



FRESNO COUNTY ZOO AUTHORITY

SPECIAL MEETING

AGENDA

3:00 PM, Thursday, September 11, 2025

Fresno Chaffee Zoo

Simba Room

894 West Belmont Avenue, Fresno, CA 93728

(559) 498-5910

1. Call to Order
2. Roll Call
3. Approve Agenda
4. Public Comments
This portion of the meeting is reserved for persons desiring to address the board on matters within the Board's jurisdiction that are not on the agenda. Attention is called to the fact that the Board is prohibited from taking any action on matters that are not on the agenda. Members of the public are limited to three minutes to speak during Public Comments as well as for each item on the agenda. Before beginning comments, please state for the record your name and affiliation, if any
5. Approve Fresno's Chaffee Zoo Corporation's request for Measure Z Capital Funds totaling \$454,685.40 for the construction of the Lyles Admin Building Improvements Phase I
6. Approve Fresno's Chaffee Zoo Corporation's request for Measure Z Capital Funds totaling \$1,499,975.00 for the furnishing and installation of the solar and associated electrical infrastructure related to the Maintenance Warehouse project
7. Review next meeting dates and revise if necessary:
 - September 24, 2025
 - October 29, 2025
 - November 19, 2025
 - December 17, 2025

8. Receive staff reports
9. Chair's comments
10. Board Member comments
11. Adjourn

All supporting documentation is available for public review in the office of the Fresno County Zoo Authority, 2281 Tulare Street, Room 304, Fresno, 93721, during regular business hours.

For further information, please contact Ronald Alexander, Zoo Authority Coordinator, at 600-1710, email zooauthority@co.fresno.ca.us, or visit www.zooauthority.org. Requests for disability-related modification or accommodation needed in order to participate in the meeting must be made to the Zoo Authority Coordinator no later than 9:00 a.m. on the day prior to the meeting.



AGENDA ITEM 5

DATE: September 11, 2025

TO: Fresno County Zoo Authority Board

FROM: Jon Forrest Dohlin, Chief Executive Officer
Fresno's Chaffee Zoo Corporation

SUBJECT: Measure Z Capital Funds Request: Lyles Admin Building Improvement Phase I

RECOMMENDED ACTION:

Approve Fresno's Chaffee Zoo Corporation's request for Measure Z Capital Funds totaling \$454,685.40 for the construction of the Lyles Admin Building Improvements Phase I.

DISCUSSION:

ZooCorp is requesting the approval of \$454,685.40 to move forward with the construction of the Lyles Admin Building Improvements Phase I.

This first project phase is aimed at repairing water intrusion issues with the building envelope of the Lyles Admin Building, ZooCorp's primary administration space. The timing of the project is intended to complete this work prior to the upcoming rainy season and thereby halting the damage being done to the facility by water.

In preparation for this work, hazardous materials testing has been completed on the roof of the Lyles property. It was found that the roof tested positive for asbestos containing materials through this testing. These hazardous materials must be abated first before the necessary and extensive roof repairs can be conducted. This abatement will necessitate a full removal and replacement of the roof structure on the Lyles Admin Building.

Other ancillary work being performed as a part of this phase includes repairs to the existing raised planter beds to facilitate the draining of water from them and the replacement of two windows that have been particularly damaged by water not draining from these beds.

This work is being performed ahead of a Phase II which will undertake additional repairs to the building and contemplate renovations to the interior of the space to facilitate future staff growth and a more efficient, comfortable working environment.

The Fresno's Chaffee Zoo Corporation Board of Directors approved this request on August 14, 2025.

ATTACHMENTS:

Lyles Admin Building Improvements Phase I Bid Results
Lyles Admin Building Improvements Budget Overview



**Lyles Admin Building Improvements Phase I
Projected Cost**

July 25, 2025

Fresno County Zoo Authority

RE: Lyles Admin Building Improvements Phase I Projected Cost

The Lyles Admin Building Improvements Phase I projected cost is \$454,685.40 which includes the following:

- Cencal Services, Inc. - \$53,750.00
- Nations Roof West, LLC - \$234,977.00

The project costs include bid, a ten percent (10%) contingency, project management and other soft cost expenses that are integral to completing the project. The total request for Phase I is \$454,685.40. An overall project cost sheet has been attached.

Please contact me if you have any questions.

Respectfully,

A handwritten signature in blue ink, appearing to read "Kris Grey". The signature is fluid and cursive, with the first name "Kris" and last name "Grey" clearly distinguishable.

Kris Grey
Director of Capital Construction
KGrey@fcz.org

ADMINISTRATION

1250 West Olive Avenue
Fresno, CA 93728

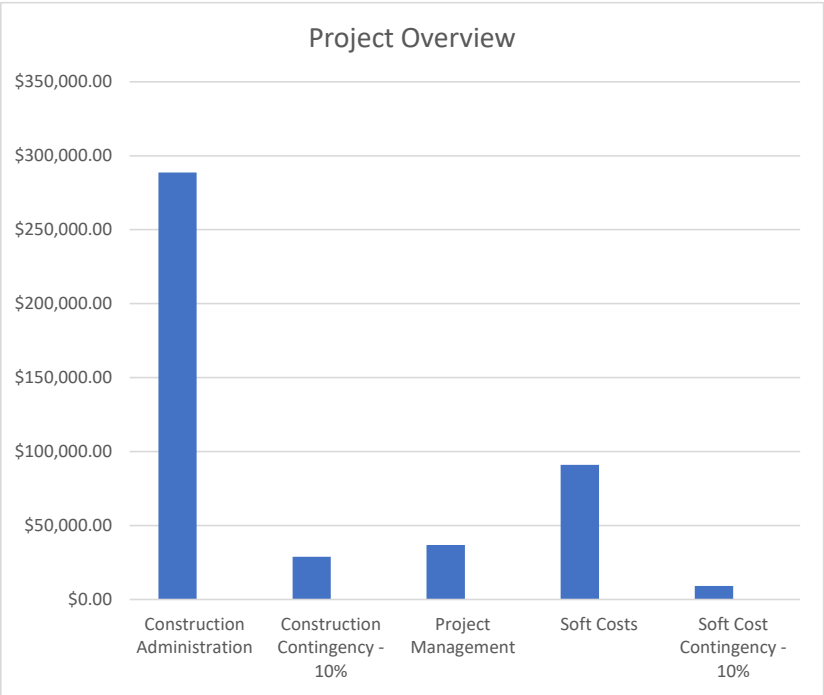
MAIN ENTRANCE

894 West Belmont Avenue
Fresno, CA 93728

(559) 498-5910
fresnochaffeezoo.org

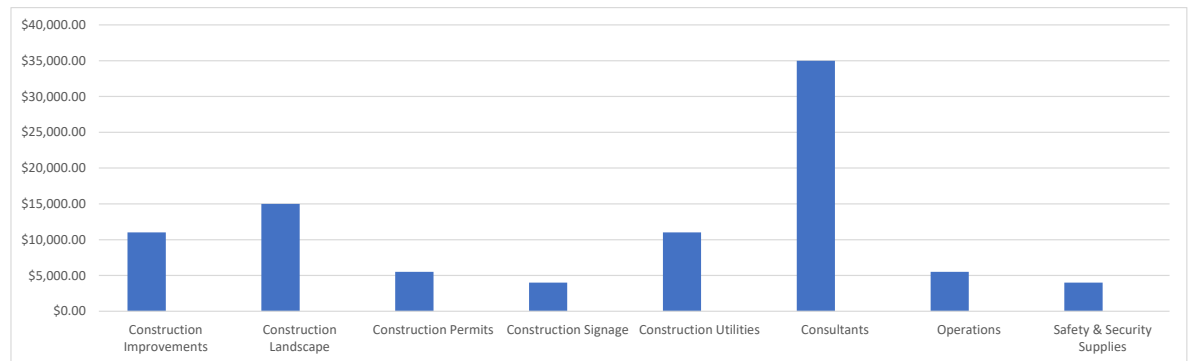
Lyles Admin Building Improvements Phase I - Project Overview

	Budget:	Expenses:	Balance:
Construction Administration	\$288,747.00	\$0.00	\$288,747.00
Construction Contingency - 10%	\$28,874.70	\$0.00	\$28,874.70
Project Management	\$36,903.00	\$0.00	\$36,903.00
Soft Costs	\$91,055.18	\$0.00	\$91,055.18
Soft Cost Contingency - 10%	\$9,105.52	\$0.00	\$9,105.52
	\$454,685.40	\$0.00	\$454,685.40



Lyles Admin Building Improvements Phase I - Soft Cost Overview

	Budget:	Expenses:	Balance:
Construction Improvements	\$11,018.39	\$0.00	\$11,018.39
Construction Landscape	\$15,000.00	\$0.00	\$15,000.00
Construction Permits	\$5,509.20	\$0.00	\$5,509.20
Construction Signage	\$4,000.00	\$0.00	\$4,000.00
Construction Utilities	\$11,018.39	\$0.00	\$11,018.39
Consultants	\$35,000.00	\$0.00	\$35,000.00
Operations	\$5,509.20	\$0.00	\$5,509.20
Safety & Security Supplies	\$4,000.00	\$0.00	\$4,000.00
	\$91,055.18	\$0.00	\$91,055.18





July 22, 2025

Kris Grey (He/Him) | Director of Capital Construction

Email: kgrey@fcz.org

Office Address: 894 W. Belmont, Fresno, CA 93728

Main: 559.498.5910 Direct: 559.415.6200

RE. Fresno Chaffee Zoo Admin Building- Asbestos Roof Removal

CENCAL Services, Inc. to provide Abatement & demolition Services for the following scopes.

Roof Abatement.

- Obtain All release & notifications thru SJVAPCD.
- Removal of all roofing layers to clean roof deck. Approx. +/- 12,000 sq ft
- Salvage existing solar as is.
- All mechanical units to remain as is.
- All Asbestos Abatement materials to be manifested a properly disposed of.

Pricing. Base Bid. Roof Abatement \$ 53,750.00

Exclusions: Traffic control, bonds, permits, temp. fencing, damage to unforeseen utilities, manning of any gates, testing.

Thank you,

M. Gonzalez

President/CEO

CENCAL Services, Inc.

Cell 559.994.2234

Office: 559.291.3366 • Fax: 559.291.3369

3299 S. Cedar Ave. • Fresno California 93725 • www.cencaldemo.com

CA. Lic.: 976935 A C-21 C-22 HAZ ASB DOSH 1063 • DGS SBE/ MB # 1191620 DIR# 1000002906

Certified Minority Business Enterprise VON: 10090146



NATIONS ROOF WEST, LLC
5463 E Hedges Ave
Fresno, CA 93711
Phone: 559-252-1255
Fax: 559-252-1256

CA Lic # C39 1012378---PWCR #1000036446

PROPOSAL

PROPOSAL SUBMITTED TO:			Date: 7/10/2025			DESCRIPTION OF JOB: 60 Mil PVC rOOFlNG& Cool Roof Shingles					
Contractor Name: Fresno Chaffee Zoo						Job Name: City of Fresno Fink White Park					
Contractor Address:						Job Address: 5355 Trinity Street					
City: Fresno			State: CA		Zip:	Job City: Fresno			Job State: CA		Job Zip:
Contractor Email: kgrey@fcz.org						Bid Log #: 2025-07-02					
Attention: Kris			Phone: 559 498-5910			Estimator: Rick Chacon					

Nations Roof is pleased to submit the following proposal for roofing work for the above referenced site. We propose to furnish all labor, material, taxes, equipment, and supervision to install roofing on the aforementioned project per the scope of work and exclusions described below:

Scope of Work: 60 Mil PVC Roofing

1. Perform a pre-job meeting to determine jobsite logistics and safety requirements.
2. Furnish and install proper safety equipment in accordance with OSHA's safety program.
3. Material placement will be to distribute weight loads throughout the entire roof area.
4. Chaffee Zoo to provide the roof demo, Nations Roof will meet with the demo contractor to coordinate items of demo, prior to the commencement of demolition.
5. See (**Map**) for areas of roof that will have (2") polyiso insulation, 1/4" Dens Deck Prime and Shingle roofing.
6. Install (1) layer of 1/4" Securock FA, mechanically attached per manufacturer's recommendation.
7. Install Carlisle (60) Mil Sure-Flex PVC single- ply roofing system fully adhered.
8. Provide and install PVC pipe boots at pipe penetrations and field fabricated boots where a standard pipe boot cannot be utilized.
9. Install fully adhered 60 Mil KEE HP (**Asphalt Resistant**) single-ply at Parapets and mechanical curbs.
10. Install new 1/2" per foot tapered crickets as indicated on the **Map**. Crickets will be installed at all mechanical equipment 24" and wider.
11. Install approximately (**300**) linear feet of walk pad at access areas and at service sides of mechanical equipment.
12. Fabricate and install new PVC clad scuppers where existing scuppers occur.
13. Fabricate and install 24-gauge galvanized bottom reglet flashing to replace existing flashing encased in SPF Foam roofing.
14. Provide and install 24-gauge galvanized counterflashing's at mechanical equipment
15. Install new 24-gauge galvanized surface mount counter flashing where existing counter flashings occur.
16. Fabricate and install new 24-gauge galvanized coping at all areas that have an existing coping except for the roof with the shingle Sawtooth's. (See map attached).
17. Mechanical Subcontractor to build new roof curb to raise existing, the current HVAC curb is too low and will not allow the installation of the new roof system.
18. Install fasteners and plates at roof transition; heat weld PVC 8" strip to incorporate into the roof system
19. Provide a layer of polyester to divorce the asphalt-based shingles from contact with the PVC membrane.
20. Replace (**3**) plastic roof drain combos with new cast iron drains. Roofing manufacturers will not warrant the roof system with plastic drains so they must be replaced.
21. Provide and install rubber blocking under the pipe runs.
22. Provide Nations Roof 2-year workmanship warranty and manufacturer's 20-year NDL on the completed roof assembly

Scope of Work: Asphalt Shingles

23. Perform a pre-job meeting to determine jobsite logistics and safety requirements.
24. Furnish and install proper safety equipment in accordance with OSHA's safety program.
25. Material placement will be to distribute weight loads throughout the entire roof area.
26. Chaffee Zoo to provide the roof demo, Nations Roof will meet with the demo contractor to coordinate items of demo, prior to the

commencement of demolition.

- 27. Install (1) layer of Tiger Paw Synthetic underlayment meeting code requirements.
- 28. Provide and install GAF Pro Start starter course at the eaves and rakes.
- 29. Provide and install GAF HDZ "Cool Series" asphalt shingles meeting Cool Roof requirements.
- 30. Provide and install 24-gauge galvanized rake and peak drip edge.
- 31. Install step flashing at right angles to the inside parapets; provide and install new 24-gauge galvanized bottom reglet flashing.
- 32. Provide and install galvanized roof jacks; where a pipe jack cannot be utilized a 4# lead flashing will be soldered in place to make watertight.
- 33. Provide Nations Roof 2-year workmanship warranty and manufacturer's 40 material warranty on completed assembly.

Special Note:
Fresno Chaffee Zoo is responsible for the cost of a Re-Roof Permit should one be required.

Base Bid: Two Hundred Thirty-Four Thousand Nine Hundred Seventy-Seven Dollars.....\$234,977.00

Exclusions unless specifically included: *Prime & painting, Roof demo, City of Fresno Re Roof permit.* accessories, rough carpentry (wood nailers), supply and installation of manufactured curbs unless specifically included, (pipe sleeves (VTR), drain lead, etc.), deck or system drainage, ponding water, roof drains/overflow drains, protection of finished roof surface, temporary roofing, electrical, mechanical, all work in all other specification sections noted in the approved plans other than specified above.

Insurance: Our bid is based on general liability insurance limits of four million dollars general aggregate.
 Excludes Owners & Contractors Protective Liability Insurance coverage. Not a part of our standard insurance coverage

NO. OF ADDENDUMS NOTED 0

Note "a": This bid price is good for 90 days from the date of submission. Any questions should be directed to the estimator identified above.
Note "b": Add 1.5% for payment and performance bond.
Note "c": The construction industry is currently experiencing substantial volatility in material prices, material delays and material unavailability particularly with regard to steel, lumber, PVC and some insulation products. If the cost incurred by Nations Roof to purchase a material specified or approved for this job increases by 5% or more between the date of this proposal and the time when the work is to be performed, Nations Roof shall be entitled to an equitable adjustment of the contract sum equal to the additional cost incurred to obtain the material. If materials are unavailable in the time reasonably anticipated by Nations Roof as of the date of this Proposal, Nations Roof shall be entitled to an extension commensurate with the delay. Nations Roof shall provide written notice promptly upon learning of any price increase or delay, and reasonable backup documentation



AGENDA ITEM 6

DATE: September 11, 2025

TO: Fresno County Zoo Authority Board

FROM: Jon Forrest Dohlin, Chief Executive Officer
Fresno's Chaffee Zoo Corporation

SUBJECT: Measure Z Capital Funds Request: Maintenance Warehouse Solar and Electrical Infrastructure

RECOMMENDED ACTION:

Approve Fresno's Chaffee Zoo Corporation's request for Measure Z Capital Funds totaling \$1,499,975.00 for the furnishing and installation of the solar and associated electrical infrastructure related to the Maintenance Warehouse project.

DISCUSSION:

ZooCorp is requesting the approval of \$1,499,975.00 to move forward with the purchase and installation of solar and related electrical infrastructure for the new Maintenance Warehouse facility located across Belmont from the Zoo.

This purchase and installation is being sought separately from the primary construction project in order to maximize ZooCorp's ability to claim infrastructure credits on the equipment. The signing of the One Big Beautiful Bill Act (OBBBA) on July 4, 2025, has put into effect the timelines to eliminate solar credits for commercial projects such as the Maintenance Warehouse. In order to retain the 30% credit, equivalent of approximately \$450,000, ZooCorp must either substantially progress construction or have paid out 5% of the cost for the solar and related infrastructure before December 31, 2025.

ZooCorp's construction drawings will not be ready in time to procure a contractor and make substantial progress on the construction of the solar. Therefore, ZooCorp is seeking to reach the 5% threshold to obtain safe harbor status for the project and associated credits. Since the passage of the OBBBA, ZooCorp has solicited proposals from companies for the solar equipment and installation component of the Maintenance Warehouse construction project. To maximize the credits for the project, ZooCorp is seeking the approval of the full package provided by A-C Electric, which includes supplying the equipment and the installation. Installation will be coordinated with the general contractor at such a time that the contractor has been selected and funding approved for the broader Maintenance Warehouse construction project.

This package includes the solar modules, the carports they will be installed on, associated equipment such as inverters and monitoring systems, electrical panels, the site's 1200 amp primary switchgear, 10 electric vehicle chargers, and under-canopy lighting.

Approval of this package allows ZooCorp to enter into purchase orders through A-C Electric and their suppliers to obtain all equipment listed in their proposal. This is critical for long lead items such as the 1200 amp switchgear which could take over 12 months to acquire. Failure to approve this proposal in its entirety risks price changes, a loss of the 30% credit savings, and potentially shifting project schedules further away including for the New Entrance and California projects due to delays in being able to move the maintenance and horticulture staff out of their current locations.

The Fresno Chaffee Zoo Corporation Board of Directors approved this request on August 14, 2025.

ATTACHMENTS:

A-C Electric Company Solar and EV Pricing Proposal



FOUNDED
1945

A-C Electric Company — CALIFORNIA C-10 LICENSE 99849

ENGINEERING-CONSTRUCTION-TECHNOLOGY-SERVICE

BAKERSFIELD DIVISION
Box 81376
315 30th Street (93301)
Bakersfield, CA 93380-1376
Phone 661/633-5368
Fax 661/324-2761
www.a-celectric.com

August 11, 2025

To: Fresno Chaffee Zoo
Attn: Kris Grey

Re: Maintenance Area Solar Carport

Subject: Solar and EV Pricing Proposal

We are pleased to offer our proposal for the electrical portion of this project. Our proposal is based on the following bid documents:

Drawings:

Layout drawing and ESD provided by customer dated 7/2/2025

Specification Sections:

None

Addenda:

Solar Production report and layout drawing attached with this proposal

Total Pricing:

EV Equipment Pricing (See Note 1 in Clarifications)	\$50,347.00
Solar Equipment Pricing (See Note 1 in Clarifications)	\$577,012.00
EV Installation Labor (See Note 2 in Clarifications)	\$161,881.00
Solar Installation Labor (See Note 2 in Clarifications)	\$710,735.00

Unless specifically noted otherwise, these bid item prices are contingent on our being awarded all of the listed items. We reserve the right to adjust these prices if all are not awarded to A-C Electric Company.

Equipment Included in Pricing Above:

1. 432- Trina 665W Solar Modules
2. 4 – 36kW CPS Inverters, 1 – 50Kw CPS Inverter, 1 – 25Kw CPS Inverter
3. 1 – Also Energy Monitoring Equipment
4. 1 – Power Solar Frames complete carport materials
5. 1 – 400A PV Panelboard for solar
6. 1 – 400A PV disconnect for solar
7. 1 – 1200A New Service equipment per ESD drawing provided
8. 8 - ChargePoint CPF50 Level 2 AC EV column mount chargers
9. 1 – ChargePoint Express 250 DC Fast Charger pedestal mount. Includes 2 connecting cords
10. 28 – Under carport LED light fixtures

Installation Inclusions:

1. Provide design for utility interconnection application, and file application.
2. Provide structural engineering for carport solar PV system.

3. Provide full site geotechnical survey and report suitable for new building construction.
4. Furnish electrical design and electrical engineer stamp for electrical plans.
5. Organize permit drawing and calculations packages for the complete project and submit to local building, planning and fire departments.
6. Coordinate response to AHJ permit comments through all trades.
7. Install fixed carport system – 12' clear height for all
8. Install 28 – LED light fixtures and connect to office electrical panel.
9. Install solar modules on the carport racking system.
10. Furnish and install string wiring from modules to inverters including wire management.
11. Furnish labor to identify and label all PV string wires, conduits, and combiner boxes.
12. Install CPS inverters.
13. Install AC combiner panels and main switchboards as required. All electrical equipment to be NEMA 3R or better.
14. Install utility-lockable disconnect as required at utility connection point.
15. Install monitoring system at each interconnection location connect to inverters.
16. Install new 1200A new service equipment
17. Furnish, by subcontractor, the concrete pad for the 1200A switchgear.
18. Perform, or subcontract with manufacturer, commissioning and testing of inverters and DAS system.
19. Provide waste disposal for use by A-C Electric only.
20. Furnish fenced construction yard, jobsite trailers, and storage containers for exclusive use by A-C Electric and its subcontractors. Includes temporary power, phone, and internet as required.
21. Provide in-house prevailing wage labor compliance specialist to ensure compliance with AB-2143 and Inflation Reduction Act requirements.
22. Install 8 - Level 2 DC EV charging stations on carport columns including electrical panel and electrical infrastructure.
23. Install 1 – DC fast charger including electrical pane and electrical infrastructure.
24. Install concrete pedestal per engineers' design for DC Fast charger
25. Proposal includes full-time safety person on site during the construction.
26. Proposal included A-C Electric QA/QC weekly site visit and reporting to customer
27. Proposal includes weekly schedule updates, two-week look-ahead, weekly coordination meetings, and daily project reports.

Clarifications:

1. Equipment pricing includes use tax, delivery to customer site and unloading by A-C personnel. Assumes storage at customer site at no additional cost to A-C.
2. Installation labor pricing includes A-C field labor costs, commodity materials (conduit, wire, etc.) subcontractors, engineering, A-C management and coordination, and any other associated costs
3. AC wiring not to exceed 2% total voltage drop,
4. DC Wiring not to exceed 1.5% total voltage drop
5. Any work performed outside this scope will require an approved change request.
6. Proposal assumes prevailing wage and certified payroll reporting for all on site trades including subcontractors.
7. This proposal is priced utilizing copper wire conductors for all wiring.
8. Pricing to be confirmed or adjusted based on final engineering.
9. This proposal was provided with no utility detail drawings contractor scope and may require repricing when said drawings are received.
10. Proposal does not include additional modules for future or replacements. Additional modules can be provided at customer request.
11. Proposal assumes that customer's property is free of any easements, right-of-ways or other encumbrances that may affect the design, quantity or location of the solar equipment included in this proposal.
12. Proposal assumes that there are no underground obstructions that will interfere with the carport column installation.
13. Proposal assumes project will be governed by A-C Electric Company safety program.

Exclusions:

1. Switchgear installation does not include any utility conduits or site conduits except for those related to the PV system
2. Permitting and inspection fees (submission by A-C, fees paid by others).
3. Protective relays at interconnection point (specifications TBD).
4. SWPPP compliance.
5. Liquidated damages.
6. Surveying and staking not already listed.
7. Removal of hazardous/contaminated materials.
8. Temporary fencing not already included.
9. Relocation of existing utilities.
10. Tree removal.
11. Tariff impacts on materials post-7/1/25.
12. CAL ISO requirements (can be added once scope is clarified).
13. Environmental permitting or work.
14. Security services (can be added once scope is clarified).

Our bid is conditioned on:

- 1) A mutually acceptable form of purchase order or contract document.

Some clauses of importance to us are realistic payment clauses which protect both parties, guarantee us that we get paid promptly for our work and eliminate unnecessary paperwork; indemnification clauses which equitably allocate risk to the parties, insuring that you are indemnified for the negligent acts of A-C Electric Company, without A-C indemnifying or defending you for your negligence; scheduling clauses which give us adequate time to perform our work efficiently and safely, compensate us for acceleration required for reasons outside our control, and limits any requirement for us to accelerate without compensation to our failure to perform in meeting a reasonable schedule.

In the event that we are unable to reach a mutually acceptable contract utilizing Contractor's proposed document, this bid is conditioned on the use of ConsensusDOCS 750 or 751, documents drafted and agreed to by the various construction trade associations with the intent to be fair to the contractor, subcontractor and owner.

- 2) As an interim measure, while we are working on a mutually acceptable contract document, we will perform work and supply material upon receipt of a written authorization to do so with the assurances that we will be paid timely for the work done.

- 3) If you are one of the more than 50 contractors with whom we have worked out a mutually acceptable contract, or an addendum to your standard contract, our bid is conditioned to it.

This proposal is valid for 30 Days. If you should have any questions, please contact me at (661) 809-6428 or Jeff Petrini at 661-333-3380

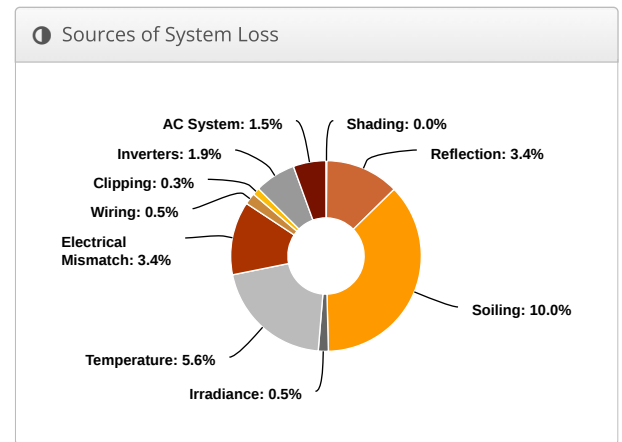
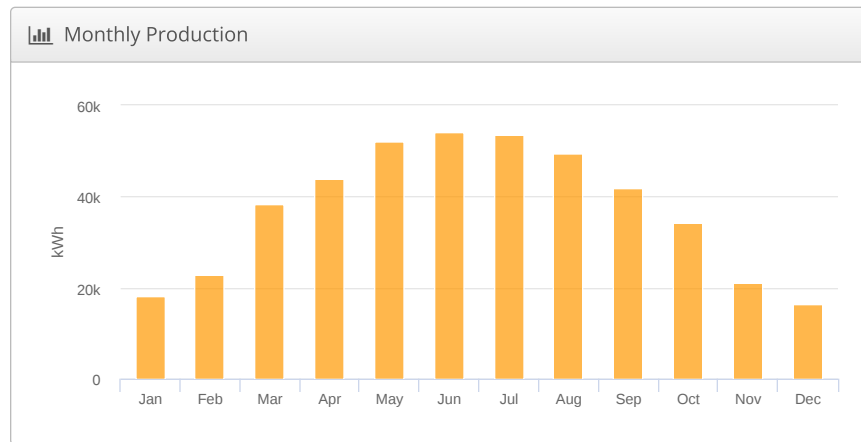
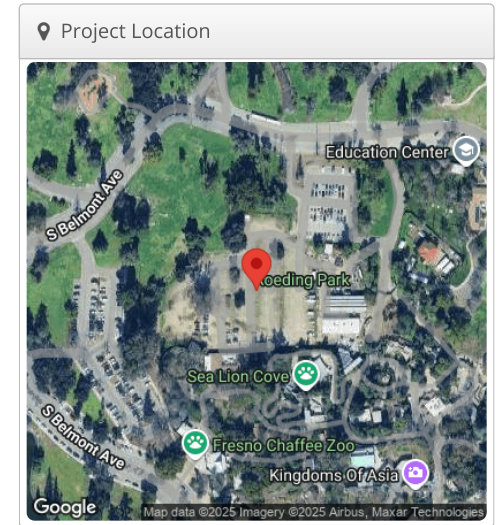
Thanks you for the opportunity to provide pricing for this project.
Kyle Sanders

Carport Budget

Chaffee Zoo Maintenance Yard, 894 W. Belmont Ave Fresno, CA

Report	
Project Name	Chaffee Zoo Maintenance Yard
Project Address	894 W. Belmont Ave Fresno, CA
Prepared By	Jeff Petrini jeffpetrini@a-celectric.com

System Metrics	
Design	Carport Budget
Module DC Nameplate	287.28 kW
Inverter AC Nameplate	219.00 kW Load Ratio: 1.31
Annual Production	446.4 MWh
Performance Ratio	77.6%
kWh/kWp	1,553.9
Weather Dataset	TMY, 10km grid (36.75,-119.85), NREL (prospector)
Simulator Version	8084ed0ded-fc84c53892-8274300fc0-e4fe485d6a





⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,934.8	
	POA Irradiance	2,001.2	3.4%
	Shaded Irradiance	2,000.3	0.0%
	Irradiance after Reflection	1,932.5	-3.4%
	Irradiance after Soiling	1,739.3	-10.0%
	Total Collector Irradiance	1,739.3	0.0%
Energy (kWh)	Nameplate	512,942.1	
	Output at Irradiance Levels	510,587.4	-0.5%
	Output at Cell Temperature Derate	482,205.9	-5.6%
	Output after Electrical Mismatch	465,928.9	-3.4%
	Optimal DC Output	463,467.0	-0.5%
	Constrained DC Output	461,911.0	-0.3%
	Inverter Output	453,189.5	-1.9%
	Energy to Grid	446,391.6	-1.5%
Temperature Metrics			
Avg. Operating Ambient Temp		22.3 °C	
Avg. Operating Cell Temp		32.1 °C	
Simulation Metrics			
Operating Hours		4677	
Solved Hours		4677	

☁ Condition Set												
Description	Condition Set 1											
Weather Dataset	TMY, 10km grid (36.75,-119.85), NREL (prospector)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type			a		b		Temperature Delta				
	Fixed Tilt			-3.56		-0.075		3°C				
	Flush Mount			-2.81		-0.0455		0°C				
	East-West			-3.56		-0.075		3°C				
	Carport			-3.56		-0.075		3°C				
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	10	10	10	10	10	10	10	10	10	10	10	10
Albedo	J	F	M	A	M	J	J	A	S	O	N	D
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Rear Mismatch Loss	10%				Rear Shading Factor				5%			
Module Transparency	0%											
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 5%											
AC System Derate	1.50%											
Trackers	Maximum Angle							Backtracking				
	60°							Enabled				
Module & Component Characterizations	Type	Component						Characterization			Bifacial	
	Module	TSM-DEG21C.20 665 (Trina Solar)						Spec Sheet Characterization, PAN			False	
	Inverter	CPS SCA36KTL-DO/US (Chint Power Systems)						Spec Sheet Efficiency			N/A	
	Inverter	CPS SCA50KTL-DO/US-480 V2.0 (Dec15) (Chint Power Systems)						Default Characterization			N/A	
	Inverter	SCA25KTL-DO/US-480 (Chint Power Systems)						Spec Sheet			N/A	

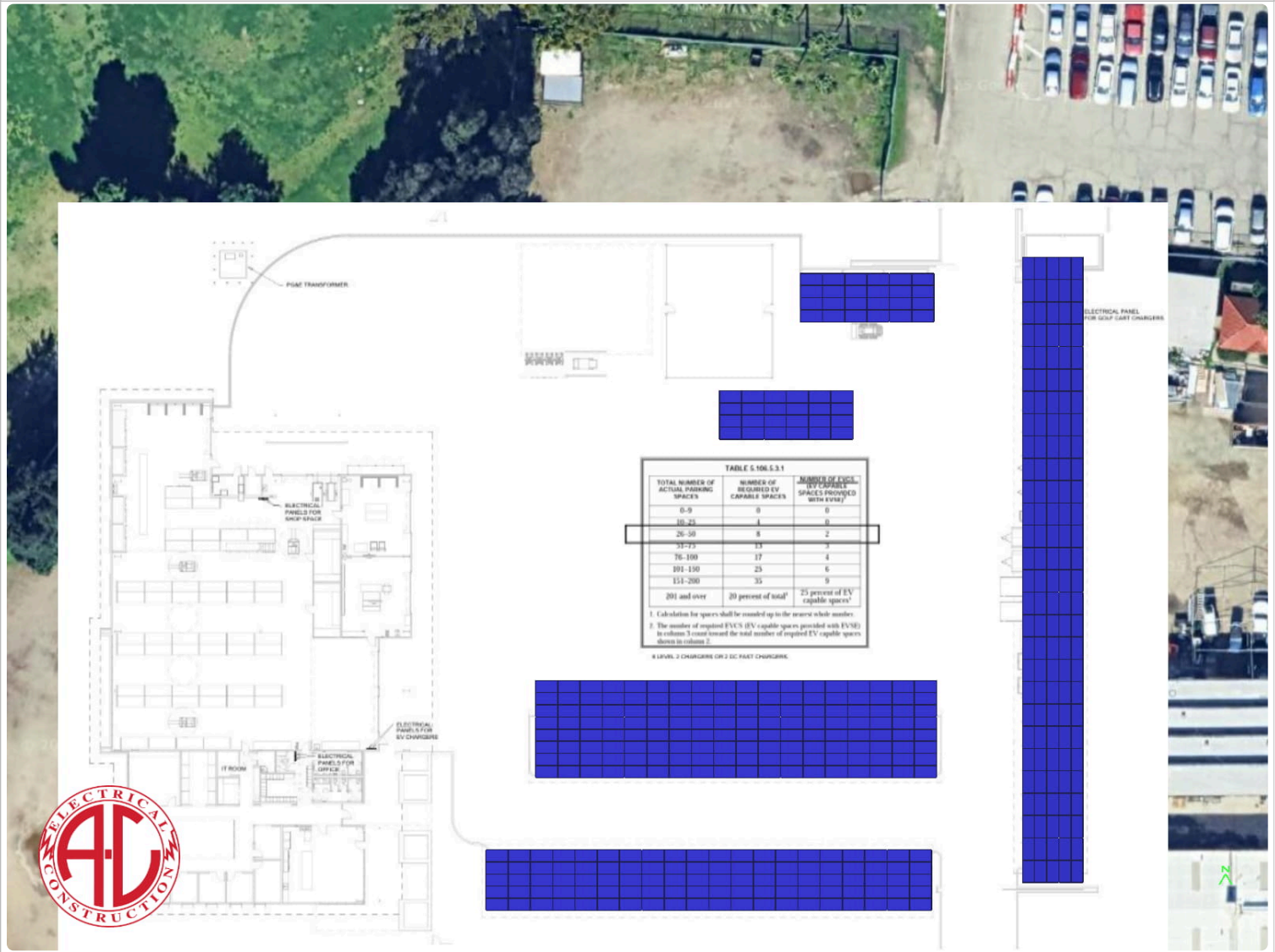


Components		
Component	Name	Count
Inverters	CPS SCA36KTL-DO/US (Chint Power Systems)	4 (144.00 kW)
Inverters	CPS SCA50KTL-DO/US-480 V2.0 (Dec15) (Chint Power Systems)	1 (50.00 kW)
Inverters	SCA25KTL-DO/US-480 (Chint Power Systems)	1 (25.00 kW)
Strings	10 AWG (Copper)	24 (2,093.0 ft)
Module	Trina Solar, TSM-DEG21C.20 665 (665W)	432 (287.28 kW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	15-20	Along Racking
Wiring Zone 2	-	6-20	Along Racking
Wiring Zone 3	-	15-20	Along Racking
Wiring Zone 3	-	16-20	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Carport	Landscape (Horizontal)	7°	180°	0.0 ft	8x1	18	144	95.76 kW
Field Segment 2	Carport	Landscape (Horizontal)	7°	180°	0.0 ft	5x1	20	100	66.50 kW
Field Segment 4	Carport	Landscape (Horizontal)	7°	270°	0.0 ft	5x1	28	140	93.10 kW
Field Segment 3	Carport	Landscape (Horizontal)	7°	180°	0.0 ft	4x1	6	24	15.96 kW
Field Segment 3 (copy)	Carport	Landscape (Horizontal)	7°	180°	0.0 ft	4x1	6	24	15.96 kW

Detailed Layout2



9. Final Comments