

KINGSTON GARDINER TS UNITY ROAD

PART OF LOT 12, CONCESSION 6, CITY OF KINGSTON, ON

SOLAR ELECTRIC SYSTEM PROJECT - 10 MW AC

VICINITY MAP:



PROJECT SCOPE:

SOLAR ELECTRIC SYSTEM

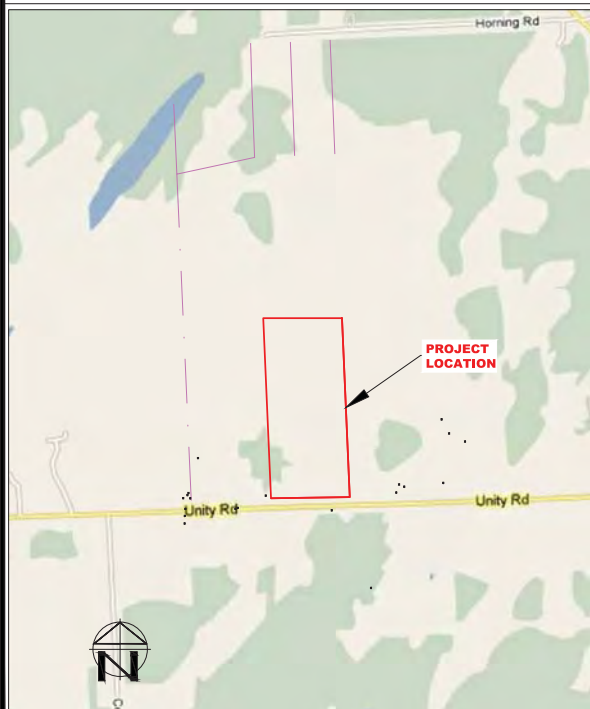
THE PROPOSED PROJECT IS A RENEWABLE ENERGY GENERATION FACILITY WHICH WILL USE SOLAR PHOTOVOLTAIC TECHNOLOGY TO GENERATE ELECTRICITY. ELECTRICITY GENERATED BY SOLAR PHOTOVOLTAIC PANELS WILL BE CONVERTED FROM DIRECT CURRENT (DC) TO ALTERNATING CURRENT (AC) BY INVERTERS, WHICH WILL ALSO STEP-UP THE VOLTAGE TO 44 kV PRIOR TO BEING CONNECTED TO THE EXISTING LOCAL DISTRIBUTION LINE. TO MEET ONTARIO POWER AUTHORITY'S (OPA) FEED-IN-TARIFF (FIT) PROGRAM REQUIREMENTS, A SPECIFIC PERCENTAGE OF THE EQUIPMENT WILL BE MANUFACTURED IN ONTARIO. THIS PROJECT IS CLASSIFIED AS A CLASS 3 SOLAR FACILITY AND THEREFORE REQUIRES A RENEWABLE ENERGY APPROVAL (REA).

THE SYSTEM WILL BE INTERCONNECTED AND WILL BE OPERATED IN PARALLEL WITH THE ENERGY PROVIDER'S ELECTRIC GRID AS PER THE REQUIREMENTS OF THE ONTARIO ELECTRICAL SAFETY CODE (OESC).

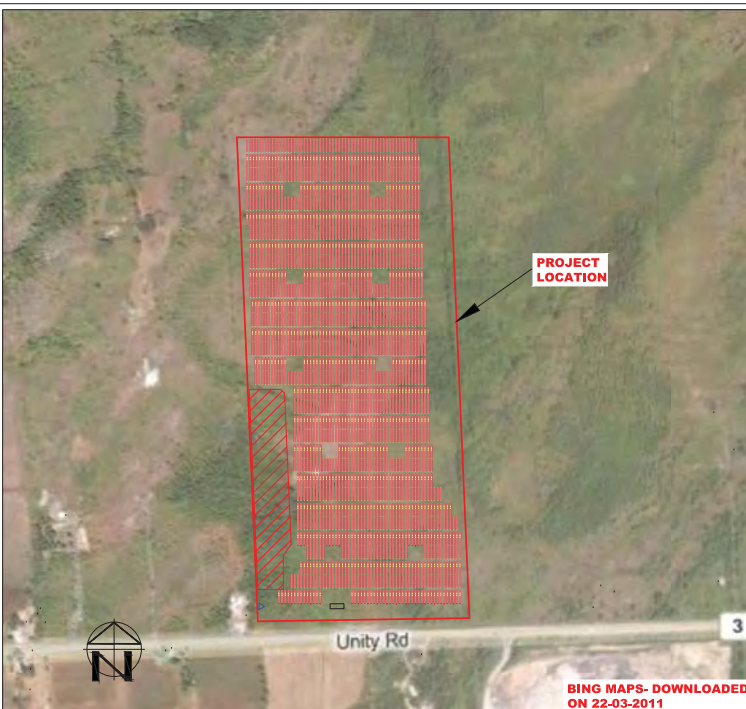
DRAWING INDEX:

G-001	TITLE SHEET
ES-101	EXISTING SITE PLAN
ES-102	ARRAY PLAN
EP-701	EQUIPMENT SPECIFICATIONS
EP-801	SINGLE LINE DIAGRAM
S-101	TRACKER DETAILS

STREET MAP:



AERIAL VIEW:



PROJECT TEAM:

PROJECT CONTACT:

PROJECT: BELLEVILLE TS DEMORESTVILLE SOLAR PROJECT
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DESIGN ENGINEERING FIRM

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ELECTRICAL ENGINEER:

**PRELIMINARY DRAWING
FOR REVIEW ONLY
NOT FOR CONSTRUCTION**

DATE: X-XX-XX

[illegible]

Axio Power Canada Inc/
SunEdison Canada

945 PRINCESS STREET, SUITE 252
KINGSTON, ON K7L 3N6

PROJECT SITE:
**KINGSTON GARDINER
TS UNITY ROAD
SOLAR PROJECT**
PART OF LOT 12, CONCESSION 6
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DRAWING:	TITLE SHEET
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DRAWING NO.

G-001



High Yields

- 98% CEC efficiency
- Suitable for ambient temperatures of up to 60 °C (140 °F)
- OptiCool™ intelligent temperature management

Low System Costs

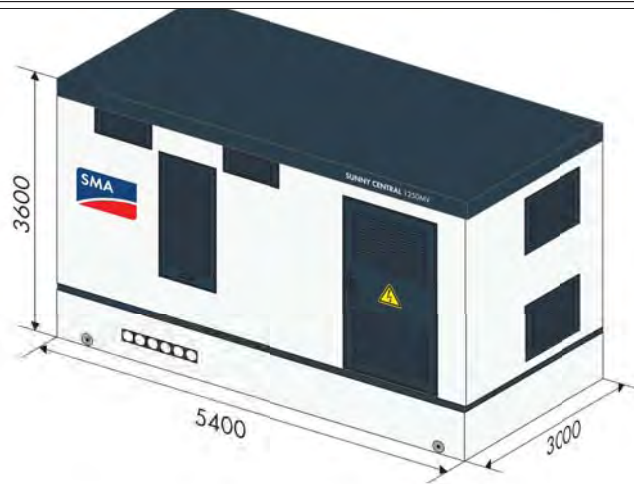
- Outdoor-rated enclosure
- Couples to medium-voltage external transformer
- Available as integrated solution

Strong Peripherals

- Optional DC & AC disconnects
- Optional combiner boxes with string monitoring
- Sunny WebBox, Modbus® & OPC compatible

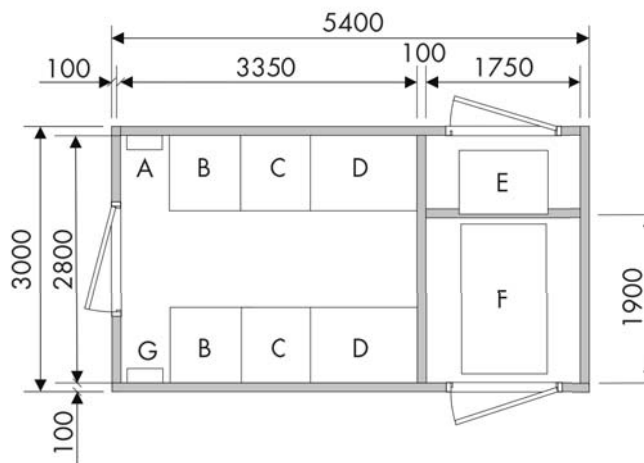
UL Certified

- UL 1741 / IEEE-1547 compliant



All figures in mm.

- A COM-B, optional
C Sunny Central, inverter cabinet
E Medium-voltage switchgear
G Station sub-distribution



- B Sunny Central, DC cabinet
D Sunny Central, AC cabinet
F Transformer

Technical data

Input data

Max. DC power	565 kWp ¹⁾
MPP voltage range	330 V - 600 V
Max. DC voltage	600 V
Feed starting at [U] / [P]	380 V / 5000 W
Max. DC current	1600 A
Number of DC inputs	6 - 9

Output data

Nominal AC power	500 kVA @ 45 °C (113 °F)
Max. AC current	1470 A @ 200 V
AC grid frequency	60 Hz
AC voltage range	180 V - 220 V
AC voltage range, full active power	196 V - 210 V
Power factor (cos φ)	> 0.99
Max. THD	< 5%

Efficiency ²⁾

Max. efficiency	98.6%
CEC efficiency	98.0%
Euro-eta	97.9%

Ambient conditions

Operating temperature range	-25 °C ... +60 °C (-13 °F ... +140 °F)
Max. temperature for nominal conditions	+45 °C (+113 °F)
Protection rating	NEMA 3R
Installation indoors / outdoors	● / ●
Rel. humidity	15% ... 95%
Fresh air consumption	3000 m³/h
Internal consumption at nominal power	< 1600 W
Standby consumption (P _{night})	< 110 W

Dimensions and weight

Height	2277 mm (90 in)
Width	2562 mm (101 in)
Depth	956 mm (38 in)
Weight	< 1800 kg (3970 lb)

Certificates / listings

Certificates	UL 1741, UL 1998, IEEE 1547
EMC conformity	FCC, Part 15, Class A

Interfaces

RS485 / Ethernet / analog	○ / ○ / ○
Display: text line / graphic	- / ●
Communication protocols	Modbus / TCP
SSM-US connection	RS485
Plant monitoring	Sunny Portal

EQUIPMENT SPECIFICATIONS

SCALE: NTS

NOTES:

1. NONE.

KEYED NOTES:

- ①. NONE.

ELECTRICAL ENGINEER:

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DATE: X-XX-XX

REV. NO.	ISSUED	09/30/11	R.D.
	DESCRIPTION	DATE	BY



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SunEdison Canada**

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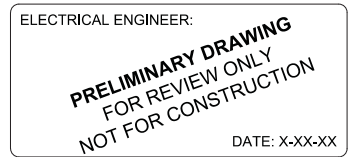
DRAWING:
EQUIPMENT SPECIFICATIONS

DRAWING NO.

EP-701

MODULE	MEMC 310W (TYPICAL)	
MODULE STC POWER	280 - 310WP	
MODULE TILT	SINGLE-AXIS TRACKER	
ARRAY AZIMUTH	180°	
	GENERATOR, TYPICAL OF 10	SITE TOTAL
GENERATOR MANUFACTURER	SMA	SMA
GENERATOR MODEL	SUNNY CENTRAL 500HE	SUNNY CENTRAL 500HE
NUMBER OF MODULES PER GENERATOR	3487	34870
DC RATING	1.08 MW	10.80 MW
AC NAMEPLATE RATING	1.0 MW	10 MW
NUMBER OF SOURCE CIRCUITS	317	3170
SOURCE CIRCUIT COMBINERS	22	220

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DRAWING: SINGLE LINE DIAGRAM

DRAWING NO.

EP-801



LEGEND

Existing Features

- Road
- Topographic Contour (5m Interval)
- Transmission Line
- Watercourse, Intermittent
- Watercourse, Permanent
- ▨ Authorized Aggregate Site
- - - Project Location
- ▭ 300 m from Project Location
- ▭ Project Site
- ▨ Unevaluated Wetland

Significant Natural Features / Significant Wildlife Habitat (within 120 m of Project Location)

- ▨ Significant Woodland / Significant Wildlife Habitat [Species of Conservation Concern (Juniper Hairstreak, Milksnake)]
- ▨ Non-Significant Woodland / Significant Wildlife Habitat [Species of Conservation Concern (Juniper Hairstreak, Milksnake)]
- ▨ Cultural Thicket / Significant Wildlife Habitat (Shrub / Early Successional Bird Breeding Habitat) / [Species of Conservation Concern (Juniper Hairstreak, Milksnake)]
- ▨ Cultural Meadow / Significant Wildlife Habitat [Species of Conservation Concern (Juniper Hairstreak, Milksnake)]

Proposed Project Components

- ▲ Communication Tower
- Inverter
- Substation
- Connection Point
- Panel Layout
- Access Road
- - - Fence
- Transmission Line
- ▭ Laydown Area

Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
2. Spatial referencing UTM NAD 83, August 2010.
3. Air photos obtained from Cataraqui Region Conservation Authority, flown in 2008, scale 1:2000. Imagery to the east of the site from Google Earth Pro, 2005 and 2006.
4. Significant natural features and wildlife habitat depicted within 120 m of Project Location obtained from Ecological Services (2011c).



Figure 2.1
Axio Power Canada Inc./SunEdison Canada
**Kingston Gardiner TS Unity Road
Site Layout Plan**

