Solar Decommissioning Plan
2150 Dryden Road

Prepared for the Town of Dryden
By Dryden-Tompkins Solar II, LLC
January 2019

Introduction

Dryden-Tompkins Solar II, LLC (the "Applicant") is developing and constructing the 2150 Dryden Road solar projects in the Town of Dryden (the "Town"). The 2150 Dryden Road solar projects are located to the west of the George Road and east of Johnson Road on approximately 56 acres of land. The 2150 Dryden Road project is a group of five independently interconnected projects that total 10 MWac and will interconnect within the New York State Electric and Gas ("NYSEG") distribution grid. The Applicant will invest capital, construct, and own the solar arrays, and supply the electricity generated from the projects to NYSEG customers through the Community Distributed Generation ("CDG") regulation enabled by the New York State Public Service Commission (the "PSC").

The Decommissioning Plan is presented to the Town to satisfy a condition of approval of the Special Use Permit for the project as outlined in Town of Dryden Resolution Number 110 of 2017. This Decommissioning Plan shall be construed in conjunction with the Decommissioning Agreement dated February 14, 2019 among Town of Dryden, Dryden-Tompkins Solar II, LLC, and Scott Pinney ("Decommissioning Agreement"). If there is any discrepancy between the contents of this Decommissioning Plan and the Decommissioning Agreement, the provisions of the Decommissioning Agreement shall supersede the terms of this Plan.

For design and technical specifications, please refer to the construction drawings submitted with the building permit application. The Applicant proposes equipment presented in Table 1 for the arrays in the Town.

Table 1 - Equipment Descriptions for the Solar Project at 2150 Dryden Road

Item	Provider	Quantity	Useful Life
PV Panels	China Sunergy Clean Tech Inc. (CSUN355-72M)	39,620	**35 years**
Inverters	SMA America LLC (Sunny Central 2000-EV-US & Tripower-STP3000TL-US-10)	Central: 4 String: 33	**25 years**
Racking	RBI Solar	See Final Design	**35 years**
Wiring	Contractor	See Final Design	**35 years**
Concrete Pads	Contractor	See Final Design	**35 years**

Decommissioning & Reclamation Plan

The Applicant has entered into a long-term lease agreement with Scott Pinney, the landowner, to host these projects. At the end of the lease terms, the Applicant will either (1) enter into a mutual agreement to extend the lease, (2) remove the equipment at the Applicant's expense, or (3) sell the facility to the landowner at a price determined in the future between Applicant and landowner.

The Applicant shall complete the following activities in order to decommission the systems; Applicant shall be responsible for all decommissioning costs:

- System will be safely de-energized from potential energy.

- AC and DC wiring will be safely disconnected from all equipment.
- PV Panels will be detached from the racking system and stacked for removal;
- Sections of the racking system will be and stacked for removal;
- Pile-driven racking systems, such as I-beams or ground screws, will be pulled out of the ground using a pile rig;
- Inverters, transformers, and switchgear will be removed from the concrete pads. Combiner box assemblies will be removed from mounts.
- The concrete foundations for the inverters, transformers, and switchgear will be lifted, secured onto flat beds, and transported off-site for processing;
- Buried conduits will be removed from the ground, and all trenches will be backfilled with the native soils removed;
- On-site power poles for above-ground wiring at the collector substation will be removed;
- The utility electrical distribution lines and poles will be removed by the local utility; the Applicant does not propose any action for utility work;
- Applicant shall obtain any additional permits required for the decommissioning, removal and legal disposal of Project components prior to commencement of decommissioning activities;
- Applicant shall complete the decommissioning, including component removal and disposition, grading and re-vegetation in accordance with permits and in compliance with all applicable rules and regulations then in effect governing the disposal thereof;
- Solar facility construction does not employ hazardous materials. No hazardous materials are expected to be removed from site.
- Applicant will not alter the agricultural soils on the Sites.
- Applicant shall plow with a sub-soiler in the areas underneath any concrete blocks and the roadways where soils may have become compressed;
- Applicant shall reseed and mulch disturbed areas using a seed mix pre-approved by the United States Department of Agricultural Warm Season Grasses (USDA-WSG) Guide entitled, *The Use of Native Warm Season Grasses for Critical Area Stabilization.*

The Systems shall be decommissioned by trained contractors and the Applicant will seek to repurpose materials, such as wiring, steel framing with shallow embedment, PV panels, and ancillary equipment. Upon decommissioning, the electrical equipment may either be sold back to the manufacturer or another party, transferred to a recycling facility, or transferred to the nearest Town-approved disposal facility. The project contains large amounts of easily recyclable conductive metals, including copper and aluminum. All non-recyclable materials will be taken to the nearest Town approved disposal facility.

Over the 35+ year expected life of the systems, the existing groundcover will be maintained as grass by attentive landscaping and native or seeded grass will be utilized for groundcover. The Applicant will mow the grass and may also use livestock grazing as a vegetation management tool. The soil stockpile, if any, is to be monitored for a maintained strong stand of vegetative growth and for erosion of soils. If additional vegetative cover is needed, the stockpile shall be reseeded and mulched. If erosion is noted, additional protective measures shall be implemented.

Decommissioning Bond

Labor: The New York State Energy Research and Development Authority (NYSERDA) has estimated the cost of decommissioning a 2 MW solar site to be $60,200 as described in Table 2. The attached Exhibit A contains the proposed schedule of Decommissioning Bond Values over the next 35 years for the solar projects at 2150 Dryden Road.

Table 2: NYSERDA's List of Decommissioning Tasks and Estimated Costs

Tasks	Estimated Cost ($)
Remove Rack Wiring	$2,459
Remove Panels	$2,450
Dismantle Racks	$12,350
Remove Electrical Equipment	$1,850
Breakup and Remove Concrete Pads or Ballasts	$1,500
Remove Racks	$7,800
Remove Cable	$6,500
Remove Ground Screws and Power Poles	$13,850
Remove Fence	$4,950
Grading	$4,000
Seed Disturbed Areas	$250
Truck to Recycling Center	$2,250
Current Total	$60,200
Total After 20 Years (2.5% inflation rate)	$98,900

Source: www.nyserda.ny.gov/-/media/NYSun/files/Decommissioning-Solar-Systems.pdf

Value of Equipment: Two key system components to be considered in the decommissioning of a solar electric system are the salvage values of the solar panels and the steel from the racking system. The value of solar panels in the future can come from either the value of the energy they produce or the material components. The solar panels have a useful life of 35+ years and come with a manufacturer's 25-year power warranty that notes production of 83% after 25 years in operation.

In terms of material components, panels can be recycled for their glass, aluminum, and silicon. It is expected that as the solar market grows and systems come offline in 35 years, there will be a substantial secondary market for panels along with highly advanced solutions for recycling solar panels in the United States.

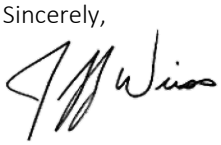
Salvageable equipment may also include other electrical components such as copper and aluminum wiring, inverters, transformers, and switchgear, which may be most valuable if repaired, re-used, or re-purposed. The sale of used components could also be used in the future to offset system upgrades and support the future operations and maintenance activities of the systems.

Exhibit A
Decommissioning Bond Value

Decommissioning Bond Value	
Timeframe (Year)	Amount ($)
1	$350,000
2	$350,000
3	$350,000
4	$350,000
5	$350,000
6	$350,000
7	$350,000
8	$400,000
9	$400,000
10	$400,000
11	$400,000
12	$400,000
13	$450,000
14	$450,000
15	$450,000
16	$450,000
17	$450,000
18	$500,000
19	$500,000
20	$500,000
21	$500,000
22	$550,000
23	$550,000
24	$550,000
25	$550,000
26	$600,000
27	$600,000
28	$600,000
29	$650,000
30	$650,000
31	$650,000
32	$650,000
33	$700,000
34	$700,000
35	$700,000

This Solar Decommissioning Plan for 2150 Dryden Road solar project was prepared by Dryden-Tompkins Solar II, LLC for the Town of Dryden.

Sincerely,



Jeff Weiss
Manager of SUN8 PDC LLC
for Dryden-Tompkins Solar II, LLC

Enclosures:
Specification sheet for SMA Sunny Central 2000-EV-US
Specification sheet for SMA Tripower-STP30000TL-US-10
Specification sheet for CSun355-72M
Specification sheet for RBI Solar Fixed-Tilt Ground Mount Solution | GM-2

Unmatched Power Density

- Small footprint simplifies site preparation and logistics
- Industry leading over-dimensioning capabilities
- Integrated voltage supply for internal consumption and external loads

Robust Performance

- Precision air-cooling enables greater reliability and simpler service compared to liquid cooled inverters
- Best-in-class performance in any environment
- DC/AC Ratio up to 250%

Grid Management

- Conforms to all known grid requirements worldwide
- Provides Q on demand

Superior Integration

- Improved DC connection area
- Easily accessible bay for connecting site specific equipment
- Available as a stand-alone inverter or solution with medium-voltage block and tracker auxiliary rack

SUNNY CENTRAL
2000-EV-US / 2500-EV-US / 2750-EV-US

Maximum power density and simple integration for 1,500 V PV projects

The Sunny Central family features an output of up to 2,750 kVA with 1,500 V DC systems. Fewer system components are needed due to the integrated DC fuse servicing switches and convenience power. The inverter also includes integrated control power and a network switch. OptiCool™ precision air cooling keeps this central inverter running smoothly, even in extreme ambient temperatures. It also protects against sand and dust intrusion. The Sunny Central inverter is the central component of the SMA Utility Power System and offers industry leading DC:AC ratios. In conjunction with the medium-voltage block 2.0, DC technology, power plant controlling system and SMA Service, it offers maximum ROI for utility-scale PV projects.

SUNNY CENTRAL 2000-EV-US

Technical Data	SC 2000-EV-US
Input (DC)	
MPP voltage range V_{DC} (at 25°C / at 35°C / at 50°C)	1425 V /1200 V / 1200 V
Min. input voltage $V_{DC, min}$ / Start voltage $V_{DC, Start}$	778 V / 928 V
Max. input voltage $V_{DC, max}$	1500 V
Max. input current $I_{DC, max}$ (up to 50°C)	2610 A
Max. short-circuit current rating	6400 A
Number of DC inputs (20 / 24)	● / ○
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm²
Integrated zone monitoring (±0.5% shunt resistors)	○
Available DC fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A
Output (AC)	
Nominal AC power (up to 50°C)	2200 kVA / 2000 kW
Nominal AC power at cos ϕ = 0.8 (at 35°C / at 50°C)	1760 kW
Max. output current $I_{AC, max}$	2310 A
Nominal AC current $I_{AC, nom}$	2100 A
Max. total harmonic distortion	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range[1)8)]	550 V / 440 V to 660 V
AC power frequency	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz
Power factor at rated power / displacement power factor adjustable[8)]	1 / 0.8 overexcited to 0.8 underexcited
Efficiency	
CEC efficiency*[3)]	98.0%
Protective Devices	
Input-side disconnection point	DC load-break switch
Output-side disconnection point	AC circuit breaker
DC overvoltage protection	Surge arrester, type I
AC overvoltage protection (optional)	Surge arrester, class I
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III
Overcurrent protection device (according to NEC, ANSI/NFPA 70)	3600 A
Ground-fault monitoring / remote ground-fault monitoring / insulation monitoring	○ / ○ / ○
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP65 / IP34 / IP34
Degree of protection (as per UL 50)	Type 3R
General Data	
Dimensions (W / H / D)	2780 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)
Weight	< 3400 kg / < 7496 lb
Self-consumption: max.[4)] / partial load[5)] / average[6)]	< 8100 W / < 1800 W / < 2000 W
Self-consumption (standby)	< 370 W
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer
Operating temperature range	−25 to 60°C / −13 to 140°F
Temperature range (standby)	−40 to 60°C / −40 to 140°F
Temperature range (storage)	−40 to 70°C / −40 to 158°F
Noise emission[7)]	66,3 dB(A)
Max. permissible value for relative humidity: condensing / non-condensing	95% to 100% (2 month/year) / 0 to 95%
Maximum operating altitude above MSL[8)] 1000 m / 2000 m	● / ○ (earlier temperature-dependent derating)
Fresh air consumption	6500 m³/h
Features	
DC connection	Terminal lug on each input (without fuse)
AC connection	With busbar system (three busbars, one per line conductor)
Communication	Ethernet, Ethernet/IP, Modbus TCP/IP
Enclosure / roof color	RAL 9016 / RAL 7004
Supply transformer for external loads	○ (2.5 kVA)
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), UL 1741-SA, NEC 2011/2014, UL 1998, IEEE 1547, IEEE 693, MIL-STD-810G, BDEW, CE, CAN/CSA C22.2 107.1-1
EMC standards (pending)	CISPR 22:2008 modified class A, FCC Part 15 Class A
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001
● Standard features ○ Optional *preliminary	
Type designation	SC-2000-EV-US-10

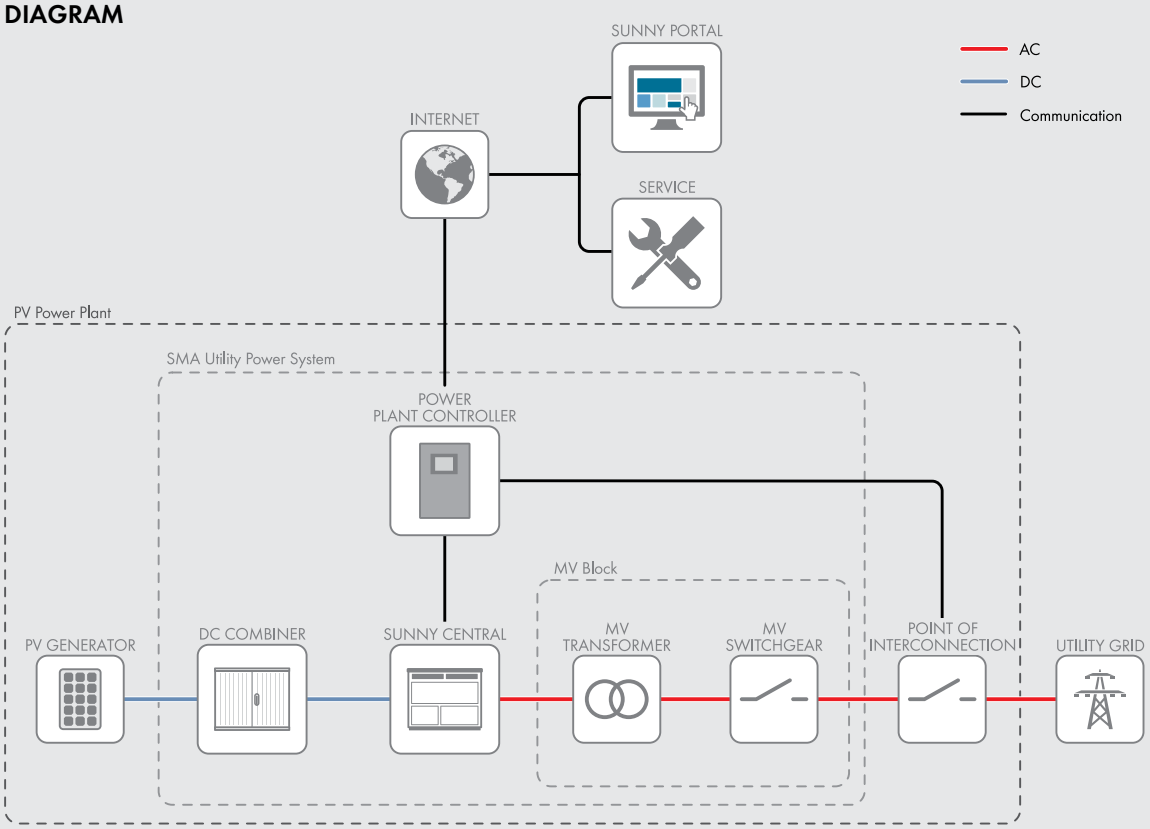
1) At nominal AC voltage < 550V, nominal AC power decreases in the same proportion
2) Preliminary values
3) Efficiency measured with internal power supply
4) Self-consumption at rated operation
5) Self-consumption at < 75% Pn at 25°C
6) Self-consumption averaged out to 5% to 100% Pn at 25°C
7) Sound pressure level at a distance of 32.8 ft (10 m)
8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.

SUNNY CENTRAL 2500-EV-US / 2750-EV-US

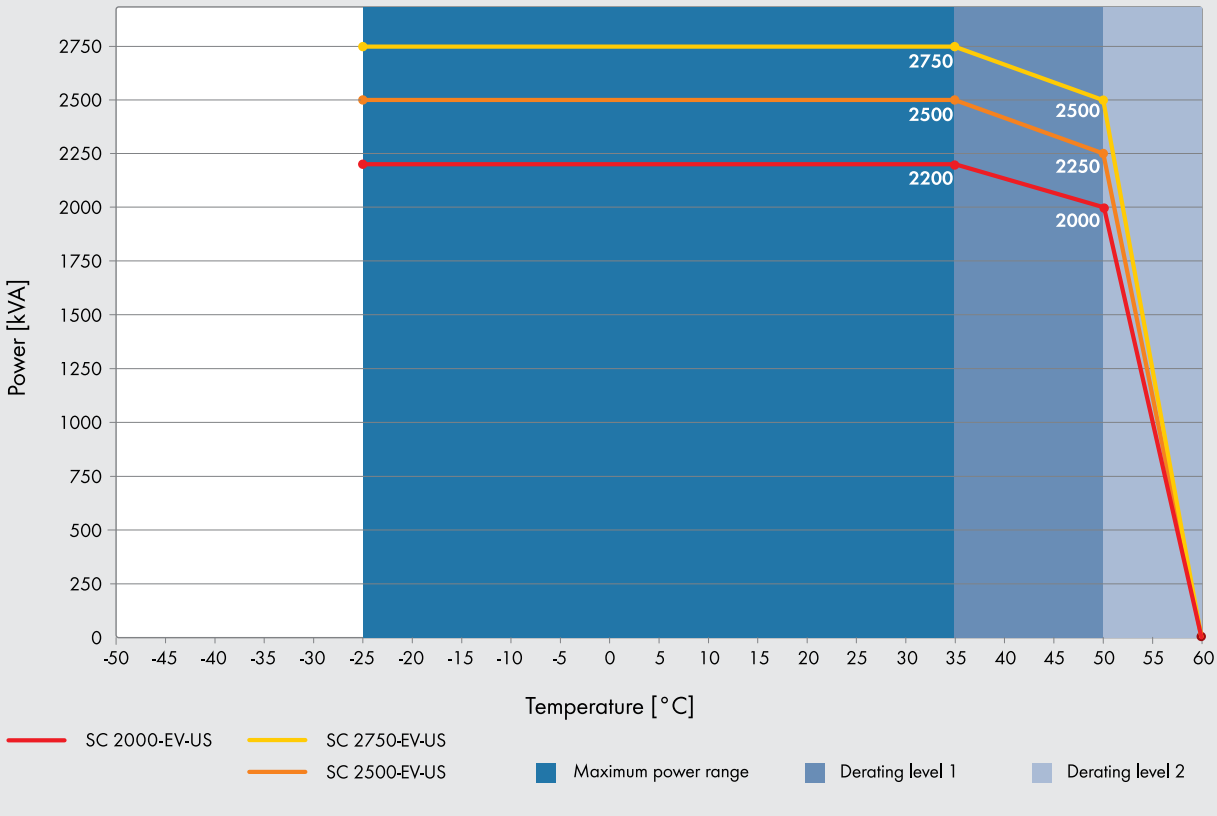
Technical Data	Sunny Central 2500-EV-US	Sunny Central 2750-EV-US
Input (DC)		
MPP voltage range V_{DC} (at 25 °C / at 35 °C / at 50 °C)	850 V to 1425 V / 1200 V / 1200 V	875 V to 1425 V / 1200 V / 1200 V
Min. input voltage $V_{DC, min}$ / Start voltage $V_{DC, Start}$	778 V / 928 V	849 V / 999 V
Max. input voltage $V_{DC, max}$	1500 V	1500 V
Max. input current $I_{DC, max}$ (at 25°C / at 50°C)	3200 A / 2956 A	3200 A / 2956 A
Max. short-circuit current rating	6400 A	6400 A
Number of DC inputs (20/24)	● / ○	● / ○
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm²	2 x 800 kcmil, 2 x 400 mm²
Integrated zone monitoring	○	○
Available DC fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A	
Output (AC)		
Nominal AC power at cos ϕ =1 (at 35 °C / at 50 °C)	2500 kVA / 2250 kVA	2750 kVA / 2500 kVA
Nominal AC power at cos ϕ =0.9 (at 35 °C / at 50 °C)	2250 kW / 2025 kW	2475 kW / 2250 kW
Nominal AC current $I_{AC, nom}$ = Max. output current $I_{AC, max}$	2624 A	2646 A
Nominal AC current $I_{AC, nom}$	2624 A	2646 A
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range[1]	550 V / 440 V to 660 V	600 V / 480 V to 690 V
AC power frequency	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz
Min. short-circuit ratio at the AC terminals	> 2	> 2[8]
Power factor at rated power / displacement power factor adjustable [9]	● 1 / 0.8 overexcited to 0.8 underexcited ○ 1 / 0.0 overexcited to 0.0 underexcited	
Efficiency		
Max. efficiency[2] / European efficiency[2] / CEC efficiency[3]	98.6% / 98.3% / 98.0%	98.7% / 98.5% / 98.5%
Protective Devices		
Input-side disconnection point	DC load-break switch	DC load-break switch
Output-side disconnection point	AC circuit breaker	AC circuit breaker
DC overvoltage protection	Surge arrester, type I	Surge arrester, type I
AC overvoltage protection (optional)	Surge arrester, class I	Surge arrester, class I
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	Lightning Protection Level III
Overcurrent protection device (according to NEC, ANSI/NFPA 70)	3600 A	3600 A
Ground-fault monitoring / remote ground-fault monitoring / insulation monitoring	○ / ○ / ○	
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP65 / IP34 / IP34	IP65 / IP34 / IP34
Degree of protection (as per UL 50)	Type 3R	Type 3R
General Data		
Dimensions (W / H / D)	2780 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)	
Weight	< 3400 kg / < 7496 lb	
Self-consumption (max.[4] / partial load[5] / average[6])	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	Integrated 8.4 kVA transformer	
Operating temperature range	−25 to 60°C / −13 to 140°F	
Temperature range (standby)	−40 to 60°C / −40 to 140°F	
Temperature range (storage)	−40 to 70°C / −40 to 158°F	
Noise emission[7]	66.3 dB(A)	64.3 dB(A)
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month / year) / 0 % to 95%	
Maximum operating altitude above MSL 2000 m	●	
Fresh air consumption	6500 m³/h	
Features		
DC connection	Terminal lug on each input	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Ethernet/IP, Modbus TCP/IP	
Enclosure / roof color	RAL 9016 / RAL 7004	
Display	HMI touchscreen (10.1")	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), UL 1741-SA, NEC 2011/2014, UL 1998, IEEE 1547, IEEE 693, MIL-STD-810G, BDEW, CE, CAN/CSA C22.2 107.1-1	
EMC standards (pending)	CISPR 22:2008 modified class A, FCC Part 15 Class A	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optionalw		
Type designation	SC-2500-EV-US-10	SC-2750-EV-US-10

1) At nominal AC voltage, nominal AC power decreases in the same proportion
2) Efficiency measured without internal power supply
3) Efficiency measured with internal power supply
4) Self-consumption at rated operation
5) Self-consumption at < 75% Pn at 25°C
6) Self-consumption averaged out from 5% to 100% Pn at 35°C
7) Sound pressure level at a distance of 10 m
8) A short-circuit ratio of < 2 requires a special approval from SMA
9) Depending on the DC voltage

SYSTEM DIAGRAM



TEMPERATURE



SC2000-EV-US-2750-EV-US-DUS183711 All products and services described and all technical data are subject to change, even for reasons of country-specific deviations, at any time without notice. SMA assumes no liability for typographical or other errors. For current information, please see www.SMA-Solar.com.

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

Design flexibility

- 1000 V DC or 600 V DC
- Two independent DC inputs
- 15° to 90° mounting angle range
- Detachable DC Connection Unit

System efficiency

- 98.0% CEC, 98.6% Peak
- 1000 V DC increases system efficiency
- OptiTrac Global Peak MPPT

Enhanced safety

- Integrated DC AFCI
- Floating system with all-pole sensitive ground fault protection
- Reverse polarity indicator in combination with Connection Unit

Future-proof

- Complete grid management feature set
- Integrated Speedwire, WebConnect, ModBus interface
- Bi-directional Ethernet communications
- Utility-interactive controls for active and reactive power

SUNNY TRIPOWER 12000TL-US / 15000TL-US / 20000TL-US / 24000TL-US / 30000TL-US

The ultimate solution for decentralized PV plants, now up to 30 kilowatts

The world's best-selling three-phase PV inverter, the SMA Sunny Tripower TL-US, is raising the bar for decentralized commercial PV systems. This three-phase, transformerless inverter is UL listed for up to 1000 V DC maximum system voltage and has a peak efficiency above 98 percent, while OptiTrac Global Peak minimizes the effects of shade for maximum energy production. The Sunny Tripower delivers a future-proof solution with full grid management functionality, cutting edge communications and advanced monitoring. The Sunny Tripower is also equipped with all-pole ground fault protection and integrated AFCI for a safe, reliable solution. It offers unmatched flexibility with a wide input voltage range and two independent MPP trackers. Suitable for both 600 V DC and 1,000 V DC applications, the Sunny Tripower allows for flexible design and a lower levelized cost of energy.

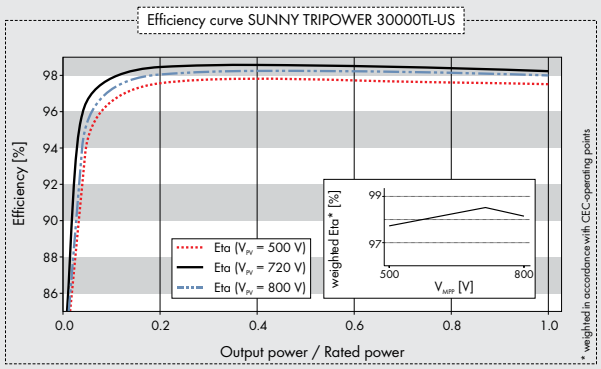
Technical data	Sunny Tripower 12000TL-US	Sunny Tripower 15000TL-US	Sunny Tripower 20000TL-US	Sunny Tripower 24000TL-US	Sunny Tripower 30000TL-US
Input (DC)					
Max. array power	18000 Wp STC	22500 Wp STC	30000 Wp STC	36000 Wp STC	45000 Wp STC
Max. DC voltage	*1000 V				1000 V
Rated MPPT voltage range	300 V...800 V	300 V...800 V	380 V...800 V	450 V...800 V	500 V...800 V
MPPT operating voltage range	150 V...1000 V				
Min. DC voltage / start voltage	150 V / 188 V				
Number of MPP tracker inputs	2				
Max. operating input current / per MPP tracker	66 A / 33 A				
Max. short circuit current per MPPT / string input	53 A / 53 A				
Output (AC)					
AC nominal power	12000 W	15000 W	20000 W	24000 W	30000 W
Max. AC apparent power	12000 VA	15000 VA	20000 VA	24000 VA	30000 VA
Output phases / line connections	3 / 3-N-PE				3 / 3-N-PE, 3-PE
Nominal AC voltage	480 / 277 V WYE				480 / 277 V WYE, 480 V Delta
AC voltage range	244 V...305 V				
Rated AC grid frequency	60 Hz				
AC grid frequency / range	50 Hz, 60 Hz / -6 Hz...+5 Hz				
Max. output current	14.4 A	18 A	24 A	29 A	36.2 A
Power factor at rated power / adjustable displacement	1 / 0.0 leading...0.0 lagging				
Harmonics	< 3%				
Efficiency					
Max. efficiency / CEC efficiency	98.2% / 97.5%	98.2% / 97.5%	98.5% / 97.5%	98.5% / 98.0%	98.6% / 98.0%
Protection devices					
DC reverse polarity protection	●				
Ground fault monitoring / grid monitoring	●				
All-pole sensitive residual current monitoring unit	●				
DC AFCI compliant to UL 1699B	●				
AC short circuit protection	●				
Protection class / overvoltage category	I / IV				
General data					
Dimensions (W / H / D) in mm (in)	665 / 650 / 265 (26.2 / 25.6 / 10.4)				
Packing dimensions (W / H / D) in mm (in)	780 / 790 / 380 (30.7 / 31.1 / 15.0)				
Weight	55 kg (121 lbs)				
Packing weight	61 kg (134.5 lbs)				
Operating temperature range	-25°C...+60°C				
Noise emission (typical) / internal consumption at night	51 dB(A) / 1 W				
Topology	Transformerless				
Cooling concept / electronics protection rating	OptiCool / NEMA 3R				
Features					
Display / LED indicators (Status / Fault / Communication)	– / ●				
Interface: RS485 / Speedwire, WebConnect	○ / ●				
Data interface: SMA Modbus / SunSpec ModBus	● / ●				
Mounting angle range	15°...90°				
Warranty: 10 / 15 / 20 years	● / ○ / ○				
Certifications and approvals	UL 1741, UL 1741SA, CA Rule 21, UL 1998, UL 1699B, IEEE 1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1				
NOTE: US inverters ship with gray lids. Data at nominal conditions, August 2017. *Suitable for 600 V DC max. systems					
● Standard features ○ Optional features – Not available					
Type designation	STP 12000TL-US-10	STP 15000TL-US-10	STP 20000TL-US-10	STP 24000TL-US-10	STP 30000TL-US-10

Accessories

RS485 interface
DM-485CB-US-10

Connection Unit
CU 1000-US-11

SMA Cluster Controller
CLCON-10



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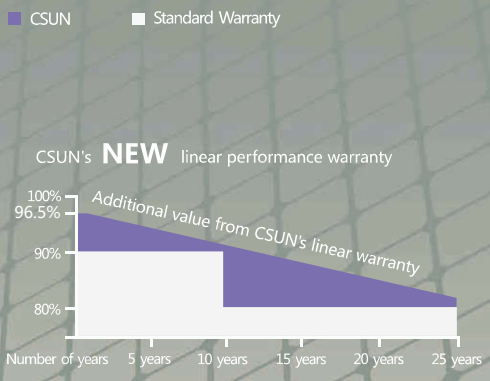
MONO

PowerGuard
SPECIALTY INSURANCE SERVICES

Powerguard Insurance Global Coverage

The power output shall not be less than 96.5%of the minimum power output stated in the product data sheet in the first year of the product' s life cycle. The loss of power output shall not exceed 0.68% per year thereafter, ending with 80.18% in the 25th year.



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CSUN
energy for today

CSUN355-72M

The Large Scale Project Solution

CSUN355-72M
CSUN345-72M
CSUN335-72M
CSUN350-72M
CSUN340-72M

18.33%
Module efficiency

355W
Highest power output

10years
Material & Workmanship warranty

25years
Liner power output warranty

- PID-free
- World class mono efficiency
- Tighter product performance distribution and current sorting reduces the mismatch power loss in system operation
- Positive tolerance offer
- Good temperature coefficient enables higher output in high temperature regions
- Excellent performance under low light conditions
- Certified for salt/ammonia corrosion resistance
- Load certificates: wind to 2400Pa and snow to 5400Pa

- China Sunergy Co., Ltd. designs, manufactures and delivers high efficient solar cells and modules to the world from its production centers based in China, Turkey, South Korea and Vietnam.
- Founded in 2004, China Sunergy is well known for its advanced solar cell technology reliable product quality and excellent customer service.
- As one of leading PV enterprises, China Sunergy has delivered more than 4.0GW of solar products to residential, commercial, utility and off-grid projects all around the word.

- Note:
  All specifications, warranties, certifications about module of "CSUN" series also apply to that of "SST".

  All information and data are subject to change without notice.

Right 2017

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Electrical Characteristics at Standard Test Conditions(STC)

Module Type	CSUN355-72M	CSUN350-72M	CSUN345-72M	CSUN340-72M	CSUN335-72M
Maximum Power - Pmax (W)	355	350	345	340	335
Open Circuit Voltage - Voc (V)	47.1	46.9	46.7	46.5	46.3
Short Circuit Current - Isc (A)	9.57	9.49	9.38	9.41	9.32
Maximum Power Voltage - Vmpp (V)	38.4	38.2	38	38.3	38.1
Maximum Power Current - Impp (A)	9.24	9.17	9.09	8.89	8.79
Module Efficiency	18.33%	18.07%	17.82%	17.56%	17.30%

Standard Test Conditions (STC): irradiance 1,000 W/m²; AM 1,5; module temperature 25°C. Tolerance of Pmpp: 0~+3%.

Measuring uncertainty of power: ±3%. Certified in accordance with IEC 61215, IEC 61730-1/2 and UL 1703.

Electrical Characteristics at Normal Operating Cell Temperature(NOCT)

Module Type	CSUN355-72M	CSUN350-72M	CSUN345-72M	CSUN340-72M	CSUN335-72M
Maximum Power - Pmax (W)	263.1	259.9	254.7	249.9	245.9
Open Circuit Voltage - Voc (V)	43.6	43.4	43	42.8	42.7
Short Circuit Current - Isc (A)	7.73	7.67	7.56	7.59	7.51
Maximum Power Voltage - Vmpp (V)	36	35.9	35.7	35.1	34.9
Maximum Power Current - Impp (A)	7.3	7.24	7.15	7.12	7.04

Normal Operating Cell Temperature((NOCT) : irradiance 800W/m^2; wind speed 1 m/s ; cell temperature 45℃; ambient temperature 20℃.

Measuring uncertainty of power: ±3%. Certified in accordance with IEC 61215, IEC 61730-1/2 and UL 1703.

Temperature Characteristics

NOTC	45℃ (±2℃)
Voltage Temperature Coefficient	-0.307%/K
Current Temperature Coefficient	+0.039%/K
Power Temperature Coefficient	-0.423%/K

Maximum Ratings

Maximum System Voltage [V]	1000
Series Fuse Rating [A]	20

Material Characteristics

Dimensions	1956×990×40mm (L×W×H)
Weight	22.0kg
Frame	Anodized aluminum profile
Front Glass	White toughened safety glass, 3.2 mm
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Back Sheet	Composite film
Cells	6×12 pieces monocrystalline solar cells series strings (156.75mm×156.75mm)
Junction Box	Rated current≧13A, IP≧67, TUV&UL
Cable&Connector	Length 1200 mm, 1×4 mm^2, compatible with MC4

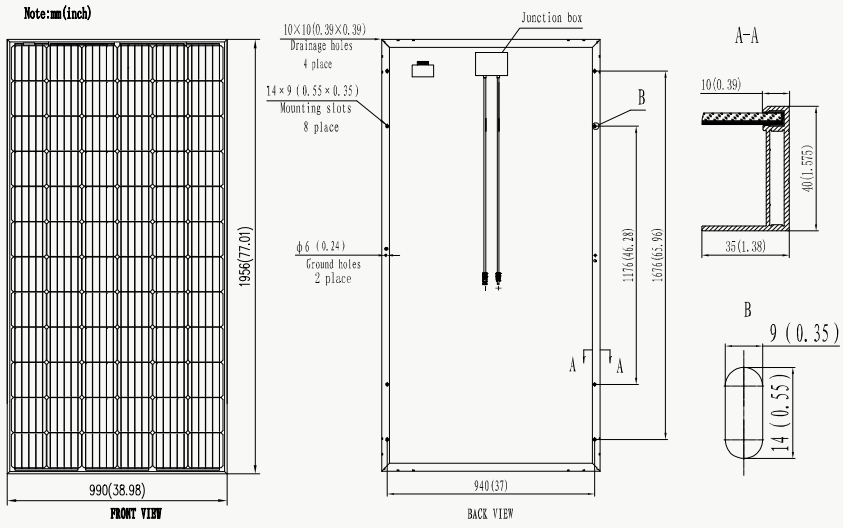
Packaging

Dimensions(L×W×H)	1980×1110×1120mm
Container20'	260
Container40'	624
Container40'HC	684

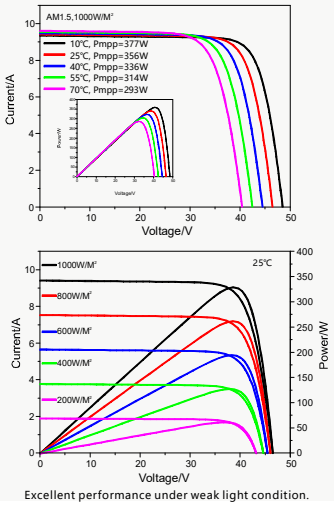
System Design

Temperature Range	-40 °C to + 85 °C
Withstanding Hail	Maximum diameter of 25 mm with impact speed of 23 m·s-1
Maximum Surface Load	5,400 Pa
Application class	class A
Safety class	class Ⅱ

Dimensions



IV-Curves



Excellent performance under weak light condition.

RBI SOLAR

Fixed-Tilt Ground Mount Solution | GM-2

When EPCs and project developers across the USA need dependable, low-maintenance ground mount racking, they turn to RBI Solar. As a single-source provider, we take responsibility for the Design, Engineering, Manufacturing, and Installation of PV mounting solutions. When you choose RBI Solar for your next ground mount, you're choosing peace of mind that your project is in the hands of the most trusted solar racking team in the industry.

Why choose RBI Solar?

- Professional Engineers licensed in all 50 states
- Quick response & efficient communication
- National installation capabilities
- Our in-house team members are an extension of your staff
- 85+ years manufacturing experience
- Complete turn-key process, reduction in your vendor coordination
- Company owned post driving equipment
- National project management capabilites with roaming site service personnel
- More time to focus on your business

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GM-2 Solution Features

Foundation and racking design	Site wind speeds 170+ mph and ground snow loads 90+ psf
Signed and sealed drawings	Available in all 50 states
Proprietary on-site testing	Pull testing & corrosion testing - no geotechnical report required
Pre-assembled parts	Reduction in installation time
Variable slope	Accommodates slopes up to 30% (with topographic site map)
20-yr standard warranty	Proven rack reliability and bankability
G115 minimum galvanized coating	Exceeds ASTM and UL standards for 30% extended life
Driven posts	Cost-effective cee channel or I-beam post options available
Up to 24’ long post driving	Ability to address challenging soils or elevate array structure
Module configurations	Portrait, landscape (all module types)
Raised purlins	Integrated bonding and grounding to UL 2703
Corrosion class	System available for all corrosion classes
Wire management and electrical	Integrated wire management solution and inverter mounting

Contact us at info@rbisolar.com or (513) 242-2051

DESIGN • ENGINEERING • MANUFACTURING • INSTALLATION

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