

## **Proposal to Design and Install a Photovoltaic System at the Willett Road Water Tower**

Prepared for:  
Alain Muise, CPA, CA  
Chief Administrative Officer, Municipality of Argyle (MOA)  
27 Courthouse Road, Tusket, Nova Scotia B0W 3M0

Prepared by:  
Thermo Dynamics Ltd. (TDL)  
101 Frazee Avenue, Dartmouth, Nova Scotia B3B 1Z4  
Tel: (902) 468-1001 Fax: (902) 468-1002  
Contact: Peter Allen

March 25, 2021

### **Project Description**

TDL proposes to install a photovoltaic ("PV") system on the site of the Willett Road Water Tower, situated at 34 Willett Road, Middle East Pubnico, Nova Scotia. The site is depicted in the photograph shown below.



The main components of the system are:

- (i) one or more inverters, with a total AC power output of 72 kW\_AC
- (ii) PV modules with a total rated DC power output of approximately 103 kW\_DC
- (iii) the mounting hardware required for the PV modules
- (iv) the wiring on the PV side of the inverter

The PV modules will be mounted on the ground, at a slope of approximately 35 degrees to the horizontal and facing approximately south. The PV arrays will cover an area of approximately 800 square meters (8,600 square feet) on the ground. The estimated output from the PV system is 128,000 kWh (AC) per year.

### Timing of the Project

TDL is prepared to undertake the final design and installation upon receipt of this signed proposal. One - two months are required to obtain approval from NS Power for this project. TDL estimates that two months will be required to acquire all the system hardware, and another month is required to install the system and commission it.

### System Price

Total installation costs	<b>\$238,398</b>	taxes excluded
Sales tax (15% HST)	<b>\$35,760</b>	
Total contract price	<b>\$274,158</b>	

Thermo Dynamics Ltd. proposes to design, supply and install the above system. The cost of the TDL-supplied system is **\$274,158 (two hundred seventy-four thousand, and one hundred fifty-eight dollars).**

### Cost of connection to the NS Power grid

Additional electrical equipment, not included in the contract price, is required to connect the output from the inverters to the NS Power grid. This equipment may include, but is not limited to: transformer(s), AC switches/breakers, meter bases, meters, wiring and cables. TDL shall procure the equipment specified by NS Power for installation between the solar PV inverter and the NS Power distribution system, and invoice these costs (the interconnection costs) with receipts and without markup to MOA, at the time of a “passed” “final inspection by NS Power. TDL’s installation costs of such equipment is included in the direct labour costs shown above, with the exception of the connection of the PV system to the main electrical system on the site. This final connection shall be made by the electrician retained by MOA to undertake electrical work on this site, and one that is familiar with the electrical system on site.

The existing electrical service to the Willett Road site is 240 VAC, single-phase. However, the 72-kW AC solar PV system must have 600 VAC, 3-phase service in order to comply with NS Power guidelines concerning the installation of this PV electrical system. NS Power does not confirm the costs of required upgrades (equipment, material and labour) until NS Power completes the interconnection study. Upon signature of this contract, TDL will apply for interconnection and notify MOA, and the project manager, AREA, as soon as NS Power provides an estimate of the cost of any grid upgrades or other interconnection costs. Such costs are not included in the contract price and form part of the interconnection costs that will be billed

to MOA. Section 13 of the Solar PV Project Development, Installation and Commissioning Agreement between TDL and MOA continues to apply.

The extent of trenching for the 600 VAC power lines will not be known until NS Power has conducted a site survey. Therefore, costs of trenching are not included in the contract price.

Fencing of ground-mounted PV systems is also another unknown quantity, due to the variations in the opinions of the NS Power inspectors. To date fencing has not been required, however, some NS Power inspectors have “suggested” that they may require fencing. The cost of fencing is not included in the contract price.

### **Payment Schedule**

MOA shall pay to TDL the total contract price plus the interconnection costs described above within 30 days of receipt of invoices from TDL on the following schedule. Late payments are subject to a monthly interest charge of 2% of the unpaid balance.

- a) 90% of the total contract price upon TDL’s commissioning of the project, which shall include, but not be limited to, demonstrating that the project can achieve the inverter’s nameplate electrical production;
- b) 10% of the total contract price and 100% of the interconnection costs upon NS Power’s written confirmation that the project has passed the “final inspection”.

### **For Thermo Dynamics Ltd.**

\_\_\_\_\_ Date \_\_\_\_\_  
Peter Allen

### **For the Municipality of Argyle**

I, the undersigned, understand and agree to the terms set forth in the above agreement. I agree to follow the payment schedule listed above, and will pay each installment upon receipt of invoice.

\_\_\_\_\_ Date \_\_\_\_\_