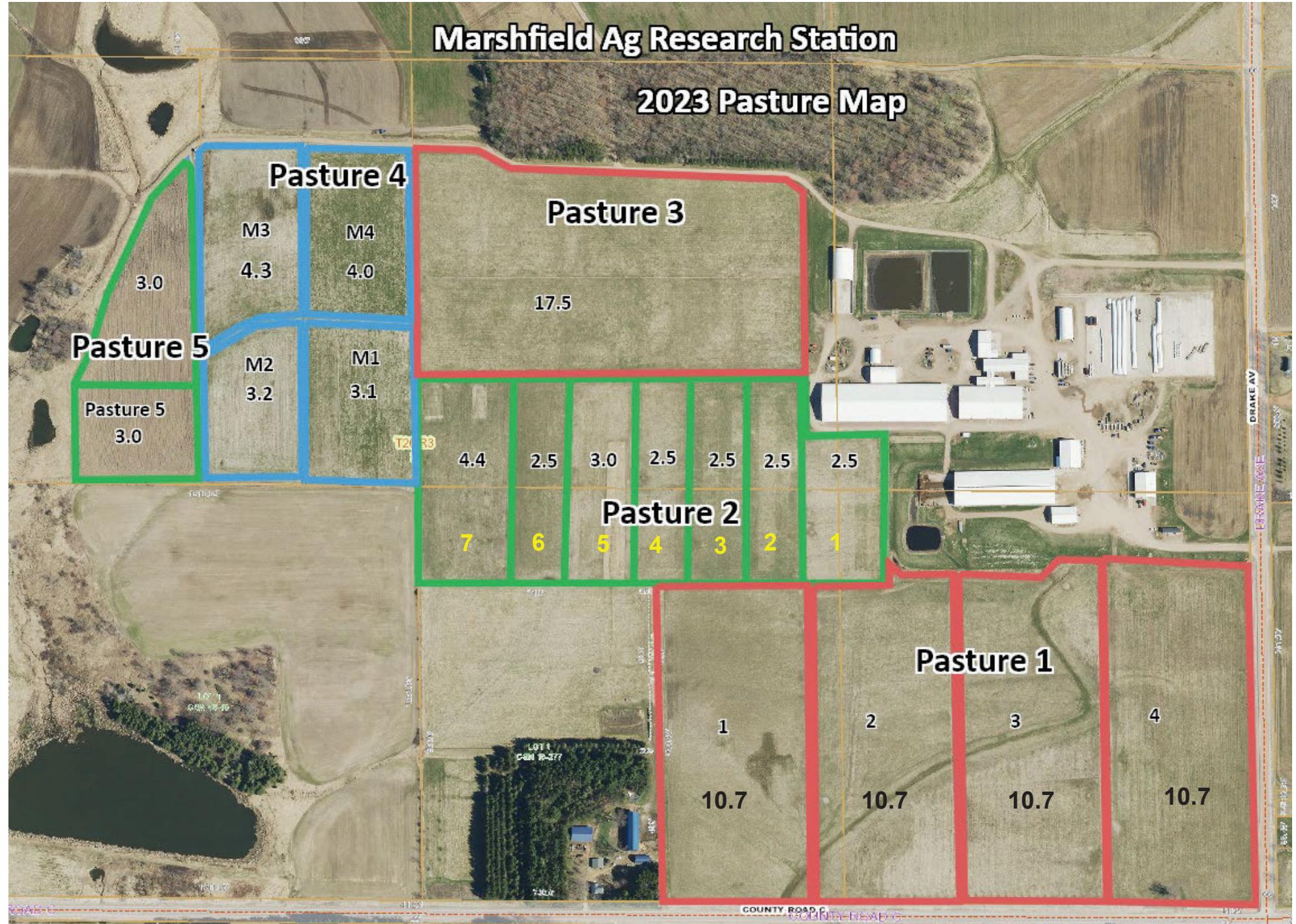


Dairy heifers will move through sub-paddocks in a 30-day to 40-day rotation schedule, leaving 4 to 6 inches of residual. Heifers rotate back to sub-paddock 11 following time spent in sub-paddock 74.

# Marshfield Ag Research Station

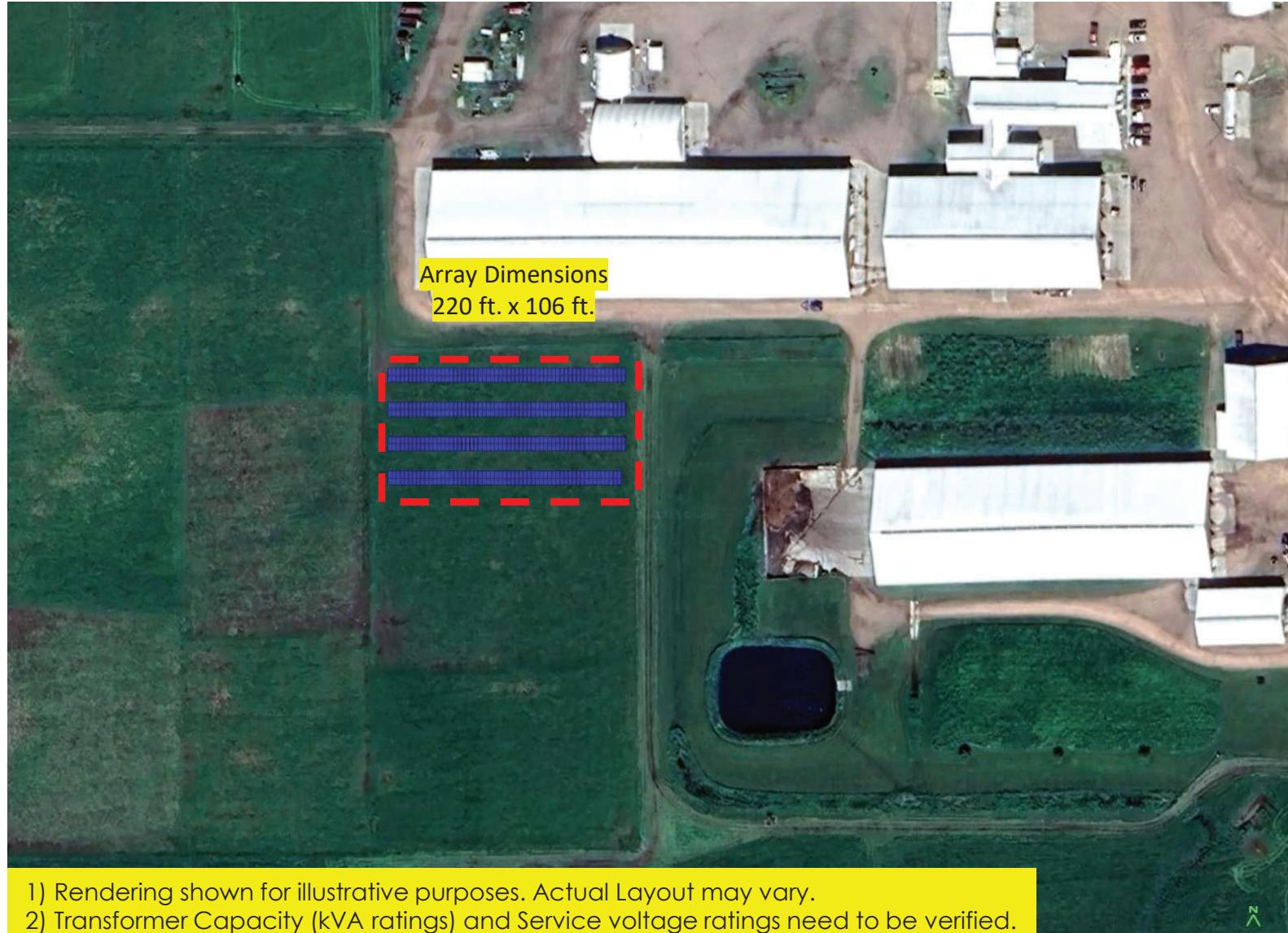
## 2023 Pasture Map



## **UW Madison Marshfield Ag Research Station**

208356 Drake Ave, Stratford, WI 54484

**250 kW Ground Mount**



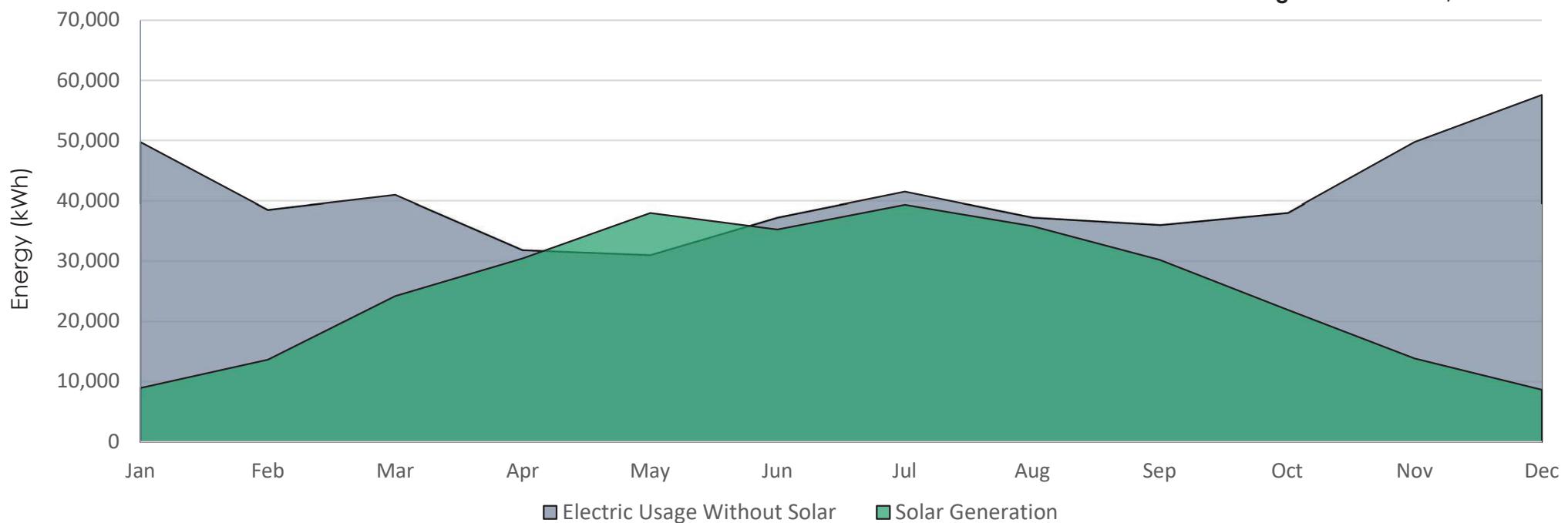
## UW Madison Marshfield Ag Research Station – Site Summary

### 250 kW Ground Mount

- Account# 4886410000
- Annual Electric Usage – 489,400 kWh
- Average Electric Rate – \$0.06/kWh
- **Average Demand Rate – \$16.96/kW**
- Estimated Annual Solar Generation – 299,847kWh (61%)
- Estimated Annual Energy Savings – **\$17,065 (33%)\***

### Energy Analysis with 250 kW Ground Mount

Net Electric Usage with Solar: 335,814 kWh

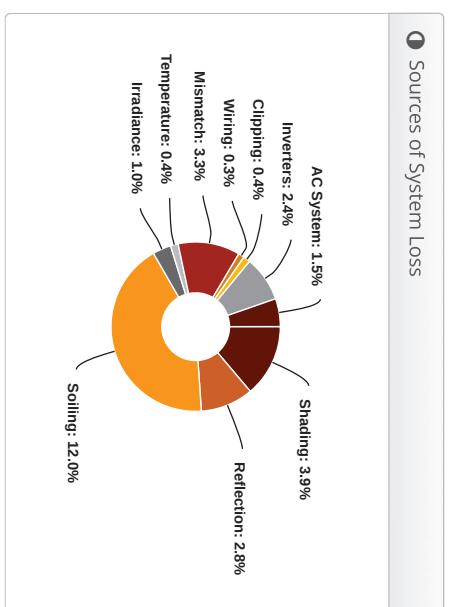
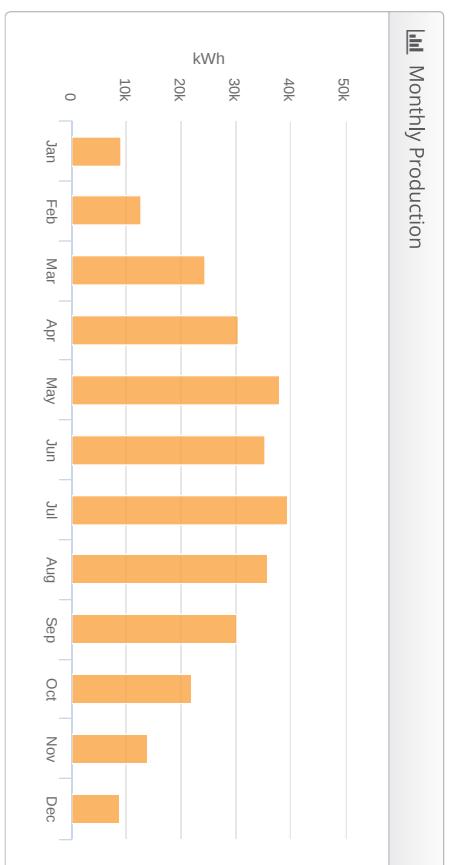
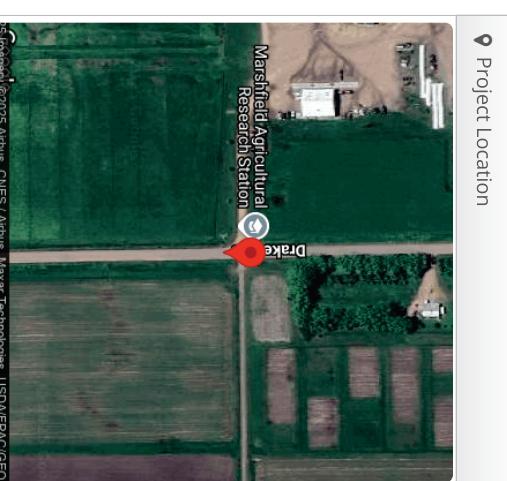


- Based on 2-Months Electric Bill of June 2024 and Jan 2025. (Savings may vary based on Actual Interval Data and 12-month bills)
- Excess generation (146,262 kWh ; 49%) credited at parallel generation rate.
- Subject to utility approval.

# 02.12.2025 250 kW GM V1 UW Madison Marshfield Ag Research Station, 208356 Drake Ave, Stratford, WI 54484

Report	
Project Name	UW Madison Marshfield Ag Research Station
Project Address	208356 Drake Ave, Stratford, WI 54484
Prepared By	Ecojiva Engineering engineering@ecojiva.com

System Metrics	
Design	02.12.2025 250 kW GM V1
Module DC Nameplate	250.6 kW
Inverter AC Nameplate	200.0 kW Load Ratio: 1.25
Annual Production	300.5 MWh
Performance Ratio	74.3%
kWh/kWP	1,129.1
Weather Dataset	TMY, 10km Grid (44.75,-90.05), NREL (prospector)
Simulator Version	254d5e1883-8df5f763e49-7103450e15-54ebaf5c4b



Annual Production

⚡ Annual Production				
	Description	Output	% Delta	
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,374.1		
	POA Irradiance	1,603.9	16.7%	
	Shaded Irradiance	1,541.5	-3.9%	
	Irradiance after Reflection	1,497.8	-2.8%	
	Irradiance after Soiling	1,317.7	-12.0%	
Total Collector Irradiance		1,317.6	0.0%	
	Nameplate	330,275.8		
	Output at Irradiance Levels	327,024.8	-1.0%	
Energy (kWh)	Output at Cell Temperature Derate	325,673.1	-0.4%	
	Output After Mismatch	314,831.1	-3.3%	
	Optimal DC Output	313,820.5	-0.3%	
	Constrained DC Output	312,645.8	-0.4%	
	Inverter Output	305,027.2	-2.5%	
Energy to Grid		300,451.7	-1.5%	
Temperature Metrics				
	Avg. Operating Ambient Temp	9.4 °C		
	Avg. Operating Cell Temp	15.7 °C		
Simulation Metrics				
	Operating Hours	4707		
	Solved Hours	4707		
🔌 Components				
Component Name	Count	🔌 Wiring Zones		
Inverters	4 (200.0 kW)	Wiring Zone		
Strings	10 AWG (copper)	48 (5,685.0 ft)	▀▀▀ Field Segments	
Module	Longi Solar, LR5-72HBD-540M (540W)	464 (250.6 kW)	Description	Racking

Condition Set

⚡ Annual Production			
	Description	Output	% Delta
Energy Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,374.1	
	POA Irradiance	1,603.9	16.7%
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	<strong>Total Collector Irradiance</strong>	<strong>1,317.6</strong>	<strong>0.0%</strong>
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Temperature Metrics			
Avg. Operating Ambient Temp		9.4 °C	
Avg. Operating Cell Temp		15.7 °C	
Simulation Metrics		Operating Hours	4707
		Solved Hours	4707

Components

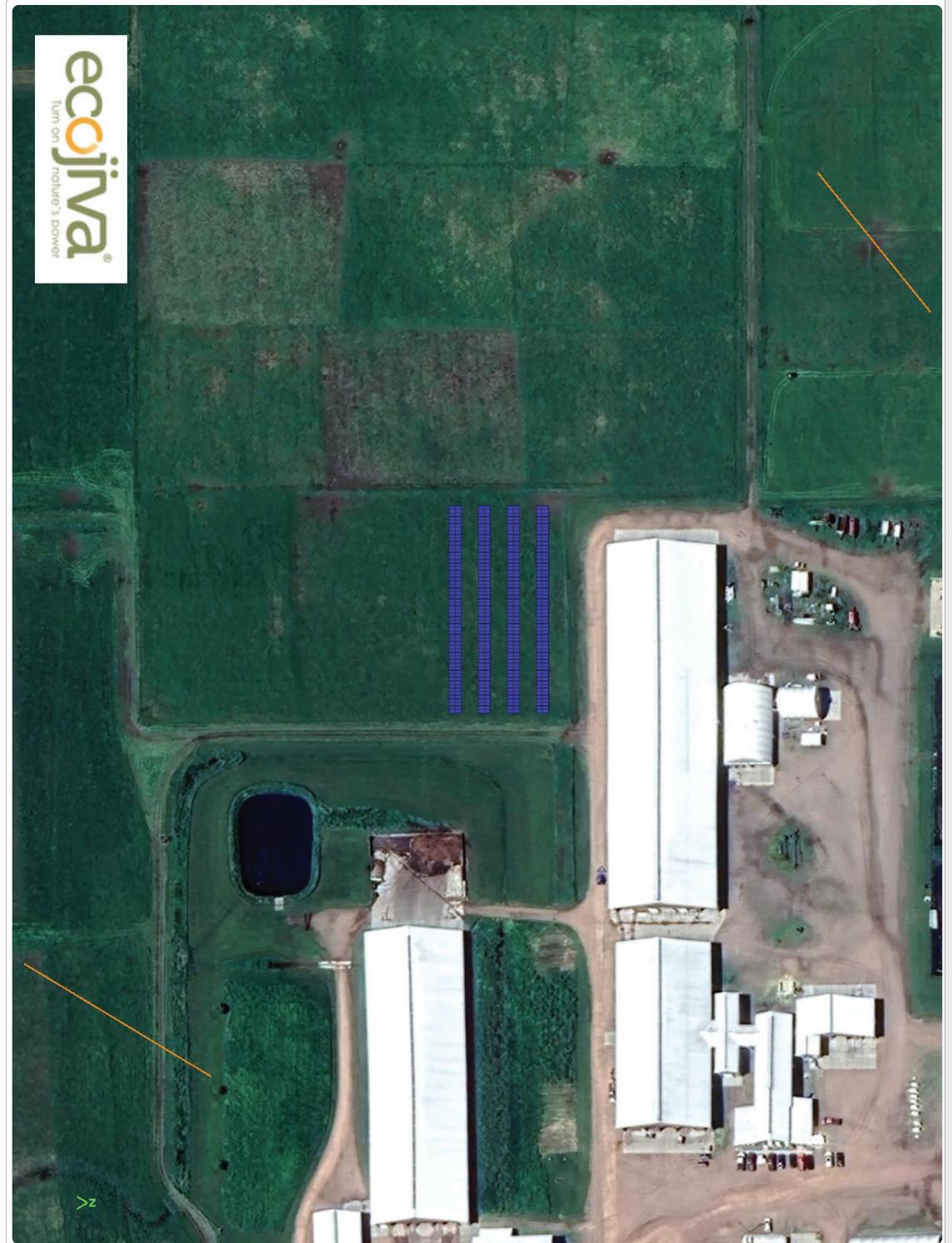
Components		
Component	Name	Count
Inverters	Sunny Tripower_Core1_50-US-41(SMA)	4(200.0 kW)
Strings	10 AWG (Copper)	48 (5,685.0 ft)
Module	Longi Solar_LRS-72HBD-540M (540W)	464 (250.6 kW)

Wiring Zones

Wiring Zones									
Description	Combiner Poles		String Size		Stringing Strategy				
Wiring Zone	-		8-10		Along Racking				
Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	Module: 30°	Module: 180°	18.0 ft	2x1	232	464	250.6 kW

© 2025 Aurora Solar

 Detailed Layout2



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[marshfield.ars.wisc.edu](http://marshfield.ars.wisc.edu)

DAIRY

# MARSHFIELD

AGRICULTURAL RESEARCH STATION

208356 Drake Avenue  
Stratford, WI 54484  
(715) 687-4624  
[marshfield@cals.wisc.edu](mailto:marshfield@cals.wisc.edu)



Marshfield Agricultural  
Research Station  
COLLEGE OF AGRICULTURAL & LIFE SCIENCES  
UNIVERSITY OF WISCONSIN-MADISON

DAIRY HEIFER  
RESEARCH

FEED EFFICIENCY

RUMINANT  
NUTRITION

PRECISION DAIRY  
FARMING

MANAGED  
GRAZING

• • • • • ◉ • • • •



**Marshfield Agricultural  
Research Station**  
COLLEGE OF AGRICULTURAL & LIFE SCIENCES  
UNIVERSITY OF WISCONSIN-MADISON

**OF NOTE:**  
Marshfield's unique dairy research amenities include 95 electronic feeding gates and 76 research cattle pens, options that offer researchers the ability to explore experimental dietary treatments for dairy cattle—individually or in groups.



**780**  
**# OF  
HEIFERS**  
**520**  
**PROJECTS  
PER YEAR**  
**12-14**

PRODUCTION  
ACRES

The Marshfield station is home to one of the nation's premier dairy heifer research facilities. A unique partnership between UW-Madison and the USDA's Environmentally Integrated Dairy Management Research Unit allows university and federal scientists to collaborate on studies at the station. Research topic areas include animal welfare, physiology and nutrition, as well as the environmental impacts of dairy cattle production.

Heifers raised at Marshfield are part of the university's research herd and ultimately integrate into the UW-Madison Department of Animal and Dairy Science's milking herd, housed at the Emmons Blaine Dairy Cattle Research Center at the Arlington Agricultural Research Station and the Dairy Cattle Center on the UW-Madison campus. Facilities at the Marshfield station can house up to 128 lactating dairy cows and 650 replacement heifers, animals that are available year-round for research, outreach and teaching.



The **Marshfield Agricultural Research Station** is located near the state's geographic center, in the area with the state's highest concentration of dairy farms. It's a great region for growing the forage crops that are foundational to dairy production, yet the area features some of the most difficult-to-manage, poorly-drained soils in the state—creating a challenging situation for farmers. The primary mission of the station, which was established over 100 years ago, is to support farmers' livelihoods, while protecting the natural resources of the area.

