**SUBMIT BY EMAIL (PDF WITH SIGNATURE WITH LRP I CONTRACT REFERENCE # IN SUBJECT LINE)**

**TO CONTRACT MANAGEMENT:**

contract.management@ieso.ca

Capitalized terms not defined herein have the meaning ascribed thereto in the LRP I Contract.

| Date | <insert date> |
| --- | --- |
| Legal Name of Supplier | <insert legal name of Supplier> |
| LRP I Contract Reference # | <insert LRP I Contract Reference #> |
| LRP I Contract Date | <insert LRP I Contract Date> |
| Milestone Date for Commercial Operation | <insert LRP I Contract MCOD> |
| Expected Commercial Operation Date | <insert expected Commercial Operation date> |

Pursuant to section 2.4 of the LRP I Contract, the Supplier is hereby submitting this Prescribed Form – Metering Plan Type 1: Facility Registered in the IESO-Administered Markets (the “Metering Plan”) and all relevant supporting documentation to the Buyer.

The Supplier confirms that the Facility is Type 1: Facility Registered in the IESO-Administered Markets as set out in Exhibit E of the LRP I Contract.

The Supplier acknowledges and agrees that this Notice is being delivered to the Buyer solely for the purposes of the LRP I Contract. It does not constitute a notice for any other purpose, including, without limitation, to meet an obligation to provide notice to the System Operator pursuant to the IESO Market Rules.

| Supplier: <insert legal name of Supplier> |
| --- |
| Signature: |
| Name:       |
| Title:       |
| I have the authority to bind the Supplier. |
| Dated this       day of       , 20   |

**Revision Block**

| **Revision** | **Reason for Issue / Description** | **Date** |
| --- | --- | --- |
| 1.0 | First approved issue of the Metering Plan |       |
|       |       |       |
|       |       |       |
|       |       |       |

TABLE OF CONTENTS

[1. REPRESENTATIONS, WARRANTIES & COVENANTS 4](#_Toc444948966)

[2. INTRODUCTION 6](#_Toc444948967)

[2.1 Facility Description 6](#_Toc444948968)

[2.2 Facility Registration with the System Operator as administrator of the IESO Market Rules 7](#_Toc444948969)

[2.3 Remote Meter Readings – Access by the Buyer 7](#_Toc444948970)

[3.ELECTRICAL POWER METERING 7](#_Toc444948971)

[3.1 Meters and Instruments 7](#_Toc444948972)

[3.2 Hourly Delivered Electricity 8](#_Toc444948973)

[3.2.1 Measurement, Calculations and Adjustments 8](#_Toc444948974)

[3.2.2 Validation 8](#_Toc444948975)

[4. TECHNICAL INFORMATION – ATTACHED TO METERING PLAN 9](#_Toc444948976)

[4.1 Exhibit A: Single-Line Diagrams 9](#_Toc444948977)

[4.2 Exhibit B: Electricity Metering Technical Data 9](#_Toc444948978)

[5. TECHNICAL INFORMATION – MAINTAINED ON SITE 11](#_Toc444948979)

[6. APPENDICES 12](#_Toc444948980)

[6.1 Appendix A – Facility Registration with System Operator as administrator of the IESO Market Rules 12](#_Toc444948981)

[6.2 Appendix B – Facility Installed Capacity (Solar PV Facilities ONLY) 12](#_Toc444948982)

# REPRESENTATIONS, WARRANTIES & COVENANTS

All undefined capitalized terms herein have the same meaning as in the LRP I Contract.

Pursuant to Section 2.4 of the LRP I Contract the Supplier hereby submits to the Buyer this Metering Plan for the Facility.

The Supplier represents and warrants to the Buyer that all statements, information, technical specification sheets, drawings, metering data, formulae, calculations, metering configuration, and all other relevant information contained herein are complete, true and accurate in all material respects and that there is no material information omitted that makes the information contained herein misleading or inaccurate. Supplier acknowledges that the Buyer is relying on such representations and warranties in approving the Metering Plan.

The Supplier acknowledges and agrees that:

1. the approved Metering Plan is a binding obligation enforceable in accordance with the terms of the LRP I Contract;
2. it has an obligation to submit to the Buyer any material changes to the Metering Plan described herein for the Buyer’s prior written approval;
3. any approval of the Metering Plan by the Buyer is not an approval of the design safety and suitability of the metering, instruments, transformers and equipment (the “Metering Installation”). The Buyer will review the Metering Plan only to the extent required by the LRP I Contract;
4. the Supplier is solely responsible for ensuring that the Metering Installation is properly designed and meets all applicable Laws and Regulations;
5. The Buyer’s receipt of information required herein and the Buyer’s approval of the Metering Plan shall not be used for any purpose other than as required by the LRP I Contract and the Supplier shall not use the Buyer’s approval of this Metering Plan to represent to a third party in any manner that the Buyer has approved the design, safety and integrity of the Facility’s Metering Installation. For certainty, the Buyer’s receipt of information required herein and the Buyer’s approval of the Metering Plan shall not be used or construed as any approval under the IESO Market Rules or be considered as satisfaction of any requirements under the IESO Market Rules;
6. any approval of this Metering Plan will not be binding on the Buyer with respect to its approval of any other metering plan submitted for any reason to the Buyer for other LRP I Contracts or otherwise;
7. the purposes of the Metering Plan include:
	1. the identification of all instruments, meters and equipment used for the measurement of the Facility’s Hourly Delivered Electricity. Such instruments, meters and equipment must comply with the requirements of the LRP I Contract and all Laws and Regulations;
	2. to clearly show the method of how Hourly Delivered Electricity will be accessed, measured, validated, verified, estimated, edited, adjusted and calculated for the purpose of the LRP I Contract;
	3. to clearly delineate all Station Service Loads;
	4. to describe the technical specifications that will enable the Buyer to obtain its required access to meter readings as stipulated in the LRP I Contract;
	5. to satisfy the requirements for achieving Commercial Operation as stipulated in the LRP I Contract.
8. without limiting Section 14.2 of the LRP I Contract, the Supplier agrees to keep and maintain meter data, maintenance and calibration records and other data produced in connection with this Metering Plan and the metering systems described herein, for no less than seven years after the creation of the record or data;
9. it will maintain a log of raw meter data, data manipulation procedures, loss adjustment factors, applicable adjustments and processed data resulting from the application of this Metering Plan as set out in the LRP I Contract and make it available to the Buyer for contract administration purposes at the Buyer’s request; and
10. it will keep maintenance and calibration records for the Metering Installation.

The Supplier agrees and covenants that:

1. it shall implement the Metering Plan using Commercially Reasonable Efforts;
2. it will keep and maintain all required supporting documentation for the Metering Plan on-site at the Facility in accordance with the LRP I Contract and make it available to the Buyer for contract administration purposes, at the Buyer’s request, within 10 Business Days;
3. it will provide to the Buyer for contract administration purposes, at the Buyer’s request within 10 Business Days, access to raw meter data, data manipulations, applicable adjustments and processed data through a remote access to the meter or provide data in a comma separated value (‘csv’) format or an equivalent file or mechanism;
4. the Supplier also agrees to allow the Buyer to gain access to raw meter data through an LDC or Metering Service Provider (“MSP”) for contract administration purposes; and
5. Supplier will provide the Buyer with any requested documentation, for contract administration purposes, in accordance with the terms of the LRP I Contract, in particular sections 4.1 and 14.2 of the LRP I Contract.

The Supplier represents and warrants that:

1. a MSP has been assigned to the Facility in accordance with the IESO Market Rules;
2. MSP registration records have been filed with the System Operator in accordance with the IESO Market Rules;
3. MSP registration records will be kept and maintained by the Supplier and will be available for review by the Buyer for contract administration purposes at the Buyer’s request, acting reasonably.

# INTRODUCTION

# Facility Description

| **Facility Location:** |
| --- |
| [Provide municipal address and other references for the location of the Facility. Example: The “Bright Future” Solar PV ground-mounted Facility has been constructed within the premises of Bright Sun Technologies’ industrial complex, located at 1010 Sunny Way, Sunshine Haven, Ontario, Canada; in the southeast lot of the complex]. |

| **Type and number of generating units:** |
| --- |
| [Provide type, number and rating of generating equipment. Example: XYZ, model number 123456, poly crystal, 240 W PV module; Qty. 8,400. In case of Solar (PV) Facilities, the Supplier must include Appendix B – Facility Installed Capacity for the Metering Plan to be complete.] |

| **New Transformer Station ID (or upstream Transformer Station ID):** |
| --- |
| [State the transformer station closest to the Facility. Example: The Facility generates and delivers electricity to the IESO-Controlled Grid through the Sunshine Haven TS]. |

| **Connection Point:** |
| --- |
| [Describe the Connection Point and specify clearly in the Single Line Diagram where the Connection Point of the Facility is located. Example: The Facility is connected to 115 kV circuits Z1A and Z2B at the Bright Sun Technologies power substation. During operations the Facility feeds into loads within the industrial complex and the electricity market administered by the System Operator.] |

|  **Defined Point of Sale:** |
| --- |
| [State the Defined Point of Sale as defined by the System Operator. Example: The Defined Point of Sale is the connection to switches SW-01 and SW-02 on Buses 1 and 2 at the Bright Sun Technologies Substation.] |

| **Meter Point(s):** |
| --- |
| [Provide Meter Point ID(s) and indicate whether the defined point of sale and the defined meter point(s) share the same location. If the meter point(s) is (are) not located at the defined Point of Sale, provide the exact location. Example: Bi-directional IESO meters M1 and M2 are used to measure net generation output of the Contract Facility. Their meter point IDs are BSUNTECH.115.A1 and BSUNTECH.115.B2. They are located on the high-voltage side of step-up transformers  TX1 and TX2 installed at the Facility, respectively.][Provide a brief description of the Contract Facility; explain interconnection to the IESO-Controlled Grid and interactions among the Facility and neighbouring facilities: i.e. other loads in the Transmission System or Distribution System and Station Service Load.] |

| **Station Service Load:** |
| --- |
| [Identify and describe the electrical equipment and loads required for the normal and safe operation of the Facility. Example: For a Solar PV facility, provide technical details of inverters, control system, battery chargers, tracking system,  and similar loads] |

##

## Facility Registration with the System Operator as administrator of the IESO Market Rules

| [State whether the Supplier is a Registered Facility or plans to become a Registered Facility with the System Operator under the IESO Market Rules.  Fill out and include Appendix A if IESO Market Rule registration information is available at the time of submitting this Metering Plan. If IESO Market Rule registration information is not available at the time of submitting the Metering Plan,  provide the information “as attached in Appendix A” with the submission of the requirements for Commercial Operation as set out in Section 2.7 of the LRP I Contract.]  |
| --- |

## Remote Meter Readings – Access by the Buyer

| [Explain how the Buyer will gain remote access to meter data from the Facility. Indicate whether one or more of the following communication methods will be used to provide remote access: MV Web, third-party web-based service, meter data files available for download from an ftp site, etc.]Log-in information such as username and password will be provided to the Buyer once access method has been set up. |
| --- |

## ELECTRICAL POWER METERING

## Meters and Instruments

| **Metering Installation Configuration:** |
| --- |
| [state whether the Metering Installation uses a main/alternate or main/check meter configuration] |

| **State accuracy class of Electricity meters installed:** |
| --- |
| [State accuracy class of meters] |

| **Total number and accuracy of voltage and current transformers for the Metering Installation:** |
| --- |
| [State make, model and accuracy class of instrument transformers][State whether the Metering Installation is comprised of two independent sets of instrument transformers or a single set of instrument transformers (main/alternate meter configuration). If instrument transformers are built-in within the electricity meter, please explain accordingly.] |

| **Has the Supplier received written confirmation from the System Operator that the accuracy and operating limits of Metering Installation (including instrument transformers and electricity meters) are acceptable to the System Operator as administrator of the IESO Market Rules?**  |
| --- |
| [State Yes or No] |

## Hourly Delivered Electricity

| [Explain how Hourly Delivered Electricity delivered from the Facility is arrived at; describe gross generation, Station Service Loads and other loads as applicable. The following are examples of some possible scenarios:Example 1: Single metering point measuring Facility’s net power output.“Power is exported from the Contract Facility to the grid through meter M1, which is located at the Delivery Point and measures Electricity delivered net of Station Service Load. Readings from M1 represent the Hourly Delivered Electricity for the Contract Facility.”Example 2: Multiple meters measuring Facility’s net power output.“Power is exported from the Facility to the IESO-Controlled Grid through the Defined Point of Sale located on feeder A. Total power generation is measured through meters M1 and M2 located on feeders B and C, respectively; each meter measures power generated by G1 and G2 net of Station Service Load. The Hourly Delivered Electricity is the aggregate of M1 and M2.”Example 3: One or more meters measuring Facility’s gross power output and separate meter(s) measuring Station Service Load.“Gross power is exported from the Facility to the IESO-Controlled Grid through the defined point of sale located on feeder A. Power output is the aggregate of measurements from M1 and M2, installed on feeders B and C, respectively. Station Service Load is  measured through meter M3 located on feeder D. The Facility’s Hourly Delivered Electricity is the sum of meters M1 and M2 minus M3.”] |
| --- |

### **Measurement, Calculations and Adjustments**

| [Explain how data is measured, gathered and recorded. Provide details on how raw data is collected and manipulated to arrive at kW (or MW), or kWh (or MWh), multipliers and instrument transformer ratios used in the calculations. Explain how data isadjusted/edited, or correction factors are applied due to conditions on meter wiring, burdens in instrument transformer, or other conditions requiring correction; as well as, adjustments necessary to account for transformation and/or line losses.State the formula(e) that is (are) applicable, including adjustments (i.e. Site-Specific Loss adjustments and meter error correction) to arrive at the quantities explained in section 3.2 above. Substitute each quantity in the formulae with the corresponding meter designation. In cases where backup metering is required by the IESO Market Rules, state the formulae that would be used in terms of quantities that include readings originating from backup meter(s). If the formulae below are not applicable, then propose the correct formulae and explain deviations from the formulae listed below.kWmain [or MWmain, as applicable] = gross power output – Station Service Load – Meter Error Correction – Site-specific Loss AdjustmentkWalternate [or MWalternate, as applicable] = gross power output – Station Service Load – Meter Error Correction – Site-specific Loss Adjustment |
| --- |

### **Validation**

| [Explain how meter data is validated. Provide details on the methods used to verify meter readings are meaningful and reliable. For example, data reconciliation after meter interrogation and spot check procedures. A statement can be added indicating that  the MSP is responsible for the implementation of all conformance monitoring procedures required by the IESO Market Rules.] |
| --- |

# TECHNICAL INFORMATION – ATTACHED TO METERING PLAN

## Exhibit A: Single-Line Diagrams

Include Facility’s “As Built” single-line diagram(s) showing Facility’s generation units, Station Service Load and internal distribution system, connection to host facility (if applicable), Metering Installation, Connection Point, area transmission and/or distribution facilities, including the transformer station(s) electrically closest to the Facility.

| **Exhibit** | **Drawing No.** | **Drawing Title** | **Revision** | **Date** |
| --- | --- | --- | --- | --- |
| A.1 |       |       |       |       |
|       |       |       |       |       |
|       |       |       |       |       |
|       |       |       |       |       |

## Exhibit B: Electricity Metering Technical Data

Identify the Electricity meters that are part of this Metering Plan by filling the tables below:

**Exhibit B.1: Main Electricity Meters**

| **Meter ID** | **Description** | **MC NofA No.(\*)** |
| --- | --- | --- |
|       | [Make, model number, serial number, quantity measured] |       |
|       |       |       |
|       |       |       |
|       |       |       |

**Exhibit B.2: Alternate/Check Electricity Meters (as applicable)**

| **Meter ID** | **Description** | **MC NofA No.(\*)** |
| --- | --- | --- |
|       | [Make, model number, serial number, quantity measured] |       |
|       |       |       |
|       |       |       |
|       |       |       |

**Exhibit B.3: Instrument Transformers (Current Transformers and Voltage Transformers)**

| **Tag No.** | **Associated Meter** | **Description** | **MC NofA No.(\*)** |
| --- | --- | --- | --- |
|       |       | [Make, model number, serial number] |       |
|       |       |       |       |
|       |       |       |       |
|       |       |       |       |
|       |       |       |       |
|       |       |       |       |

(\*) Measurement Canada Notice of Approval

# TECHNICAL INFORMATION – MAINTAINED ON SITE

The following technical documents are integral part of this Metering Plan. The Supplier represents, warrants and covenants that they are and will be procured, updated and maintained on site by the Supplier and will be made available to the Buyer for contract administration purposes upon request within 10 Business Days:

**Exhibit C.1** Notification of Registration for the Facility issued by the System Operator as administrator of the IESO Market Rules.

**Exhibit C.2** Meter Commissioning Report and/or Record of Installation by the MSP for the Metering Installation. It must identify the Facility, the metering point, the metered market participant and provide the following technical information; model and serial number of the main and backup meters, model and serial number of instrument transformers. Similarly, date and person confirming the Metering Installation has been commissioned in accordance with applicable regulations, standards and procedures.

**Exhibit C.3** Electricity Metering Three-Line Diagrams showing metering configuration, wiring size and length. Must be stamped by a Professional Engineer.

**Exhibit D** IESO Measurement Error Correction Register (IMO-FORM-1039)

**Exhibit E** IESO Site-Specific Loss Adjustment Register (IMO-FORM-1040)

**Exhibit F.1** Measurement Canada Notice of Approval for the electricity meter(s)

**Exhibit F.2** Measurement Canada Notice of Approval for the current transformers

**Exhibit F.3** Measurement Canada Notice of Approval for the voltage transformers

**Exhibit G.1** Calibration Certificate for the electricity meter(s)

**Exhibit G.2** Test card for the current transformers

**Exhibit G.3** Test card for the voltage transformers

**Exhibit H** IESO Emergency Instrument Transformer Restoration Plan

**Exhibit I** IESO Totalization Table for the Facility (IMO-FORM-1310)

**Exhibit J** IESO Site Registration Report

**Exhibit K.1** Manufacturer technical specification datasheet for the electricity meter(s)

**Exhibit K.2** Manufacturer’s technical specification datasheet for the current transformers

**Exhibit K.3** Manufacturer’s technical specification datasheet for the voltage transformers

**Exhibit L** Flow / Process Diagrams & Other Drawings that help describe the power generation process as well as other processes that take place on site.

# APPENDICES

# Appendix A – Facility Registration with System Operator as administrator of the IESO Market Rules

| **Market Participant Name:** |       |
| --- | --- |
| **Market Participant ID:** |       |
| **Registered Market Participant Name:** |       |
| **Metered Market Participant Name:** |       |
| **Facility Name and ID#:** |       |
| **Resource Name and ID#:** |       |

# Appendix B – Facility Installed Capacity (Solar PV Facilities ONLY)

| **PV Modules Information** |
| --- |
| **Make & Model of installed PV module(s)** |       |
| **Total # of installed PV modules**  |       |
| **Manufacturer Standard Testing Conditions rated efficiency of installed PV modules** |       |
| **Manufacturer Standard Testing Conditions rated capacity of each module** **(in DC Watts)** |       |
| **Total Manufacturer Standard Testing Conditions rated capacity of installed PV modules (in DC kW or MW)** |       |
| **Inverter Information** |
| **Make & Model of installed inverter(s)** |       |
| **Total # of installed inverters**  |       |
| **Manufacturer rating of each inverter** **(in AC kW or MW)** |       |
| **Total rated capacity of installed inverters (in AC kW or MW)** |       |
| **Total # of PV modules per Inverter** |       |