



**#2018-107**  
**MCC Solar Array – Final PUD Amendment**  
**Project Review for Planning and Zoning Commission**

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<b><u>Meeting Date:</u></b>	October 17, 2018
<b><u>Request:</u></b>	Final PUD Amendment for a solar array.
<b><u>Location:</u></b>	8900 Route 14
<b><u>Acreage:</u></b>	Approximately 170 acres
<b><u>Existing Zoning:</u></b>	W Watershed
<b><u>Surrounding Properties:</u></b>	North: O-PUD Office and A1-V Agriculture McHenry County South: A1-V Agriculture McHenry County East: A1-V Agriculture and OCV Office McHenry County West: A1 Agriculture McHenry County
<b><u>Staff Contact:</u></b>	Elizabeth Maxwell (815.356.3615)

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**Background:**

- McHenry County College (MCC) is located at 8900 Route 14 and was annexed in 1985. Over the years the college has made numerous improvements to the campus.
- Previous Approvals:
  - 1985: MCC Annexation
  - 2000: PUD Amendment for building and parking lot expansion
  - 2008: Variation to allow up to 50% impervious surface coverage
  - 2012: Master Plan Conceptual
  - 2013: Deferral from Watershed stormwater requirements for parking lot and temporary sign.
  - 2016-57: PUD Amendment approving the Liebman Science Center.
  - 2015-65: PUD Amendment for the adoption of a Master Sign plan for the campus.
- The current request is to construct a solar array at the southeast corner of the campus.

**Development Analysis:**

**Site Layout:**

- The solar array is located south of the ball fields behind a wooded area along Route 14, which provides some screening from the street.

- A gravel path will be provided to the facility. This is for maintenance and for emergency services.
- Any new impervious surface is subject to compliance with the City's Stormwater Ordinance.
- The site will be screened with a 6-foot fence wrapped in black fabric. The solar panels are 7'-6" high and the fence along with the natural landscape the panels will be screened.

System Specifications:

- The solar farm would tie into the existing electrical service at the college providing up to 1,479,572 kWh of power annually. The power will be used by the college.
- Maintenance is performed bi-annually unless a problem is detected. The system is monitored remotely.
- They have a 25-year power output warranty and contract. At the end of the contract, the company, ENGIE, would remove the solar array.
- The panels are installed on a fixed rack system. No noise is generated from the facility.

**Findings of fact:**

**Planned Unit Development Amendment**

The purpose of Planned Unit Developments is to encourage and allow more creative and imaginative design of land developments than is possible under district zoning regulations. Planned Unit Developments are, therefore, intended to allow substantial flexibility in planning and designing a proposal. This flexibility is often in the form of relief from compliance with conventional zoning ordinance site and design requirements.

Ideally, this flexibility results in a development that is better planned, contains more amenities, and is ultimately more desirable than one that would have been produced through compliance with typical zoning ordinance and subdivision controls.

Therefore more lenient site requirements may be granted where the Planned Unit Development contains features not normally required of traditional developments. If the evidence is not found to justify such conditions, that fact shall be reported to the City Council with a recommendation that the variation request be lessened or denied.

**Comprehensive Land Use Plan 2020 Vision Summary Review:**

The Comprehensive Plan designates the subject property as Public / Semi-Public. MCC fits within this category. The following goals are applicable to this request:

**Land Use: Public / Semi-Public**

**Goal:** Provide area for high quality public and semi-public facilities, such as schools, libraries, municipal facilities and private service providers, throughout the City to support the diverse and evolving needs of the people in the City.

This can be accomplished with the following supporting action:

**Supporting Action:** The City shall support the school districts, library, park district, neighboring municipalities, private service providers and other public and semi-public agencies.

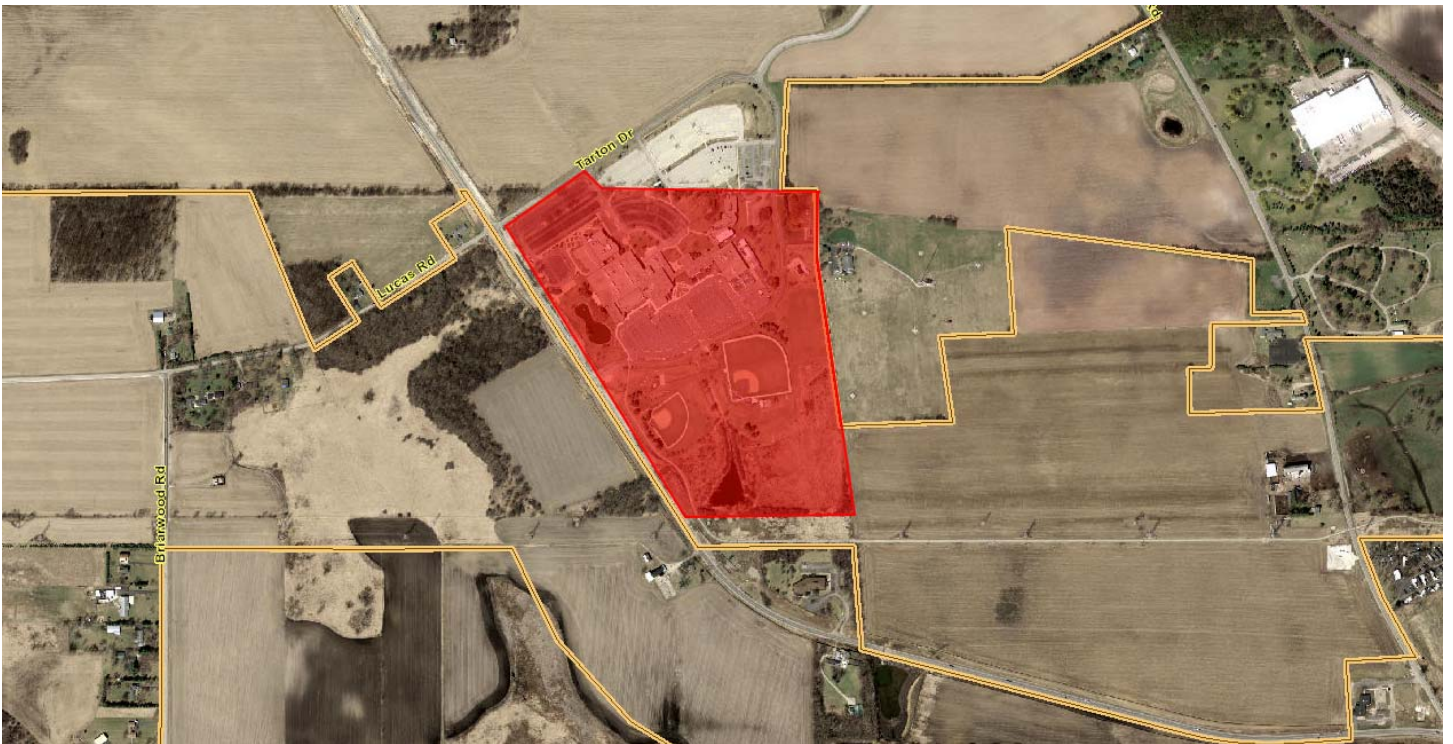
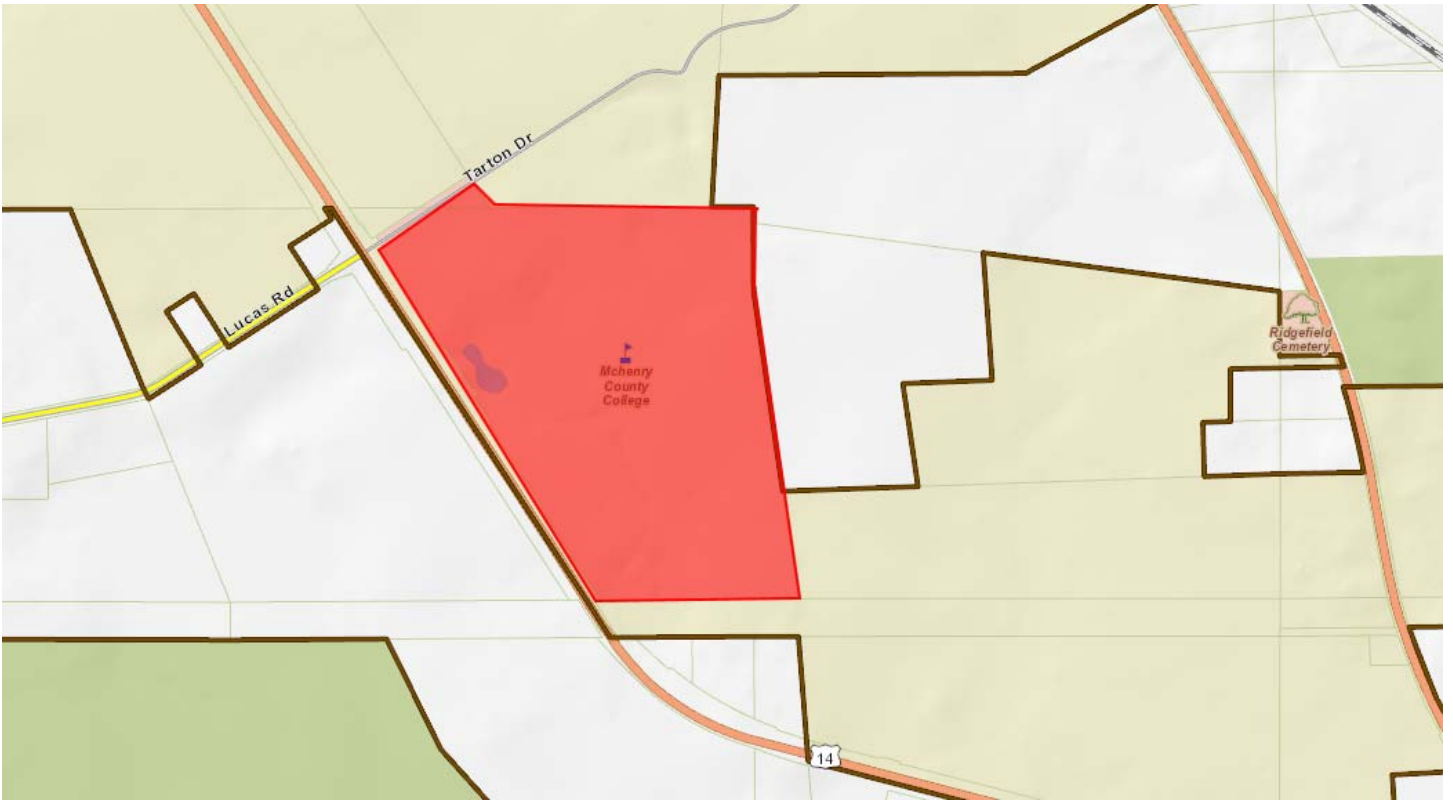
**Success Indicator:** The number of zoning approvals for public/semi-public projects.

**Recommended Conditions:**

If a motion to recommend approval of the petitioner's request is made, the following conditions are recommended:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
  - A. Application (MCC, received 09/04/18)
  - B. Site Plan (ENGIE, dated 07/17/18, received 09/04/18)
  - C. Technical Description (ENGIE, dated 07/25/18, received 09/04/18)
  - D. Specification Sheets (ENGIE, undated, received 09/04/18)
2. A 6-foot fence wrapped with black fabric mesh is required around the site.
3. No signage, except for regulatory or warning signage, shall be placed on the fence or fabric mesh.
4. Any development on this site is subject to the City's Stormwater Ordinance and Watershed Ordinance requirements.
5. The petitioner shall comply with all of the requirements of the Community Development, Public Works, Fire Rescue and Police Departments.

PLN-2018-00107 McHENRY COUNTY COLLEGE – 8900 US ROUTE 14





# City of Crystal Lake Development Application

Office Use Only File # _____
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Project Title: \_\_\_\_\_

### Action Requested

- |   |  |
|---|--|
| <input type="checkbox"/> Annexation                     | <input type="checkbox"/> Preliminary PUD                 |
| <input type="checkbox"/> Comprehensive Plan Amendment   | <input type="checkbox"/> Preliminary Plat of Subdivision |
| <input type="checkbox"/> Conceptual PUD Review          | <input type="checkbox"/> Rezoning                        |
| <input type="checkbox"/> Final PUD                      | <input type="checkbox"/> Special Use Permit              |
| <input checked="" type="checkbox"/> Final PUD Amendment | <input type="checkbox"/> Variation                       |
| <input type="checkbox"/> Final Plat of Subdivision      | <input type="checkbox"/> Other                           |

### Petitioner Information

Name: Todd Wheeland  
Address: 8900 US Highway 14  
Crystal Lake, IL 60012  
Phone: 815-455-8564  
Fax: 815-455-0674  
E-mail: twheeland@mchenry.edu

### Owner Information (if different)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

### Property Information

Project Description: PUD Amendment to allow for the inclusion of a solar farm within the campus

Project Address/Location: McHenry County College Main Campus  
8900 US Highway 14, Crystal Lake, IL 60012

PIN Number(s): 13-25-300-021

**Development Team**

Please include address, phone, fax and e-mail

Developer: \_\_\_\_\_

Architect: \_\_\_\_\_

Attorney: \_\_\_\_\_

Engineer: Joe Vavrina, PE - HR Green, Inc.

Landscape Architect: \_\_\_\_\_

Planner: \_\_\_\_\_

Surveyor: Doug Stalker, PLS - HR Green, Inc.


Other: Ed MeinKing - Engie (Solar Farm Representative)

**Signatures**

PETITIONER: Print and Sign name (if different from owner)

Date

As owner of the property in question, I hereby authorize the seeking of the above requested action.

Todd Wheeland 

8/29/18

OWNER: Print and Sign name

Date

NOTE: If the property is held in trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

**PUBLIC NOTICE**  
**BEFORE THE PLANNING AND ZONING COMMISSION**  
**OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS**  
**IN THE MATTER OF THE PETITION OF**  
**McHenry County College District 528**

**LEGAL NOTICE**

Notice is hereby given in compliance with the Unified Development Ordinance of the City of Crystal Lake, Illinois that a public hearing will be held before the Planning and Zoning Commission upon the application by Todd Wheeland, on behalf of the McHenry County College District 528, for a Final Planned Unit Development Amendment, relating to the property at 8900 U.S. Highway 14 in Crystal Lake, Illinois 60014. PINs: 13-25-300-021, 13-25-300-017, 13-25-176-001, 13-25-300-015, and 13-26-400-016.

This application is filed for the purpose of seeking an amendment to an approved Final Planned Unit Development to allow a solar farm, pursuant to Article 9-200. Plans for this project can be viewed at the Crystal Lake Community Development Department at City Hall. A public hearing before the Planning and Zoning Commission for this request will be held at 7:30 p.m. on Wednesday October 17, 2018, at the Crystal Lake City Hall, 100 West Woodstock Street, at which time and place any person desiring to be heard may be present.

Tom Hayden, Chairperson  
Planning and Zoning Commission  
City of Crystal Lake

(Published in Northwest Herald on September 27, 2018) 1586522



TOTAL MODULE COUNT: 2,856  
 MODULE SIZE: 370 W, 72 CELL  
 DC SYSTEM SIZE: 1056.7 kW  
 AC SYSTEM SIZE: 875.0 kW

**LEGEND**

- (P) ELECTRICAL CONDUIT LOCATION
- EASEMENT / BIOSWELL
- (M) METER LOCATION

CLIENT

**MCHENRY COUNTY COLLEGE**

PROJECT LOCATION  
 8900 US-14, Crystal Lake, IL 60012

DESIGNER

**ENGIE SERVICES, U.S.**  
 500 12TH STREET, SUITE 300  
 OAKLAND, CA 94607

CONSULTANT

ENGINEERING APPROVAL

AGENCY APPROVAL

ISSUE	MARK	DATE	DESCRIPTION
1.0	6/20/18	ORIGINAL	
1.1	6/21/18	OPTION 2 POI	
1.2	7/13/18	FENCING	
2.0	7/17/18	RACKING & TILT	

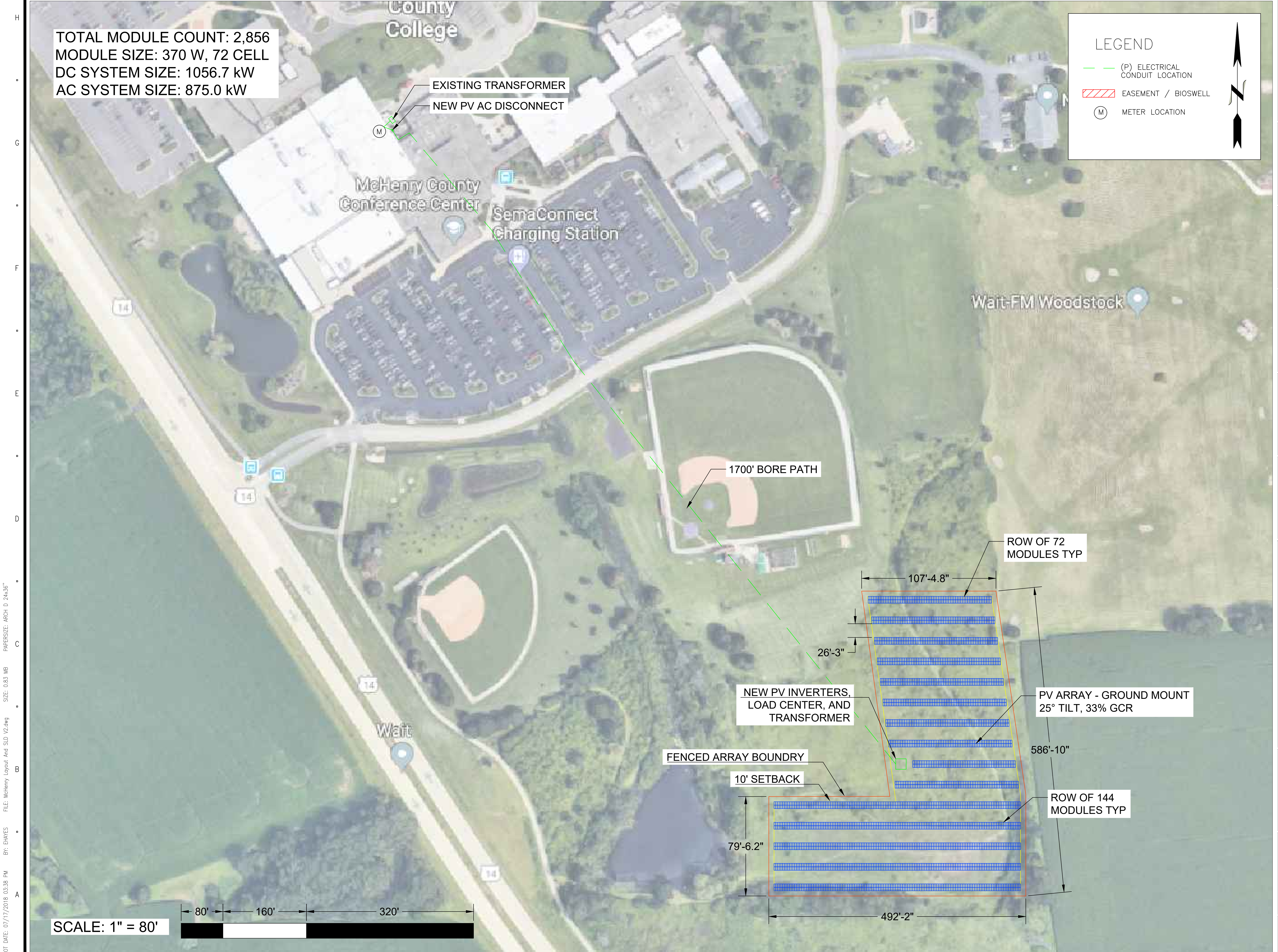
DESIGNER PROJECT NO.:  
 DRAWN BY: EH  
 CHECKED BY:  
 SCALE: NTS

KEY PLAN

SHEET TITLE

**OPTION 2 LAYOUT  
 875 KW SYSTEM**

SHEET NUMBER  
**G-1.1**



PLOT DATE: 07/17/2018 03:38 PM BY: EHAYES FILE: McHenry Layout And SLD V2.dwg SIZE: 0.83 MB PAPER SIZE: ARCH D 24x36"

# TECHNICAL DESCRIPTION

## 6.1. Technical Description

### 6.1.1. Power capacity (DC kW) measured at the inverter(s) input.

ENGIE Services is proposing two different system sizes: Option 1 at 639.4 kW DC and Option 2 at 1056.7 kW DC.

### 6.1.2. Power capacity (AC kW) measured at the electrical interconnection point.

ENGIE Services is proposing two different system sizes: Option 1 at 500 kW AC and Option 2 at 875 kW AC.

### 6.1.3. Total System efficiency.

PVsyst defines system performance ratio (PR) as the amount of power injected into the grid divided by the total amount of energy collected by the solar PV array, assuming nameplate efficiency. The PR includes the array losses (shading, PV conversion, mismatch, wiring resistance, etc.) and the inverter losses, but is not dependent on the panel efficiency or site location. For the 500 kW and 875 kW solar PV systems, the PRs calculated in our PVsyst models were 83.48% and 83.73%, respectively. The system component efficiencies are as follows: Canadian Solar CS3U-370 panels are 18.65% efficient and Solectria XGI 1500-125 inverters are rated at 98.5% California Energy Commission (CEC) efficiency.

### 6.1.4. Annual expected minimum output AC kWh production with a description of the estimation methodology used.

ENGIE Services is proposing two different system sizes. Option 1 is expected to produce 854,383 kWh in year 1 and Option 2 is expected to produce 1,419,572 kWh in year 1. These values were obtained via PVsyst modeling software. For more details, please see Appendix 8 - PVsyst Reports.





6.1.5. Output demand and energy data by month and time of use period.

Monthly Production Output (kWh)		
Month	Option 1 - 500 kW	Option 2 - 875 kW
Jan	42,790	70,706
Feb	57,010	94,214
Mar	63,940	106,176
Apr	77,151	129,740
May	87,221	145,541
Jun	106,722	177,542
Jul	102,962	171,211
Aug	96,439	159,989
Sep	79,144	131,455
Oct	62,637	103,506
Nov	51,138	84,506
Dec	27,230	44,985
<b>TOTAL</b>	<b>854,383</b>	<b>1,419,572</b>

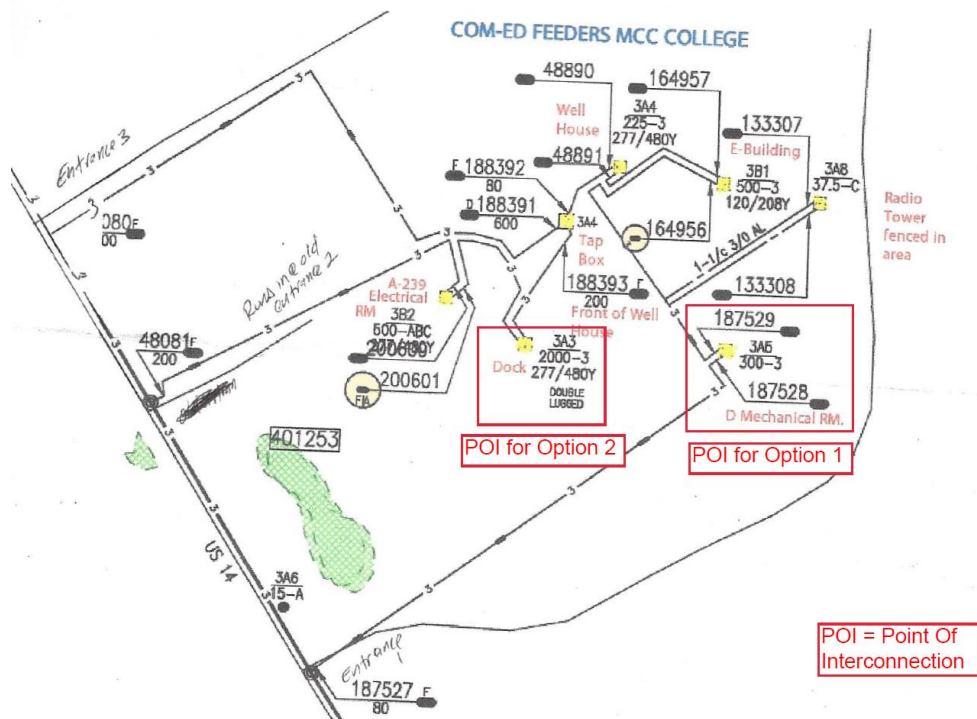
6.1.6. A description of the equipment deployed, including manufacturer, model number, efficiency, and warranty.

Equipment	Manufacturer	Model	Efficiency	Warranty
Panel	Canadian Solar	CS3U-370MS	18.65%	25 Year Linear
Inverter	Solectria	XGI 1500-125/125	98.50%	5 Year Standard, Options for 10, 15, or 20 Year
Racking	APA	Ready Rack	N/A	25 Year Limited

For additional details, please see Appendix 9 - Specification Sheets.

6.1.7. A description of the interconnection with the campus electricity distribution system.

McHenry County College (MCC) has a 277/480 volt (V) electrical loop that feeds the campus. We have identified two locations to interconnect the solar PV system identified in the map below.



6.1.8. A description of other balance of system components.

Both proposed options will have similar balance of system components. Beyond the panels, inverters, and racking, the system will include DC disconnects (inverter integrated), PV switchgear, step-up and step-down transformer, AC Disconnect, and monitoring equipment. The PV switchgear will be 3-phase and rated for 600 VAC with a breaker for each inverter. The two transformers will step our voltage up from 600 V to 12.47 kilovolts (kV) and then back down to 480 V at our point of interconnection. The AC disconnect will be 3-phase and rated for 480 V.

6.1.9. A description of the mounting and structural support systems for the system.

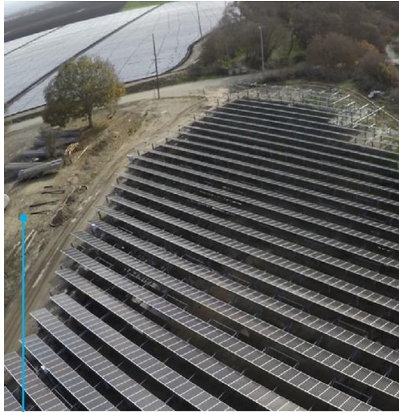
The proposed design for MCC is a ground-mount system. The mounting will be anchored into the ground using helical ground screws, which will be specifically designed for the site by the structural engineer per soils reports and code requirements. The array will be fixed tilt at 25° to help maximize production and shed snow. There are no moving or tracking components for our mounting structure.

For additional details on the mounting structure, please see Appendix 9 - Specification Sheets.

6.1.10. Note that the aesthetic character of the mounting structure and overall system installation will be considered.

### Solar PV Ground-Mount Aesthetic Characteristics

The visual appeal of a solar PV installation should reflect its durability and strength, which is why ENGIE Services balances clean design with aesthetics that complement each site's unique features. The photos below demonstrate some of the installation and design details that set us apart from our competitors.



#### Maintenance

A wide range of optional operations and maintenance services is provided not only for the solar system, but also for the surrounding site areas to optimize production, maintain safety, and improve appearances.



#### Access to Site

We focus on protecting assets, which includes minimizing vandalism and unauthorized access, ensuring safety for all children and pedestrians.



#### Cabling

We balance cost and longevity for our solar solutions in our selection of wires and installation type.

#### Structure Type

Depending on your prioritization of cost, production and complexity, we offer fixed tilt, single-axis, or dual-axis trackers.

#### Environmental Guidelines

To protect the environment, we adhere to applicable rules and laws governing environmental impact.

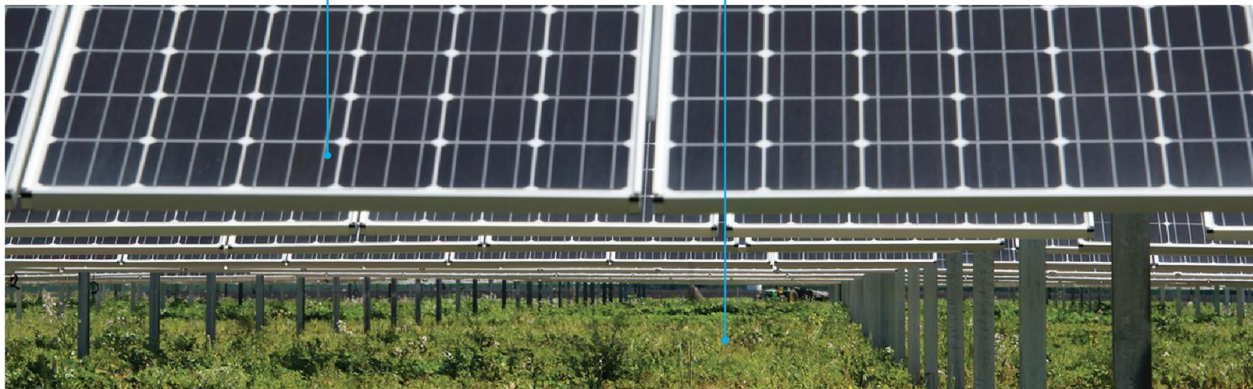
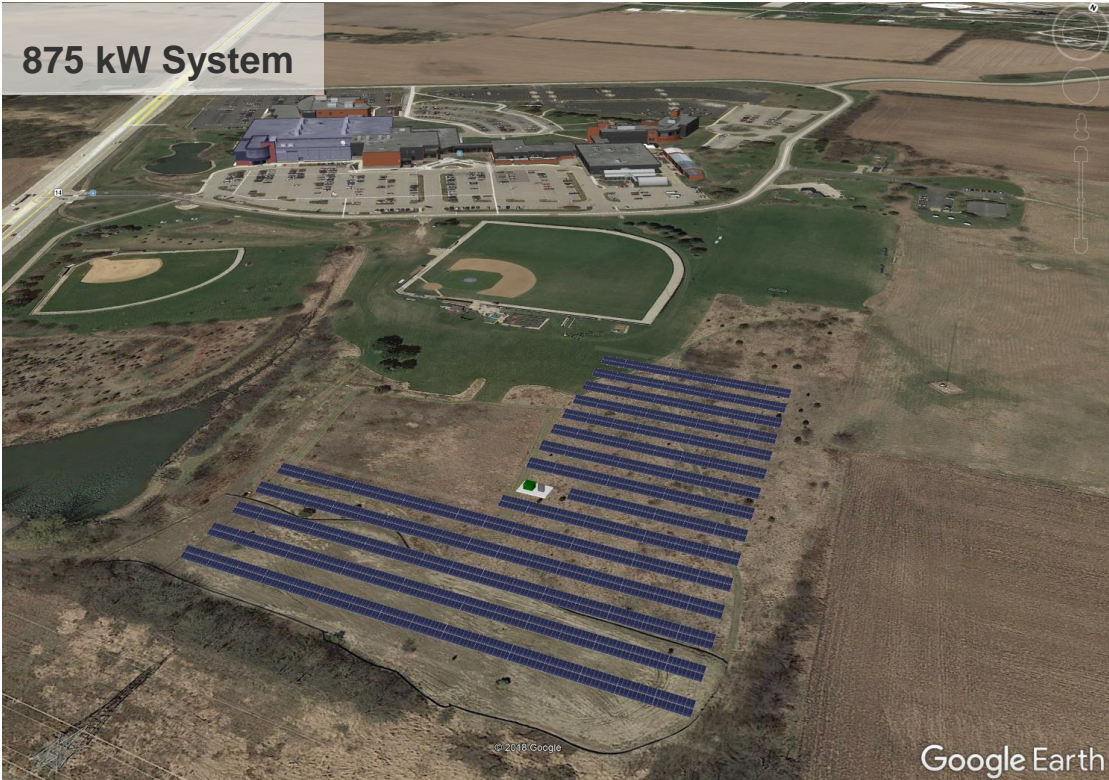


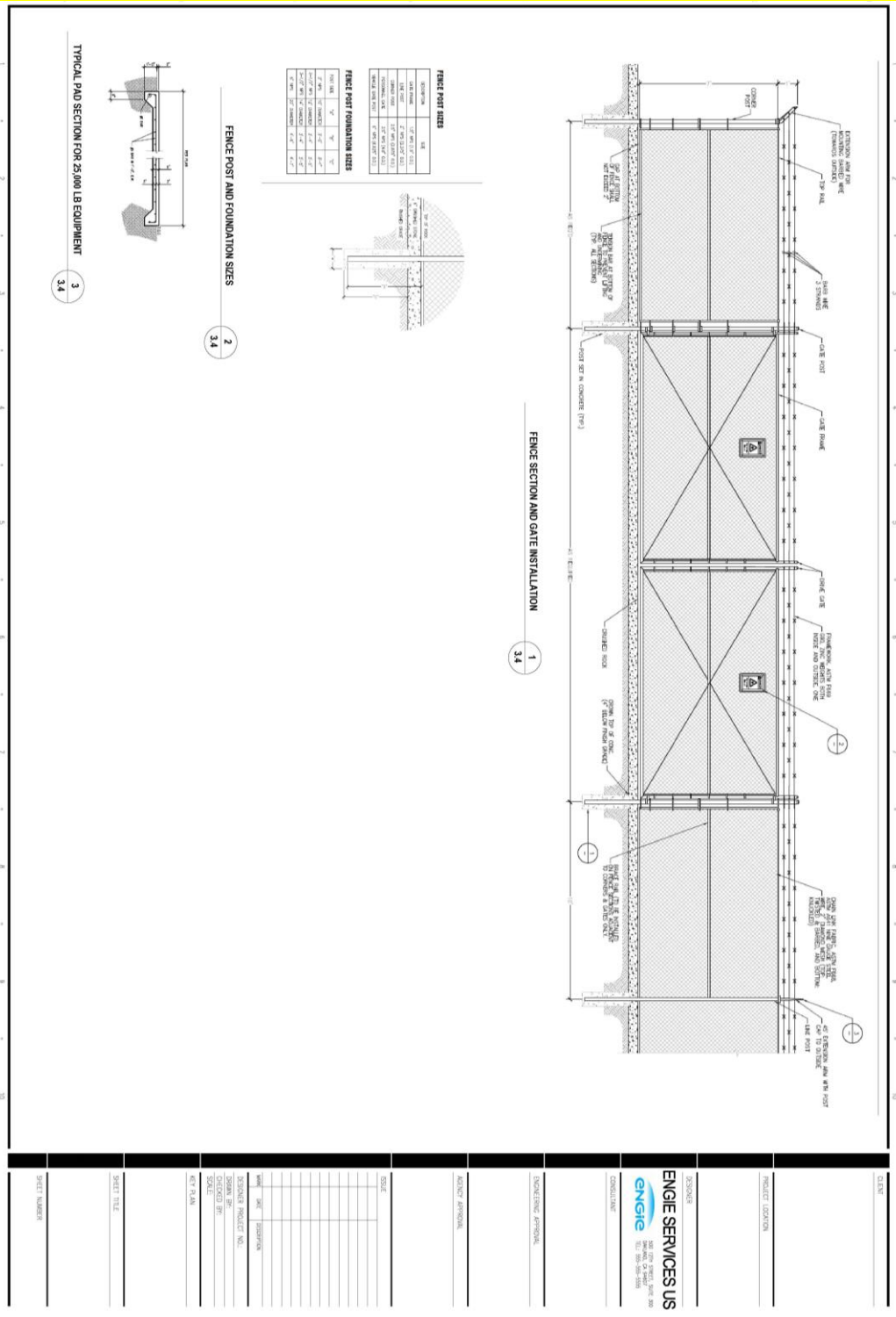


Photo Simulations



### Fencing System

For fencing details, please see below as well as Appendix 10 - Fencing System for a larger image.



## 9. SPECIFICATION SHEETS





## KuMax (1000 V / 1500 V) HIGH EFFICIENCY MONO MODULE CS3U-360|365|370|375MS

With Canadian Solar's industry leading mono-PERC cell technology and the innovative LIC (Low Internal Current) module technology, we are now able to offer our global customers high power mono modules up to 375 W.

The KuMax mono-PERC modules with a dimension of 2000 x 992 mm, close to our 72 cell MaxPower modules, have the following unique features:

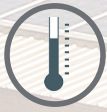
- **Higher** power classes for equivalent module sizes
- **High** module efficiency up to 18.90 %
- **LOW** hot spot temperature risk
- **LOW** temperature coefficient (Pmax):  $-0.37\% / ^\circ\text{C}$
- **LOW** NMOT (Nominal Module Operating Temperature):  $42 \pm 2\ ^\circ\text{C}$



More power output thanks to  
low NMOT:  $42 \pm 2\ ^\circ\text{C}$



Low power loss in cell  
connection



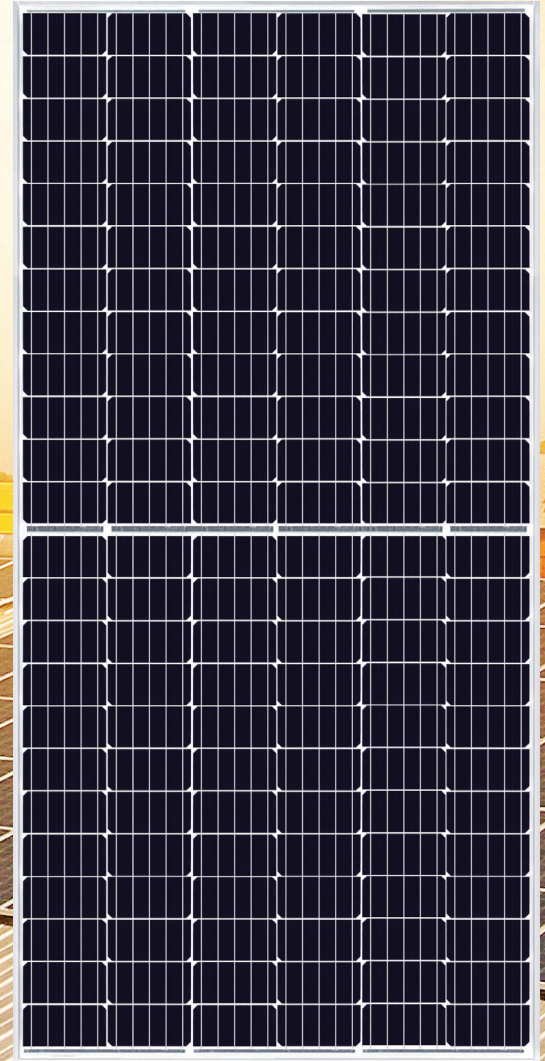
Safer: lower hot spot  
temperature



Heavy snow load up to 5400 Pa,  
wind load up to 2400 Pa



Low BoS cost with  
1500 V<sub>DC</sub> system voltage



**25 years** linear power output warranty



**10 years** product warranty on materials  
and workmanship

### PRODUCT CERTIFICATES\*

IEC 61215 / IEC 61730: 2005 & 2016: VDE / CE / UL 1703: CSA

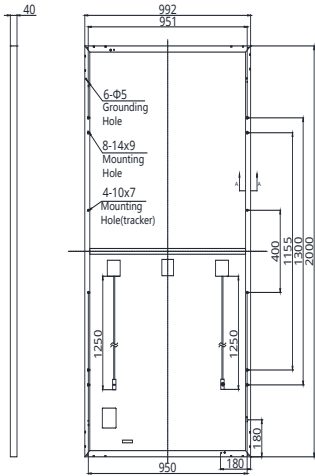


\* Please contact your local Canadian Solar sales representative for the specific product certificates applicable in your market.

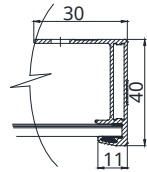


## ENGINEERING DRAWING (mm)

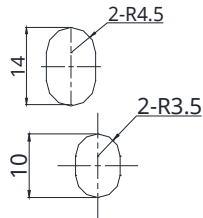
### Rear View



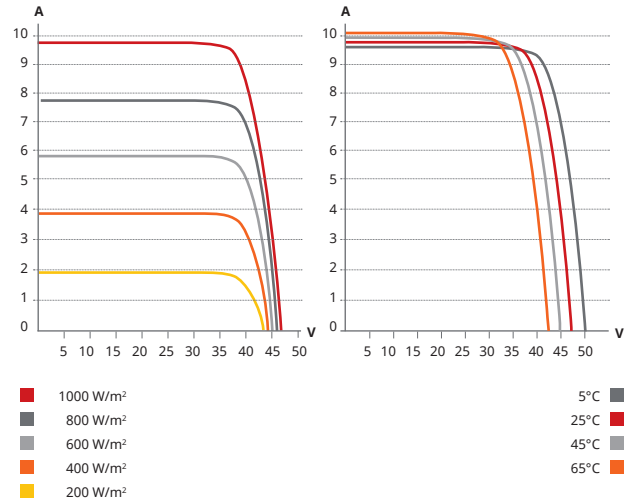
### Frame Cross Section A-A



### Mounting Hole



## CS3U-370MS / I-V CURVES



## ELECTRICAL DATA | STC\*

CS3U	360MS	365MS	370MS	375MS
Nominal Max. Power (Pmax)	360 W	365 W	370 W	375 W
Opt. Operating Voltage (Vmp)	39.2 V	39.4 V	39.6 V	39.8 V
Opt. Operating Current (Imp)	9.19 A	9.27 A	9.35 A	9.43 A
Open Circuit Voltage (Voc)	47.0 V	47.2 V	47.4 V	47.6 V
Short Circuit Current (Isc)	9.69 A	9.77 A	9.85 A	9.93 A
Module Efficiency	18.15%	18.40%	18.65%	18.90%
Operating Temperature	-40°C ~ +85°C			
Max. System Voltage	1000 V (IEC / UL) or 1500 V (IEC / UL)			
Module Fire Performance	TYPE 1 (UL 1703) or CLASS C (IEC 61730)			
Max. Series Fuse Rating	30 A			
Application Classification	Class A			
Power Tolerance	0 ~ + 5 W			

\* Under Standard Test Conditions (STC) of irradiance of 1000 W/m<sup>2</sup>, spectrum AM 1.5 and cell temperature of 25°C.

## ELECTRICAL DATA | NMOT\*

CS3U	360MS	365MS	370MS	375MS
Nominal Max. Power (Pmax)	267 W	271 W	275 W	278 W
Opt. Operating Voltage (Vmp)	35.7 V	35.9 V	36.1 V	36.3 V
Opt. Operating Current (Imp)	7.48 A	7.55 A	7.62 A	7.67 A
Open Circuit Voltage (Voc)	44.0 V	44.2 V	44.4 V	44.6 V
Short Circuit Current (Isc)	7.82 A	7.89 A	7.95 A	8.01 A

\* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m<sup>2</sup>, spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

The aforesaid datasheet only provides the general information on Canadian Solar products and, due to the on-going innovation and improvement, please always contact your local Canadian Solar sales representative for the updated information on specifications, key features and certification requirements of Canadian Solar products in your region.

Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

## MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline, 156.75 × 78.38 mm
Cell Arrangement	144 [2 × (12 × 6)]
Dimensions	2000 × 992 × 40 mm (78.7 × 39.1 × 1.57 in)
Weight	22.6 kg (49.8 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy, crossbar enhanced
J-Box	IP68, 3 diodes
Cable	4.0 mm <sup>2</sup> & 12 AWG
Cable Length	1670 mm (65.7 in)
Connector	T4 (IEC / UL)
Per Pallet	27 pieces
Per Container (40' HQ)	594 pieces

## TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.37 % / °C
Temperature Coefficient (Voc)	-0.29 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 2 °C

## PARTNER SECTION



# YASKAWA

# SOLECTRIA XGI 1500

## Premium 3-Ph Transformerless Utility-Scale Inverters

### Features

- Made in the USA with global components
- Buy American Act (BAA) compliant
- Four models: 125kW/125kVA, 125kW/150kVA, 150kW/166kVA, 166kW/166kVA
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SA (pending)
- Robust, dependable and built to last
- Lowest O&M and installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades

### Options

- Attachable string combiner for distributed architecture
- Plug & play MC4 or H4 connectors for the attachable string combiner
- Web-based monitoring
- Extended warranty



Yaskawa Solectria Solar's XGI 1500 utility-scale string inverters are designed for high reliability and built of the highest quality components that are tested and proven to last beyond their warranty. The XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL 1741 standards for safety. The virtual HMI allows users to connect wirelessly to the inverters using a smart phone or tablet, to accelerate commissioning. The XGI 1500 inverters are the most powerful 1500VDC string inverters in the PV market, and engineered for both distributed and centralized system architecture. Designed and engineered in Lawrence, MA, the XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. The all new XGI 1500 inverters are Made in the USA with global components, and are compliant with the Buy American Act.

MADE IN THE USA



With U.S. and Global Components

## SOLECTRIA SOLAR

# SOLECTRIA XGI 1500

## Specifications

	XGI 1500-125/125	XGI 1500-125/150	XGI 1500-150/166	XGI 1500-166/166
<b>DC Input</b>				
Absolute Maximum Input Voltage	1500 VDC	1500 VDC	1500 VDC	1500 VDC
Maximum Power Input Voltage Range (MPPT)	860-1250 VDC	860-1250 VDC	860-1250 VDC	860-1250 VDC
Operating Voltage Range (MPPT)	860-1450 VDC	860-1450 VDC	860-1450 VDC	860-1450 VDC
Number of MPP Trackers	1 MPPT	1 MPPT	1 MPPT	1 MPPT
Maximum Operating Input Current	147.6 A	147.6 A	177.1 A	196.0 A
Maximum Operating PV Power	127 kW	127 kW	152 kW	169 kW
Maximum DC/AC Ratio	1.5	1.5	1.5	1.5
Maximum Rated PV Input (at 1.5 DC/AC Ratio)	188 kWdc	188 kWdc	225 kW	250 kW
<b>Attachable String Combiner (Optional, engineered for use with XGI 1500 inverters)</b>				
Maximum Number of DC Inputs	18		24	
Fuse Rating Options	15 A, 20 A, 25 A, 30 A		15 A, 20 A, 25 A, 30 A	
Fuse Configuration Options	Both polarities fused (NEC 2014), Positive polarity fused (NEC 2017)			
PV Connector Options	Amphenol H4, Multi-Contact MC4			
DC Disconnect	Isolated by use of integrated 2-Pole DC Disconnect on the XGI 1500 inverter			
Dimensions and Weight	Height: 29.5 in. (749 mm)   Width: 15.1 in. (385 mm)   Depth: 12 in. (305 mm)   Weight: 30 lbs (13.6 kg)			
<b>AC Output</b>				
Nominal Output Voltage	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph
AC Voltage Range	-12% to +10%	-12% to +10%	-12% to +10%	-12% to +10%
Continuous Real Output Power	125 kW	125 kW	150 kW	166 kW
Continuous Apparent Output Power	125 kVA	150 kVA	166 kVA	166 kVA
Maximum Output Current	120 A	144 A	160 A	160 A
Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
Power Factor (Unity default)	+/- 0.85 Adjustable	+/- 0.85 Adjustable	+/- 0.85 Adjustable	+/- 0.85 Adjustable
Total Harmonic Distortion (THD) @ Rated Load	<3%	<3%	<3%	<3%
Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
Fault Current Contribution (1 cycle RMS)	144 A	173 A	192 A	192 A
<b>Efficiency</b>				
Peak Efficiency	98.8%	98.8%	98.8%	98.7%
CEC (pending) Average Efficiency	98.5%	98.5%	98.5%	98.5%
Tare Loss	<1 W	<1 W	<1 W	<1 W
<b>Temperature</b>				
Ambient Temperature Range	-40°F to 140°F (-40C to 60C)		-40°F to 140°F (-40C to 60C)	
De-Rating Temperature	122°F (50C)		113°F (45C)	
Storage Temperature Range	-40°F to 167°F (-40C to 75C)		-40°F to 167°F (-40C to 75C)	
Relative Humidity (non-condensing)	0 - 95%		0 - 95%	
Operating Altitude	9,840 ft (3 km)		9,840 ft (3 km)	
<b>Communications</b>				
Advanced Graphical User Interface	WiFi			
Communication Interface	RJ-45 Ethernet			
Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
Web-Based Monitoring	Optional			
Firmware Updates	Remote and Local			
<b>Testing &amp; Certifications (pending)</b>				
Safety Listings & Certifications	UL 1741, IEEE 1547, UL 1998			
Advanced Grid Support Functionality	Rule 21, UL 1741SA (pending)			
Testing Agency	ETL			
FCC Compliance	FCC Part 15, Class A			
<b>Warranty</b>				
Standard and Options	5 Years Standard; Options for 10, 15 and 20 Years			
<b>Enclosure</b>				
Acoustic Noise Rating	55 dBA @ 1 m			
DC Disconnect	Integrated 2-Pole 250 A DC Disconnect			
Mounting Angle	Vertical only			
Dimensions	Height: 29.5 in. (750 mm)   Width: 38.4 in. (975 mm)   Depth: 15.1 in. (384 mm)			
Weight	230 lbs (104 kg)			
Enclosure Rating and Finish	Type 4X, Polyester Powder-Coated Aluminum			

Specifications subject to change.

**SOLECTRIA SOLAR**

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360 Merrimack Street  
Lawrence, MA 01843  
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1-978-683-9700  
Email: [inverters@solectria.com](mailto:inverters@solectria.com)

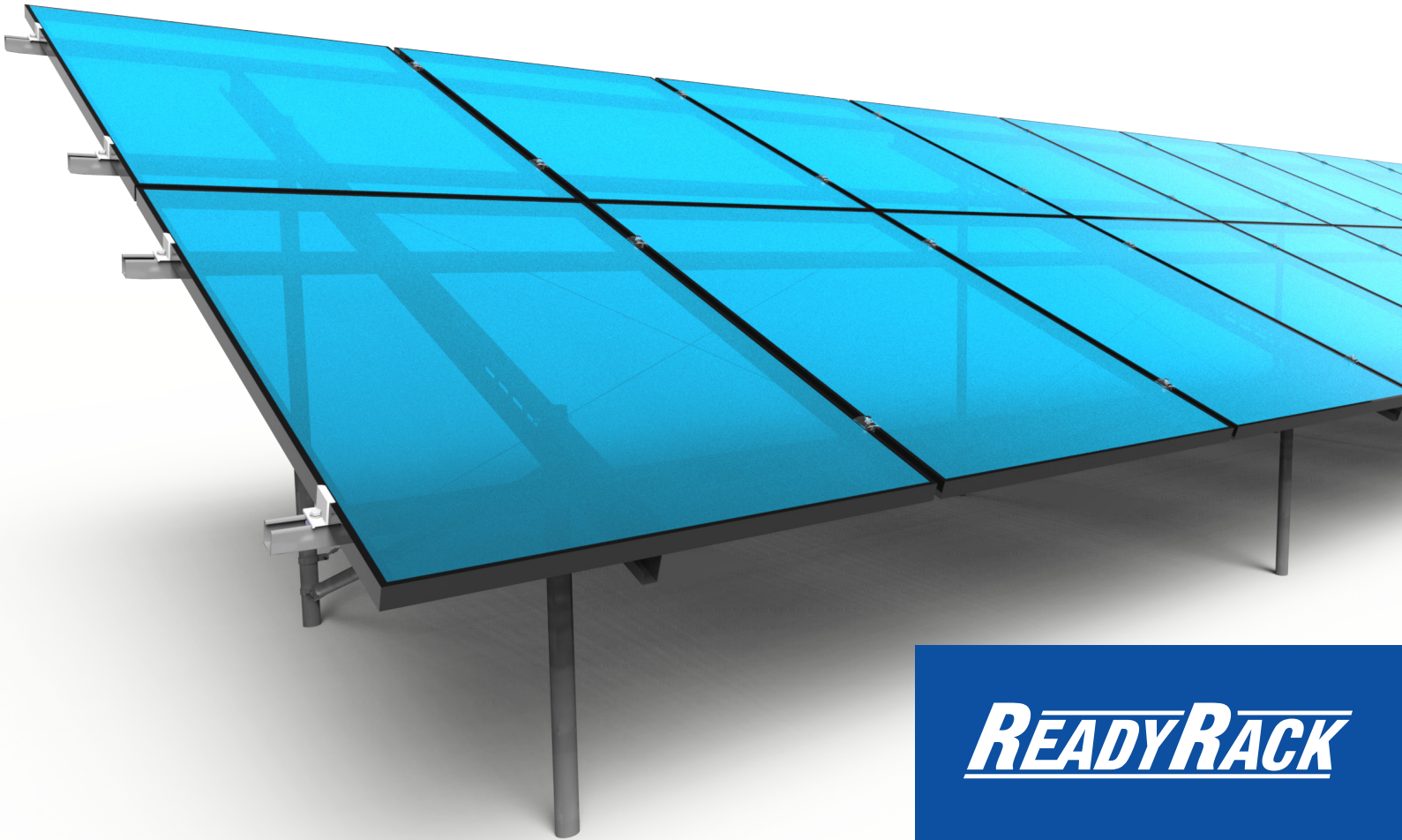
DOCR-070730-F | March 2018  
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**YASKAWA**



**APALTERNATIVES.COM**

WHERE INNOVATION MEETS AUTOMATION



## **AUTOMATED INSTALLATION**

With our fully automated, military grade GPS guided dual anchor driver we are able to drastically reduce project installation times. Our specialized equipment drives two helical anchors (front & rear) in the ground simultaneously, every 45 seconds. The GPS system allows for precision placement and accurate driving depth, taking project quality to the next level.

## **VERSATILITY AND ADAPTABILITY**

As projects progress, module shortages and layout changes can mean substantial and costly re-engineering. The Ready Rack system allows for quick and effortless changes, thanks to it's ability to work with all modules, layouts, terrain, and soil types. Our racking allows you to roll with the punches and sleep easy, knowing you have one of the most versatile racks on the market, without breaking the bank.



## ***READY RACK***

The **Ready Rack** racking system has been deployed across the US and used on large utility scale projects and small commercial projects. But, with age comes experience, so we've redesigned and added some features we know you'll love. The hardware design is a simple configuration that allows contractors to install at lightning fast speed with integrated adjustable features for challenging sites. Helical anchors and quick-install bracing make this simple system extremely robust. Carefully engineered, strong, and lightweight cee channels are highly configurable while allowing nearly infinite configurations and reduced part counts. Horizontal strut channel is customized to meet our high standards of strength and longevity and allows you to fill every inch of valuable space.



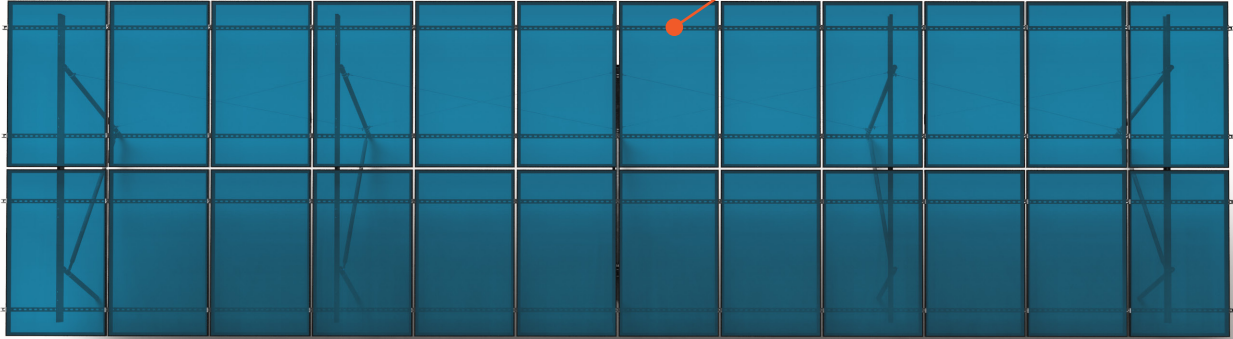
# WHAT MAKES THE **READYRACK** SYSTEM SO SPECIAL?

## FULLY CUSTOMIZABLE ROW LENGTHS

How do you fit more content while increasing production and reducing costs? Fill up every inch of space by creating rows as long or as short as you need.

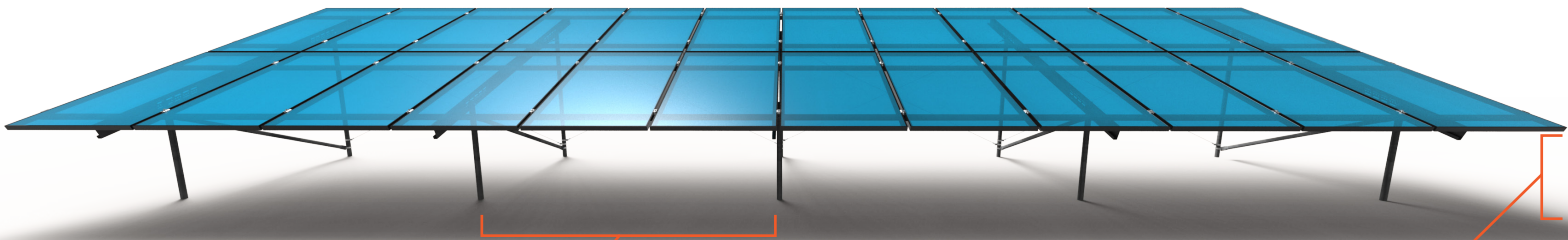
## VERSATILE DESIGN

We can design your rack to fit any panel and in any space and configuration. This can all be done on the fly, thanks to highly adaptable components.



## REDUCED PANEL SPACING

Every inch saved between panels means more panels will fit in the same area. High density means high profits.

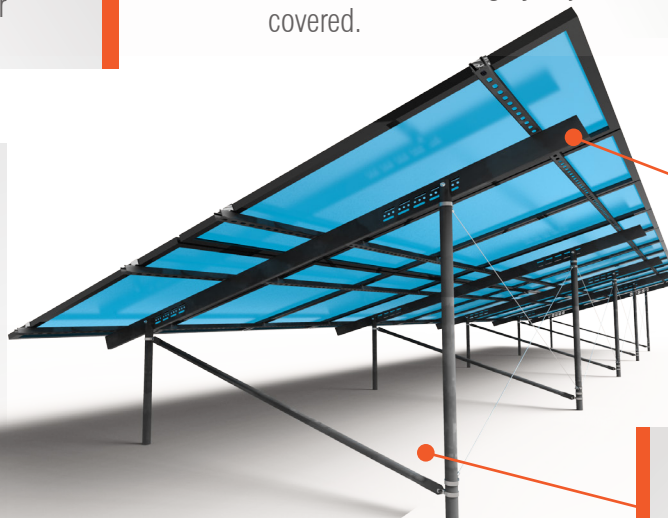


## INCREASED ANCHOR SPACING

Longer spans means less parts, faster installation, and more money in your pocket.

## HIGH GROUND CLEARANCE

Whether your project needs clearance for snow or room for maintenance, our highly adjustable anchors have got you covered.



## INSTALLER FRIENDLY

Sleek and strong, our super cee channel accommodates varying posts heights and spans, tilts, and adjustments in the field, making our rack an installer's dream.

## HIGH STRENGTH PARTS

Engineered for the toughest northern winters and the harshest southern hurricanes, our racks will still be standing long after everything else.

**Racking Material:** High Strength Steel  
**Corrosion Resistance:** G90 Galvanized. Higher coating as required.  
**Snow Load:** Opsf to 35psf (higher load options available)  
**Wind Load:** Up to 150mph  
**Tilt Angle:** Customer Specified (5-30 Degrees)  
**Anchor Depth:** Design based on soil type and frost line. Testing performed by APA  
**Building Code Compliant:** IBC 2012  
**PE Stamped Drawings:** APA drawings can be PE stamped for all 50 states and territories.



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