	2613	326.62
Year	3.90	82057	10257.12

80.48 kW PV SYSTEM

APPENDIX C

SPECIFICATIONS / CUT SHEETS FOR CORE PV COMPONENTS

MODUELS
INVERTER

Attached to E-mail Separately

APPENDIX E

DATA ACQUISITION BASE
Solectria SOLRENVIEW
DOCUMENTATION

TOWNLINE EQUIPMENT SALES, INC
PO Box 300 – 1474 Route 12A
Plainfield, NH 03781
Telephone: 603-675-6347
Fax: 603-675-2605
Email: townlineequip@netscape.net
Website: www.townlineequipment.com

Located on Route 12A
South of Plainfield New Hampshire

2/23/2010

Jack Ruderman
Sustainable Energy Division
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 30301-2429

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