



---

# **Le Sueur County, MN**

**Thursday, May 26, 2016**

**Special Meeting**

## **Item 1**

**Waterville Holdings LLC, Chambers**

Staff Contact: Kathy Brockway or Michelle Mettler

# **STAFF REPORT**

## **GENERAL INFORMATION**

**APPLICANT:** WATERVILLE SOLAR HOLDINGS, LLC **OWNER:** JAY & BETSY CHAMBERS

**911 ADDRESS:** New Off 440<sup>th</sup> St

**PROJECT DESCRIPTION:** Establish up to 5MW Solar Farm on approximately in an Agriculture "A" District.

**ZONING ORDINANCE SECTIONS:** Section 8

**GOALS & POLICIES:** The current Land Use Plan as adopted in 2009, does not make reference to the use of solar energy or any other type of renewable energy in Le Sueur County.

## **SITE INFORMATION**

**LOCATION:** SE 1/4 SE 1/4, Section 34, Waterville Township.

**ZONING:** Agriculture "A" District

**GENERAL SITE DESCRIPTION:** Ag Land

**ACCESS:** New off 440<sup>th</sup> St-approved by Township

**EXISTING LAND USE WITHIN ¼ MILE:**

North: Ag Land, Scattered Farm sites  
East: Ag Land, Farm site

South: Waseca County  
West: Ag Land, Wooded

## **TOWNSHIP BOARD NOTIFICATION**

The applicants contacted Al Gehrke, Waterville Township Board member on October 12, 2015.

## **NATURAL RESOURCES INFORMATION**

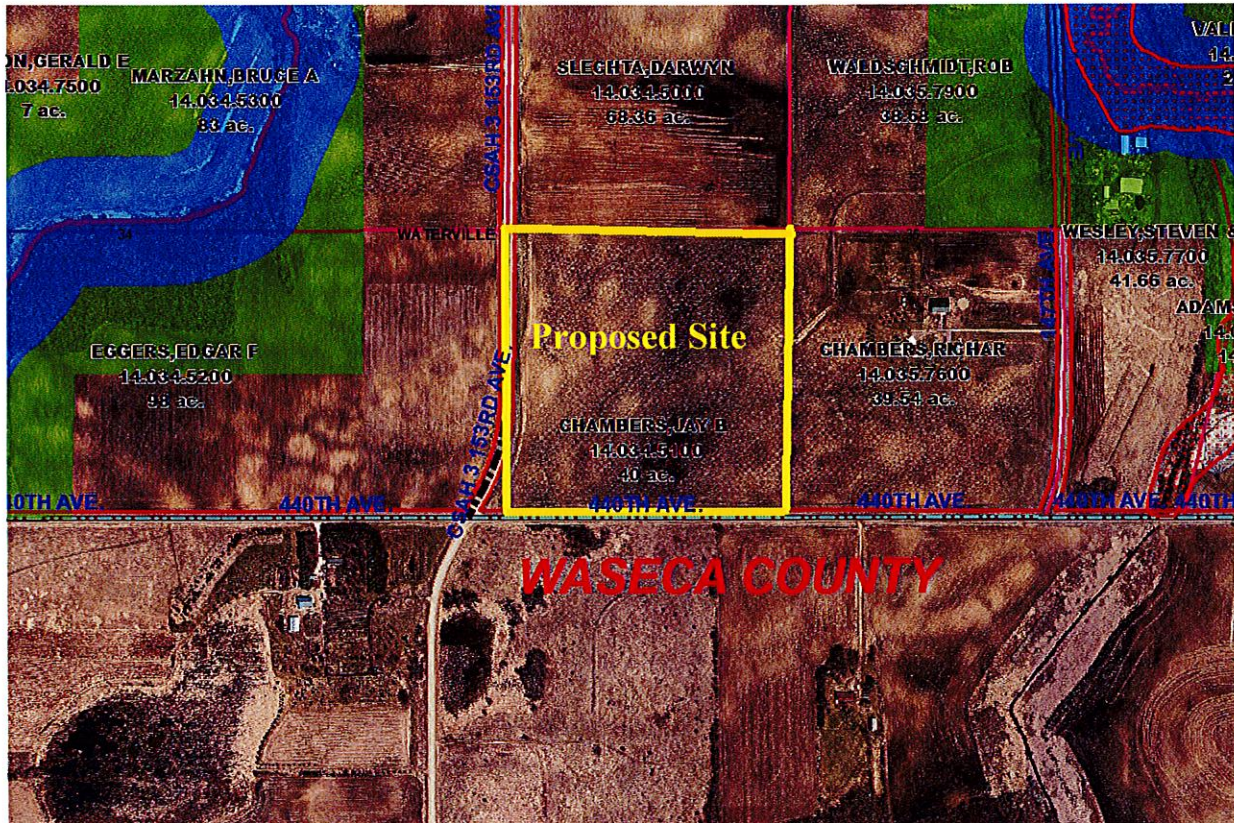
**SHORELAND:** The proposal is not located within the Shoreland District.

**WETLANDS:** According to the National Wetlands Inventory, Type 3 wetlands located in the quarter-quarter section where the project is proposed.

## **ATTACHMENTS**

Application, Narrative, Site Plan, Insurance on file with Environmental Services

## AERIAL PHOTO/SITE PLAN(see attached)



## PLANNING AND ZONING COMMISSION CONSIDERATIONS

The Planning Commission and staff shall consider possible adverse effects of the proposed conditional use and what additional requirements may be necessary to reduce such adverse effects. Its judgment shall be based upon the following factors to include, but not limited to:

1. Relationship to County plans.
2. The geographical area involved.
3. Whether such use will negatively affect surrounding properties in the area in which it is proposed.
4. The character of the surrounding area.
5. The demonstrated need for such use.
6. Whether the proposed use would cause odors, dust, flies, vermin, smoke, gas, noise, or vibration or would impose hazards to life or property in the neighborhood.
7. Whether such use would inherently lead to or encourage disturbing influences in the neighborhood.
8. Whether stored equipment or materials would be screened and whether there would be continuous operation within the visible range of surrounding residences.
9. Abatement of Environmental Hazards as regulated in this Ordinance
10. Other factors impacting the public health, safety and welfare.

## CONDITIONS

The Planning Commission shall recommend such conditions relating to the granting of said Conditional Use Permit, as they deem necessary to carry out the intent and purpose of this Ordinance or recommend that the request be denied. Such recommendation shall be in writing. The conditions may include, but are not limited to the following:

1. Increasing the required lot size or yard dimension.
2. Limiting the height, size, or location of the structures.
3. Controlling the location, size, and number of vehicle access points.
4. Increasing the street width.
5. Increasing the number of required off-street parking space.
6. Limiting the number, size, location, or lighting of signs.
7. Requiring diking, **fencing**, screening, **landscaping** or other facilities to protect adjacent or nearby property.
  - *Although the project proposes natural groundcover beneath the solar arrays, the applicant must maintain this area and remove all noxious weeds on a regular basis.*
8. Designating sites for open space.



## PLANNING AND ZONING COMMISSION FINDINGS

Based on the information submitted by the applicant, contained in this report, and as required by the Le Sueur County Zoning Ordinance, the following findings have been developed for this request:

*(Please circle one for each item: Agree, Disagree, Not Applicable.)*

Based on the information submitted by the applicant, contained in this report, and as required by the Le Sueur County Zoning Ordinance, the following findings have been developed for this request:

*(Please circle one for each item: Agree, Disagree, Not Applicable.)*

1. *The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminishes and impairs property values within the immediate vicinity.*
2. *The establishment of the conditional use will not impede the normal and orderly development and improvement of surrounding vacant property for uses predominant in the area.*
3. *Adequate utilities, access roads, drainage and other facilities have been or are being provided.*
4. *Adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use.*
5. *Adequate measures have been or will be taken to prevent and control offensive odor, fumes, dust, noise and vibration, so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result.*
6. *Is the Conditional Use Permit consistent with and supported by the statement of purposes, policies, goals and objectives in the Ordinance?*
7. *Is the Conditional Use Permit consistent with the Comprehensive Land Use Plan?*

***Recommend (circle one) approval / denial / table / of Conditional Use Permit.***



# LE SUEUR COUNTY CONDITIONAL USE PERMIT CRITERIA

Permit # 16089

Name of Applicant: WATERVILLE SOLAR HOLDINGS LLC Conditional Use Permit #: 16089

Name of Property Owner: JAY & BETSY CHAMBERS

Conditional Use Permit Request: TO ALLOW THE APPLICANT TO CONSTRUCT A 5 MW SOLAR GARDEN.

1. The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminishes and impairs property values within the immediate vicinity.

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL
1.											

Explain \_\_\_\_\_

2. The establishment of the conditional use will not impede the normal and orderly development and improvement of surrounding vacant property for uses predominant in the area.

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL
2.											

Explain \_\_\_\_\_

3. Adequate utilities, access roads, drainage and other facilities have been or are being provided.

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL
3.											

Explain \_\_\_\_\_

4. Adequate measures have been or will be taken to provide sufficient off-street parking and loading space to service the proposed use.

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL
4.											

Explain \_\_\_\_\_

5. Adequate measures have been or will be taken to prevent and control offensive odor, fumes, dust, noise and vibration, so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result.

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL
5.											

Explain \_\_\_\_\_

6. Is the Conditional Use Permit consistent with and supported by the statement of purposes, policies, goal and objectives in the Ordinance?

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL
6.											

Explain \_\_\_\_\_

7. Is the Conditional use permit consistent with the Comprehensive Plan?

	CR	AG	PT	DR	BB	JD	SO	SK	DK	DRY	TOTAL

Explain \_\_\_\_\_

If all answers are "YES" by a majority of the Planning Commission, the criteria for granting of the Conditional Use Permit request have been met. The Conditional Use Permit will main the goals of safety, health and the general welfare of the public.

Date: \_\_\_\_\_ APPROVED \_\_\_\_\_ DENIED \_\_\_\_\_ PZ Chairperson \_\_\_\_\_

COUNTY BOARD MEETING DATE \_\_\_\_\_

# Le Sueur County

## Conditional Use Application

### I. Applicant:

Name Waterville Solar Holdings, LLC  
Mailing Address 618 2nd Avenue SE  
City Minneapolis State MN Zip 55414  
Phone # (612) 331-1486 Phone # \_\_\_\_\_

### II. Landowner:

Name Jay Chambers and Betsy Chambers, husband and wife  
Mailing Address 345 6th St. SE  
City Medford State MN Zip 55049  
  
Property Address New 440th Ave  
City Waterville State MN Zip \_\_\_\_\_  
Phone # \_\_\_\_\_ Phone # \_\_\_\_\_

### III. Parcel Information:

Parcel Number 14.034.5100 Parcel Acreage 40  
Attach Full Legal Description (**NOT** abbreviated description from tax statement)  
Township 109 Section 34  
Subdivision \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_

### IV. Township Notification: Township must be notified of proposed use prior to application.

Waterville Township notified on 4/11/16  
(Township Name) (Date)

Board Member Alan Gehrke regarding the proposed use.  
(Name)

### V. Quantities and Submittal Formats:

- One (1) reproducible 8.5" x 11" copy of the request and all other supporting documents.
- Twenty three (23) copies must be submitted, if any documents are in color, an aerial, or larger than 8.5" x 11" in size.
- Electronic version of any supporting documents *if available*.
- Additional copies may be requested as deemed necessary by the Department.
- Application must be made **in person** by the applicant and/or landowner no later than 12 P.M. on the date of application deadline.
- Appointment is necessary.
- Applications will not be accepted by mail.**

### VI. Fees: Must be paid at the time of application.

Conditional Use Permit \$ 750 After-The-Fact fee is **doubled.**  
Filing Fee \$ 46

#### Additional Fees:

Special Meeting \$ 2,000  
After-The-Fact Penalty \$ 1,500 OR 10% of improvement, whichever is greater



**VII. Type of Request:**

- |  |   |
|--|---|
| <input type="checkbox"/> Self Service Storage      | <input type="checkbox"/> Value Added Agriculture              |
| <input type="checkbox"/> School/Church/Cemetery    | <input type="checkbox"/> Antique Sales/Service/Repair         |
| <input type="checkbox"/> Retail Nursery/Greenhouse | <input type="checkbox"/> Substation/Transmission Lines etc.   |
| <input type="checkbox"/> School/Church/Cemetery    | <input checked="" type="checkbox"/> Other <u>Solar Garden</u> |

**VIII. Description of Request:**

- a. A full description of request with detailed information must be attached.
- b. Complete the following in relationship to the proposed Conditional Use Permit.

1. PROPOSED DAYS AND HOURS OF OPERATION: See attached
2. ESTIMATED NUMBER OF PERSONS TO ATTEND PLACE OF BUSINESS/LOCATION ON A DAILY OR WEEKLY BASIS: \_\_\_\_\_
3. LIST OF PUBLIC HEALTH PLANS:
  - i. Water Supply: \_\_\_\_\_
  - ii. Toilet facilities: \_\_\_\_\_
  - iii. Solid Waste Collection: \_\_\_\_\_
4. FIRE PREVENTION: \_\_\_\_\_
5. SECURITY PLANS: \_\_\_\_\_
6. RETAIL SALES: \_\_\_\_\_
7. FOOD OR ALCOHOL SERVED OR FOR SALE: \_\_\_\_\_
8. DESCRIBE IF THE APPLICANT REQUESTS THE COUNTY TO PROVIDE ANY SERVICES OR COUNTY PERSONNEL: (For example, pedestrian and/or vehicular traffic control.) \_\_\_\_\_
9. SOUND AMPLIFICATION, PUBLIC ADDRESS SYSTEM, PLAYING OF MUSIC: \_\_\_\_\_
10. EXTERIOR LIGHTING: \_\_\_\_\_
11. PARKING AND LOADING: \_\_\_\_\_
12. SIGNAGE: \_\_\_\_\_
13. ROAD ACCESS: (Approved by the road authority) \_\_\_\_\_
14. CERTIFICATE OF INSURANCE: \_\_\_\_\_
15. MEET ALL APPLICABLE COUNTY STATE & FEDERAL REGULATIONS:  
(For example additional licensing and/or permitting) \_\_\_\_\_

**IX. Site Plan:** Shall include but not limited to the following:

- |                     |           |                       |                            |
|---------------------|-----------|-----------------------|----------------------------|
| • North point       | • Lake    | • Existing Structures | • Septic system            |
| • Setbacks          | • River   | • Proposed Structures | • Well                     |
| • Property Lines    | • Wetland | • Lot Dimensions      | • Access (size & location) |
| • Road Right-Of-Way | • Stream  | • Ponds               | • Easements                |
- 
- Parking (Size & location-if applicable to application)
  - Landscape, screening and buffering (if applicable to application)
  - Location of significant trees to be removed (if applicable to application)





**X. Attachments: shall include but not limited to:**

- ☒ a. Description of Request-See Part VIII for full details and requirements.
- ☒ b. Site Plan-See Part IX for full details and requirements.
- ☒ c. Full legal description-Not abbreviated description from tax statement.
- ☒ d. Access approval-Attach approval in writing from proper road authority.
- ☒ e. Township Notification-See Part IV for details and requirements.
- ☐ f. Septic System Compliance Inspection
- ☒ g. Erosion control plan-Attach completed and signed plan including map.
- ☐ h. Floor plans and/or blue prints

**XI. Procedure:**

The Planning & Zoning Commission shall hold a public hearing on the proposed Conditional Use Permit at a scheduled Planning and Zoning Commission meeting.

The Planning and Zoning Commission is an advisory board to the County Board of Commissioners and will make a recommendation to the County Board.

The Department shall report the findings and the recommendations of the Planning Commission to the County Board for final decision.

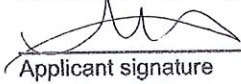
Action by the County Board shall be a majority vote of its members.

The Department shall notify the applicant and/or landowner in writing of the County Board decision.

A certified copy of the Conditional Use Permit shall be filed with the Le Sueur County Recorder by the Department.

**XII. Signatures:**

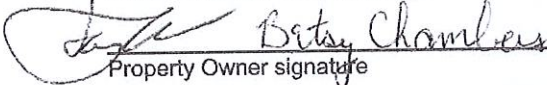
I hereby certify with my signature that all data contained herein as well as all supporting data are true and correct to the best of my knowledge.

  
Applicant signature

4-11-16

Date

I hereby certify with my signature that all data contained herein as well as all supporting data are true and correct to the best of my knowledge.

  
Property Owner signature

4-11-16

Date



**OFFICE USE ONLY**

Request: Solar project

Pre-App Date <u>4-12-16</u>	Lake Classification <u>  /  </u>	Feedlot <u>  500'  </u>	<u>1000'</u> <u>N</u>
Meeting Date <u>6-9-16</u>	Lake <u>  /  </u>	Wetland Type <u>  1-2  </u>	<u>3-8</u> <u>N</u>
60 Day <u>6-28-16</u>	FEMA Panel # 27079C0 <u>429</u>	Water courses <u>  Y  </u>	<u>N</u>
Zoning District <u>A</u>	Flood Zone <u>X-outside</u>	Bluff <u>  Y  </u>	<u>N</u>

- ☒ Request Description
- ☒ Site Plan
- ☒ Full Legal
- ☒ Ordinance

- ☒ Access Approval
- ☐ Erosion Control Plan
- ☒ Blue Prints
- ☐ Other   /

- ☐ Septic
- ☒ Meeting
- ☒ Fee   \$ 796
- ☐ Penalty   \$

Comp Insp / Design  
Reg / ATF / Spec

- ☒ Application Complete

  
Planning & Zoning Department Signature

4-29-16  
Date

16089  
Permit #

Wetland Delineation - Hold 4-12-16

3

## Legal Description

**The Southeast Quarter (SE ¼) of the Southeast Quarter (SE ¼), Section Thirty-four (34),  
Township One Hundred Nine (109), Range Twenty Three (23), Le Sueur County,  
Minnesota**





Conditional Use Permit Application Narrative  
Waterville Solar Holdings, LLC

Friday, April 29, 16

**Design and Interconnection:**

Waterville Solar Holdings, LLC is applying for a Conditional Use Permit to construct five (5) co-located 1-megawatt community solar gardens. The garden will consist of approximately Nineteen thousand Eight Hundred (19,800) solar panels. The panels are mounted on a steel racking structure positioned at a fixed 30° tilt, and not exceeding maximum height of ten (10) feet above grade. The panels are generally no more than ten (10) feet above grade. The racking system is installed in the ground with pilings (I-beams) that are driven to a depth usually between six (6) feet and eight (10) feet depending on soil conditions. The panels will not require concrete foundations to affix them to the ground. Each of the gardens will have one (1) concrete equipment pad to support interconnection equipment. Each pad will be approximately three hundred and fifteen (315) square feet. Less than five hundred (500) cubic yards of grading and excavating will be required for the project. The only proposed grading that will occur is for the roads and concrete equipment pads. The manufacturer's engineer will provide certification that the design of the foundations and panels are within accepted professional standards, given local soil and climate controls. The equipment is designed to withstand wind up to ninety (90) MPH and fifty pounds per square foot (50 LBS/SF) of snow.

The panels will be arranged into rows. Each row of solar panels will lead to an inverter. The inverters will be connected by a two (2) foot deep directionally bored underground conduit that is housed inside of a biodegradable PVC housing. The conduit will lead to a meter for each community solar garden that is mounted on the concrete pad. The inverter transforms the direct current (DC) power generated by the photovoltaic system to alternating current (AC) power, which is then connected to the existing Xcel Energy three phase power distribution line at the point of common coupling (PCC). Waterville Solar Holdings shall provide a copy of the interconnection agreement upon its receipt.

The solar array will be contained within an area protected by a seven-foot chain link fence with barbed wire on top of it. It will not create any noise, dust, fumes, glare, or other pollutants or nuisance to surrounding neighbors. There will be a sign, approximately 2' x 3', including utility hazard, company information, and contact information on the fence. We would like to begin construction by August 2016 date and complete the project by November, 2016.

**Decommissioning:**

Waterville Solar Holdings shall remove all equipment and structures within six (6) months of the conclusion of the useful life of the project, or twelve (12) consecutive months of the cessation of electrical generation. Installation by Waterville Solar Holdings will be done with no significant or permanent alterations to the land. Upon removal, Waterville Solar Holdings shall restore the project site to pre-construction conditions as is reasonably practical, including removal of structures, foundation, and restoration of soil and vegetation; provided that Waterville Solar Holdings will not remove the biodegradable underground conduit housing. The scrap value of the materials to be removed exceeds the cost of removal.





**Access:**

Construction and operation & maintenance (O&M) crews will access to the site by a proposed fourteen (14) foot wide gravel road that has a twenty (20) foot entrance off 440<sup>th</sup> Ave on the South part of the property. Road access will be controlled for erosion control during construction. Alan Gehrke at Waterville Township has approved the access point. Written authorization is attached as Exhibit B.

**Parking:**

Construction crew parking will be located entirely within the site. No additional permanent parking is required. Maintenance crews will park within the site access road and turnaround area.

**Construction:**

Construction will most likely occur during non-winter months. The site will have a portable toilet for workers. No water supply will be required. Any waste or debris will be gathered in a dumpster that will be removed before the project is completed. Multiple semi-truck loads of equipment will be delivered during the construction period. In addition, crews in passenger vehicles, pickup trucks, and bobcats skid steer loaders on tracks will be on site almost every day during construction. Waterville Solar Holdings agrees to the Site Rules attached as Exhibit C.

**Operations:**

The solar garden site will operate 24 hours a day, 365 days a year after construction has been completed. During construction operating hours will be 8am-6pm. It will be monitored remotely through a computer data acquisition system (DAS) so that a technician can be dispatched to investigate potential problems. Additionally, twice a year qualified solar O&M crews will perform maintenance on the array and inspect the solar components, array and fence.

**Landscaping:**

Waterville Solar Holdings has voluntarily participated in an agreement called the Pollination Pledge, whereby it has agreed to seed with native pollinator friendly vegetation underneath the panels and in surrounding areas within the project site. The seed mix will be determined in collaboration with and guidance of County agencies such as the Soil And Water Conservation district. Seeding will be done as soon construction permits and as is suitable for good germination. Waterville Solar Holdings will contract with a company to maintain the grounds. Vegetation will be mowed and maintained on an as needed basis and in a manner as to maximize weed and erosion control. Ground cover within the fenced portion of the array will not exceed 24 inches in height.

A Wetland Delineation Study has been submitted to the county. The array does not cover any of the areas that have been identified as potential wetlands. We also included a fifty foot (50') setback from all potential wetlands.

**Fire prevention:**

This solar array will meet the requirements of the 2012 International Fire Code, specifically to sections 605.11 – 605.11.2 for clearance, markings and location of underground DC conductors. The solar garden will meet the international Building Code (IBC), National Electric Code (NEC), and local electric and fire code. NEC code is produced by the National Fire Protection Agency (NAPA) with safety of the public, contractors, and firefighters as the entire objective. Solar specific Code has been included in the NEC for over a decade. Safety is paramount in our solar PV facilities, as we need them to function optimally for their entire system life.

**Legal Description:**

The Southeast Quarter (SE ¼) of the Southeast Quarter (SE ¼), Section Thirty-Four (34), Township One Hundred Nine (109), Range Twenty Three (23), Le Seuer County, Minnesota. 14.034.5100

**Miscellaneous Application Requirements:**

The solar garden will comply with all applicable state, county, and federal regulations. Waterville Solar Holdings has appropriate insurance coverage and will provide it upon request. No exterior lighting is proposed for the project. The project will not require sound amplification, public address systems, or playing of music. We do not request the county to provide any services or county personnel. No food or alcohol will be sold at the site. No retail sales will be conducted at the site.

We at Waterville Solar Holdings sincerely appreciate all of the help we have received from your staff with regard to our applications and we look forward to collaborating with you further to develop a great project that we can all be proud of.



Exhibit List

Exhibit A: Le Sueur County Conditional Use Permit Application Form

Exhibit B: Access Road Approval

Exhibit C: Site Rules

Exhibit D: Site Plan, Typical Equipment Specifications and Certificate of Compliance





# Anderson-Crane

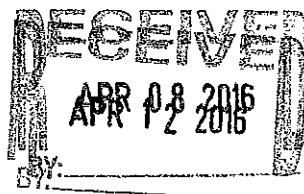
SINCE 1944

BEARINGS • POWER TRANSMISSION • ELECTRICAL • CONVEYOR • RUBBER • SUPPLIES

INDUSTRIAL SOLUTIONS YOU CAN TRUST

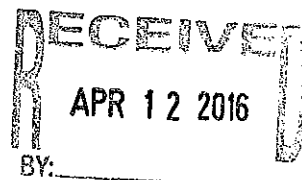
Waterville Twp  
Board has approved  
an access road off  
of 440 AV. For Waterville  
Solar Holding LLC  
4/12/16

Alan C Dehike



4-12-16

MINNEAPOLIS • ST. PAUL • ST. CLOUD • MANKATO • HIBBING  
612-332-0331 612-222-2101 612-656-0055 507-387-4411 218-263-7541  
612-332-0384 FAX 612-222-4334 FAX 612-656-0054 FAX 507-387-5176 FAX 218-263-7542 FAX  
• SIOUX FALLS, SD • DISTRICT MANAGER: 800-57-4-BRGS FAX: 800-905-2747 •



## EXHIBIT B

### SITE RULES

Waterville Solar Holdings will use commercially reasonable efforts to follow and to cause its personnel to follow the following rules while on the Premises. Owner may bar further access to the Premises by any individual who commits repeated, material violations of these rules after such individual has received at least three written warnings of a particular material violation from Owner describing, and including reasonable evidence documenting, such material violation. In addition, any individual violating rules (d)(i), (iv), or (vi) at least three times after receipt of a third written warning with documented evidence of such violation, will be immediately expelled from the Premises and will be banned from the Premises thereafter. The rules are as follows:

a. When not in active use by Waterville Solar Holdings, all access gates, as well as all interior gates, will remain closed at all times.

b. Smoking is prohibited except in designated construction areas and in vehicles. Waterville Solar Holdings will employ reasonable precautions to prevent fires and will be responsible for all damage caused by Waterville Solar Holdings.

c. Waterville Solar Holdings will keep the Premises clean and free of debris created by Waterville Solar Holdings, its contractors, or others brought on to the Premises by Waterville Solar Holdings. Waterville Solar Holdings will not use the Premises for storage of items that are not related to, used or to be used in connection with, or for the benefit of all or a portion of the Project.

d. At no time will any of employees of Waterville Solar Holdings bring any of the following onto the Premises:

i. weapons of any type, including but not limited to, guns, bows and arrows, or sling shots;

ii. animal calling devices;

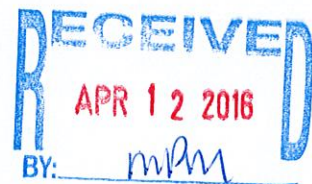
iii. fishing equipment or nets;

iv. dogs, cats or any other animals;

v. alcoholic beverages;

vi. illegal drugs or related paraphernalia.

e. Waterville Solar Holdings, its employees, contractors, agents and any individual allowed onto the Premises by Waterville Solar Holdings will use reasonable

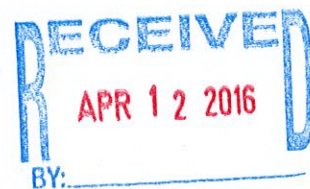


efforts to confine their activities on the Premises to the designated access routes and to the areas upon which operations are then being conducted.

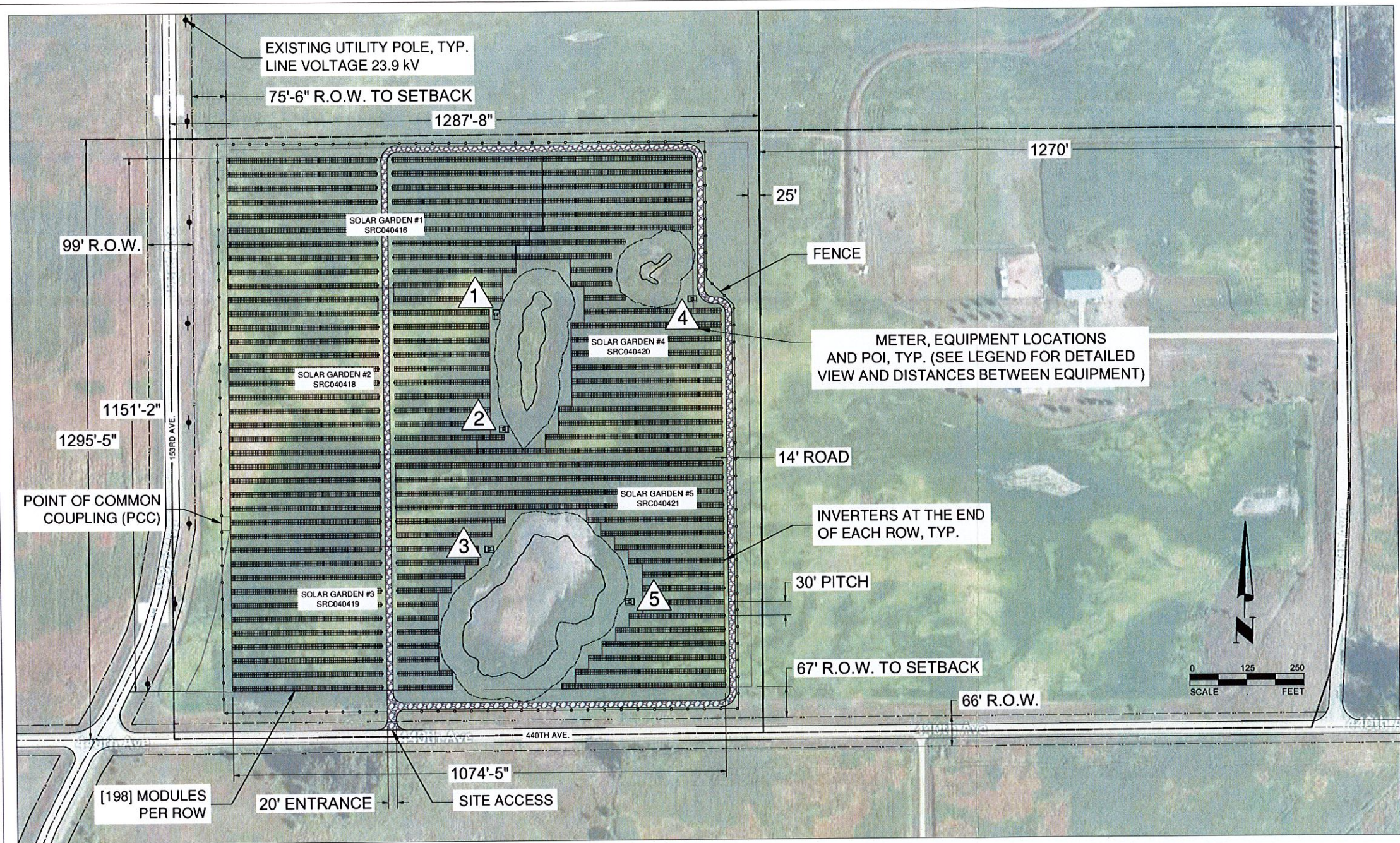
f. No wood, plants, animals (dead or alive), antlers, artifacts or any other item that was not originally brought onto the Premises by Waterville Solar Holdings personnel will be removed from the Premises by such personnel, except that Waterville Solar Holdings can burn, remove and clear wood, plants and brush on the Premises.

g. A speed limit of 25 miles per hour (15 miles per hour at night) will be strictly observed while using roads on the Premises.

h. This Agreement does not cover or include any right or privilege of hunting or fishing on the Premises, all such rights being expressly reserved to Owner.







**LEGEND:**

MAIN UTILITY DISCONNECT AND AC PANEL WITHIN 10' OF MAIN SERVICE METER

21'

15'

PRODUCTION METER

AC PANEL AND DISCO

PM

MV XFMR

M

BILLING METER

3'

3'

MV TRANSFORMER

MV XFMR, PRODUCTION/UTILITY METERS, SERVICE PANEL AND UTILITY ACCESSIBLE AC DISCONNECTS

KACO 50 KW INVERTER (100)

18 PANEL RACK MODULE (310W) (1100) (19,800)

PM PV METER

M BILLING METER

POINT OF COMMON COUPLING (PCC) SUBJECT TO RELOCATION PER XCEL ENERGY

EXISTING XCEL UTILITY POLE WITH OVERHEAD LINE

FENCE

14' GRAVEL ACCESS ROAD

RIGHT OF WAY (R.O.W.) (APPROX.)

PROPERTY BOUNDARY (APPROX.)

ROAD CENTERLINE (APPROX.)

SOLAR ARRAY SETBACK:  
100' FROM 440TH AVE. CENTERLINE  
125' FROM 153RD AVE. CENTERLINE

WETLANDS

WETLANDS BUFFER (50')

**RECEIVED**  
APR 29 2016  
BY: mrm

**VICINITY MAP**

**SITE LOCATION**

SYSTEM SIZE (DC): 6138.0 kW  
SYSTEM SIZE (AC): 5000.0 kW

**EVS**  
ENGINEERING  
SURVEYING  
ENVIRONMENTAL  
PLANNING

**WATERVILLE COMMUNITY  
SOLAR FARM**

51830 147TH AVE, WATERVILLE,  
MN 56096

# DATE - REVISION

1 2016/04/11 COMMENTS

2 2016/04/12 ADDITIONAL COMMENTS

3 2016/04/12 BACKGROUND IMAGE REMOVED

4 2016/04/27 REDESIGN ON WEST PARCEL

5 2016/04/29 BACKGROUND IMAGE ADDED

**Innovative Power Systems**

**SOLAR GARDEN OPERATOR:**  
618 SE 2nd Ave, Minneapolis, MN 55414  
Phone - 651-494-4330  
http://ips-solar.com/

DRAWN BY  
**K HAAB**

CHECKED BY  
**B NEWSTEAD**

DATE  
**04/05/2016**

PROJECT #  
**2015-144**

SHEET NUMBER  
**E-101-01**

**SITE NOTES :**

TOTAL XCEL MV XFMR ON SITE = [5] x 1,000kVA (TBD)

TOTAL POLE QUANTITY ON SITE = ~1

GEN TIE LENGTH (XCEL) = ~50 FEET

MV FEEDER LENGTH (DISTANCE OF POI FROM PCC)

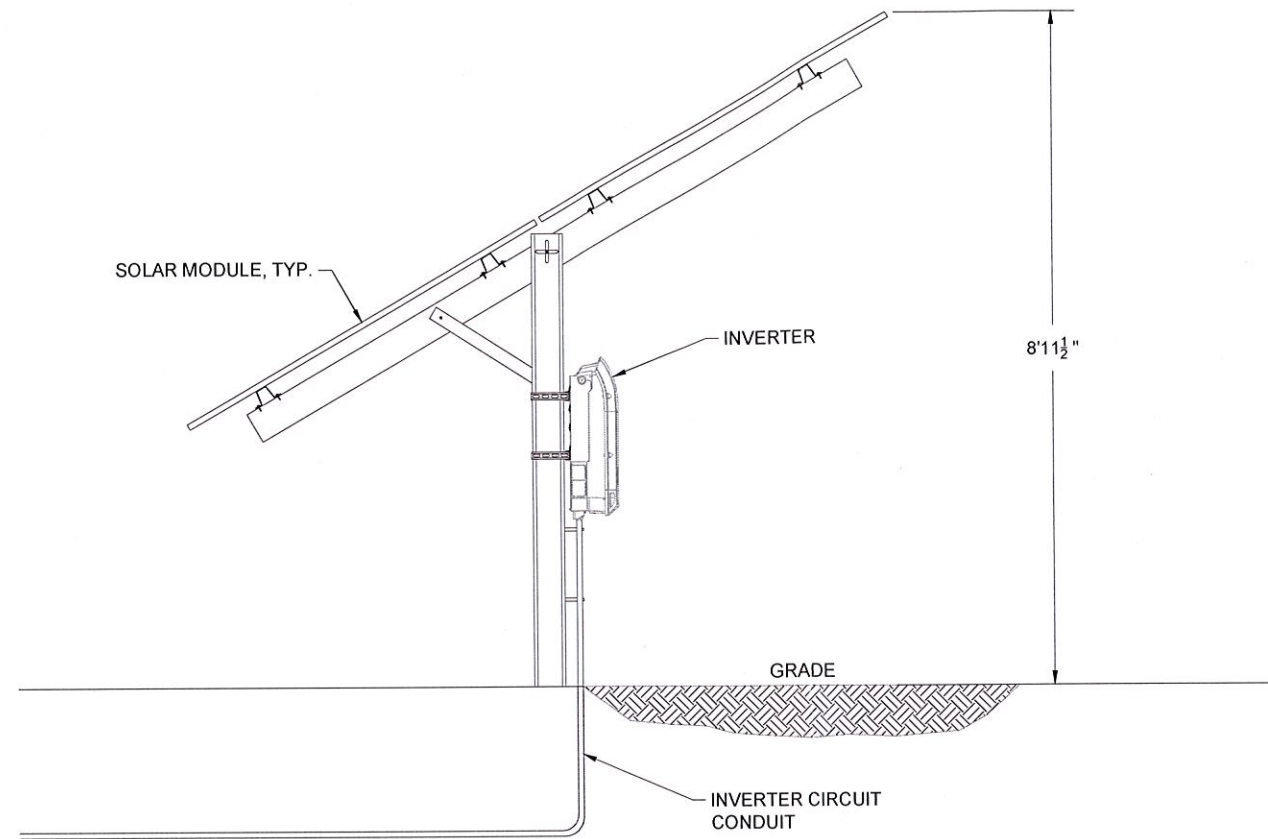
- 1 = ~ 1040'
- 2 = ~ 810'
- 3 = ~ 670'
- 4 = ~ 1630'
- 5 = ~ 1120'

PROJECT NAME	GARDEN OPERATOR NAME
WATERVILLE COMMUNITY SOLAR FARM	WATERVILLE SOLAR, LLC
APPLICATION MANAGER - PHONE	APPLICATION MANAGER - EMAIL
651-494-4330	ERICP@IPS-SOLAR.COM
SRC #	SRC ADDRESS
	51830 147TH AVE, WATERVILLE, MN 56096
SRC CAPACITY DC KW	SRC CAPACITY AC KW
6138	5000
SRC PV WATTS LOCATION	ARRAY-TILT
(TMY3) FARIBAULT MUNI AWOS, MN	30
ARRAY-AZIMUTH	ARRAY-TRACKER TYP
180	FIXED AXIS
ARRAY - MOUNT LOCATION	WILL SELL REC'S
44.19638°,-93.56857°	YES
SRC EST COMPLETION DATE	SRC KWH/YEAR (PVWATTS)
	6,509,885

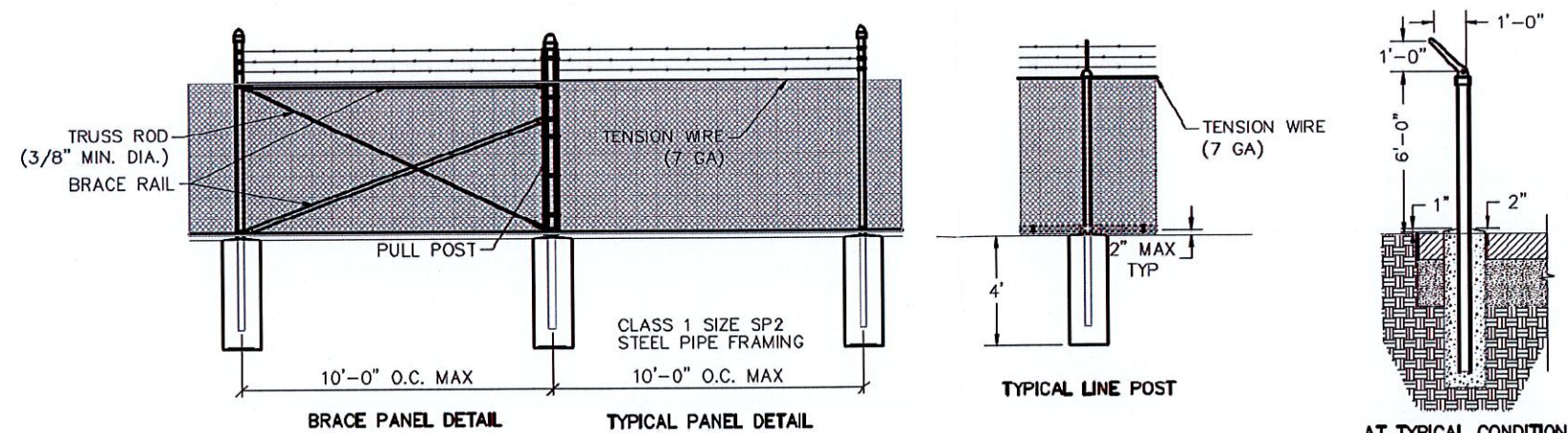




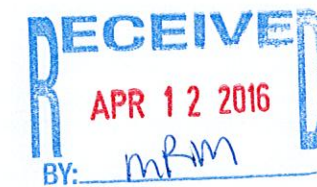




1 MODULE RACKING AND INVERTER ELEVATION  
SCALE: N.T.S.



2 CHAIN LINK SECURITY FENCE  
SCALE: N.T.S.



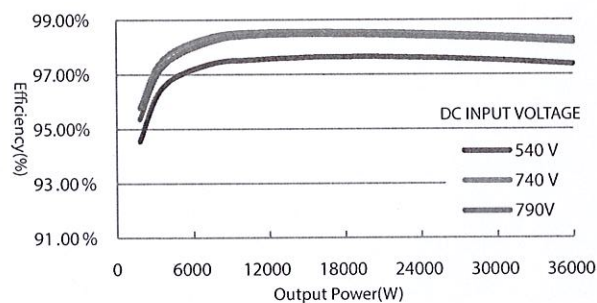


# 36kW, 1000 Vdc String Inverters for North America

The medium power series of grid-tied, transformerless inverters help to accelerate the use of 1000Vdc and three phase string architecture for commercial and small ground mount utility applications. A NRTL approved, cost effective alternative to central inverters enabling BoS cost savings, high harvest performance and modular design building blocks. These models provide up to 98.4% conversion efficiency and wide operating window of 240-950Vdc and dual MPPT's for maximum energy harvest.

## Efficiency Curve

CPS SCA36KTL-DO/US-480



## High Efficiency

- Maximum efficiency of 98.4%, CEC efficiency of 98%
- 3-level technology and enhanced control mechanism to achieve high efficiency over wide load range
- 2 MPPTs to achieve higher system efficiency
- Transformerless design

## High Reliability

- "Electrolyte-free design" for improved long-term reliability
- Standard warranty: 5 years, extension up to 20 years
- Advanced thermal design, with variable speed fans
- Ground-fault detection and interruption circuit
- AFCI Integrated per UL1699B

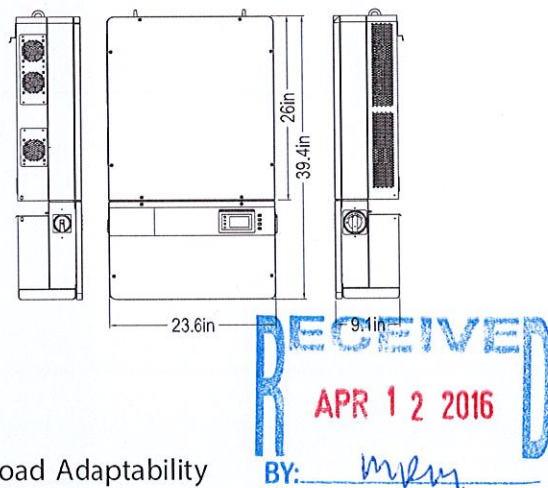


©CHINT POWER 2015/06-MKT



CPS SCA36KTL-DO/US-480

## Dimensions

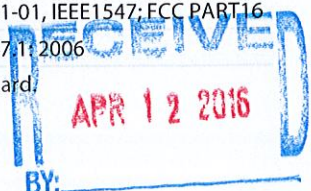


## Broad Adaptability

- NEMA 4 (IP65), outdoor application
- Utility interactive controls : Active power derating, reactive power control
- Separate wiring box design
- Integrated DC, AC disconnects
- Wide MPPT range for flexible string sizing
- 1000V Max. DC input voltage for flexible configuration
- 15 - 90 degree installation angle
- Compatible with Copper and Aluminium wire on AC side

Chint Power Systems America  
7060 Koll Center Parkway, Suite 318 Pleasanton, CA 94566  
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

Model Name	CPS SCA36KTL-DO/US-480
<b>DC Input</b>	
Max. PV Power	54kW (27kW/MPPT)
Nominal DC Input Power	37kW
Max. DC Input Voltage	1000Vdc
Operating DC Input Voltage Range	240-950Vdc
Start-up DC Input Voltage / Power	330V/300W
Number of MPP Trackers	2
MPPT Voltage Range	540-800Vdc
Max. Input Current (Imp)	70A (35A per MPPT)
Max Short Circuit Current (Isc)	107A
Number of DC Inputs	8 inputs, 4 per MPPT
DC Disconnection Type	Load rated DC switch
<b>AC Output</b>	
Rated AC Output Power	36kW
Max. AC Output Power	36kW
Rated Output Voltage	480Vac
Output Voltage Range*	422-528Vac
Grid Connection Type	3Φ/PE/N (Neutral Optional)
Maximum AC Output Current @480Vac	43.5A
Rated Output Frequency	60Hz
Output Frequency Range*	57-63Hz
Power Factor	>0.99 (±0.8 adjustable)
Current THD	<3%
AC Disconnection Type	Load rated AC switch
<b>System</b>	
Topology	Transformerless
Max. Efficiency	98.4%
CEC Efficiency	98.0%
Stand-by / Night Consumption	<20W/<2W
<b>Environment</b>	
Protection Degree	NEMA 4
Cooling	Variable speed cooling fans
Operating Temperature Range	-13°F to +140°F/- 25°C to +60°C (derating from +113°F/+45°C)
Storage Temperature Range	-49°F to +158°F/- 45°C to +70°C
Operating Humidity	0-95%, non-condensing
Operating Altitude	13123.4ft/4000m (derating from 6561.7ft/2000m)
<b>Display and Communication</b>	
Display	LCD+LED
Communication	Standard: RS485 (Modbus) Optional: TCP/IP Card
<b>Mechanical</b>	
Dimensions (WxHxD)	600×1000×230mm
Weight	Inverter: 121lbs/55kg ; Wirebox: 24lbs/11kg
Installation Angle	15 - 90 degrees from horizontal
<b>Safety</b>	
Safety and EMC Standard	UL1741:2010, UL1699B, CSA-C22.2 NO.107.1-01, IEEE1547: FCC PART16
Grid Standard	IEEE1547: 2003, IEEE1547.1: 2006
*The "Output Voltage Range" and "Output Frequency Range" may differ according to specific grid standard.	





**Output Short Circuit Test, UL 1741 Sec. 47.3, Cl. 6.6**

Test performed under islanding condition by disable the anti-islanding protection, just generating the nominal voltage, afterwards we performed a short circuit between Lines to Lines and line to Ground.

Performed on model: CPS SCA36KTL-DO/US-480, 725 Vdc Input, 480Vac Output, 28 kW

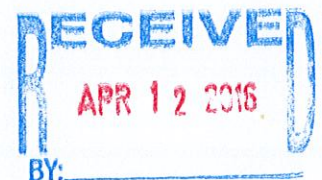
Phases	#	Peak Current (A)	Duration (ms)	RMS Current over 1 cycle (A)	RMS Current over 3 cycles (A)	RMS Current over 5 cycles (A)	RMS A overall event(A)
L1 to L2	1	301	1.0640	33.2	31.4	31.0	68.3
	2	262	1.1332	18.7	13.4	12	57.7
	3	435	1.2568	38.6	23.2	18.8	81.1
	4	275	1.1236	99.5	89.1	87.2	129.3
L1 to L3	1	243	1.0976	73.2	83.1	81.9	73.5
	2	274	0.7708	29.8	81.9	30.4	32.8
	3	280	1.1304	33.4	30.4	31.4	33.5
	4	216	0.0148	73.4	31.8	82.9	60.4
L2 to L3	1	222	0.7828	29.7	30.5	30.6	66.4
	2	317	1.4468	35.4	32.4	31.5	50.4
	3	310	0.9556	36.6	32.9	31.8	73.7
	4	298	1.4692	33.8	31.7	31.2	45.9

After fault removed the unit continued to operate normally.

3 Amps fuse remained intact.

No hazards observed.

Tested By:		Witnessed by:	Kyle Song	Compliance:	
Equipment:				Date:	







## Chapter 8 Technical Data

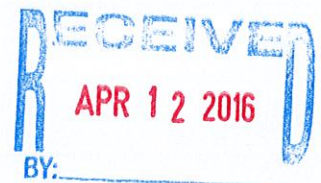
Model Name	CPS SCA36KTL-DO/US
<b>DC Input</b>	
Max. PV Power	54kw
Nominal DC Input Power	37kW
Max. DC Input Voltage <sup>1</sup>	1000Vdc
Operating DC Input Voltage Range	240-950Vdc
Start-up DC Input Voltage / Power	330V/300W
Number of MPP Trackers	2
MPPT Voltage Range <sup>2</sup>	540-800Vdc
Max. Input Current (Imp)	35A*2
Max. Short Circuit Current (Isc)	50A*2
Number of DC Inputs	8 inputs, 4 per MPPT
DC Disconnection Type	Load rated DC switch
<b>AC Output</b>	
Rated AC Output Power	36kW
Max. AC Output Power	36kW
Rated Output Voltage	480Vac
Output Voltage Range <sup>3</sup>	422-528Vac
Grid Connection Type	3Φ/ PE
Max AC Output Current	43.5A
Rated Output Frequency	60Hz
Output Frequency Range <sup>4</sup>	59.3-60.5Hz
Power Factor	>0.99 (±0.8 adjustable)

<sup>1</sup> Exceeding the Max. DC Input Voltage may cause permanent damage to the equipment.

<sup>2</sup> The MPPT Voltage Range is adjustable through LCD operations.

<sup>3</sup> The Output Voltage Range may differ according to specific grid standard.

<sup>4</sup> The Output Frequency Range may differ according to specific grid standard.





Current THD	<3%
AC Disconnection Type	Load rated AC switch
<b>System</b>	
Topology	Transformerless
Max. Efficiency	98.4%
CEC Efficiency	98.0%
Stand-by / Night Consumption	<30W / <3W
<b>Environment</b>	
Protection Degree	TYPE 4X
Cooling	Variable speed cooling fans
Operating Temperature Range	-13°F to +140°F / - 25°C to +60°C (derating from +113°F / +45°C)
Operating Humidity	0-95%, non-condensing
Operating Altitude	13123.4ft / 4000m (derating from 6561.7ft / 2000m)
<b>Display and Communication</b>	
Display	LCD + LED
Communication	Standard: RS485 (Modbus) Optional: Ethernet TCP/IP card
<b>Mechanical Data</b>	
Dimensions (WxHxD)	23.6×39.4×9.1in / 600×1000×230mm
Weight	145lbs / 66kg
Orientation	15 - 90 degrees from horizontal
<b>Safety</b>	
PV Arc-Fault Circuit Protection	Type 1
Safety and EMC Standard	UL1741:2010, CSA-C22.2 NO.107.1-01, IEEE1547; FCC PART15
Grid Standard	IEEE1547: 2003, IEEE1547.1: 2006





Note 1: When the DC input voltage is lower than 400V or higher than 800V, the inverter begins derating, as shown in Figure 8-1:

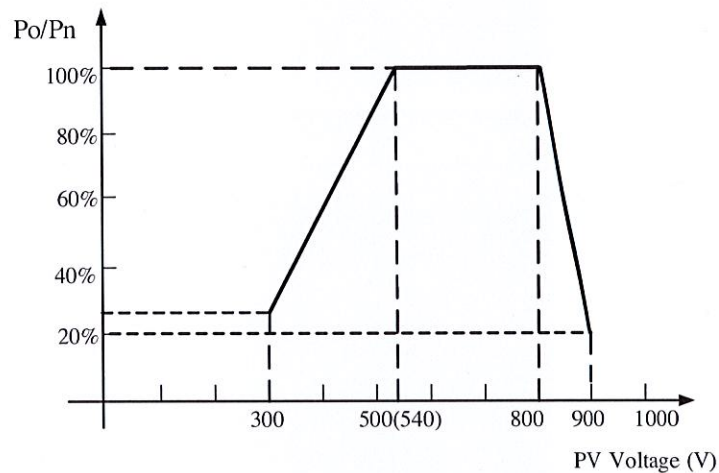


Figure 8-1 SCA36KTL derating curve of PV input voltage

Note 2: When the ambient temperature is higher than 113°F (45°C), the output power begins derating, as shown in Figure 8-2:

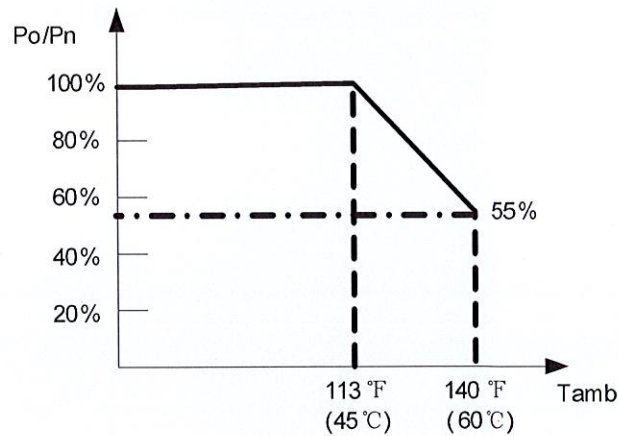
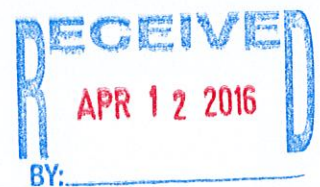


Figure 8-2 SCA36KTL derating curve with high temperature







Note 3: When the altitude is higher than 6562ft (2000m), the power of the inverter needs derating, as shown in Figure 8-3:

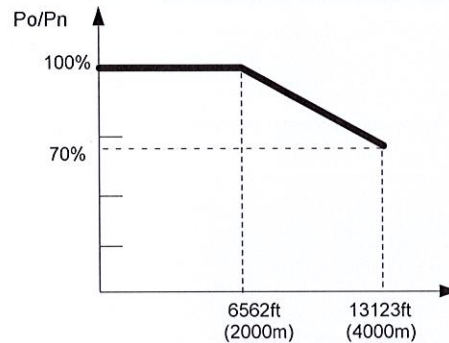


Figure 8-3 SCA36KTL derating curve with high altitude

Note 4: The inverter can output the AC power with full loads under 90%~110% of the rated grid voltage. When the grid voltage is lower than 90%, the output current will be limited within the allowable Max. current.

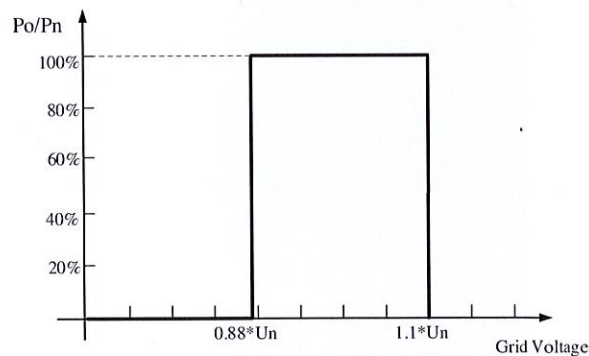
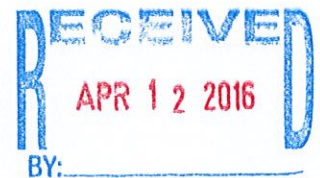
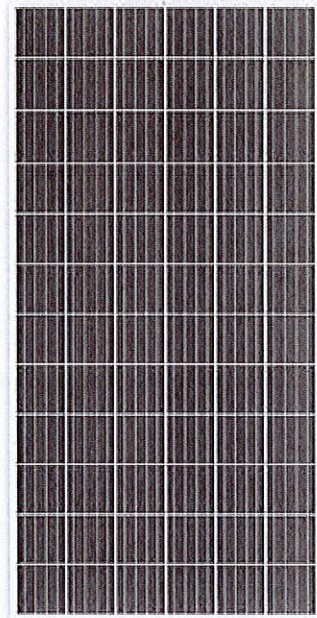


Figure 8-4 SCA36KTL derating curve of grid voltage



# THE Utility MODULE



## 72 CELL

MULTICRYSTALLINE MODULE

## 300-315W

POWER OUTPUT RANGE

## 16.2%

MAXIMUM EFFICIENCY

## 0~+3%

POSITIVE POWER TOLERANCE

As a leading global manufacturer of next generation photovoltaic products, we believe close cooperation with our partners is critical to success. With local presence around the globe, Trina is able to provide exceptional service to each customer in each market and supplement our innovative, reliable products with the backing of Trina as a strong, bankable partner. We are committed to building strategic, mutually beneficial collaboration with installers, developers, distributors and other partners as the backbone of our shared success in driving Smart Energy Together.

Trina Solar Limited  
www.trinasolar.com

**Trinasolar**  
Smart Energy Together



### Ideal for large scale installations

- High powerful footprint reduces installation time and BOS costs
- 1000V UL/1000V IEC certified



### One of the industry's most trusted modules

- Field proven performance



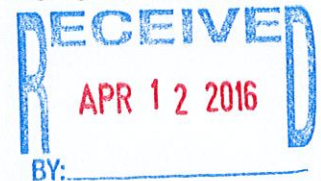
### Highly reliable due to stringent quality control

- Over 30 in-house tests (UV, TC, HF, and many more)
- In-house testing goes well beyond certification requirements
- PID resistant



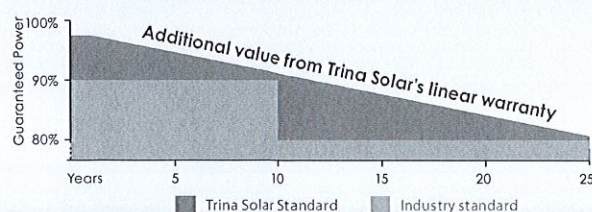
### Certified to withstand challenging environmental conditions

- 2400 Pa wind load
- 5400 Pa snow load
- 25 mm hail stones at 82 km/h



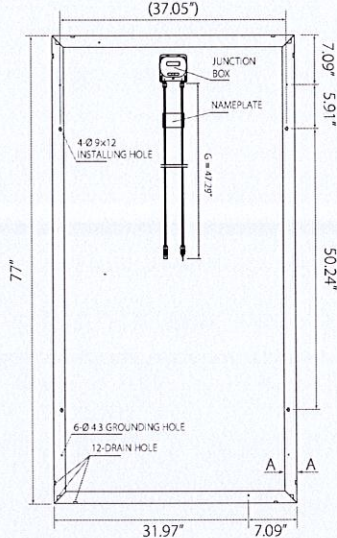
## LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty

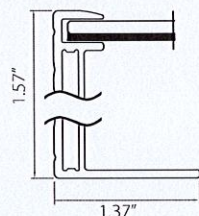




## DIMENSIONS OF PV MODULE unit: inches (37.05")

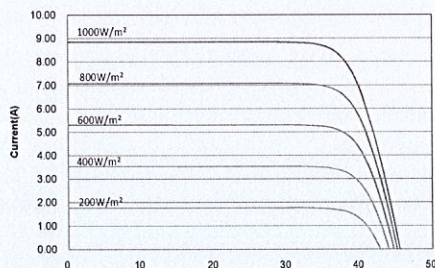


Back View



A-A

## I-V CURVES OF PV MODULE(310W)



## CERTIFICATION



## ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)	300	305	310	315
Power Output Tolerance- $P_{MAX}$ (%)	0 ~ +3			
Maximum Power Voltage- $V_{MPP}$ (V)	36.2	36.6	37.0	37.1
Maximum Power Current- $I_{MPP}$ (A)	8.28	8.33	8.38	8.51
Open Circuit Voltage- $V_{OC}$ (V)	45.4	45.5	45.5	45.6
Short Circuit Current- $I_{SC}$ (A)	8.77	8.81	8.85	9.00
Module Efficiency $\eta_m$ (%)	15.5	15.7	16.0	16.2

STC: Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.  
Typical efficiency reduction of 4.5% at 200 W/m<sup>2</sup> according to EN 60904-1.

## ELECTRICAL DATA (NOCT)

Maximum Power- $P_{MAX}$ (Wp)	223	227	231	235
Maximum Power Voltage- $V_{MPP}$ (V)	33.5	33.8	34.1	34.1
Maximum Power Current- $I_{MPP}$ (A)	6.66	6.72	6.77	6.88
Open Circuit Voltage- $V_{OC}$ (V)	42.1	42.2	42.2	42.3
Short Circuit Current- $I_{SC}$ (A)	7.08	7.11	7.15	7.27

NOCT: Irradiance of 800 W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1 m/s.

## MECHANICAL DATA

Solar cells	Multicrystalline 156 × 156 mm (6 inches)
Cell orientation	72 cells (6 × 12)
Module dimensions	1956 × 992 × 40 mm (77 × 39.06 × 1.57 inches)
Weight	22.5 kg (49.6lb)
Glass	3.2 mm, High Transmission, AR Coated Tempered Glass
Backsheet	White
Frame	Silver Anodized Aluminium Alloy
J-Box	IP 67 rated
Cables	Photovoltaic Technology cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), 1200mm (47.25" inches)
Connector	(H4) Amphenol*
Fire Type	Type 8

\*MC4 upon special request

## TEMPERATURE RATINGS

Nominal Operating Cell Temperature (NOCT)	44°C (±2°C)
Temperature Coefficient of $P_{MAX}$	-0.41%/°C
Temperature Coefficient of $V_{OC}$	-0.32%/°C
Temperature Coefficient of $I_{SC}$	0.05%/°C

## MAXIMUM RATINGS

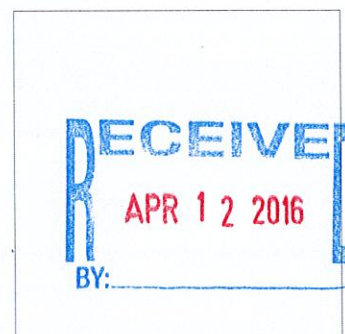
Operational Temperature	-40~+85°C
Maximum System Voltage	1000VDC (IEC) 1000VDC (UL)
Max Series Fuse Rating	15A

## WARRANTY

10 year Product Workmanship Warranty  
25 year Linear Power Warranty  
(Please refer to product warranty for details)

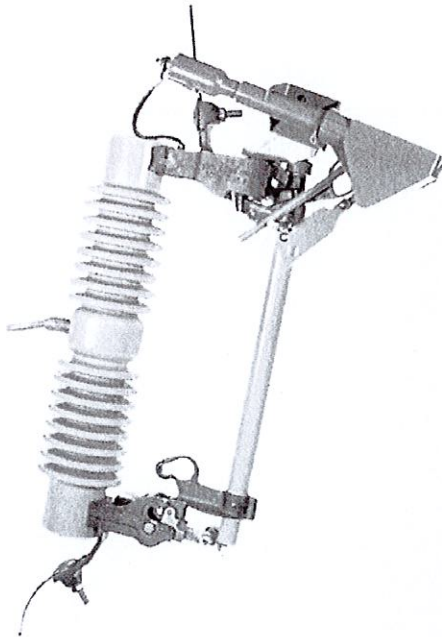
## PACKAGING CONFIGURATION

Modules per box: 26 pieces  
Modules per 40' container: 572 pieces





# HX-CB loadbreak fuse cutout



## Description

Eaton's Cooper Power Systems HX-CB loadbreak fuse cutout provides superior performance with the combination of the field-proven HX cutout and a compact, low profile loadbreak interrupter.

The loadbreak interrupter is in the current path momentarily when interrupting the load current during the opening operation. There is no parallel path through the loadbreak interrupter when the cutout is being closed or when the cutout is in the closed position. As a result, if inadvertently closed in on a fault or the cutout operates due to a fault, the fault current does not flow through the interrupter.

Should the main contacts not engage during the cutout closing operation, the fuseholder will fall to the fully open position. The fuseholder will not "hang up" in the loadbreak interrupter and give a false visual indication that the main cutout contacts are engaged.

The arc is interrupted within the enclosed arcing chamber of the interrupter. The copper tungsten arcing contacts and UniKearn™ interrupting materials are completely enclosed and protected from contamination, wind blown debris, ice, nesting insects, or animals.

## Superior interrupting medium

UniKearn, a highly efficient interrupting medium, evolves a deionizing gas when subjected to the arc that appears across the rapidly separating contacts within the interrupter. Additionally, the arcing residue is nontracking. Eaton's Cooper Power Systems has successfully employed UniKearn in various loadbreak switching devices for many years.

**Cooper  
Power Systems**  
by **EATON**

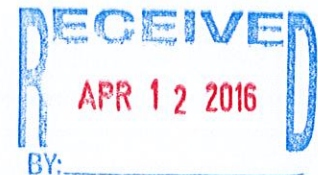


Table 1. Ratings

Voltage	Load Current
7.8	100, 200, 300 A
7.8/13.8	
8	
15	
15/27	
27 kV	

Table 2. Interrupting Capacity and Replacement Fuseholders, Caps, and Solid Blade Catalog Numbers

Catalog Number <sup>1</sup>	Maximum Design Voltage Rating kV-RMS	Continuous Current <sup>2</sup>	Interrupting Capacity kA-RMS		BIL kV-Crest	Creep Distance (in.)	Replacement Fuseholder	Expendable Caps
			Sym	Asym				
144164-003	7.8	100	7.1	10.0	110	9.5	184104-003S6	36361-3
148164-003		200	13.3	20.0			188104-003S6	129023
144564-003*		100	7.1	10.0			184504-003S6	129052
146564-003*	7.8/13.8	100	10.7	16.0	110	9.5	186504-003S6	129052
148564-003*		200	13.3	20.0			188504-003S6	129023
144264-003	15	100	7.1	10.0	125	15	184204-003S6	36361-3
146264-003		100	9.3	14.0			186204-003S6	129052
148264-003		200	10.7	16.0			188204-003S6	129023
146664-003*	15/27	100	9.3	14.0	150	17	186604-003S6	129052
148664-003*		200	10.7	16.0			188604-003S6	129023
144364-003	27	100	4.0	6.0	150	17	188304-003S6	36361-3
146364-003		100	7.1	10.0			186304-003S6	129052
148364-003		200	7.1	10.0			188304-003S6	129023
144164-004	7.8	300 A Solid Blade	12,000 A Momentary Current Rating		110	9.5	120083-3S6	N/A
144564-004*	7.8/13.8				110	9.5	120083-3S6	
144264-004	15				125	15	120082-3S6	
146664-004*	15/27				150	17	120087-3S6	
146364-004	27				150	17	120087-3S6	

<sup>1</sup> Includes crossarm mounting hanger and T-bolt terminal connectors for #6 SOL-250 MCM copper or aluminum conductor.

<sup>2</sup> Consult your Eaton's Cooper Power Systems representative for the loadbreak interrupter capabilities.

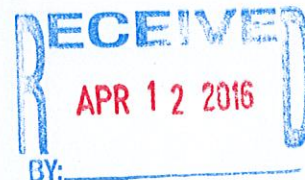
\* Slant rated loadbreak cutouts are suitable for application on single-phase circuits having maximum line-to-ground voltage not exceeding the lower kV (voltage to the left of the diagonal) or on solidly grounded three-phase circuits where the line-to-line voltage does not exceed the higher kV (voltage to the right of the diagonal).



Eaton  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
Eaton.com

Eaton's Cooper Power Systems Business  
2300 Badger Drive  
Waukesha, WI 53188  
United States  
Cooperpower.com

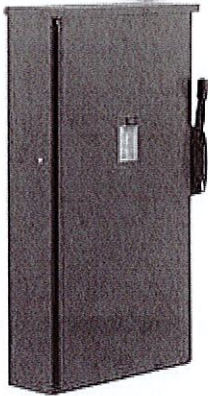
© 2013 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 327-60



Eaton, Cooper Power Systems, and UniKearn are valuable trademarks of Eaton in the U.S. and other countries. You are not permitted to use the these trademarks without the prior written consent of Eaton.

For Eaton's Cooper Power Systems HX-CB fuse cutout product information call 1-877-277-4636 or visit: [www.cooperpower.com](http://www.cooperpower.com).



by **Schneider Electric**

List Price \$5,765.00 USD

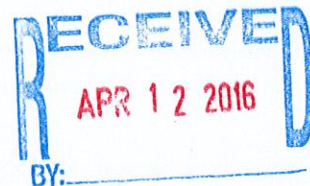
Availability **Stock Item:** This item is normally stocked in our distribution facility.**Technical Characteristics**

Enclosure Material	Galvannealed Steel
Approvals	UL Listed
Electrical Interlock	None
Action	Single Throw
Enclosure Rating	NEMA 3R
Ampere Rating	400A
Enclosure Type	Rainproof and Sleet/Ice proof (Indoor/Outdoor)
Factory Installed Neutral	Yes
Number of Poles	3-Pole
Wire Size	#1/0 to 750 AWG/kcmil(Al/Cu)
Disconnect Type	Fusible
Terminal Type	Lugs
Short Circuit Current Rating	10kA (Class H or K) - 200kA (Class R or J)
Type of Duty	Heavy Duty
Maximum Voltage Rating	600V
Mounting Type	Surface

**Shipping and Ordering**

Category	00054 - Safety Switch, Heavy Duty, NEMA3R, 400 - 1200 Amp, fused and unfused
Discount Schedule	DE1
GTIN	00785901026686
Package Quantity	1
Weight	186 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this document.



Generated: 12/28/2012 02:33:57

© 2012 Schneider Electric. All rights reserved.

**Schneider**  
Electric

1