
Mendocino Unified School District



Agenda

BOARD WORKSHOP

MAY 8, 2024

**MATHESON PERFORMING ARTS CENTER (PAC)
45096 CAHTO STREET
MENDOCINO, CA 95460**

9:00 A.M. – 9:30 A.M. - CLOSED SESSION

9:30 A.M. – 11:00 A.M. - OPEN SESSION

11:00 A.M. – 12:00 P.M. – PHASE II WALKTHROUGH

Board Priorities

- *Develop and expand community partnerships and communication*
- *Increase learning and achievement for all students, families, and staff*
- *Plan wisely for the future while maintaining fiscal integrity*
- *Maintain and improve the physical plant*

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MENDOCINO UNIFIED SCHOOL DISTRICT IS PROUD TO BE AN EQUAL OPPORTUNITY EMPLOYER

1. 9:00 A.M., CLOSED SESSION CALL TO ORDER AND ROLL CALL

- 1.1. Call to order and roll call
- 1.2. The President will verbally identify the agenda items to be discussed during closed session as listed below.

2. PUBLIC HEARING FOR CLOSED SESSION

Members of the public may take this opportunity to comment on closed session agenda items per Board Policy 9322. Under the requirements of the Brown Act open meeting law, members of the community wishing to address an item on the closed session agenda may do so at this time. Items not on the agenda cannot be addressed at this time. A three-minute limit is set for each speaker on all items. The total time for public input on each item is limited to 20 minutes. (Government Code 54954.3).

3. CLOSED SESSION

The Board will adjourn to closed session pursuant to Government Code 54950 - 54962.

- 3.1. Conference with labor negotiators (Govt. Code 54957.6) Agency Representative:
Superintendent Jason Morse
Employee organizations: CEMUS and MTA bargaining units and unrepresented employees

4. 9:30 A.M. OPEN MEETING, CALL TO ORDER AND ROLL CALL

- 4.1. Call to order and roll call
- 4.2. Approval of agenda
Items to be removed from the agenda or changes to the agenda should be done at this time.

5. TIMED ITEM 9:35 A.M. - PARENT/COMMUNITY COMMENT

Items not on the agenda, but within the jurisdiction of this body, may be addressed at this time or be submitted to the Superintendent in writing for Board consideration as an agenda item. A three-minute limit is set for each speaker on all items. The total time for public input on each item is limited to 20 minutes (Government Code 54952). The Brown Act does not permit the Board to take action on any item that is not on the agenda. In addition, in order to protect the rights of all involved, complaints about employees should be addressed through the District complaint process. Speaking about a personnel issue at a Board meeting may prevent the Board from being able to act on it. Please see an administrator to initiate the complaint process. The Board may briefly respond to public comments by asking questions to clarify the speaker's comments and refer the speaker to the Superintendent for further clarification. We thank you for your comments and participation at this meeting.

6. INFORMATION/DISCUSSION

- 6.1. Photovoltaic Options for MHS
The Board will discuss various options for a photovoltaic system at MHS including location of panels and funding sources (discussion)

7. 11:00 A.M. PHASE II WALKTHROUGH

- 7.1. High School Modernization Phase II Walkthrough
The Board will walk through and view the progress on phase II of the high school modernization project (information)

8. ADJOURNMENT

The next regular Board meeting is scheduled for **May 16 at Mendocino High School.**

Solar Photovoltaic (PV) Arrays

Mendocino High School
10700 Ford Street, Mendocino, CA 95460

Mendocino Unified School District

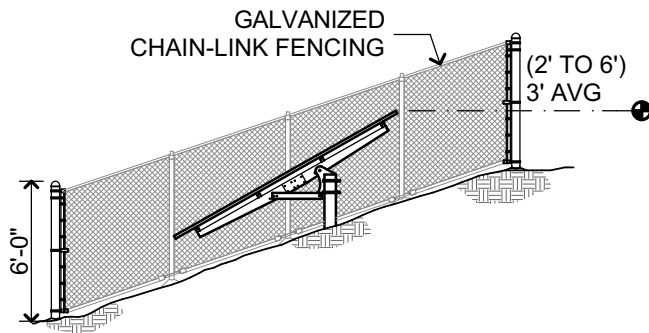


Potential Project

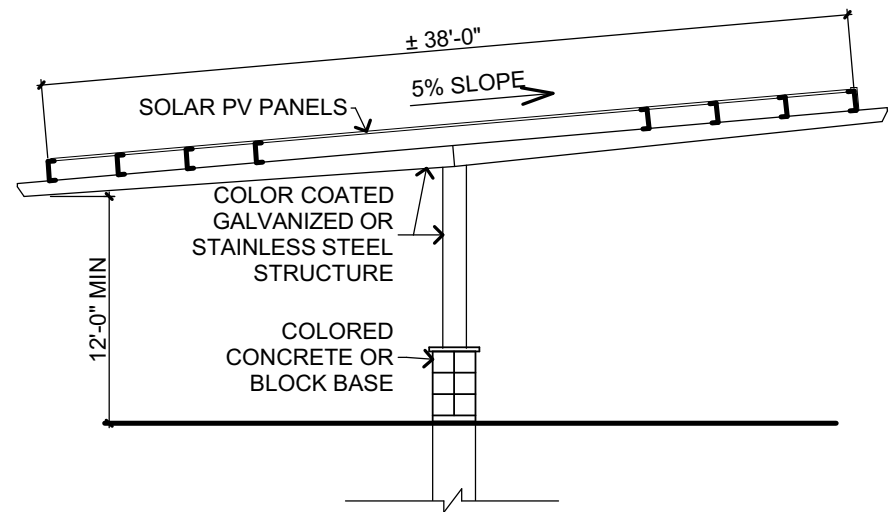
ZNE Full Campus

Array Name	Array Size kW DC	Size Sq Ft
C-1	63.0	3,530
C-2	42.8	3,180
GM Track Slope	113.4	7,095
Total	219.2	

C - Carport Mounted PV Panels
GM - Ground Mounted PV Panels



GROUND MOUNTED PV PANELS ON SLOPE



CARPORT MOUNTED PV PANELS

PHOTOS OF SIMILAR INSTALLATIONS



CARPORT MOUNTED PV PANELS



GROUND MOUNTED PV PANELS WITH FENCE



GROUND MOUNTED PV PANELS ON SLOPE



Solar, Storage, and ZNE

June 22, 2021

Mendocino High School Project



Overview

Energy Goals & Constraints

Potential Project

Financing and Financial Performance

Procurement Method

What It Looks Like

Energy Storage and Resiliency

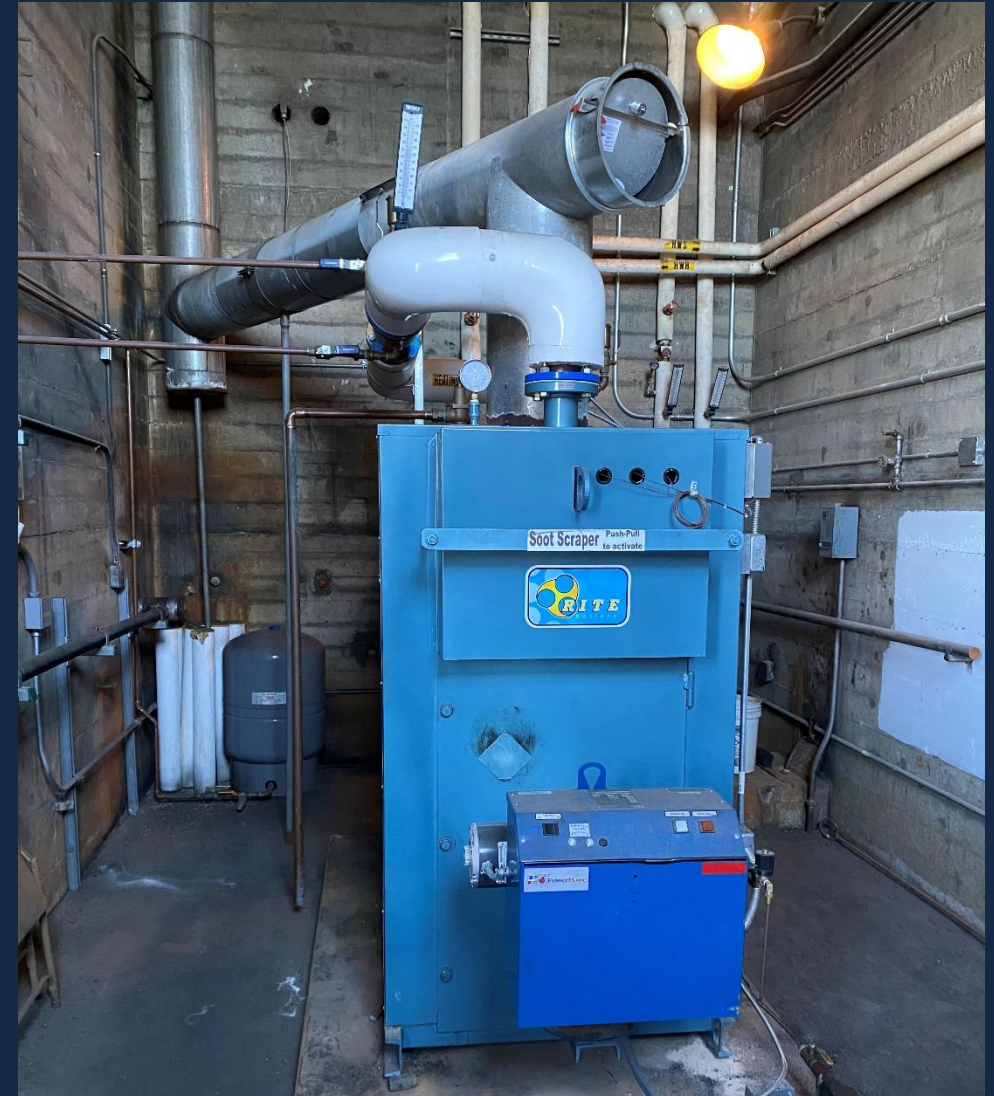
Energy Goals and Constraints

Energy Goals

- ZNE – Zero Net Energy
 - Produce as much energy as is used in a year
 - Campus-wide
- Eliminate Diesel and Propane usage

Project Constraints

- Cost neutral or better
- Physical (trees, setback, DSA)
- Aesthetic
- Market – things are expensive right now
- NEM 3.0 – November Interconnection Applications



Potential Project

Target Offset	Modeled Annual Usage kWh/year	Equivalent Array Size kW DC	Recommended Array Combination	Notes
Main HS w/ EV+STLTG	144,424	103.2	C-1, C-2	HS building with EV and streetlight loads
Main HS w/o EV	126,860	90.6	"	HS building with streetlight loads
Main HS w/o EV or STLTG	112,039	80.0	"	HS building ONLY
Gym & Perf Arts	76,615	54.7		
Tech Center	43,248	30.9		
Industrial Arts	36,751	26.3		
Community HS	35,428	25.3		
Total Campus w/ EV+STLTG	336,466	240.3	GM TS, C-1, C-2	All buildings
Total Campus w/o EV	318,903	227.8	GM TS, C-1, C-2	All buildings w/o EV loads
Total Campus w/o EV or STLTG	304,081	217.2	GM TS, C-1, C-2	All buildings w/o EV and streetlight loads

Potential Project

Solar Panel Array Areas Considered

No Roofs

Array Name	Array Size kW DC	Priority
C-1	63.0	+
C-2	42.8	+
C-3	47.9	+/-
C-4	47.9	-
GM Front	52.9	-
GM Cypress Trees	201.6	-
GM Track	225.1	-
GM Track Slope	113.4	+
Total	794.6	



Potential Project

ZNE

High School Building ONLY

Array Name	Array Size kW DC	Priority
C-1	63.0	+
C-2	42.8	+
Total	105.8	

Potential Project

ZNE

Full Campus

Array Name	Array Size kW DC	Priority
C-1	63.0	+
C-2	42.8	+
GM Track Slope	113.4	+
Total	219.2	



Project Financing



Cash Purchase with GO Bonds

- **Best Financial Performance** of all Financing types
- All energy cost savings (minus M&O) go to General Fund
- ~\$1.2M Solar PV Project Cost

District must maintain the system, which requires a separate M&O Contract



Power Purchase Agreement (PPA)

- (Almost) **No upfront cost** to District
- Third-party finances, constructs, owns and operates the system
- **District buys all electricity** produced at contracted price **for 20-25 years**

Incentives are well aligned - if the system does not perform, the owner does not get paid



Pre-Paid PPA

- Prepayment of some of the energy costs up front
- **Reduces the PPA rate** to allow the District to save money

Prepayment means the District takes more risk; requires careful contracting and financial analysis

Financial Modeling Assumptions

High School Building ONLY - ZNE

Project Overview		
Number of Sites	Sites	1
Solar PV System Size	kW-DC	80.00
Solar PV Year 1 Production	kWh	109,000
Solar PV Yield	kWh/kW/Year	1,363
Energy Storage System Size	kW/kWh	110kW/220kWh
Modeled System Lifetime	Years	25
Electricity Usage		
Annual Electricity Consumption	kWh	112,000
Annual Electricity Cost	\$, Current Tariffs	\$30,000
Average Cost of Electricity	\$/kWh	\$0.2642
Annual Utility Inflation Rate	%	3.00%
Cash - Financial Modeling Inputs		
Turnkey Project Cost	\$	\$440,000
Project Soft Costs	\$	\$174,000
NPV Discount Rate	%	2.50%
PPA - Financial Modeling Inputs		
PPA Price, PV	\$/kWh	\$0.21
PPA Price Adder, Soft Costs	\$/kWh	\$0.0615
PPA Price Adder, BESS	\$/kWh	\$0.0975
PPA Price Escalator	%	0%

Full Campus - ZNE

Project Overview		
Number of Sites	Sites	1
Solar PV System Size	kW-DC	217.20
Solar PV Year 1 Production	kWh	296,000
Solar PV Yield	kWh/kW/Year	1,363
Energy Storage System Size	kW/kWh	110kW/220kWh
Modeled System Lifetime	Years	25
Electricity Usage		
Annual Electricity Consumption	kWh	304,000
Annual Electricity Cost	\$, Current Tariffs	\$79,000
Average Cost of Electricity	\$/kWh	\$0.2603
Annual Utility Inflation Rate	%	3.00%
Cash - Financial Modeling Assumptions		
Turnkey Project Cost	\$	\$977,000
Project Soft Costs	\$	\$212,000
NPV Discount Rate	%	2.50%
PPA - Financial Modeling Assumptions		
PPA Price, PV	\$/kWh	\$0.19
PPA Price Adder, Soft Costs	\$/kWh	\$0.0271
PPA Price Adder, BESS	\$/kWh	\$0.036
PPA Price Escalator	%	0%

Financial Performance Comparison

Cash Purchase
w/ GO Bonds

Power Purchase
Agreement (PPA)

Pre-Paid PPA

Financial Results		Cash	PPA	PPA Pre-Pay
Year 1				\$500k Pre-Payment
Value of Solar	\$/kWh	\$0.1858	\$0.1858	\$0.1858
Value of Solar	\$	\$55,000	\$55,000	\$55,000
Annual Energy Cost After Solar	\$	\$24,000	\$24,000	\$24,000
Value of Energy Storage	\$	\$6,000	\$6,000	\$6,000
Annual Energy Cost After Solar+Storage	\$	\$18,000	\$18,000	\$18,000
Diesel, Propane Systems Avoided Cost	\$	\$31,384	\$31,384	\$31,384
25-year P50 Results, Solar PV				
Simple Payback, Solar	Years	8.7	<1	3.3
Nominal Returns	\$	\$2,501,000	\$2,463,000	\$2,478,000
NPV Returns, 2.5% Discount Rate	\$	\$1,515,000	\$1,768,000	\$1,650,000
25-year P50 Results, Solar+Storage				
Simple Payback, Solar	Years	13.1	<1	3.5
Nominal Returns	\$	\$2,126,000	\$2,422,000	\$2,437,000
NPV Returns, 2.5% Discount Rate	\$	\$1,152,000	\$1,731,000	\$1,614,000

Procurement Method

Request for Proposals (RFQ/P)

- Standard public procurement
- Combined Qualification and Proposal
- Term sheet, specs, criteria, 10% design in RFQ/P
- Under authority of GC 4217.10-18
 - Allows for selection of “best value” bid

Design-Build Delivery

- Selected vendor does final engineering and design, permitting, construction, commissioning



What It Looks Like

Carport Shade Structure



What It Looks Like

Ground Mounted

DSA requires a minimum 6' fence around the array

Students cannot interact With the solar equipment



What It Looks Like

Ground Mounted





Energy Storage and Resiliency

Battery Energy Storage Systems (BESS)

- With current prices, incentives, and tariffs, BESS adds little \$ value
- Resiliency to Electrical Grid Outages
 - Critical Loads
 - Duration of Outage
 - **Avoided Cost of Diesel Generator (\$250k)**
- Value of Resilience (VOR)
 - Cost of closing schools
 - Staff time
 - Curricular impacts
 - Community impacts
 - **Community emergency services**



THANK YOU

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