3.68 Kilowatt Pole-Mounted, Grid-Tied Photovoltaic System Proposal

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Project Summary

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| 3.68 kilowatt pole-mounted Canadian Solar PV array coupled with one Fronius 4000 grid-tied inverter. | • Produce roughly 4,800 kilowatt hours of clean, renewable electricity annually.  
• Offset roughly 6,200 lbs. of CO2 emissions annually. | $25,683 Installed | -($2,000) State Rebate  
-($7,705) Federal Tax Credit | $15,978 |

System Overview
ReVision Energy proposes a pole-mounted photovoltaic array of 3.68 kilowatts (nominal), utilizing a single inverter to feed power into the utility grid. The proposed array will consist of 16 230-watt Canadian Solar photovoltaic panels mounted on a Power-Fab top-of-pole mounting structure fastened to a ReVision Energy custom-fabricated pole and base. This proposal is for two poles, each with eight panels.
Structural Engineering of Pole Mount
The wide seasonal temperature variations found in Maine’s northern climate require that the pole mount assembly be constructed to rigorous specifications in order to assure longevity. Below are two close-up photos of ReVision Energy’s custom engineered bolt-up pole assembly. The airtight welded cap is crucial to the longevity of the structure. If not completely sealed, steel pole structures corrode from the inside out and will fail over time. ¾” galvanized ‘J’ anchor bolts are cast 16” into the concrete base. The precast concrete base is buried 5’ into the earth and weighs 2300 pounds; it has internal rebar reinforcements in an engineered cage construction. The combination of heavy gauge, deep-set bolts affixed to a large concrete base enable the assembly to withstand hurricane-force winds.

The solar panel mounting system starts out with a steel collar that fits down over the top of the pole and uses 3/4” adjusting bolts to anchor it to the pole. The collar and mounting frame are manufactured by Direct Power and Water Corp; they are regarded industry-wide as supplying the ‘heavy metal’ equipment for the PV industry. We believe this is the sensible approach when you want the structure to last for five decades, through fifty winters.

Component Specifications
- (16) 230-watt Canadian Solar solar electric modules (www.canadiansolar.com).
- (1) Fronius 4000 grid-tied inverter (www.fronius.com).
- (2) Direct Power & Water 8-module top-of-pole mounting structure.
- (2) ReVision Energy custom-fabricated pole and base assembly
- All hardware, disconnects, cable, and labor to provide a code-compliant, NABCEP-certified installation.
- NABCEP certification is required to qualify for the Maine state rebate.
- (1) TED 5002-C energy monitor
System Operation
Whenever the sun shines on the solar electric modules on the pole, direct current electricity will be generated. The DC electricity will be cabled in conduit to the inverter. The inverter, which converts direct current to alternating current, will then feed directly into the electric panel. Any loads operating while the sun is shining will be fed directly by the solar electricity. Your local utility company will record electricity you feed into the grid. If there is more electricity being generated by the sun than being used in the house, a credit will be created on your next bill. You can bank your surplus generation from month to month for up to a year.

Schematic of GTPV System

The Energy Detective

The TED Model 5002-C comes with all the components necessary to monitor net energy use and photovoltaic production. Data can be accessed on a home computer or mobile device to track energy usage, project monthly bills, and view historical data. The data from the photovoltaic array and main load center is logged separately, but can be seen in aggregate as well.

The TED 5002-C package has the option to integrate with Google PowerMeter and includes:
- Two Measuring Transmitting Units with two sets of Current Transformers (Two MTU/CT sets)
- One Gateway embedded with Footprints software
- One sleek, wireless Display with AC/DC charger and charging stand
System Performance
With 3.68 kilowatts of grid-tied solar electric modules, you can expect your system to:
- Generate roughly 400 kilowatt hours per month or 4,800 kW/h annually
- Offset roughly 6,200 lbs. of CO2 emissions annually
- Offset roughly 11.0 lbs. of SO2 emissions annually
- Offset roughly 5.8 lbs. of NOx emissions annually

Warranties
Each component is warranted separately.
- Fronius provides a 10 year warranty on their inverter.
- Canadian Solar provides a 25 year warranty on their PV modules
- ReVision Energy LLC provides a one year warranty on labor

Incentives:
This system qualifies for an uncapped 30% federal tax credit. This credit (not deduction) can be taken against an existing income or AMT tax liability. Please consult with your tax advisor to ensure that you are eligible for this deduction. This system also qualifies for a $2,000 state rebate. In order to qualify for the rebate the system must be installed by a NABCEP certified installer. Your home must also have an energy audit in order to qualify for this rebate.

Price
The price for this system includes the following:
- All materials necessary to mount and wire the solar electric system. This includes all disconnects, fusing, and metering to meet both the National Electrical Code and the NABCEP certification.
- All labor required for installation of pole mount bases and mounting hardware
- ReVision Energy will provide you with assistance to apply with your local utility for a Net Energy Billing permit.

The price for this system does not include a $50 net billing application fee for your utility.

Payment Terms
1/3 due upon signing agreement
1/3 due upon equipment delivery
Balance due upon completed installation

Note: Estimates of equipment or system efficiency, performance or expected energy savings are for informational purposes only. Due to the large number of variables affecting efficiency and performance that are beyond ReVision Energy’s control, ReVision Energy makes no warranty or guaranty that the equipment or system installed in accordance with this proposal shall perform in accordance with such estimates.