Alan Richard Coon
Secretary

Telephone
(209) 601-9624

RECLAMATION DISTRICT NO. 2044
400 E. Kettleman Lane, Clear Suits
Lodi, CA 95240
recdistrict2044@gmail.com

PLEASE TAKE NOTICE that at 8:30 a.m. on February 25, 2025, the Board of Trustees ("Board") of Reclamation District No. 2044 ("District") will meet at the law offices of Alan Richard Coon, 400 E. Kettleman Lane (Clear Suites offices), Lodi, CA ("Business Address"). This Special Meeting will be located in the conference room at Business Address. The Board reserves the right to advance items or consider matters out of order including the Special Presentations and the District's engineers.

Public Comment: Public comments are to begin promptly at 8:30 a.m. Public comments on agenda items will be limited to 5 minutes at the discretion of the Board Secretary. Public comments are only permitted at the start of meeting and may address information and action items; and

Special Presentations: There will be up to three Zoom presentations herein outlined during which Trustees and attending landowners may ask questions of presenters. It is the option of the Board to discuss financing and development options related to the Solar Project in Closed Session before acting on the solar project Action matters. It is noted that the Trustees of Reclamation District #2029 are invited to attend the presentations and ask questions. The three presenters are:

a) Green Bridge Financing will advise on their proposed financing of reclamation district Solar Projects (tentatively 8:45 a.m.). See **Attachment A**;
b) Center for Public Enterprise will present their "consultant proposal" on the alternative "Direct [Elective'] Pay option employing the grant funding under the Infrastructure Act (tentatively 9:30 a.m.) to partially fund the solar projects in conjunction with financing by selected lender). See **Attachment B**; and
c) Renewable Technology (Brad Conklin) may attend throughout the first two presentations with availability to update construction permits and changes in the construction proposal based upon increases in costs (steel [time and imposed tariffs], no pole barn, etc.) and then answer questions (see **Attachment C**).

1. Manager's Report: Manager Gino Celli will provide an overall update of the status of levees, pumps (including pump station repairs), herbicide control and preparation for

upcoming rainy season including the dead/dying Acacia Trees (Tree of Heaven) on east levee.

2. Engineer's Report: District's engineers, MBK Engineers, Engineers Subventions 2023-24 total Claim submittal $194,881.94 nets $139,336 if there are no adjustments; 2025-26 application is due April 1 with recommended placeholder sum of $485,000; update on the previously approved two Marina Anomaly Repair; FEMA/OES Update with expected payments of $95,991.33, $5,202.22, $6,039.70 and $1,509; District Roadway Repairs and Chip Seal remaining pending but including between stations 0+00 – 55+00 and 274+00 – 310+00; MBK to update Emergency Operation Plan/Flood Contingency Map; Winter – Spring 2025 Monitoring-Maintenance Activities; proposed Erosion Repair Planning (35 serious sites to be prioritized); Jackson Property Encroachment Permit Update reflecting Siegfreid plan update and MBK survey with ; Levee sloughing, cracking, rodent repairs, landside anomalies especially pump station locations (3); tree removal/vegetation control in conjunction with General Manager and the DSC Delta updated Delta Adapts plan. See also Engineer's Report with attachments (collectively **Attachment D** including revised Resolutions and correspondence for Subventions 2025-26 Application), which is attached and incorporated herein by reference, including those matters in the Engineer's Report which may require "Action", infra.

3. Secretarial and Financial Matters: Secretary will provide financial reports including current status of warrants (**Attachment E**), warrants paid, assessment collection/retirement of warrants and culling of old records.

4. Action Item(s):

   A. Consider Approving current invoices;
   B. Consider approval of Minutes for November 12, 2024 (**Attachment F**);
   C. Consider approval of new construction proposal for the Solar Project from Renewable Technologies and to thereafter update the proposed "bridge" financing arrangement with selected lender (Bank of Stockton). This action Item shall also include approval to negotiate shape/size of Foppiano parcel and direction to Secretary to lease or purchase said updated parcel;
   D. Consideration and Action to approve Center for Public Enterprise proposal for financing Solar Project under the Direct Pay program or, alternatively, financing proposal offered by Green Bridge Day Financing. In addition, this action will grant discretion to Secretary to negotiate terms and conditions of the selected proposal and to thereafter to execute any and all relevant construction, financing and/or grant funding agreements.
   E. Consider approval of submission of Application for Subventions Program 2025-2026 (Attachment G); and
   F. Consider adopting updated "as built" designs for the "King Island Pump Station" on Jackson parcel dated Feb. 13, 2025 (see Attachment H), offered by Siegfried Engineers and subject to any MBK Engineer conditions (see Engineers Report above) if approved by Trustees. [Secretary will revise Encroachment Agreement per Trustee instructions.]

5. Informational Item: Reminder to complete and return Form 700.

6. Closed Session: Conference with Legal Counsel and Real Property Negotiator regarding Solar Project and financing. Government Code section 54954.5(b) and 54956.8.

7. Adjournment:

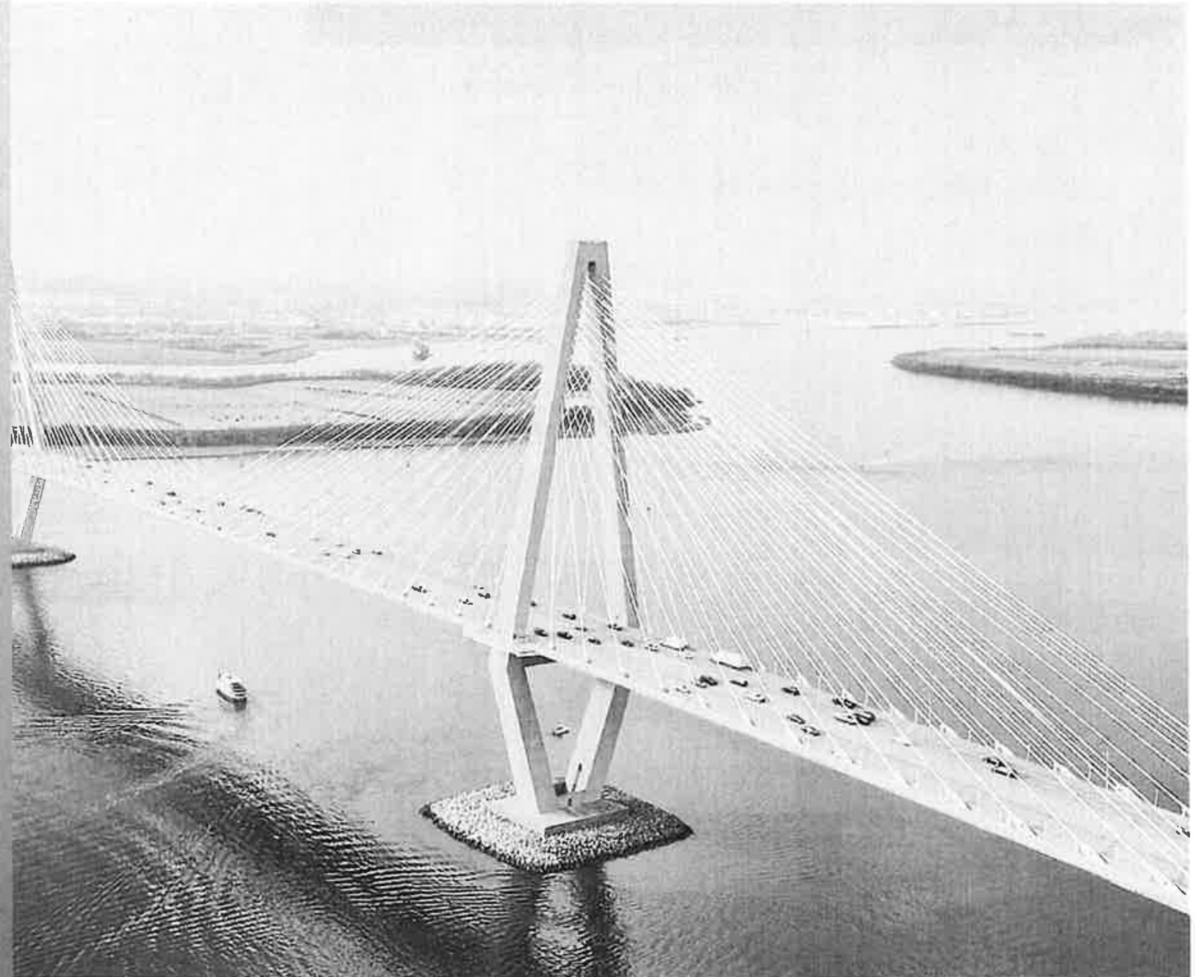
Dated: Feb. 19, 2025

Alan Richard Coon, Secretary
Reclamation District No. 2044

Attachment A

GREEN BRIDGE

BUILDING CLEAN ENERGY INFRASTRUCTURE PARTNERSHIPS



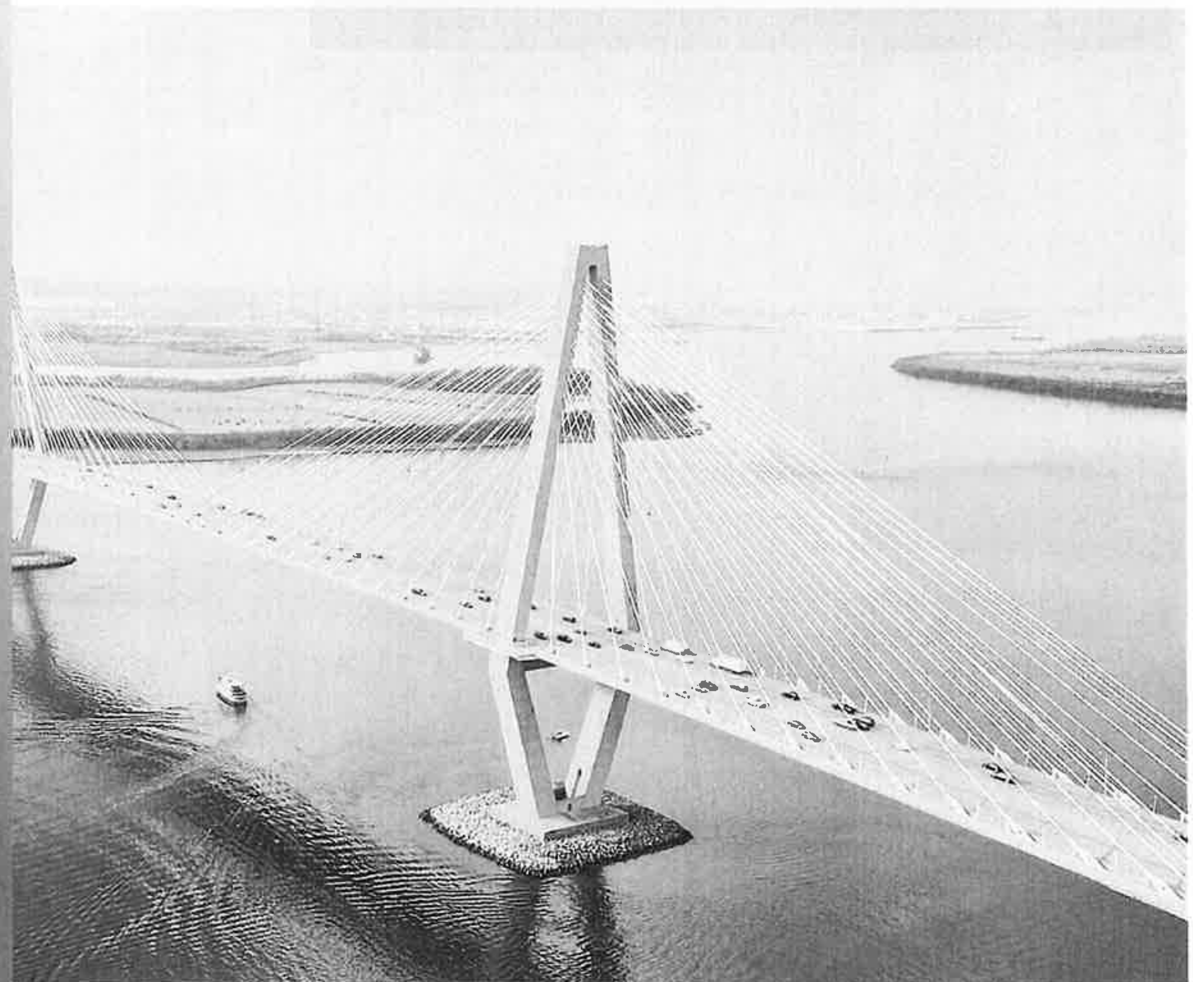
Platform Presentation
January 2025

Private & Confidential

BUILDING CLEAN ENERGY INFRASTRUCTURE PARTNERSHIPS

GREEN BRIDGE

Platform Presentation
January 2025



OVERVIEW

Distributed Generation ("DG") – modular power assets deployed faster and closer to where power is consumed, leveraging existing infrastructure. DG makes the grid more resilient and efficient and directs investment to areas where capacity is valuable and/or incentives align. DG is not without challenge – projects are smaller and therefore there are fewer willing to underwrite them. Further it lacks standardization and has few established or dominant players.

✓ **Energy Transition** – Renewables are leading the way, offering a sustainable future with greater efficiency than traditional generation.
✓ **Smart Technology** – Real-time info and controls are critical for optimizing existing resources and for siting and selecting new ones.
✓ **Shifting Legislation** – As incentives and regulations constantly evolve, they create windows of opportunity – lucrative and fleeting.

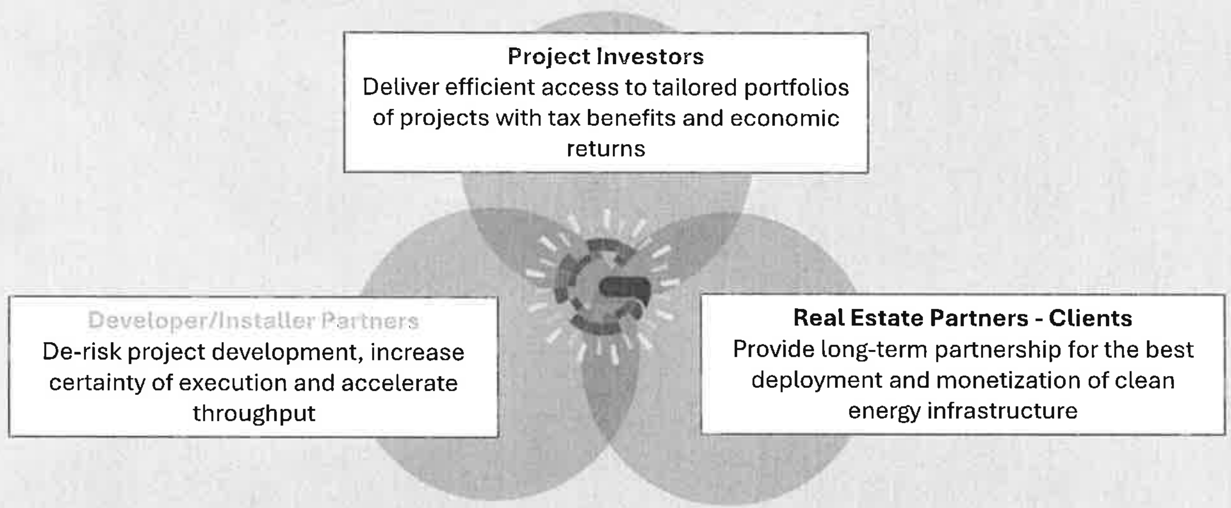
Green Bridge Corporation ("GBC") is an employee-owned organization committed to the proliferation of clean energy infrastructure and purpose-built as a premier Distributed Generation project finance and aggregation platform. Our co-founders both spent nearly two decades in leadership roles at General Electric – GE Power & Renewables – primarily in business model creation in middle markets. Leading with technology, we have created a programmatic and scalable platform that fits the dynamic character of the industry.

Experience

- $1B+ of structured and project finance transactions while at GE.
- GBC has ~$250M projects **completed** or in development.

GREEN BRIDGE PLATFORM

- Green Bridge serves as a pivotal project funding hub, bringing institutional standards and capital to the US middle market of renewable infrastructure
- Enabled by technology, we accomplish project aggregation and underwriting-at-scale to the fragmented and underpenetrated segment, maximizing outcomes for our partners
- We have access to over 1,500 independent developers and installers – coupled with partnerships with real estate owners this creates a captive sourcing pipeline and a **reinforcing cycle** where we can create value for multiple stakeholders



DIFFERENTIATED TECHNOLOGY

Our technology stack is built to maximize risk adjusted returns

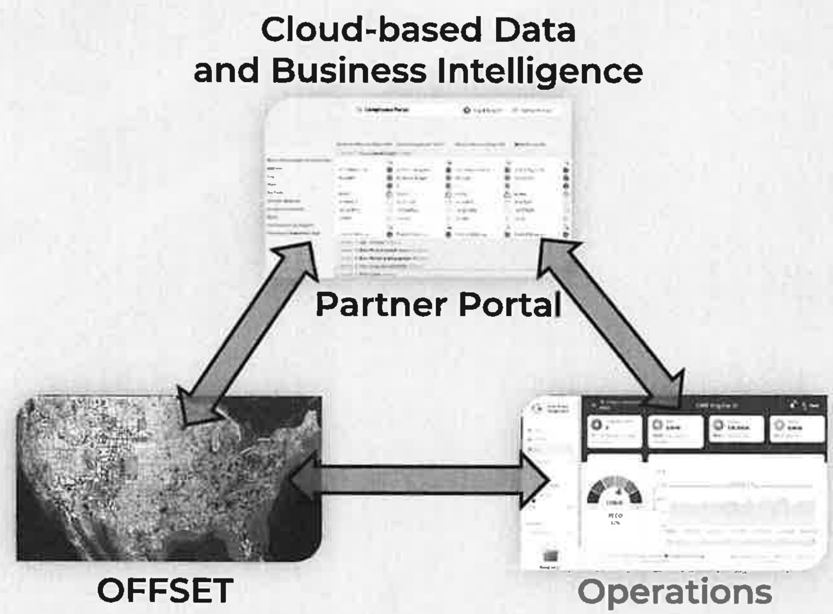
✓ **Energy Real Estate is all about – Location, Location, Location**

✓ **Actively Managing Energy Capacity**

Analysis - OFFSET
- Site Selection
- Powerful GIS engine and geospatial data sets

Partner Compliance Portal
- Secure management of Diligence Documents and Data
- Permissioned Access and User-based Audit Trail
- Integration of partners across the project value chain
- Supports transactions including, intake and auction, project diligence, life-cycle energy, ITC transfer, and more

Operations – "Proprietary NOC of NOCs"
- Enabling hardware and software integration for network control
- Access and track VPP revenue streams (solar, battery, V1G, V2G)
- Secure investment and tax compliance with granular, certified operational data



INFLATION REDUCTION ACT

Renewable Investment Tax Credits Enhance Risk Adjusted Returns

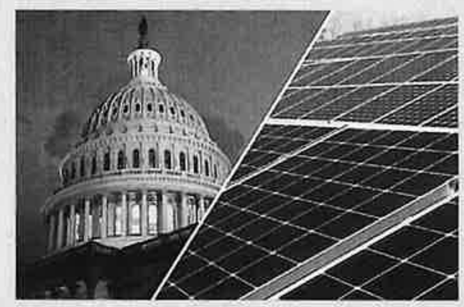
Federal Investment Tax Credits (ITC) for our primary technologies start at **<u>30% of project capex</u>** with additional credit **"Adders"** available for utilizing domestic content (+10%), construction in certain lower income areas (+10%), and energy communities (+10%).

Bonus Depreciation is also available to Renewable Energy investments allowing for investors to claim up to 40% in Year 1.

30% (up to 60%)
ITC TAX CREDITS

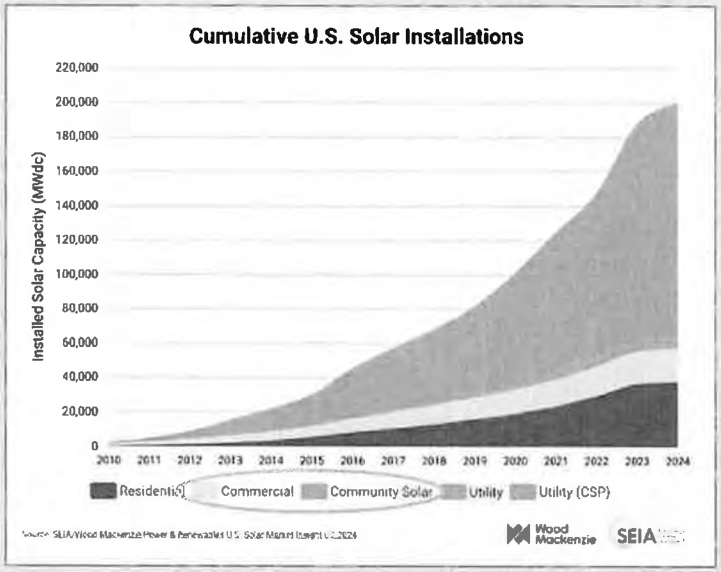
Inflation Reduction Act and the Investment Tax Credit

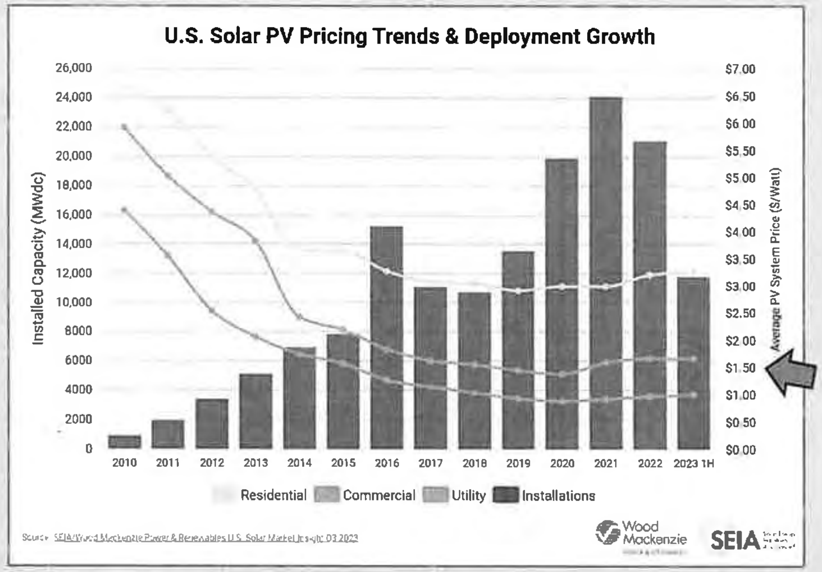
The Inflation Reduction Act (September 2022) increased the available ITC, introduced ITC Adders for the first time, extended the ITC levels for 10 years, and made the ITC transferable to unrelated third parties. All these changes to the ITC have drastically increased certainty by removing the step down of the ITC value, annually, and opening the ITC transferability market to mirror other types of Federal Tax Credits (LIHTC, NMTC, etc.).



DISTRIBUTED GENERATION – SOLAR

- ✓ Power Generation Technology with lowest levelized cost of power is Solar
- ✓ Solar (PV) output has 24% CAGR over the last decade and is expected to account for 58% of new capacity in 2024.
- ✓ Long Runway – Solar accounts for ~7% of U.S. Generation and is expected to add 450 gigawatts over the next 10 years.
- ✓ Total Generation Capacity in the U.S. in 2024 is ~1,200 gigawatts.
- ✓ DG Categories – Commercial Solar & Community Solar < 20% of Total Solar Installations.
- ✓ Both enjoy significantly better pricing than Residential and less competition than Utility





DISTRIBUTED GENERATION – SOLAR

Commercial Solar ("C&I")

The market includes businesses, non-profits and government sites.

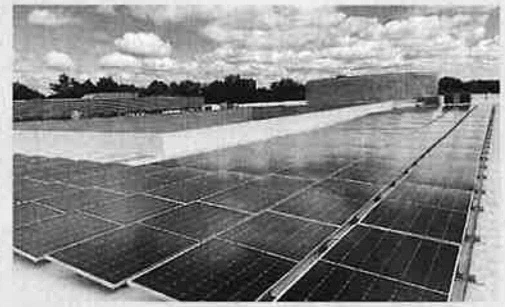
- 11% of cumulative solar installation – or ~0.7% of total U.S. generation.
- ~800,000 buildings suitable for rooftop systems with <5% penetration.
- Evaluate Behind-the-Meter and Front-of-the-Meter execution strategies.

Community Solar

23 States and D.C. have programs – 20 integrate LMI incentives.

- ~8% of solar installation and not limited to directly addressing a load.
- Subscribers receive financial and environmental benefit of solar.
- Front-of-the-Meter program – majority ground mount but can use rooftop or canopy.

Both markets are less efficient and competitive than Utility and have superior economies of scale vs. Residential.

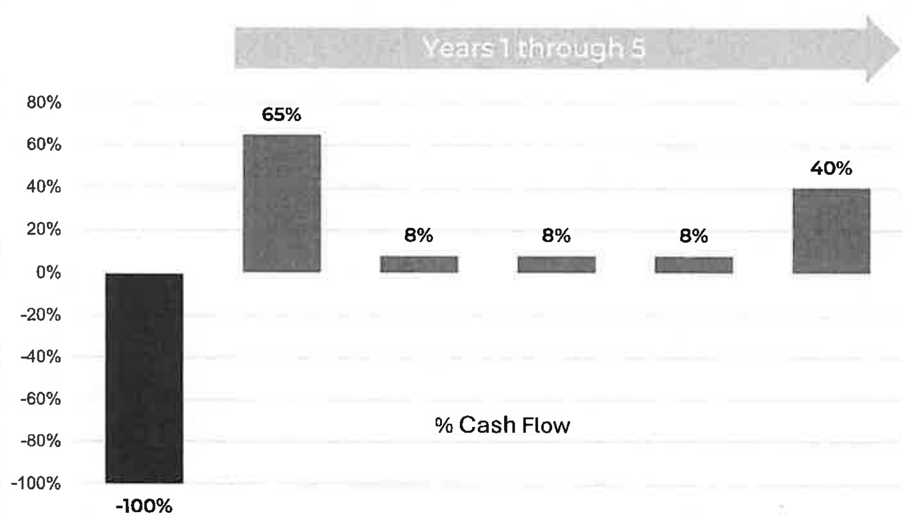


Green Bridge 1-megawatt solar system on corporate rooftop

Green Bridge 3-megawatt solar system CA ground mount - FTM

C&I SOLAR INVESTMENT SUMMARY

Sample commercial solar direct investment - unlevered



Investment in Lieu of Paying Federal Tax

- ✓ Policy incents clean energy investment as alternative to paying federal tax
- ✓ Recover 65% of invested capital in year 1
- ✓ Long-term contracted cash flow payment stream
- ✓ Strong tax and depreciation benefits
- ✓ Ability to sell residual payment stream in year 6+
- ✓ 1031 exchange eligible

Direct Solar Investment Provides Numerous Potential Revenue Streams & Tax Benefits

- ✓ Sale of Electricity
- ✓ Renewable Energy Certificate (REC)
- ✓ Investment Tax Credit (ITC)
- ✓ Bonus Depreciation
- ✓ Disposition: Once 5-year ITC Recapture period expires

GREEN BRIDGE - PROJECT EXAMPLES

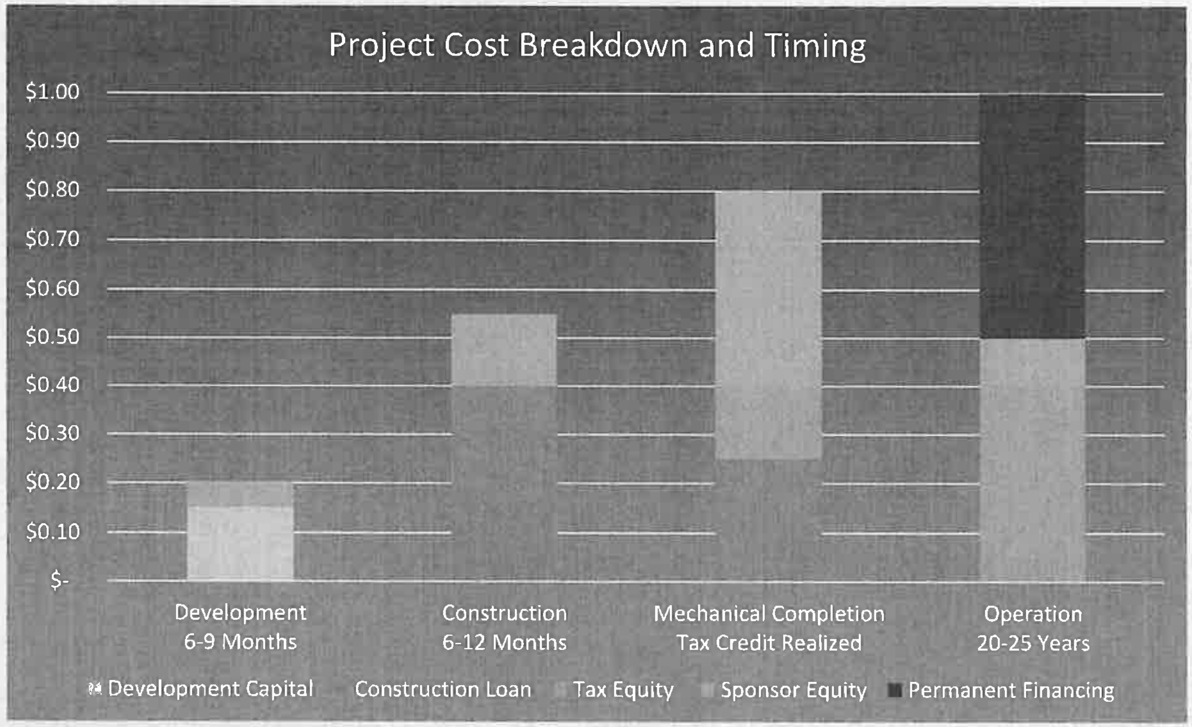
Type	Location	Offtake Terms	Size (kWdc)	Total Cost $	($/W)	ITC Rate %	Start Date	End Date
Rooftop	NJ	PPA + REC	999	2,650,000	2.65	26%	Jul-22	Dec-22
Rooftop	MA	PPA + REC	255	609,644	2.39	30%	Mar-23	May-24
Groud Mount	CA	Community (CCA)	4,294	8,980,047	2.09	50%	Mar-24	Jul-24
Ground Mount	PA	Small Utility (PTC) + REC	3,406	8,548,202	2.51	40%	Jul-24	Feb-25
Rooftop	GA	PPA	1,740	3,695,291	2.12	30%	Aug-24	Mar-25
Canopy	IL	PPA + Grant	960	4,183,200	4.36	40%	Aug-24	Mar-25

- Target Project Sizes between 250kW – 5MW generation capacity.
- Project Returns are attributable to Sale of Electricity and RECs tied to production, Investment Tax Credits and Accelerated Depreciation.
- While solar infrastructure has a 25-year life, tax assets and available leverage greatly reduces effective duration.

FUNDING OF C&I SOLAR PROJECT

✓ **Combination of short construction cycle, tax asset monetization, and leverage yields attractive capital efficiency in equity investment.**

- Green Bridge provides **direct access** to Development Capital adding to flexibility
- Non-recourse debt – available for construction and permanent financing – magnifies IRRs.
- After tax returns exceed pre-tax returns. Higher tax rates and ability to utilize ITCs further increases the gap.

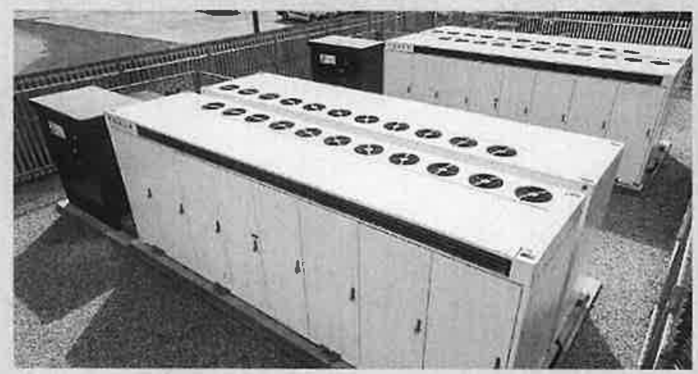


DISTRIBUTED GENERATION – BESS

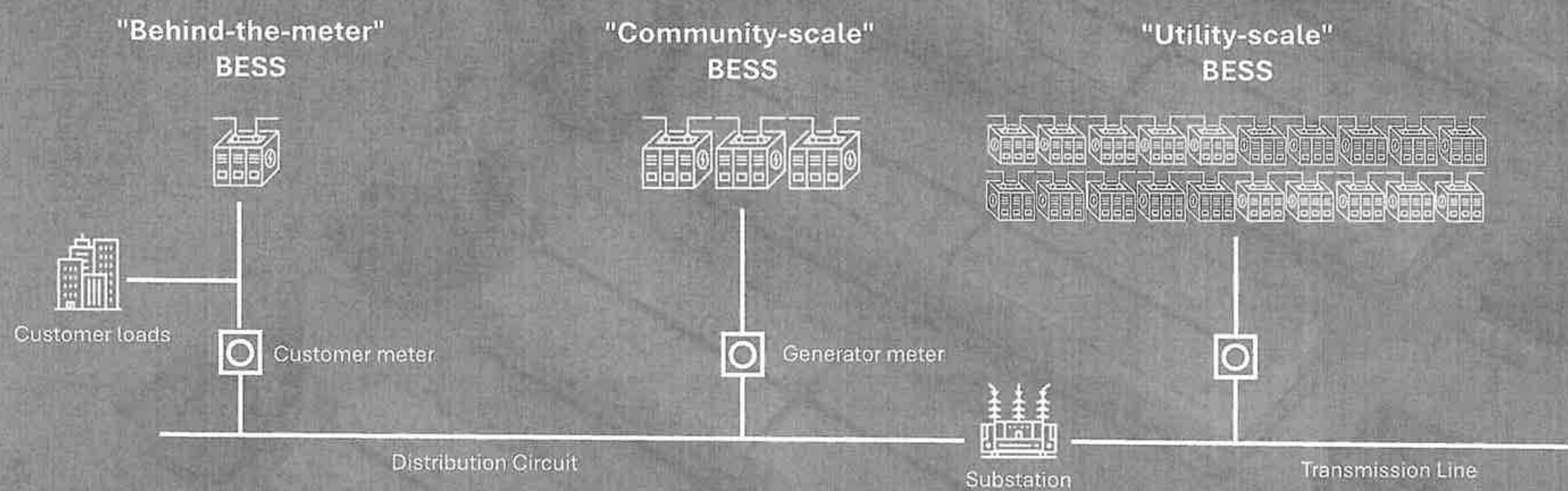
Community-Scale BESS

- Sited next to load, creating value from both the distribution (retail) grid and the bulk power market
- Avoids bottlenecks and cost risks associated with the transmission interconnection queues
- Recent drops in battery prices have made energy storage economical for many distribution use cases, such as transmission and capacity cost mitigation and infrastructure update deferrals
- 1M+ properties in the U.S. suitable for energy storage

Community-scale storage is less efficient and competitive than Utility and has superior economies of scale vs. Residential.



DISTRIBUTED GENERATION – BESS



Complex contracting and tenant education	Streamlined contracting (ground lease)	Streamlined contracting (ground lease)
Sited at C&I properties	Can be sited at industrial properties with 5,000 sf space	Requires multiple acres with access to transmission grid

INVESTMENT FOCUS

Rapid Deployment, Downside Protection, High Upside

Target Project Profile

- Project costs of $5-20 million
- 2-10MW / 8-40 MWh
- Contracted revenues + tax credits > 100% of project costs
- Primarily distribution interconnection
- Industrial zoned properties

Utilities/ Traders

Wholesale Markets

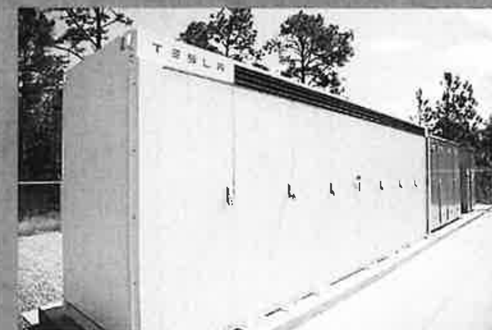
Contracted Services/ Revenue

Merchant Services/ Revenue

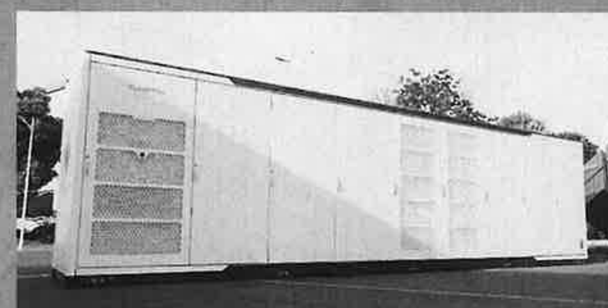
BESS

Ground Lease

Property Owner



Tesla Megapack
Eligible for 10% tax credit bonus for domestic content

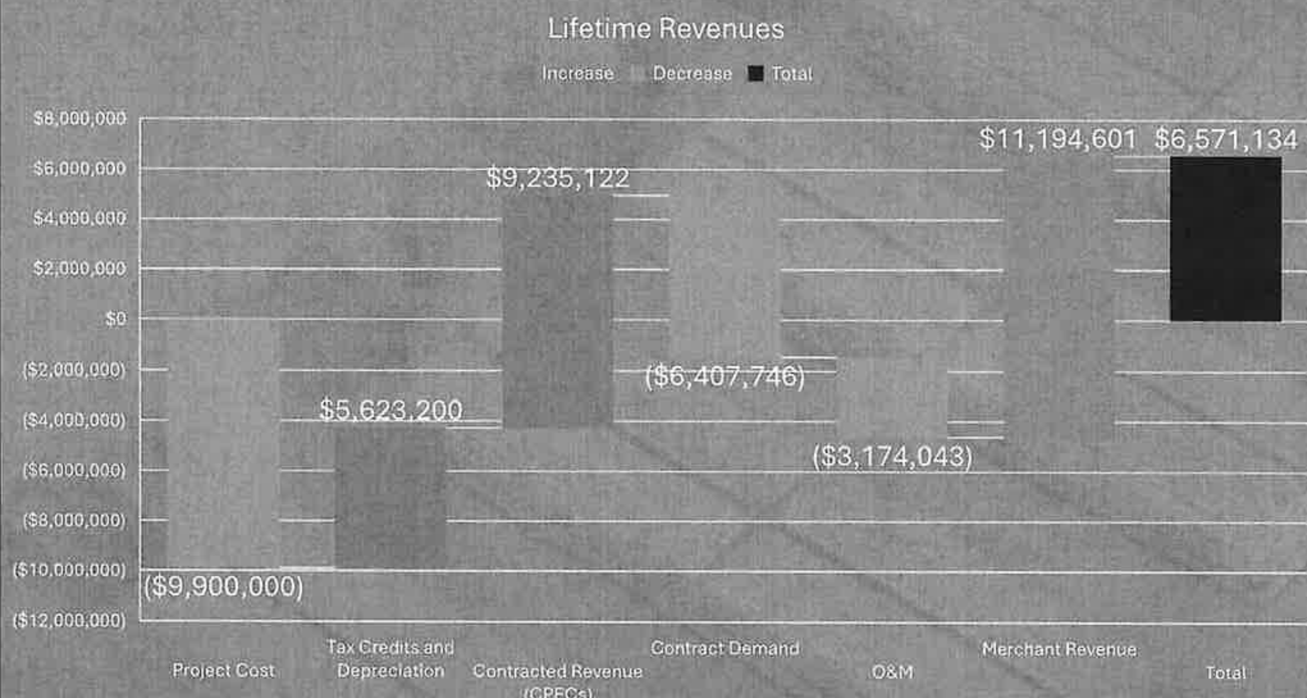


Sungrow Titan 2.0
Cost leader among Tier 1 OEMs

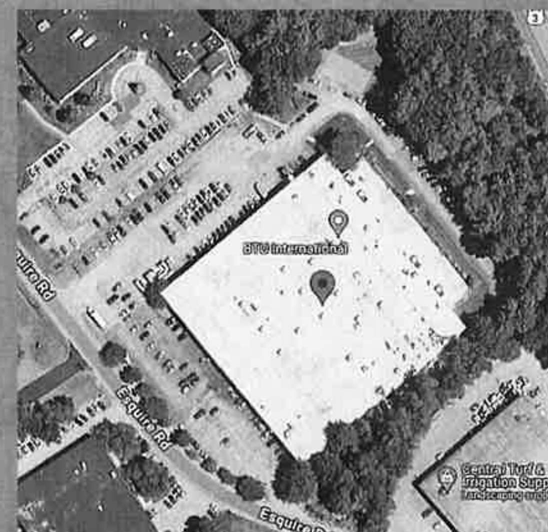
INVESTMENT FOCUS – MA CLEAN PEAK

The Massachusetts Clean Peak Standard provides opportunity for community storage via multipliers for distribution-connected BESS

Project Details
- Project Cost: $9.8m
- Power: 5 MW
- Energy: 20 MWh



Approximate BESS Footprint



DE-RISKING BESS EXECUTION

Direct Relationships with Tier 1 Battery OEMs

TESLA

Clean power for all

Site Design

Techno-economic assessment of optimal BESS size and product selection

Ensure siting feasibility:

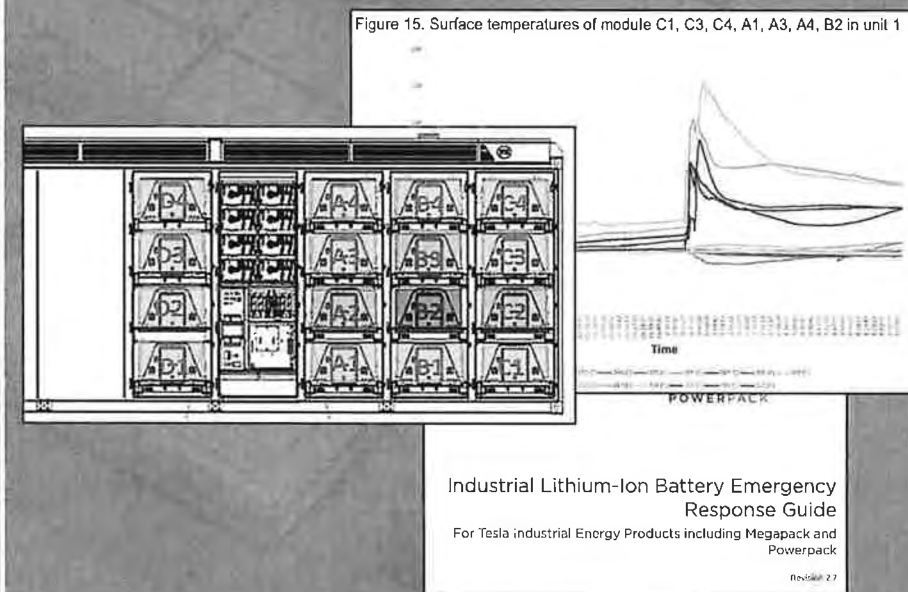
- Distance from occupied buildings
- Setback requirements
- Required clearances for BESS maintenance
- AHJ-specific requirements

BESS Technical Review

Hardware and software design

Non-propagation test results

First responder procedures



PROJECT DEVELOPMENT

- De-risking, standardizing, and accelerating dealflow / project pipeline
- Access a catalog of "cured" projects matched to criteria

- Corporate / REIT sites + portfolios
- 1,500+ local / regional developers nationwide

- Ongoing value enhancement / refinement / maximization

- Streamlined project docs + funding / investor compliance and expectations
- GB investment review + deal / price structuring

- Best-in-class ecosystem of local & regional developers
- GB procurement support, economies of scale
- Standardized best practices for execution excellence

- GB spans the project lifecycle, including operational metrics, reporting, compliance documentation

LIFECYCLE OF A DG PROJECT

Development 6-9 months – Solar 9-18 months - BESS	Site Selection / Initial Design	Financial Modeling / Feasibility	Power Purchase Agreement (PPA)	Installer Agreement	Interconnection
Construction 6-9 months – Solar 6-9 months - BESS	Finalize Design & Permitting Approvals	MIPA Executed	Procurement / Installation	Mechanical & Substantial Completion	Final Acceptance
Operation 25-30 years – Solar 10-15 years - BESS	Commercial Operation Date - COD	Tax Incentives Crystallized	Operation & Management	Tax Credit Recapture (5 years + 1 Day)	Disposition / End of Useful Life

GREEN BRIDGE PROJECT LEVEL RISK MANAGEMENT

- Work with network of known and/or repeat counterparties (EPCs, Developers).
- Standardized contract packages with payment milestones tied to timing and execution.
- Prioritize sites with higher retail rates of power and/or price volatility.
- Assess eligibility for utility and state programs and/or Community Solar / Energy Storage programs.
- Secure P&C and specialty insurance for site performance during recapture and ownership.
- Post construction monitoring, data collection, and maximization of potential revenue streams.

LEADERSHIP TEAM

Byrne Huddleston
Co-Founder, Chief Executive Officer

Byrne leads growth and execution for Green Bridge. Prior to this role, he spent 16 years with GE Capital focused on structured asset financing and leasing to commercial and industrial companies in the US.

Justin Sullivan
Co-Founder, Chief Investment Officer

Justin led a variety of commercial teams across GE's Energy and Capital units over 16 years, including Commercial Leader of GE Renewable – Distributed Energy business unit. Prior to that, Justin was a founding member of the Distributed Energy Solutions incubator at GE Power

Adam Brown
Co-Founder, Project Finance Manager

Adam leads C&I and Mid-Market development and finance for Green Bridge. He spent 13 years in commercial real estate consulting and as principal in a boutique development firm before transitioning into solar development in early 2017 with Pine Gate Renewables.

Nate Putnam, PhD
Chief Technology Officer

Dr. Putnam spent over a decade developing software, analyzing energy systems, and designing resource-efficient military base camps to lead and execute our technology strategy. He served as a researcher and technical program manager for the US Army Corps of Engineers.

Austin Wruble
Chief Legal Officer

Austin leads legal, corporate governance, and policy & regulatory affairs functions for Green Bridge. Previously, Prior to his role, served as an attorney for Latham & Watkins LLP focused on renewable energy and cleantech financings

Josh Lehman
Hybrid Energy Leader

Josh leads Green Bridge's hybrid energy business, with a focus on energy storage project development, execution, and operations. He has over 15 years of experience in renewable energy, including several as head of product at Stem, Inc. leading up to and through their IPO.

Clay Siegert
Operations Leader

Clay manages electric vehicle charging, partner supply chain and client delivery functions for Green Bridge. Prior to this role, Clay was co-founder of fleet electrification company XL Fleet, head of customer operations at Formlabs and EV charging operations lead for 7-Eleven.

Adam McBride, CFA
Chief Financial Officer, Fund Leader

Adam focuses on formation and management of investment vehicles and partnerships. He spent 15+ years in the alternative investment industry and has expertise in due diligence, fund operations and portfolio management.

PRIOR EXPERIENCE

GE Capital

GE Renewable Energy

PINE GATE

XL Fleet

7 ELEVEN

7CHARGE

KINZER PARTNERS

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DISCLAIMERS

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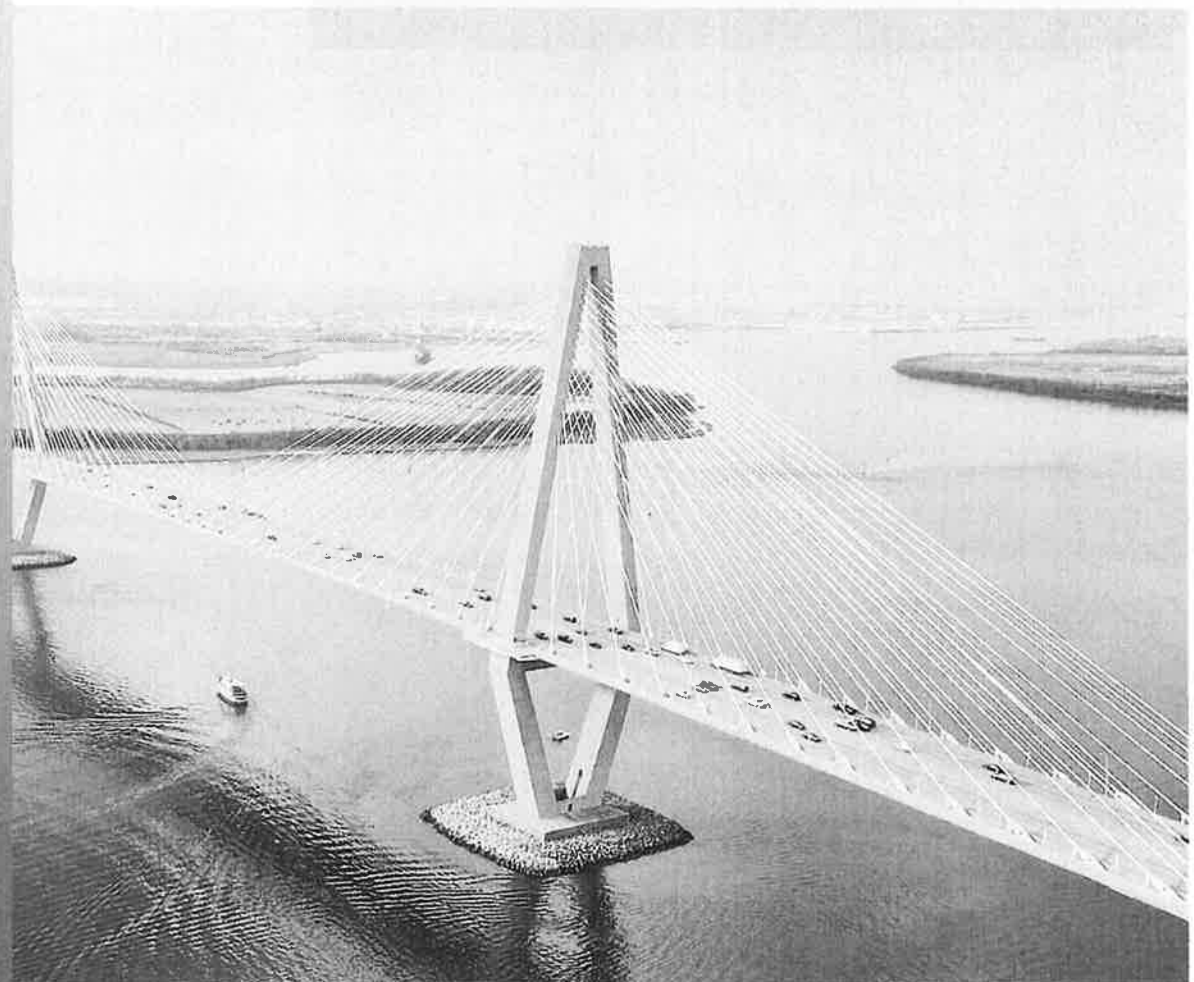
Past or targeted performance is not necessarily indicative of future results and there can be no assurance that GBC will achieve its investment objectives. Certain information contained herein constitutes "forward-looking statements," which can be identified by the use of forward-looking terminology such as "expect," "anticipate," "project," "estimate," "intend," "continue" or "believe" or the negatives thereof or other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events or results or the actual performance may differ materially from those reflected or contemplated in such forward-looking statements. Further Projected IRRs and MOICs (multiple on invested capital) are targets and not profit forecasts. They are based on estimates of GBC and are subject to change depending on the material risks and market changes. No representation is made that the performance shown in this presentation is any assurance of future performance.

Existing (Sample) Project Returns are unaudited and based on underwriting assumptions described therein and proforma fund fees. Investor returns will vary based on individual tax considerations. Forward looking, "Projected IRRs" incorporate a 21% Federal Tax Rate when calculating depreciation benefits. All other underwriting assumptions are based on current market conditions and subject to change.

Certain information contained herein concerning industry trends are based on or derived from information provided by independent third-party sources. GBC believes that such information is accurate and that the sources from which it has been obtained are reliable. GBC cannot guarantee the accuracy of such information.



THANK YOU

SAN JOAQUIN
COUNTY

Community Development Department
Planning Building Code Enforcement Fire Prevention GIS

Contractor	**LICENSED CONTRACTORS DECLARATION** I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. License # 724725 Exp. Date: Date X 2/18/25 Contractor X <SIGN HERE	1810 E. Hazelton Ave, Stockton, CA 95205 Business Phone: (209) 468-3121 **Request for Inspection Phone: (209) 468-3165 (24-Hour Recorder)** or on the web at www.sjgov.org/commdev
Owner Owner or Contractor	**OWNER-BUILDER DECLARATION** I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500.00). ___I, as owner of this property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner or property who builds or improves thereon, and who does such work himself or through his own employees provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.) ___I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor/contractor(s) license pursuant to the Contractor's License Law.) ___I am exempt under Sec. ________, of the Business and Professions Code for the following Reason: ____________ Date:__________ Owner________________ **WORKERS' COMPENSATION DECLARATION** I hereby affirm under penalty of perjury one of the following declarations: ___I have and will maintain a certificate of consent to self-insure for workers compensation, as provided for by section 3700 of the Labor code. for the performance of the work for which this permit is issued. X I have and will maintain workers' compensation insurance, as required by section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are on file with the State Contractors License Board ___I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with these provisions. Date X 2/18/2025 Owner or Contractor X <SIGN HERE WARNING: FAILURE TO SECURE WORKERS COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES ___I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code). Lender's Name______________ Address______________ Phone__________ **DIVISION OF INDUSTRIAL SAFETY PERMIT CERTIFICATION** X I hereby certify that no excavation five (5) or more feet in depth into which a person is required to descend, will be made in connection with work authorized by this permit, and that no building, structure, scaffolding, falsework, or demolition or dismantling thereof, will be more than thirty-six (36) feet high. (Chap. 3.2, Grp. 2, Art. 2, Sec. 341, Title8, C.A.C.) ___As owner-builder, I will not employ anyone to do work which would require a permit from the Division of Industrial Safety, as noted above, unless such person has a permit to do such work from the Division. ___Division of Industrial Safety Permit No. ____________ I certify that I have read and state that the information given is correct. I agree to comply with all state laws and county ordinances relating to building construction, and authorized representatives of the Issuing Jurisdiction to enter upon the above-described property for inspection purposes. **Date** X 2/18/2025 **Owner or Contractor** X ________ <SIGN HERE	**Permit Number:** COM-BP-2405354 **Permit Address:** 11521 W EIGHT MILE RD, STOCKTON, CA 95219 **APN:** 07108047 **City:** STOCKTON **Owners Name:** FOPPIANO, HENRY J III & LYNETTE ETAL **Phone:** **Applicant Name:** RENEWABLE TECHNOLOGIES INC **Address:** **City:** **Phone:** 2092675225 **Contractor Name:** RENEWABLE TECHNOLOGIES INC **Address:** P O BOX 6096 **City:** STOCKTON **State License Nbr:** 724725 **License Expiration Date:** 01/31/26 **Scope of Work:** GROUND MOUNT PV FOR AG PUMPS INCLUDING ELEVATED PLATFORM FOR ASSOCIATED EQUIPMENT Total Fee: $ 1539.34 Application Date: 12/5/2024 **Please see page 2 for important information.**

Right to Farm notices

The County of San Joaquin recognizes and supports the *right to farm* agricultural lands in a manner consistent with accepted customs, practices, and standards. Residents of property on or near agricultural land should be prepared to accept the inconveniences or discomforts associated with agricultural operations or activities, including but not limited to noise, odors, insects, fumes, dust, the operation of machinery of any kind during any twenty-four (24) hour period (including aircraft), the application by spraying or otherwise of chemical fertilizers, soil amendments, seeds, herbicides, and pesticides, the storage of livestock feed and other agricultural commodities, and the storage, application and disposal of manure. San Joaquin County has determined that inconveniences or discomforts associated with such agricultural operations or activities shall not be considered to be a nuisance. San Joaquin County has established a grievance committee to assist in the resolution of any disputes which might arise between residents of this County regarding agricultural operations or activities. If you have questions concerning this policy or the grievance committee, please contact the San Joaquin County Agriculture Commissioner at (209) 468-3000

California Code, Health and Safety Code HSC 17951

If the local enforcement agency fails to conduct an inspection of permitted work for which permit fees have been charged pursuant to this section within 60 days of receiving notice of the completion of the permitted work, the permittee shall be entitled to reimbursement of the permit fees. The local enforcement agency shall disclose in clear language on each permit or on a document that accompanies the permit that the permittee may be entitled to reimbursement of permit fees pursuant to this subdivision.

Reinspection Fees

Section C-12 of San Joaquin County Building Permit Fee Schedule (effective January 31, 2022)
A permit holder may be charged an additional $150.00 fee after two consecutive failed inspections of the same item.

Expiration Information

Section 105.5 Expiration. Every permit issued shall become invalid unless the work on the site authorized by such permit is commenced within 12-months after its issuance, or if the work authorized on the site by such permit is suspended or abandoned for a period of 180 days after the work is commenced. The building official is authorized to grant, one or more extensions of time, for periods not more than 180 days each.
Work shall be considered suspended or abandoned is an inspection has not been recorded and approved within 180 days of the last recorded and approved inspection. Before such work can be recommenced, a new permit shall be obtained. The fee shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made to the original plans and specifications and the suspension or abandonment has not exceeded one year. When plan review is not required by the building official the fee shall not include the plan review portion of the full permit fee.
In order to renew a permit suspended or abandoned for more than one year, the permittee shall pay a new full permit fee unless the project has had an approved rough frame, rough electrical, rough mechanical and rough plumbing inspection. In this case the building official may, on a case-by-case basis, waive the requirement for plans and the renewal fees shall be twenty-five percent (25%) of the full permit fee. When plan review is not required by the building official the fee shall not include the plan review portion of the full permit fee. A notice of code violation may be recorded when a building permit is expired.

Inspection Information

Follow inspection scheduling instructions using your on-line Accela citizen account.
Inspection requests by phone (209) 468-3165 (24-hour recorder)
Inspection requests received before 3:00 p.m. will be made on the next business day; received after 3:00 p.m. will be done the day following. Please cancel by 9:00 a.m. When calling for an inspection, you must have the following information available: Permit number, jobsite address, type of inspection, name and number.

Attachment B

The CPE "Elective Pay" Project Finance Model

Yakov Feygin and Chirag Lala,
Center for Public Enterprise

chirag.lala@publicenterprise.org
yakov.feygin@publicenterprise.org

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Introduction to the Model

Model Goals:

- Illustrate the value of elective pay tax credits and their role as part of a capital stack
- Help potential developers run scenarios on the financial viability of desired projects with outputs including LCOE, DSCR, and NPVs

Generic Model Assumptions:

- Offers default parameters based on government data. Modeler can customize.
- No localized costs and state policies
- Simple amortization i.e. no disaggregated costs of equity, construction loan pre-sized

The Model CANNOT:

- Be used to model certain pre-development costs without folding them into a construction loan
- Be used without modifications to simulate a portfolio
- Be used without modification and further specification to simulate *final* consumer bill savings - just general savings to the consumers

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Elective Pay Amounts, Bonuses, & Penalties

Start of Construction 2023 to 2033

	CREDIT	DOMESTIC CONTENT BONUS	ENERGY COMMUNITY BONUS	TOTAL POTENTIAL CREDIT	LOW-INCOME COMMUNITIES BONUS	TOTAL POTENTIAL CREDIT WITH LICB
ITC (§48 & §48E) <1MW	30%	10%	10%	50%	By application only, additional 10% to 20%	Up to 70%
ITC (§48 & §48E) ≥1MW + PWA	30%	10%	10%	50%		
ITC (§48 & §48E) ≥1MW, no PWA	6%	2%	2%	10%		
PTC (§45 & §45Y) <1MW	$2.75/kWh	$0.30/kWh	$0.30/kWh	$3.35/kWh	N/A	N/A
PTC (§45 & §45Y) ≥1MW + PWA	$2.75/kWh	$0.30/kWh	$0.30/kWh	$3.35/kWh		
PTC (§45 & §45Y) ≥1MW, no PWA	$0.55/kWh	$0.10/kWh	$0.10/kWh	$0.75/kWh		

(climate united, 2024)

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Modeling Process

Calculate Elective Pay Value

- Establish Elective Pay credit selection
- ITC as fixed percentage based on conditions
- PTC calculated via project output given technical parameters

Set Project Parameters

- Set energy prices including escalators
- Potential RECs
- O and M and escalators
- Derat
- Interconnection costs
- Insurance
- Nameplate capacity and capacity factors

Build Construction Capital Stack

- Set up short term capital stack for the construction period of the project
- Initial project WACC is calculated from the construction loan but not used as project interest rate

Build Perm Capital Stack

- Set up the permanent / term capital stack EX elective pay injection and cash equity
- Equity can be modelled as a fund drawdown at construction
- This is the WACC used as the discount rate for the model
- Also set the overdraft and cash balance rates.

Calculation and Outputs

- Input preferences on cash flow including how/when elective pay is monetized, and alternative PPA pricing
- Model outputs a discounted cash flow statement for the project
- Prepares key outputs like LCOE, DSCR, potential savings compared to unsubsidized projects.

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Keep in Mind: Elective Pay Barriers

- Bridge/Construction financing
  - Solution: green bank-supported products to facilitate capital market access

- Large-Volume and Perm Financing
  - Solution: GGRF, LPO-SEFI, USDA (RESP, PACE), GGRF/Green Banks, Capital Markets

- Administration
  - Contracting, tax credit calculation, selection, filing
  - Technical Assistance including CPE and partners, state support center

Keep in Mind: Other considerations

- Elective pay cannot be more than the total cost of the project
- Elective pay can be paired with other federal programs, including grants and loans
  - subject to the above restriction
- Even under the best circumstances elective pay ITC will only cover a portion of the capital stack
- For typical systems (aka under around 5KW nameplate) the ITC is the best value tax credit
- Elective pay guidance on domestic content forthcoming but it is not a bonus but a penalty
  - Does not apply to systems under 1KW of nameplate capacity
- Tax credit chaining may be possible but not yet approved
- Co-development structures with non-elective pay entities are possible but heavily restricted

Modelling Elective Pay Projects: Financial Inputs

1	**Elective Pay Inputs**			
2	Default Credit	ITC	**Credit Amounts**	**Units**
3	Base Elective Pay		30%	Percent
4	Prevailing Wage	YES		
5	Energy Community	NO	0%	Percentage Points
6	EJ Bonuses	NO	0%	Percentage Points
7	Domestic Content	EXEMPTION	0%	Percentage Points
8	Base + Bonuses		30%	Percent
9	Tax-exempt penalty	YES	15%	Percent
10	Total Elective Pay		26%	Percent
11	**Ineligible policy**			
12	Model ineligible policies?	NO		
13	MACRS depreciation?	YES		
14	Monetize credits early via "chaining?"	NO		
15	Chaining discount	5.0%		
16	Corporate Tax Rate	21.0%		
17	**Project Specification**			
18	Project Energy Price Escalator	2.0%		
19	Electricity price or alternate PPA growth rate	2.0%		
20	O&M Growth Rate	2.0%		
21	Inflation adjustment (PTC)	2.0%		
22	Inflation adjustment (RECs)	2.0%		
23	Derat	0.5%		
24	REC Price ($/MWh)	$25.0		
25	% of REC Revenue to developer	100.0%		
26	Interconnection Costs ($/kWh)	$150.0		
27	Insurance costs ($/kw/yr)	$15.0		
28	Misc capex adder	0.0%		
29	Fixed PPA Risk factor	3.0%		
30	**Capital Stacks**			
31	**Bridge Capital Stack (sans cash equity)**	**Rate**	**Weight**	
32	Use default capital stack?	YES		
33	Other public RLF or program debt	4.5%	25.00%	
34	Public/green bank bridge debt	4.5%	50.00%	
35	Market bridge debt	7.0%	25.00%	
36	Investor Equity (Residual)	15.0%	0.0%	
37	Bridge Period WACC	5.13%		
38	Alternative Bridge WACC	4.75%		
39	% of own cash equity finance	15%		
40	**Term Capital Stack (sans tax and cash equity)**	**Rate**	**Weight**	
41	Use default capital stack?	YES		
42	Public/Green Bank debt	5.3%	35.0%	
43	Tax-exempt "Muni" debt	4.5%	35.0%	
44	LPO Guarauntueed Debt	5.0%	0.0%	
45	Market (taxable) debt A	8.0%	30.0%	
46	Market (taxable) debt B	9.5%	0.0%	
47	Market (taxable) debt C	11.0%	0.0%	
48	Investor Equity (Residual)	15.0%	0.0%	
49	Default WACC (sans tax and cash equity)	5.81%		
50	Alternative WACC (sans tax and cash equity)	6.75%		
51	Cash Reserve Rate	5.00%		
52	**Overdraft Capital Stack**	**Rate**	**Weight**	
53	PCB Overdraft Rate	6.15%	100.00%	
54				

Disclaimer. Under the most recent rulemaking, the extent of domestic content exemptions or safe harbours are unclear.

Note. Project developers claiming the EJ bonuses should ensure their project has applied for and recieved a capacity allocation under the rules of Section 48e.

Disclaimer. Accelerated depreciation is not applicable to elective pay tax credits. We have included it purely for comparative purposes. Similarly, chaining has not yet been allowed for elective pay credits.

In order to model either provision, select "YES" for both the option to model ineligible policies and to modelling that particular policy.

<- Togglable model input

Note. Design your term capital stack based on whether or not you anticipate elective pay credits reducing the weight of more expensive debt in the stack. In the model, elective pay would do this by reducing the amount of term debt you must take out to refinance bridge debt. In effect, elective pay can be a cash injection to the project if you so choose.

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Model Technical Inputs

	Resource	Solar	
	RECs?	NO	
	Reduce project debt with ITC elective pay?	YES	
	Revolve out cash equity after construction?	NO	
	1st Year Project Energy Price ($/MWh)	$48.0	
	1st year electricity or alternate fixed PPA price ($/MWh	$50.0	
	Capex Selection	OCC	
	Capex Total (If "TOTAL" is selected)	$225,000,000	
	Project Years	30	
	Construction Years	2	
	Discount / Term Rate	5.81%	
	Bridge Rate	5.13%	
Use Default?		Model Value	Alternate
DEFAULT	Capacity Factor	27%	32%
DEFAULT	Base OCC ($/kW)	$1,448	$1,600
DEFAULT	Base system size (MW)	150	200
DEFAULT	Fixed O&M ($/kWy)	$17	$25
DEFAULT	Variable O&M ($/MWh)	$0	$0
DEFAULT	Percentage of ITC elective pay used to reduce project debt	100%	50%
DEFAULT	Percent of cash equity revolved out after construction	0%	50%

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Cash Waterfall

Balance Sheet and Cash Flow Entries	0	1	2	3	4	5	6	7	8
Stage	Entry	Construction	Construction	Operation	Operation	Operation	Operation	Operation	Operation
Year	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Expenditure	$217,200,000	$0	$0	$0	$0	$0	$0	$0	$0
Cash equity	-$32,580,000	$0	$0	$0	$0	$0	$0	$0	$0
Elective Pay: Direct Payment	$0	$0	$0	-$55,386,000	$0	$0	$0	$0	$0
Ineligible Policy: Chaining	$0	$0	$0	$0	$0	$0	$0	$0	$0
Bridge Capital Draw 1.0	-$184,620,000	-$11,250,000	-$11,250,000	$228,287,702	$0	$0	$0	$0	$0
Term Capital Draw	$0	$0	$0	-$172,901,702	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$2,574,000	$2,625,480	$2,677,990	$2,731,549	$2,786,180	$2,841,904
Interconnection	$0	$11,250,000	$11,250,000	$0	$0	$0	$0	$0	$0
Ineligible Policy: Accelerated Depreciation	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$0	$0	$0	$2,250,000	$2,250,000	$2,250,000	$2,250,000	$2,250,000	$2,250,000
Total Costs	$0	$0	$0	$4,824,000	$4,875,480	$4,927,990	$4,981,549	$5,036,180	$5,091,904
Output (MWh)	0	0	0	355,881	354,102	352,331	350,570	348,817	347,073
Energy Price ($/MWh)	$0.00	$0.00	$0.00	$48	$48.96	$49.94	$50.94	$51.96	$53.00
Gross Revenue	$0	$0	$0	$17,082,299	$17,336,826	$17,595,144	$17,857,312	$18,123,386	$18,393,424
RECs	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Income	$0	$0	$0	$12,258,299	$12,461,346	$12,667,155	$12,875,763	$13,087,206	$13,301,520
Debt Outstanding (Beginning of year)	$184,620,000	$195,870,000	$217,158,338	$172,901,702	$170,641,465	$168,249,851	$165,719,225	$163,041,507	$160,208,145
Interest	$0	$10,038,338	$11,129,365	$10,049,911	$9,918,535	$9,779,523	$9,632,430	$9,476,788	$9,312,098
Bridge Capital Draw 2.0	$0	-$10,038,338	-$11,129,365	$0	$0	$0	$0	$0	$0
Principal	$0	$0	$0	$2,260,237	$2,391,614	$2,530,626	$2,677,719	$2,833,361	$2,998,050
Debt Outstanding (End of year)	$184,620,000	$195,870,000	$217,158,338	$170,641,465	$168,249,851	$165,719,225	$163,041,507	$160,208,145	$157,210,095
Debt Service	$0	$0	$0	$12,310,149	$12,310,149	$12,310,149	$12,310,149	$12,310,149	$12,310,149
Debt Service Coverage Ratio	N/A	N/A	N/A	1.00	1.01	1.03	1.05	1.06	1.08
Net Cashflow	$0	$0	$0	-$51,849	$151,197	$357,006	$565,614	$777,057	$991,372
Project Cash Buffer	$0	$0	$0	-$51,849	$96,159	$457,973	$1,046,486	$1,875,867	$2,961,032
PCB as % of capital expenditure	0.00%	0.00%	0.00%	-0.02%	0.04%	0.21%	0.48%	0.86%	1.36%
Consumer avoided cost of electricity				$711,762	$722,368	$733,131	$744,055	$755,141	$766,393
Avoided cost as % of capital expenditure				0.33%	0.33%	0.34%	0.34%	0.35%	0.35%
Avoided cost as % of annual debt service				5.78%	5.87%	5.96%	6.04%	6.13%	6.23%

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Key Model Outputs

Model Results	
Lifetime Output (MWh)	9,937,329
Elective Pay NPV	$46,750,803
Consumer avoided cost of electricity NPV	$11,754,637
Unsubsidized simple levelized cost ($/MWh)	$50.69
Subsidized simple levelized cost ($/MWh)	$41.33
Capital Recovery Factor	7.12%
Subsidized OCC ($/kW)	$1,136
Min DSCR	1.00
Avg DSCR	1.27
Median DSCR	1.26
MACRS NPV	$0
Project Viability	**YES**
Target debt service coverage ratio (DSCR)	1.25

Assumes the consumer as a system

Policy target is lifetime, not minimum

Policy Target

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The Center for Public Enterprise is Here to Help!

- Program, RFP, and pipeline design
- Financial modelling: customizing our generic model to your needs
- Comparing elective pay options to PPAs and other structures
- Support negotiating with lenders, structuring interconnection, operations, and program design
- We **CANNOT** offer tax advice or filing support!

Center for Public Enterprise

Elective Pay: Developing Public Energy through the IRA

Yakov Feygin,
Center for Public Enterprise
yakov.feygin@publicenterprise.org

Center for Public Enterprise

Elective Pay Basics

- Public entities and nonprofit organizations can take advantage of renewable energy, clean vehicle, and other eligible tax credits, as if the entity did have a tax liability
- Payment comes from the IRS in the form of a direct cash payment
- Grant-like—but not a grant!
    - has unique advantages and disadvantages as a part of a project's financial structure
- Attached to specific projects and requires ownership of assets

Elective Pay Basics

Planning

- Determine community needs
- Siting and pre-development
- Financing
- Contracting

Development

- Material Acquisition
- Construction
- Interconnection

Pre-Registration

- File for a pre-registration number the project is planned to go into operation into with the IRS
- Each energy property must have its own registration number
- Once for ITC, every qualifying year for PTC

Filing

- Select elective pay using form 990-T and 3800
- Submit to IRS
- If you did not submit forms before you can go by calendar or fiscal year

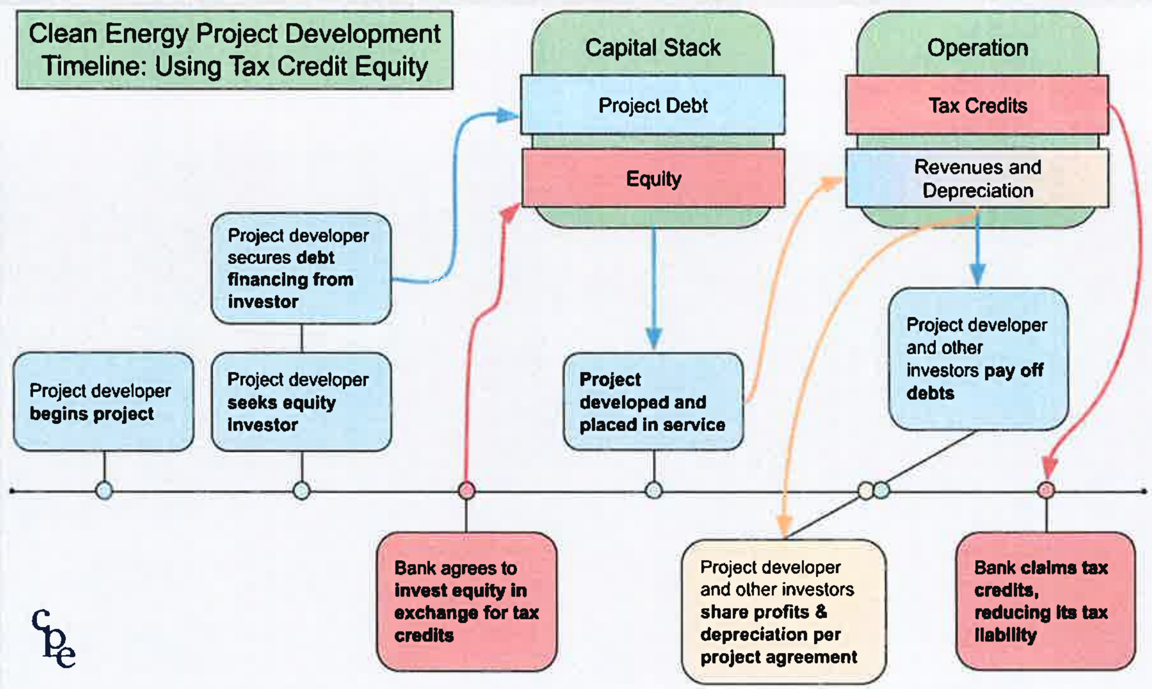
Payment

- Receive check from the IRS

Tax Credit Finance Before the IRA

Before IRA:

- Main energy credits – Production and Investment Tax Credits (PTC+ ITC) for Wind and Solar
- Requires "tax equity structures"
- No credits for tax exempts



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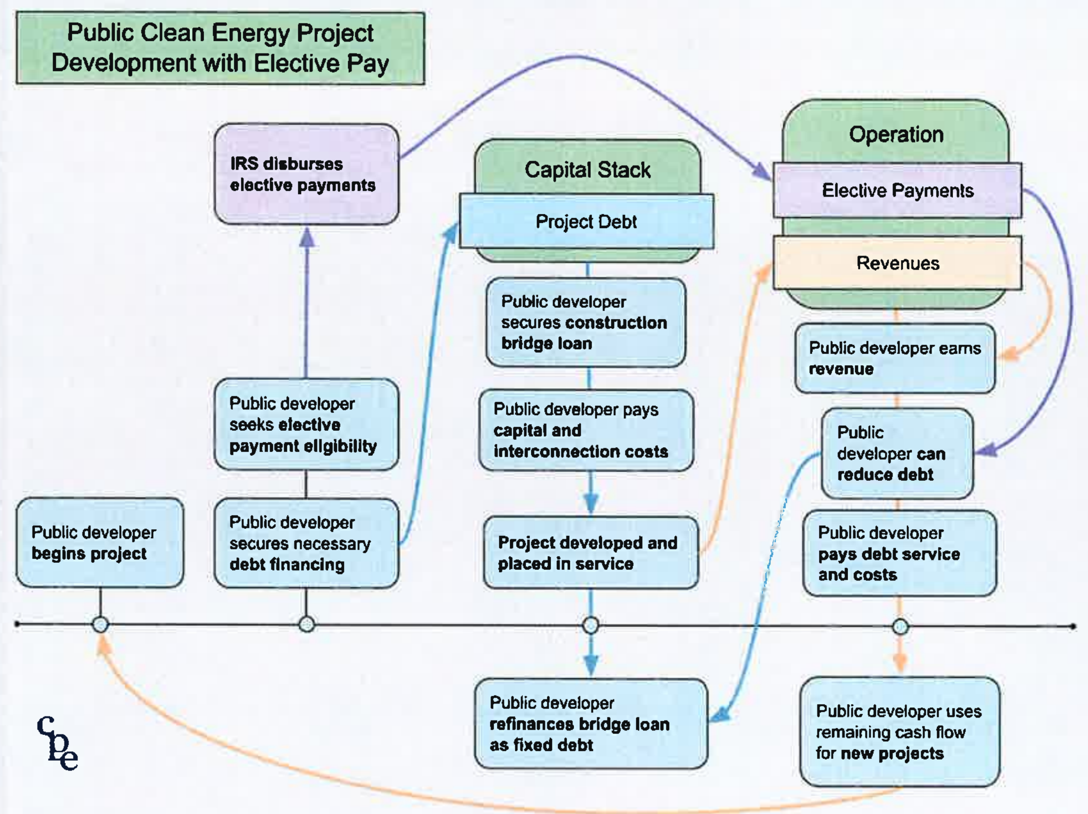
Tax Credit Finance After the IRA

- ITC and PTC technologies expanded including storage, nuclear, geothermal, in addition to wind and solar
- Clean vehicle tax credit expanded
- Advanced manufacturing, Industrial Decarbonization, Hydrogen
- Transferability provisions
- Elective pay for tax-exempt entities (nonprofits, state instrumentalities)



Eligible Credits

- Energy Credit (48)
- Clean Electricity Investment Credit (48E),
- Renewable Electricity Production Credit (45)
- Clean Electricity Production Credit (45Y)
- Commercial Clean Vehicle Credit (45W)
- Zero-emission Nuclear Power Production Credit (45U)
- Advanced Manufacturing Production Credit (45X)*
- Clean Hydrogen Production Credit (45V)*
- Clean Fuel Production Credit (45Z)
- Carbon Dioxide Sequestration Credit (45Q)*
- Credit for Alternative Fuel Vehicle Refueling / Recharging Property (30C)
- Qualifying Advanced Energy Project Credit (48C)

**Credits eligible for elective pay selection by private entities*

Elective Pay Amounts, Bonuses And Penalties

- 30% of direct project costs base
- LIC Located 10% Adder (ITC/PTC)
- Qualified low income residential project or qualified low income economic benefit 20% Adder (ITC/PTC)
- Energy Community Adder 10% Adder (ITC/PTC)
- Domestic content requirement in addition to the adder bonus (-10% 2024, -15 2025, eliminated after with safe harbors)
- No accelerated depreciation bonuses
- Up to 15% tax exempt bond penalty

Elective Pay Amounts, Bonuses, & Penalties

Start of Construction 2023 to 2033

	CREDIT	DOMESTIC CONTENT BONUS	ENERGY COMMUNITY BONUS	TOTAL POTENTIAL CREDIT	LOW-INCOME COMMUNITIES BONUS	TOTAL POTENTIAL CREDIT WITH LICB
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PTC (§45 & §45Y) <1MW	$2.75/kWh	$0.30/kWh	$0.30/kWh	$3.35/kWh	N/A	N/A
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PTC (§45 & §45Y) ≥1MW, no PWA	$0.55/kWh	$0.10/kWh	$0.10/kWh	$0.75/kWh		

(climate united, 2024)

Elective Pay Barriers

- Bridge/Construction financing
  - Solution: green bank-supported products to facilitate capital market access
- Large-Volume Financing
  - Solution: GGRF, LPO-SEFI, USDA (RESP, PACE), GGRF/Green Banks, Capital Markets
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  - subject to the above restriction
- Elective pay guidance on domestic content forthcoming
- Tax credit chaining may be possible
- Co-development structures with non-elective pay entities are possible but heavily restricted

How CPE Can Help

- Resources
  - Elective Pay Model (link)
  - SEFI Program Resources
  - GGRF Program Resources
- Project Pipeline Design
  - Capital Stack and Financing Support
  - Specialized contracts, MOUs, or other agreements available upon request

Attachment C

RENEWABLE TECHNOLOGIES INCORPORATED

- THE FUTURE OF ENERGY -

Prepared For

Reclamation District #2044 King Island v2
209-601-9624
arcoon@arcoonlaw.com

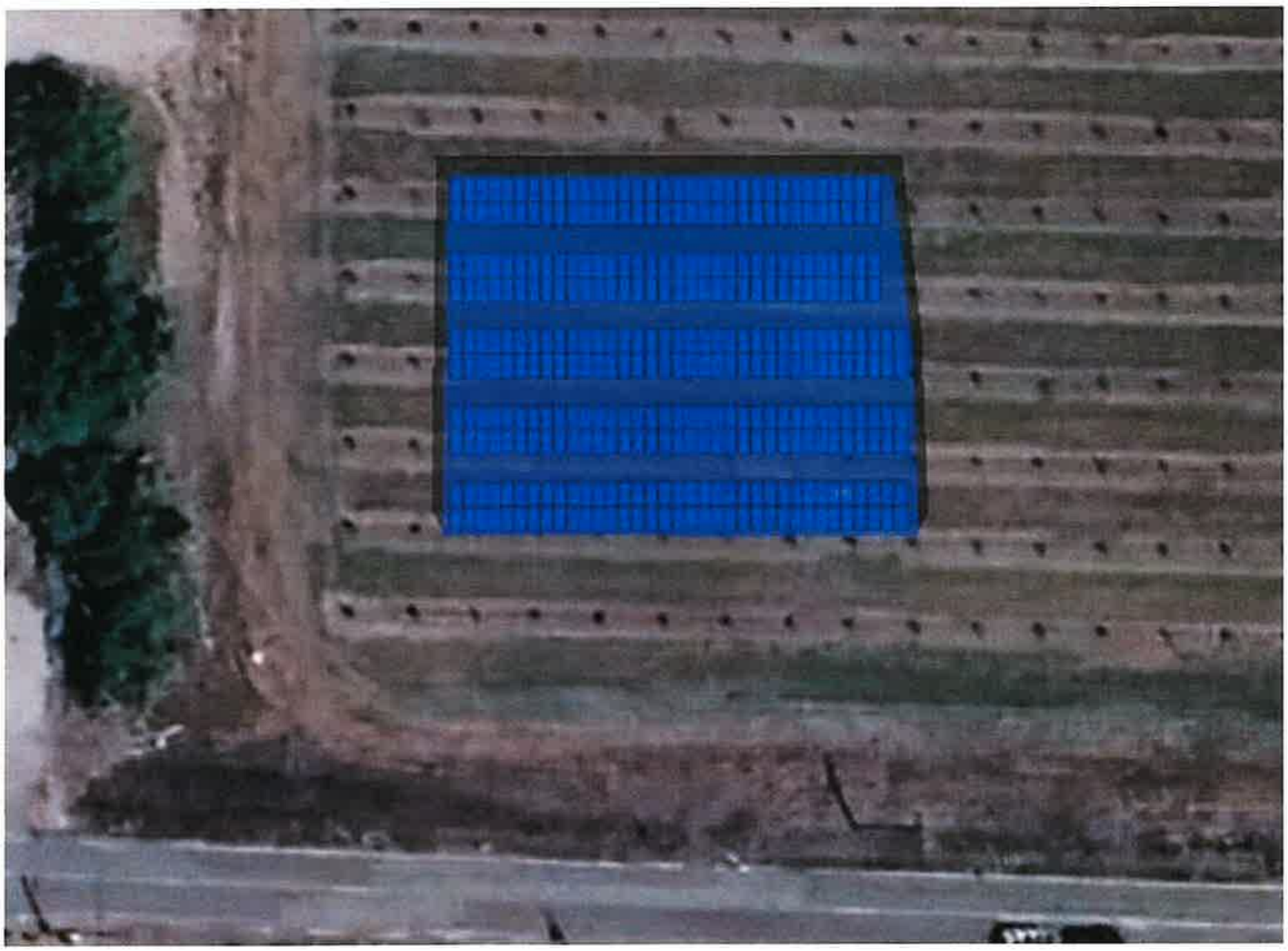


TABLE OF CONTENTS

1 PROJECT PORTFOLIO

Morada Produce

System Rating: 1 MW DC

Services Provided: Design, Development, EPC

Location: Stockton, CA

PROVEN TRACK RECORD

Olagaray Farms

System Rating: 150kW DC

Services Provided: Design, Development, and EPC

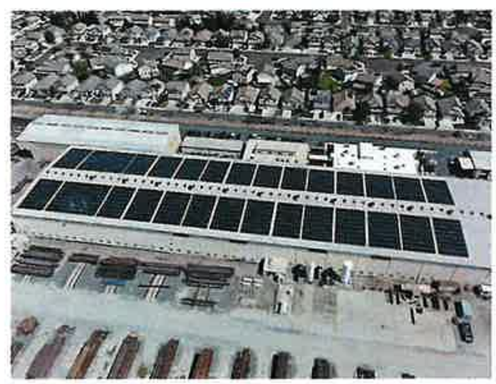
Location: Thorton, CA

Oasis West RV Park

System Rating: 300kW DC

Services Provided: Design, Development, and EPC

Location: Santa Nella, CA



Stockton Steel

System Rating: 1 MW DC

Services Provided: Design, Development, and EPC

Location: Stockton, CA

2 PROJECT SUMMARY

Payment Options	Cash Purchase
IRR - Term	15.5%
LCOE PV Generation	$0.050 /kWh
Net Present Value	$746,165
Payback Period	6.5 Years
Total Payments	$584,000
Total Incentives	$175,200
Net Payments	$408,800
Electric Bill Savings - Term	$2,443,305
Upfront Payment	$584,000

COMBINED SOLAR PV RATING

Power Rating: 186,200 W-DC
Power Rating: 162,191 W-AC-CEC

COMBINED ESS RATINGS

Energy Capacity: 0.0 kWh
Power Rating: 0.0 kW

CUMULATIVE ENERGY COSTS BY PAYMENT OPTION

2.1.1 PV SYSTEM DETAILS

GENERAL INFORMATION
Facility: SAID# 1835447004
Address: 11521 Eight Mile Rd Stockton CA 95219

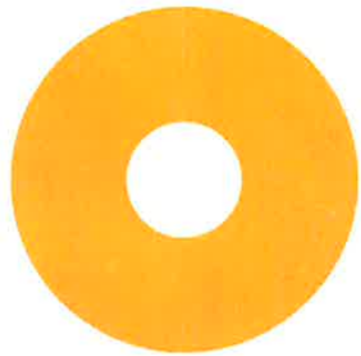
SOLAR PV EQUIPMENT DESCRIPTION
Solar Panels: 14.9 kW-DC Standard Modules
Inverters: Standard Inverter

SOLAR PV EQUIPMENT TYPICAL LIFESPAN
Solar Panels: Greater than 30 Years
Inverters: 15 Years

Solar PV System Cost and Incentives	
Solar PV System Cost	$53,400
Direct pay - 30% ITC	-$16,020
Net Solar PV System Cost	**$37,380**

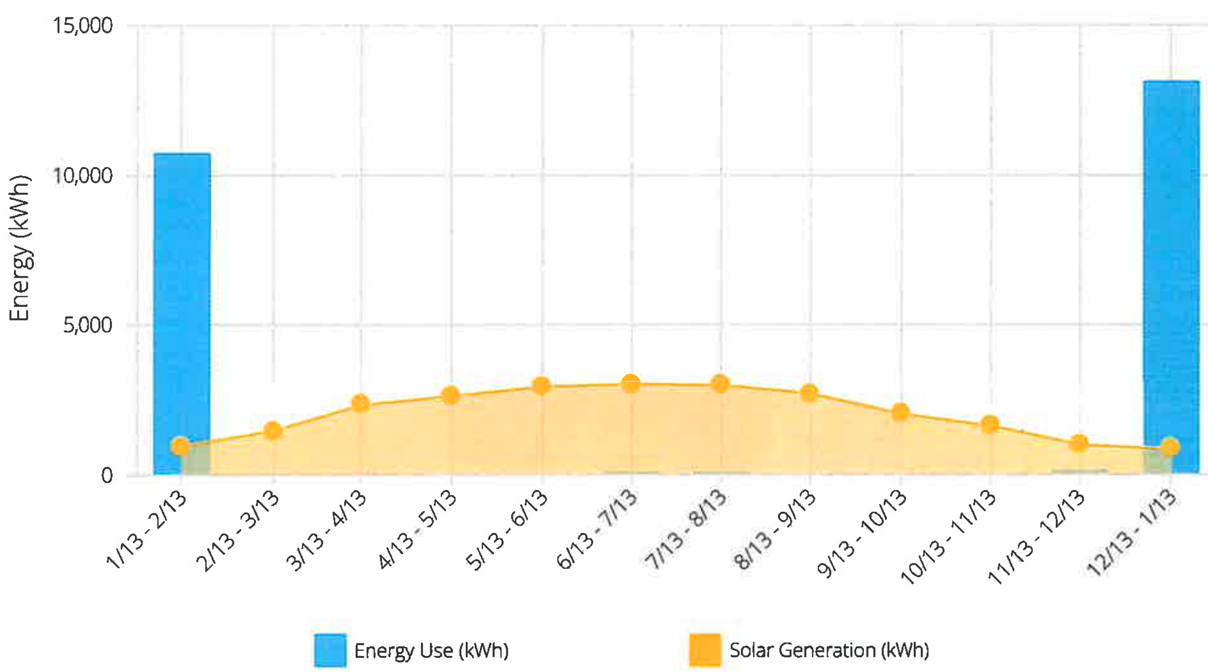
SOLAR PV SYSTEM RATING
Power Rating: 14,866 W-DC
Power Rating: 12,949 W-AC-CEC

ENERGY CONSUMPTION MIX
Annual Energy Use: 24,032 kWh



Utility -722 kWh (0.00%)
Solar PV 24,754 kWh (100.00%)

MONTHLY ENERGY USE VS SOLAR GENERATION



2.1.2 REBATES & INCENTIVES

This section summarizes all incentives available for this project. The actual rebate and incentive amounts for this project are shown in each example.

Direct Pay, Investment Tax Credit (ITC) - 30%

The Inflation Reduction Act (IRA) of 2022 contains a "direct pay" provision that enables certain tax-exempt customers, including state and local government, to receive a direct cash payment in lieu of an investment tax credit (ITC). Entities that qualify for direct pay are eligible to receive a 30% direct payment, assuming they meet the IRA established prevailing wage and apprenticeship requirements in order to qualify for the full 30% "increased rate", rather than a 6% "base rate". The IRA states that direct pay is only available for entities, including: an entity exempt from the tax, any State government (or political subdivision thereof), the Tennessee Valley Authority, an Indian tribal government, an Alaska Native Corporation, any corporation operating on a cooperative basis which is engaged in furnishing electric energy to persons in rural areas. These entities may take direct pay for solar and storage in the ITC and PTC as well as the ITC/PTC when tech neutral starts after 2025.

Total Incentive Value: $16,020

2.1.3 UTILITY RATES

The table below shows the rates associated with your current utility rate schedule (AG-C). Your estimated electric bills after solar are shown on the following page.

Customer Charges				Energy Charges				Demand Charges			
Season	Charge Type	Rate Type	AG-C	Season	Charge Type	Rate Type	AG-C	Season	Charge Type	Rate Type	AG-C
S	Flat Rate	per day	$1.43	S	On Peak	Import	$0.22674	S	Flat Rate	Import	$13.14
W	Flat Rate	per day	$1.43	S	Off Peak	Import	$0.1873	W	Flat Rate	Import	$13.14
				W	On Peak	Import	$0.19895	S	On Peak	Import	$25.19
				W	Off Peak	Import	$0.17326				

2.1.4 CURRENT ELECTRIC BILL

The table below shows your annual electricity costs based on the most current utility rates and your previous 12 months of electrical usage.

RATE SCHEDULE: PG&E - AG-C

Time Periods	Energy Use (kWh)		Max Demand (kW)		Charges			
Bill Ranges & Seasons	On Peak	Off Peak	NC / Max	On Peak	Other	Energy	Demand	Total
1/13/2023 - 2/13/2023 W	1,256	9,423	60	-	$44	$1,883	$788	$2,715
2/13/2022 - 3/13/2022 W	0	0	0	-	$40	$0	$0	$40
3/13/2022 - 4/13/2022 W	0	0	0	-	$44	$0	$0	$44
4/13/2022 - 5/13/2022 W	0	0	0	-	$43	$0	$0	$43
5/13/2022 - 6/13/2022 W / S	0	12	17	0	$44	$2	$86	$133
6/13/2022 - 7/13/2022 S	0	48	26	0	$43	$9	$342	$394
7/13/2022 - 8/13/2022 S	0	55	31	0	$44	$10	$407	$462
8/13/2022 - 9/13/2022 S	0	22	22	0	$44	$4	$289	$338
9/13/2022 - 10/13/2022 S / W	0	10	24	0	$43	$2	$189	$234
10/13/2022 - 11/13/2022 W	0	3	14	-	$44	$1	$184	$229
11/13/2022 - 12/13/2022 W	12	134	52	-	$43	$26	$683	$752
12/13/2022 - 1/13/2023 W	1,781	11,275	88	-	$44	$2,308	$1,156	$3,509
Total	3,049	20,982	-	-	$523	$4,244	$4,126	$8,893

2.1.5 NEW ELECTRIC BILL

RATE SCHEDULE: PG&E - AG-C

Time Periods	Energy Use (kWh)		Max Demand (kW)		Charges			
Bill Ranges & Seasons	On Peak	Off Peak	NC / Max	On Peak	Other	Energy	Demand	Total
1/13/2023 - 2/13/2023 W	1,250	8,442	59	-	$44	$1,711	$775	$2,531
2/13/2022 - 3/13/2022 W	-21	-1,480	0	-	$40	$261	$0	$220
3/13/2022 - 4/13/2022 W	-182	-2,170	0	-	$44	$412	$0	$368
4/13/2022 - 5/13/2022 W	-224	-2,409	0	-	$43	$462	$0	$419
5/13/2022 - 6/13/2022 W / S	-284	-2,657	14	0	$44	$535	$71	$419
6/13/2022 - 7/13/2022 S	-322	-2,656	20	0	$43	$570	$263	$265
7/13/2022 - 8/13/2022 S	-305	-2,636	31	0	$44	$563	$407	$111
8/13/2022 - 9/13/2022 S	-216	-2,481	14	0	$44	$514	$184	$285
9/13/2022 - 10/13/2022 S / W	-105	-1,930	21	0	$43	$375	$166	$166
10/13/2022 - 11/13/2022 W	-37	-1,607	12	-	$44	$286	$158	$84
11/13/2022 - 12/13/2022 W	12	-886	46	-	$43	$151	$604	$496
12/13/2022 - 1/13/2023 W	1,779	10,403	88	-	$44	$2,156	$1,156	$3,357
Total	1,345	-2,067	-	-	$523	$36	$3,785	$4,272

ANNUAL ELECTRICITY SAVINGS: $4,621

2.2.1 PV SYSTEM DETAILS

GENERAL INFORMATION
Facility: SAID# 1205496082
Address: 11521 Eight Mile Rd Stockton CA 95219

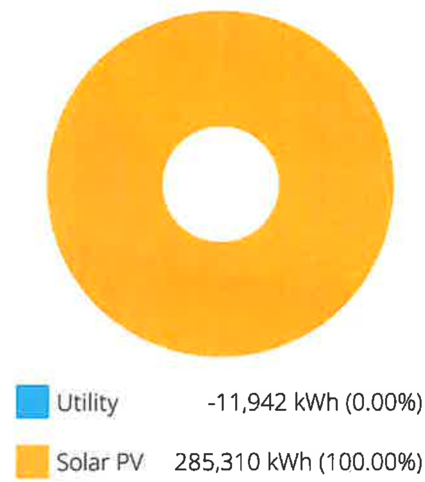
SOLAR PV EQUIPMENT DESCRIPTION
Solar Panels: 171.3 kW-DC Standard Modules
Inverters: Standard Inverter

SOLAR PV EQUIPMENT TYPICAL LIFESPAN
Solar Panels: Greater than 30 Years
Inverters: 15 Years

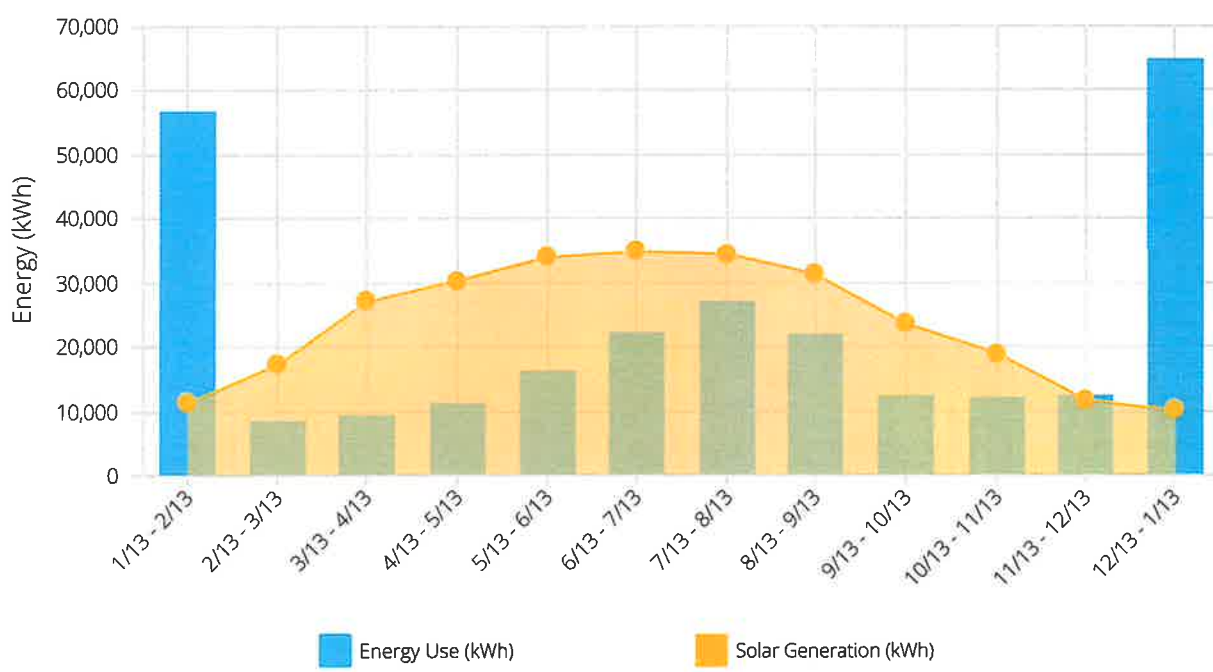
Solar PV System Cost and Incentives	
Solar PV System Cost	$530,600
Direct pay - 30% ITC	-$159,180
Net Solar PV System Cost	**$371,420**

SOLAR PV SYSTEM RATING
Power Rating: 171,334 W-DC
Power Rating: 149,242 W-AC-CEC

ENERGY CONSUMPTION MIX
Annual Energy Use: 273,368 kWh



MONTHLY ENERGY USE VS SOLAR GENERATION



2.2.2 REBATES & INCENTIVES

This section summarizes all incentives available for this project. The actual rebate and incentive amounts for this project are shown in each example.

Direct Pay, Investment Tax Credit (ITC) - 30%

The Inflation Reduction Act (IRA) of 2022 contains a "direct pay" provision that enables certain tax-exempt customers, including state and local government, to receive a direct cash payment in lieu of an investment tax credit (ITC). Entities that qualify for direct pay are eligible to receive a 30% direct payment, assuming they meet the IRA established prevailing wage and apprenticeship requirements in order to qualify for the full 30% "increased rate", rather than a 6% "base rate". The IRA states that direct pay is only available for entities, including: an entity exempt from the tax, any State government (or political subdivision thereof), the Tennessee Valley Authority, an Indian tribal government, an Alaska Native Corporation, any corporation operating on a cooperative basis which is engaged in furnishing electric energy to persons in rural areas. These entities may take direct pay for solar and storage in the ITC and PTC as well as the ITC/PTC when tech neutral starts after 2025.

Total Incentive Value: $159,180

2.2.3 UTILITY RATES

The table below shows the rates associated with your current utility rate schedule (AG-C). Your estimated electric bills after solar are shown on the following page.

Customer Charges				Energy Charges				Demand Charges			
Season	Charge Type	Rate Type	AG-C	Season	Charge Type	Rate Type	AG-C	Season	Charge Type	Rate Type	AG-C
S	Flat Rate	per day	$1.43	S	On Peak	Import	$0.22674	S	Flat Rate	Import	$13.14
W	Flat Rate	per day	$1.43	S	Off Peak	Import	$0.1873	W	Flat Rate	Import	$13.14
				W	On Peak	Import	$0.19895	S	On Peak	Import	$25.19
				W	Off Peak	Import	$0.17326				

2.2.4 CURRENT ELECTRIC BILL

The table below shows your annual electricity costs based on the most current utility rates and your previous 12 months of electrical usage.

RATE SCHEDULE: PG&E - AG-C

Time Periods	Energy Use (kWh)		Max Demand (kW)		Charges			
Bill Ranges & Seasons	On Peak	Off Peak	NC / Max	On Peak	Other	Energy	Demand	Total
1/13/2023 - 2/13/2023 W	6,186	50,374	212	-	$44	$9,959	$2,786	$12,789
2/13/2022 - 3/13/2022 W	867	7,521	68	-	$40	$1,476	$894	$2,409
3/13/2022 - 4/13/2022 W	1,347	7,877	62	-	$44	$1,633	$815	$2,492
4/13/2022 - 5/13/2022 W	741	10,323	77	-	$43	$1,936	$1,012	$2,991
5/13/2022 - 6/13/2022 W / S	2,376	13,743	67	60	$44	$2,997	$1,440	$4,481
6/13/2022 - 7/13/2022 S	2,910	19,334	136	68	$43	$4,281	$3,500	$7,824
7/13/2022 - 8/13/2022 S	2,929	24,022	128	68	$44	$5,163	$3,395	$8,603
8/13/2022 - 9/13/2022 S	2,237	19,741	129	129	$44	$4,205	$4,945	$9,194
9/13/2022 - 10/13/2022 S / W	1,417	10,748	61	61	$43	$2,273	$1,724	$4,039
10/13/2022 - 11/13/2022 W	691	11,205	62	-	$44	$2,079	$815	$2,938
11/13/2022 - 12/13/2022 W	905	11,220	210	-	$43	$2,124	$2,759	$4,926
12/13/2022 - 1/13/2023 W	8,486	56,170	210	-	$44	$11,420	$2,759	$14,224
Total	31,092	242,278	-	-	$523	$49,545	$26,842	$76,910

2.2.5 NEW ELECTRIC BILL

RATE SCHEDULE: PG&E - AG-C

Time Periods	Energy Use (kWh)		Max Demand (kW)		Charges			
Bill Ranges & Seasons	On Peak	Off Peak	NC / Max	On Peak	Other	Energy	Demand	Total
1/13/2023 - 2/13/2023 W	6,119	39,069	208	-	$44	$7,986	$2,733	$10,764
2/13/2022 - 3/13/2022 W	620	-9,536	68	-	$40	$1,529	$894	$595
3/13/2022 - 4/13/2022 W	-749	-17,134	62	-	$44	$3,118	$815	$2,259
4/13/2022 - 5/13/2022 W	-1,840	-17,445	62	-	$43	$3,389	$815	$2,531
5/13/2022 - 6/13/2022 W / S	-902	-17,012	66	56	$44	$3,196	$1,393	$1,758
6/13/2022 - 7/13/2022 S	-802	-11,835	129	60	$43	$2,399	$3,206	$851
7/13/2022 - 8/13/2022 S	-589	-6,985	68	65	$44	$1,442	$2,531	$1,133
8/13/2022 - 9/13/2022 S	-250	-9,109	71	71	$44	$1,763	$2,721	$1,003
9/13/2022 - 10/13/2022 S / W	206	-11,618	61	61	$43	$2,067	$1,724	$300
10/13/2022 - 11/13/2022 W	265	-7,356	62	-	$44	$1,222	$815	$363
11/13/2022 - 12/13/2022 W	897	-545	147	-	$43	$84	$1,932	$2,059
12/13/2022 - 1/13/2023 W	8,470	46,121	210	-	$44	$9,676	$2,759	$12,480
Total	11,445	-23,385	-	-	$523	$597	$22,337	$22,263

ANNUAL ELECTRICITY SAVINGS: $54,647

3.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	15.5%	Net Present Value	$746,165	Payback Period	6.5 Years
ROI	348.4%	PV Degradation Rate	0.80%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	$584,000				

Years	Project Costs	Electric Bill Savings	Direct pay - 30% ITC	Total Cash Flow	Cumulative Cash Flow
Upfront	-$584,000	-	-	-$584,000	-$584,000
1	-	$59,268	$175,200	$234,468	-$349,532
2	-	$60,558	-	$60,558	-$288,974
3	-	$61,871	-	$61,871	-$227,103
4	-	$63,209	-	$63,209	-$163,894
5	-	$64,572	-	$64,572	-$99,321
6	-	$65,960	-	$65,960	-$33,362
7	-	$67,372	-	$67,372	$34,010
8	-	$68,810	-	$68,810	$102,820
9	-	$70,274	-	$70,274	$173,094
10	-	$71,763	-	$71,763	$244,858
11	-	$73,279	-	$73,279	$318,137
12	-	$74,821	-	$74,821	$392,958
13	-	$76,390	-	$76,390	$469,348
14	-	$77,985	-	$77,985	$547,333
15	-	$79,608	-	$79,608	$626,941
16	-	$81,257	-	$81,257	$708,198
17	-	$82,934	-	$82,934	$791,132
18	-	$84,638	-	$84,638	$875,770
19	-	$86,370	-	$86,370	$962,140
20	-	$88,130	-	$88,130	$1,050,270
21	-	$89,917	-	$89,917	$1,140,188
22	-	$91,733	-	$91,733	$1,231,921
23	-	$93,576	-	$93,576	$1,325,497
24	-	$95,448	-	$95,448	$1,420,945
25	-	$97,348	-	$97,348	$1,518,292
26	-	$99,275	-	$99,275	$1,617,568
27	-	$101,231	-	$101,231	$1,718,799
28	-	$103,215	-	$103,215	$1,822,013
29	-	$105,226	-	$105,226	$1,927,240
30	-	$107,266	-	$107,266	$2,034,505
Totals:	-$584,000	$2,443,305	$175,200	$2,034,505	-

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	15.5%	Net Present Value	$746,165	Payback Period	6.5 Years
ROI	348.4%	PV Degradation Rate	0.80%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	$584,000				

Years	Upfront	1	2	3	4	5	6	7	8	9	10	11	12
Cash													
Project Costs	-$584,000	-	-	-	-	-	-	-	-	-	-	-	-
Electric Bill Savings	-	$59,268	$60,558	$61,871	$63,209	$64,572	$65,960	$67,372	$68,810	$70,274	$71,763	$73,279	$74,821
Direct pay - 30% ITC	-	$175,200	-	-	-	-	-	-	-	-	-	-	-
Cash Total	-$584,000	$234,468	$60,558	$61,871	$63,209	$64,572	$65,960	$67,372	$68,810	$70,274	$71,763	$73,279	$74,821
Total Cash Flow	-$584,000	$234,468	$60,558	$61,871	$63,209	$64,572	$65,960	$67,372	$68,810	$70,274	$71,763	$73,279	$74,821
Cumulative Cash Flow	-$584,000	-$349,532	-$288,974	-$227,103	-$163,894	-$99,321	-$33,362	$34,010	$102,820	$173,094	$244,858	$318,137	$392,958

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	15.5%	Net Present Value	$746,165	Payback Period	6.5 Years
ROI	348.4%	PV Degradation Rate	0.80%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	$584,000				

Years	13	14	15	16	17	18	19	20	21	22	23	24
Cash												
Project Costs	-	-	-	-	-	-	-	-	-	-	-	-
Electric Bill Savings	$76,390	$77,985	$79,608	$81,257	$82,934	$84,638	$86,370	$88,130	$89,917	$91,733	$93,576	$95,448
Direct pay - 30% ITC	-	-	-	-	-	-	-	-	-	-	-	-
Cash Total	$76,390	$77,985	$79,608	$81,257	$82,934	$84,638	$86,370	$88,130	$89,917	$91,733	$93,576	$95,448
Total Cash Flow	$76,390	$77,985	$79,608	$81,257	$82,934	$84,638	$86,370	$88,130	$89,917	$91,733	$93,576	$95,448
Cumulative Cash Flow	$469,348	$547,333	$626,941	$708,198	$791,132	$875,770	$962,140	$1,050,270	$1,140,188	$1,231,921	$1,325,497	$1,420,945

4.1 Cash Purchase

Assumptions and Key Financial Metrics

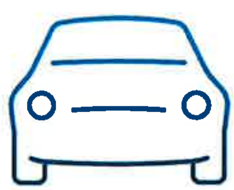
IRR - Term	15.5%	Net Present Value	$746,165	Payback Period	6.5 Years
ROI	348.4%	PV Degradation Rate	0.80%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	$584,000				

Years	25	26	27	28	29	30	Totals
Cash							
Project Costs	-	-	-	-	-	-	-$584,000
Electric Bill Savings	$97,348	$99,275	$101,231	$103,215	$105,226	$107,266	$2,443,305
Direct pay - 30% ITC	-	-	-	-	-	-	$175,200
Cash Total	$97,348	$99,275	$101,231	$103,215	$105,226	$107,266	$2,034,505
Total Cash Flow	$97,348	$99,275	$101,231	$103,215	$105,226	$107,266	$2,034,505
Cumulative Cash Flow	$1,518,292	$1,617,568	$1,718,799	$1,822,013	$1,927,240	$2,034,505	-

5 ENVIRONMENTAL BENEFITS

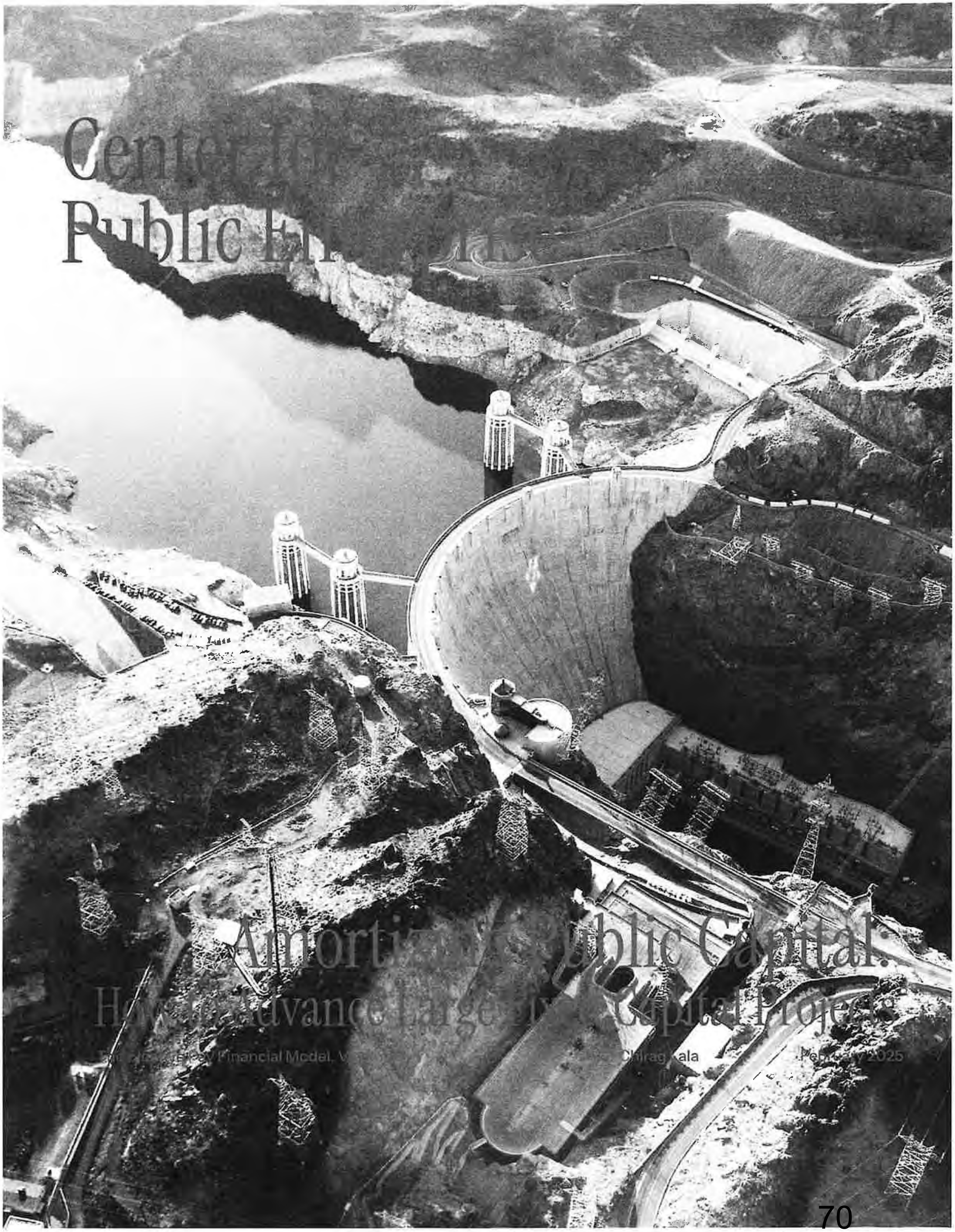
OVER THE NEXT 20 YEARS, YOUR SYSTEM WILL DO MORE THAN JUST SAVE YOU MONEY. ACCORDING TO THE EPA'S GREENHOUSE GAS EQUIVALENCIES CALCULATOR (SOURCE), YOUR SOLAR PV SYSTEM WILL HAVE THE IMPACT OF REDUCING:

4,857.67
tons of CO2 Offset



11,044,996.45
Miles Driven By Cars

72,865.04
Trees Planted


Public Capital:
Capital Projects
Financial Model
Chirag Kala
February 2025

Amortizing public capital: how to advance large fixed capital projects

The Center for Public Enterprise is happy to announce the latest update of its open source Elective Pay Model. Version 3.0 of the model has several new features, including:

- Updated default data for technologies including nuclear, conventional geothermal, and hydropower
- Improved flexibility to adjust equity and debt contributions into project capital stacks
- Additional metrics and policy variables for evaluating tax credits
- Adjustable project lifetimes and debt maturities

Based on previous "solar" or "electricity" calculators, the model aims to study the dynamics of public investment in clean energy—and to document the benefits to publicly developed energy resources of public finance programs such as the clean electricity tax credits, elective pay, tax-exempt bonds, and the Department of Energy's Title 17 financing. To our knowledge, it remains the first (and only) one of its kind.

The additional features of Version 3.0 mean that users can begin to ask a new set of questions of the model. Users can more easily integrate flexible and creative financial structures into the baseline default model. Users can also model large capital intensive projects that rely on complex and highly innovative technologies. While these features open a new range of possibilities, they also require context to understand what the model can and cannot communicate. Thus, this brief will delve into broader challenges facing large-scale project finance investments and the opportunities for public development policies to advance these projects. Specifically, pairing concessional public financing with long-term demand guarantees and insurance creates significant financial upside for capital investment in large fixed capital investment projects. They do so by shielding projects against uncertainties inherent in the project's size, novelty, and previous lack of experience in markets—uncertainties that affect those projects' ability to attract private financing.

Section I provides additional details on the various changes to the model since the previous update last year. **Section II** details the impact on project viability of changing project lifespans, financing maturities, or utilizations of tax credit disbursements. Finally, **Section III** concludes by identifying difficulties faced by large fixed capital projects and provides basic recommendations to policymakers designing industrial policy and public finance programs.

I. Model updates

The most recent updates to this model are below. A longer description of the elective pay model, how it works, and its various components are available in the previous Elective Pay Report. Version 3.0 has the following updated features:

Accounting for public equity and rates of return: Capital stacks typically consist of debt and equity. However, public projects are different. They typically do not seek or receive private investor "equity" investment, for which they would have to pay dividends or cede control rights. Rather, "equity" in public projects consists of grant funding or cash—an upfront capital expenditure akin to down payments homeowners make on mortgages. This equity does not *per se* require a rate of return—though one can still be calculated. As such, the revised model allows users to specify the percentage of project financing that will be covered pre-term[1] by a source of equity, whether it be grant appropriations or cash on hand.[2] The rest of the capital stack delineation for bridge and term periods are set for the debt mix.

To better handle equity, Version 3.0 terms any cash left over following elective pay disbursement (a source of revenue) and debt service payments (a recurring cost) as "cashflow to equity." This is a common modeling practice insofar as the equity provider (here, the state or local government) has access to it for whatever purposes it decides.[3] (The model retains a cash buffer line in which it shows how much cash the project's owner has accumulated as a result of returns to equity; assuming that project owners will deposit their residual cash buffers into their banks, modelers have the option to set an interest rate as various deposit or cash management accounts would offer.) In the first period and possibly for some subsequent periods, cashflow to equity will be negative—and significantly so—if project revenues during early operation cannot fully cover debt servicing, even with an elective pay disbursement.

The model mimics private sector financial analyses by calculating an internal rate of return (IRR) on cash flow to equity across the project's lifetime—the rate of return that would set the net present value of all cash flows to zero. If the state treated all its cash flows left over after debt service as "dividend payments,"

[1]The model only assesses equity placed before a project's construction period begins. This is partly because all capital expenditure in the model is also assumed to take place up-front, in keeping with the model's use of "overnight costs of capital." The public facing model is designed for presentation and thus does not simulate alternative equity and debt draw structures. Contact CPE to request customized modelling and support services.

[2]It is common practice that equity investments are "back-levered"—in other words, the equity injection is itself financed by debt incurred by the equity investor. In this case, there is a minimum rate of return on equity necessary to repay the loan. In this case, we recommend that a user model this injection as a new entry in the capital stack that is treated as debt for the purposes of cashflow and viability analysis. As we have discussed in previous releases, this is a project specific financing model and cannot, by itself, be used to calculate the specific rate of return of a back-levered equity investment without more information. The interest rate on this new entry should be taken as datum.

[3]For example, we can imagine a scenario where some projects with a lower IRR serve to cross subsidize a set of projects with a lower IRR. In this case, IRR would also be just one metric necessary to construct a portfolio.

then the IRR would be a measure of the dividend rate adjusted for constant reinvestment (*e.g.*, into a cash buffer account). Private equity providers often use the IRR to assess whether or not to proceed with financing a project. Because our model is for public developers, however, we **do not** use this IRR measurement to assess a project's viability. Instead, we continue to assess viability based on the debt service coverage ratio (DSCR). Unlike a private developer, public entities do not have an external obligation to achieve a particular IRR but still must make debt repayments. Less sensitivity to the IRR allows states to pursue a lower project weighted average cost of capital (WACC) than private projects might have to (though it does not mean the state would not want or pursue some positive return).[4] Even if the state were to pursue a target return, perhaps indexed to the inflation rate, there is nothing necessitating it be anywhere near as high as private equity return targets, which typically range in the mid-to-high teens.

Large fixed capital projects: Users can now model technologies, including

- Hydropower;
- Geothermal;[5]
- Traditional light water nuclear reactors; and
- Small modular reactors.

New default cost and performance data for all technologies is included from the U.S. Energy Information Administration.[6] Resources that do not appear in the new EIA data draw on previous cost and performance data also published by EIA.[7]

Flexible project lifespans and maturities: Users can now adjust the operating lifespan of a project from a minimum of 15 years to a maximum of 60 years. Previous iterations of the model capped the operating lifespan at 30 years; however, these vary wildly between renewable projects and larger fixed capital projects like geothermal, hydro, or nuclear projects. Users can also adjust the maturity of term debt on a

[4]Indeed, some positive internal IRR may well be measured on approved projects, as the institutions that pursue them would want a price high enough to pursue a DSCR greater than 1. This would register in the model as a higher IRR. The reasons for this may have nothing to do with a desire for a return as such, but rather to build a cash buffer against future shocks to the project that may affect its cash flows or ability to raise fresh financing. This will be discussed more in Sections III and IV.

[5]EIA does not yet provide an overnight cost of capital estimate for enhanced geothermal estimates. The default "geothermal" overnight capital cost data in this model refers to a binary cycle system over a hydrothermal reservoir. Source: EIA. 2024. "Table 1-5—Cost and Performance Summary Table." In Capital Cost and Performance Characteristics for Utility-Scale Electric Power Generating Technologies. p. 72.

[6]EIA. 2024. "Table 1-5—Cost and Performance Summary Table." In Capital Cost and Performance Characteristics for Utility-Scale Electric Power Generating Technologies.

[7]EIA. 2023. "Table 3. Cost and performance characteristics of new central station electricity generating technologies." In Assumptions to the Annual Energy Outlook 2023: Electricity Market Module.

project by choosing between 15, 20, 25, 30, or 60 years (all term debt is assumed to start and mature simultaneously).[8]

Other changes: Finally, users can tap multiple miscellaneous functionalities:

- Users can model state and federal corporate taxes alongside other "ineligible" policies. Note that state and local governments do not pay taxes, so this modeling feature is purely for comparative purposes.

- Users can opt to reduce term debt with PTC disbursements (previously, users could only do this when the ITC was the selected credit). Unlike the ITC, this option reduces term debt by applying the PTC as "additional principal payments" on term debt. By contrast, the ITC reduces term debt by reducing the amount that needs to be refinanced from the project's bridge period.[9] Note that PTC can result in cheaper term loans when construction debt is refinanced as well.[10]

- The model now calculates an average return on invested capital (ROIC) across the project's operating life. ROIC is measured as the EBITA (earnings before interest, taxes, and amortization from acquired intangible assets) divided by total project capital expenditure.[11] ROIC is a measure of how effectively an entity is allocating capital to fixed investments. Calculating ROIC minus the WACC illustrates the relative economic value added of the investment. RIOC, as opposed to IRR, is not sensitive to interest rates.[12]

[8]Note that this version cannot yet allow users to have more heterogenous maturities for sources of project financing. Any reader interested in exploring such a structure can reach out to CPE directly to discuss customizing the model and further scenario testing.

[9]If two identical projects use elective pay to reduce term debt and one receives the ITC and another receives the PTC, the former will have to pay lower debt service each year from then on—as long as ITC hits before the refinancing of bridge debt takes place.

[10]To model this, the user would simply set a term capital stack with components whose rate is low on account of the PTC being selected.

[11]Mauboussin, M., D. Callahan. 2022. *Return on Invested Capital: How to Calculate ROIC and Handle Common Issues*. Morgan Stanley. p. 3.

[12]If the user is modeling "ineligible" accelerated depreciation, the numerator of the annual ROIC calculations used for the average will include it. Source: Mauboussin, M., D. Callahan. 2022. *Return on Invested Capital: How to Calculate ROIC and Handle Common Issues*. Morgan Stanley.

II. Financing large fixed capital expenditure: options for public finance

The theme of this new model release is the exploration of policy options for developing "large fixed capital projects." These are projects whose capital expenditure requirements are higher relative to the value of their prospective output. They also have longer "duration:" that is, they last longer and have longer depreciation schedules than typical generation assets. These characteristics make them sensitive to financial risks—for example, long term movements in interest rates—and operational risks that come with their long construction period, complex technologies, and high upfront equipment costs. In the context of green energy in particular, they often encompass newer or commercially unproven technologies such as enhanced geothermal and advanced nuclear reactors, or older but highly bespoke technologies for which the supply chain or workforce has not yet scaled (or is difficult to scale): hydropower, conventional nuclear projects, offshore wind, or transmission and distribution technologies. Ultimately, high degrees of complexity and innovation can turn relatively well-understood, quantifiable risks that raise costs into unquantifiable uncertainties which can stop a project's development altogether.

For the moment, let us put aside the reasons why uncertainty can prevent projects from being deployed (we'll return to that below) except to say that uncertainty isn't simply a product of novelty, though that can be important. Rather, uncertainty is a product of complexity and duration. It is difficult for suppliers, developers, contractors, and customers to smoothly sell to, participate in, or buy from a complex long-term project where both final costs and future outputs are unknown or unpredictable. This is how uncertainty *further* raises development costs: because project investment processes are hard to coordinate, every participant will also raise their costs and risk premiums, driving costs up even further. Various participants in the supply chain simply cannot count on one another or bear the burdens and risks of coordination. These burdens are considerable for entities with hard budget constraints, long-standing areas of specialty, limited liquidity, and/or external fiduciary responsibilities. As a result, large fixed capital projects have markets or supply chains that, in perhaps any other context, would be described as within a state of emergency or breakdown.

Finance is as critical a part of these projects' supply chains as workforce and materials, and it is just as affected by uncertainty. When a technology's or project's prospects for producing reliable, stable and sufficient profits are deemed poor, the terms on which its developer can undertake capital expenditure become markedly worse:

- Required returns on equity will be higher;
- Interest rates on debt products will be higher, particularly because creditors will impose higher risk premiums/hurdle rates on developers;
- Available debt maturities will be lower (debts must be amortized more quickly);
- Secondary markets for project debt will be less standardized, shallower, or non-existent, constraining the liquidity of project debt products;
- Refinancing options for debt products will be limited and costly;

- The range of debt products will be limited, and there may be no scope for developers to secure distinct sources of perm, mezzanine, bridge, or construction debt and build a flexible capital stack;
- Investors may only agree to finance early-stage projects on terms that dilute the lead developer's equity; and
- Private investors may require extraneous or arbitrary demonstrations of viability, sources of collateral, and offtake commitments, or otherwise pernicious and burdensome due diligence (this critique sometimes applies to nonprofit and impact investors as well).

Suppliers in particular are aware that these problems threaten their own sale of inputs into the project: a project that is likely to fail cannot meaningfully commit to future purchases of inputs, let alone pre-pay its suppliers. Thus, a supplier must take on its own risks to undertake new production. As such, suppliers ask for higher margins on their inputs, whether labor, material, or other contributions, rendering the project even more expensive.[13] (How high these margins can rise is also a function of the supplier's own market power and the substitutability of specific inputs.) Supplier risk aversion constrains project development (by raising costs for developers), which in turn precludes cost savings that can arise from repeated interactions, predictable orders, and scale. Long construction periods raise the probability of exogenous shocks to supply and unexpected delays, which may be no fault of the suppliers. Such unforeseen shocks will reverberate through supply chains and further exacerbate the vulnerabilities of large fixed capital projects.

In other words, these projects are stuck in a vicious cycle of high costs begetting high costs. The supply chains that service fixed capital projects need more investment and demand for their outputs to mitigate the impacts of shocks, but they cannot get more investment until the underlying projects that would procure their outputs are secure. Without such guarantees, these projects suffer high costs which lock in higher prices for their final customers, leading to less competitiveness vis-à-vis other technologies and lower demand for further projects which would lower future costs by reducing uncertainty.

While these dynamics seem complex, their impact on financing is simple: the weighted average cost of capital facing developers of large fixed capital projects via private financial markets will be excessively high or, as we will examine further, non-existent. Finance is not a unique input into a supply chain. Like suppliers of physical goods, providers of finance have their own requirements for profitability, constraints on their liquidity, limits on their willingness to take risks under uncertainty. Put another way, investors are affected by the uncertainties of large fixed capital technologies, too. They are affected in ways that cause creditors to seek far higher returns from the projects applying for support: for liquidity purposes, for a risk premium, and because they can exercise market power in nascent sectors (large fixed capital projects have few alternatives).

[13]These margins are a mixture of profit and hedge or risk premiums.

However, unlike machinery, construction material, and labor, credit—especially in a well-developed capital market like the United States'—does not take very much time to create. Therefore, it is the most elastic part of a project's supply chain. We write this to dissuade readers from taking a "vulture" view of financial markets or a skeptical view of financial engineering. Finance reacts as all industries or sectors would when asked to put up a stake in response to deeply unfavorable conditions. But useful forms of financial engineering can help loosen these constraints more smoothly than other components of a project's supply chain.

The CPE elective pay model helps us think through how public finance can be creatively and flexibly engineered to lower the cost of financing enough to ensure that a project is viable. To illustrate options for public finance, we can use any of the technologies in the model since—as we will see—what distinguishes large fixed capital projects from others is nonfinancial uncertainty in the project development process rather than the technology itself. For the purposes of this exercise, we chose to model a public enhanced geothermal generation plant that secures elective pay in Box 1.[14] (Companies such as Fervo and Sage are demonstrating the viability of enhanced geothermal systems, abbreviated as EGS.) The target debt service coverage ratio (DSCR)—the ratio of annual revenue to debt service costs averaged over the lifespan of the project—is set to 1.25. This is the project's functional "viability threshold," and it depends entirely on debt costs and revenue from power sales.[15]

[14]In this issue brief, CPE models a binary cycle geothermal plant with 50 MW of net nominal capacity. According to the EIA's 2024 Capital Cost and Performance Characteristics for Utility-Scale Power Generating Technologies, the overnight capital cost of this plant would be $3,963 per MW and it would see $151 per kW-year. We set the operating lifetime to 30 years and derated the power by 0.5 percent per annum. Source: EIA. 2024. "Table 1-5—Cost and Performance Summary Table." In Capital Cost and Performance Characteristics for Utility-Scale Electric Power Generating Technologies.

[15]As discussed in CPE's Elective Pay Report, this target can be changed and is heavily dependent upon the particular political or legal constraints faced by a public authority. Public authorities will typically face a debt service coverage ratio of at least 1 on most projects, though this is not a technical requirement so much as a fact of politics.

Box 1. Modeling an enhanced geothermal project.

Canary Media's recent review of enhanced geothermal technology alongside a recent Fervo press release both provide just enough information about enhanced geothermal costs and performance to calculate a ballpark "overnight cost of capital" (OCC), measured in dollars per kilowatt of system capacity. Canary Media reported in December a cost per well drilled as low as $4.8 million, with 20 wells drilled at the Cape Station project site in Utah. Fervo announced in September that, with 15 wells drilled, their 30-day-test at Cape Station had unlocked 10 MW of working generation capacity. These figures suggest that a new enhanced geothermal system with these specifications has an overnight capital cost of approximately $7,200/kW. This figure is high but not unreasonable. (For purposes of comparison, this ballpark overnight capital cost is almost 10 percent greater than that of offshore wind and around 5 times / 500 percent that of photovoltaic solar.) OCC should decrease as the cost per well drilled continues to fall below $4.8 million. It would also fall further if fewer wells could unlock the same amount of capacity. To be sure, any ballpark calculated this way will remain slightly inaccurate insofar as drilling costs, in reality, will comprise less than 100 percent of total input costs.

We can now run the CPE Model to simulate an elective pay-eligible enhanced geothermal project. Beyond the values for Base OCC ($7,200) and Base system size (10 MW), we do not change any other default model inputs for geothermal projects (on the "Model" tab). The capacity factor remains at 80 percent, although this can be flexed up or down. On the "Inputs" tab, we assume that this project applies for an elective payment of the investment tax credit (ITC), is built in an energy community, receives no other environmental justice bonuses, and receives a domestic content exemption. The project thus receives a 34 percent elective payment.

We make some additional necessary financial assumptions. (1) We assume that the project developer uses their elective payment to pay down debt immediately. (2) Data from Lawrence Berkeley Laboratory suggest that grid interconnection costs in a state like New Mexico are around $80/kW; so, given enhanced geothermal's novelty as a grid resource, we assume interconnection costs of $100/kW. (It could be lower, seeing as enhanced geothermal is not a variable-dispatch renewable resource.) (3) We double insurance costs from $15/kW/year to $30/kW/year. (4) We assume a construction bridge loan weighted average cost of capital (WACC) of 8 percent and a 20-year term loan WACC of 7 percent (not a 30-year term loan!). (5) We assume that construction takes two years. (6) We also assume that the project is financed with 30 percent equity and 70 percent debt (by setting the cash equity line to 30 percent). We encourage readers to toggle with these values on our model—in truth, these assumptions are subject to substantial regulatory and financial uncertainty.

With these input assumptions in place, we use a Goal Seek function to find that this 10 MW geothermal pilot project meets a 1.25 DSCR with a 1st Year Project Energy Price (functionally, a power purchase agreement price, or PPA price) of $78.75/MWh. This is *half* as much as the PPA price of some offshore wind projects in the news lately (to be sure, no offshore wind project is only 10 MW) and only 40 percent greater than recent solar photovoltaic PPA prices. This breakeven PPA price will fall under the following conditions: if financing becomes cheaper or longer-term—say, through a 30-year loan; if capital costs, interconnection costs, insurance costs, or operating costs fall; if the debt-to-equity ratio of the project falls; or if the target DSCR falls. These are all plausible outcomes in a scenario where public developers and state financial instrumentalities deploy their resources toward geothermal energy. (They become more plausible if the size of the enhanced geothermal project increases beyond 10 MW—developers that can capture economies of scale will definitely lower costs. But they need initial investment in a large-scale project first. It's a chicken-and-egg problem.)

"Fervo Energy's Record-Breaking Production Results Showcase Rapid Scale up of Enhanced Geothermal." Fervo Energy, October 11, 2024.

Gallucci, Maria. "Was 2024 a Breakout Year for Next-Generation Geothermal Energy?" Canary Media, December 20, 2024.

Penrod, Emma. "Renewable PPA Prices Continue to Rise—and May Do so through 2030, Say LevelTen, Ascend Analysts." Utility Dive, October 22, 2024.

Seel, Joachim et al. "Generator Interconnection Cost Analysis in the Southwest Power Pool (SPP) Territory." Lawrence Berkeley National Laboratory, Berkeley, CA. 2023.

Sørensen, Signe. "New York Awards PPAs for 4 GW of Offshore Wind at an Estimated Average Price of 145 USD/Mwh." Aegir Insights, November 12, 2024.

By: Advait Arun

By varying the financial parameters, CPE can mimic policy options available to public finance instrumentalities and note how they affect, among other things, the project's achieved DSCR, and the power prices required for it to hit the target DSCR. When appropriate, CPE will also describe the effects on the internal rate of return, presuming there is equity in the capital stack.[16] We presume each of these features change in isolation.

Increasing the duration of the debt in the capital stack: By increasing the duration of the debt in the capital stack (the number of years over which the project needs to be paid off, or amortized), the project's achieved DSCR increases at the same power sale price because longer debt maturities lower the debt service cost per period (alternatively phrased, longer debt maturities spread out debt service costs over a longer period of time). While total debt service (principal plus interest) costs do increase, particularly because interest is being paid for a longer period, longer maturities ultimately also decrease the power sale price that an individual project requires to be financially viable.

Longer maturities can be much more difficult to find in private markets, particularly for capital projects facing significant uncertainty, because extending the repayment period on debt dramatically extends the

[16]Note once again that achieving any particular IRR (or even having on the grant portion of the capital stack) is not required for viability in our model.

lender's exposure to variability in project revenues and changes in the prevailing interest rate. The early failure of an uncertain project can threaten decades of expected cashflow due to the lender. A loan or bond that repays over thirty years can also turn unprofitable to hold on a creditor's balance sheet if the prevailing risk-free rate rate rises. However, if public policy can overcome these particular risk aversions, projects can benefit period-to-period from longer debt maturities.[17]

Use the ITC or PTC to reduce the amount of term debt once the project is operational: The model allows projects to apply the ITC and PTC to reduce their term debts immediately after projects enter operation and receive the applicable tax credit. As noted above, the model does this differently for each credit. The ITC is applied while term debt is being negotiated, such that the total debt taken out at term (when the project enters operation) is lower than the final cost of developing the project. The ITC covers the difference, thereby lowering the resulting debt service payments. By contrast, the model takes the PTC, which accrues over ten years and depends on a project's power output, and credits it toward paying down debt service costs for those first ten years rather than toward the project's total debt burden. This means the amount of debt taken out by an identical project and its debt service requirements will be higher under the PTC than the ITC, but a PTC project will also finish repayments much sooner.[18]

Provide "public" equity stakes: Public equity stakes, rather than loans, can reduce the debt-to-equity ratio or loan-to-value ratio of a project. This can be modeled by increasing the "cash equity / grant / down payment %" in the "Inputs" tab, thereby decreasing the project's loan-to-value ratio. Decreasing the ratio increases a project's achieved DSCR, insofar as total debt servicing costs will fall. This means projects can lower prices while remaining viable. Decreasing prices also reduces the project's IRR, relative to the higher prices at which the project was previously viable.[19]

A very specific kind of marginal project—a project whose combination of expected cash flows and cost of capital put it "close to the edge" in terms of commercial viability given current market, sectoral, or technological conditions—which public financing can unlock is an early-stage, capital-intensive, first-of-a-kind project trapped in the "project finance valley of death." New technologies—for example,

[17]Project finance cannot itself increase the available project lifespans. Increasing a lifespan also will not change the project's achieved DSCR in the model if the duration of the project financing remains unchanged. A project would have to charge a price high enough to meet its debt service obligations until debt is repaid; at that point, a project could decide what to do with its pricing and spare cashflow. These are decisions which the model does not depict as they will vary a lot depending on who owns a project, whether it is part of a portfolio, and the terms of any power purchase agreements it has signed.

[18]The project could also refinance its debt after making a series of PTC payments, but this option is not explored by the model.

[19]To truly achieve the highly catalytic effects of equity finance, the investment would have to come directly out of the public budget rather than being leveraged (where a public entity would raise debt to fund the equity investment, a process known as "back-leveraging"). Direct equity contributions are higher-risk but, in the right cases, very high-reward for the public sector.

enhanced geothermal—face a unique constraint. On one hand, investors who believe in the technology's growth potential will want to invest in the company to capture its growth potential rather than financing a specific project. On the other hand, investors who typically lend money to a specific project are looking for a specific "bond-like" set of returns that first-of-a-kind to *N*th-of-a-kind projects are unable to guarantee. The firm thus finds itself in the difficult position of either diluting its own equity to support early stage development or paying extremely high premiums to lenders in order to access project specific finance. This is an ideal place for public financing to intervene by offering project equity (through a cash injection directly into the project as a co-investor) for pilot projects that can demonstrate the technology's capability to generate steady cash flows while moving the firm further along the learning curve.

Reduce bridge or term debt interest rates relative to market alternatives: This is perhaps the simplest option available to public finance. Reducing the project's cost of capital is a quintessential form of derisking. This can happen via lower rates on any of the debt instruments provided by the public sector: term debt, construction debt, etc. Those debt instruments could also take up a larger portion of the capital stack. Alternatively, projects can receive the opportunity to cheaply refinance debt later in their lifespans (something not depicted in this model *except* at the moment in which developers refinance their construction debt into term debt). All these steps will reduce the amount of required debt service over time and result in the project needing a lower price to achieve viability.

III. What public lending and investment cannot do for Large fixed capital projects

So far, we have discussed how the features of large, complex, fixed capital investments can suffer from excessively high costs and how lower-cost public sector financing can lower some of these costs. The Elective Pay Model, Version 3.0 is designed to assess whether a specific kind of capital stack can reduce the WACC of a project enough to make it viable to its developer. However, there are limits as to what public finance efforts can do alone. Those non-financial barriers are illustrated by another look at the model. The developer and owner of a project, even one that is 100 percent publicly owned and financed, must make assessments about the future. It must examine its supply chains and determine whether there are enough materials available for the project to be built on time and at reasonable cost. The developer must assess the availability of a qualified work force and/or the time and effort it will take to train one. The developer must determine whether its project can make it through the grid interconnection queue in a timely and cost-effective manner. Finally and most particularly, it must ask whether it will have customers for the price it must charge to cover these costs. (And this is to say nothing of whether the chosen technology will "work" in the circumstances it is applied to.)

An investor or developer can use a model like CPE's to run several scenarios based on their answers to these questions, assign a risk weighting to them, and build a more complex financial portfolio. But the harder it is to answer these questions with any certainty, the less useful any kind of financial model will be. Imagine a world in which the model's input costs change wildly or revenue sources disappear overnight: whole cells of the spreadsheet double or halve in value, or even disappear.

Box 2. Why is offshore wind getting even more expensive?

Offshore wind prices are eye-popping. The levelized cost of electricity for offshore wind is frequently north of $100 per MWh. A private offshore wind project in our model clocks in at about $123.5 per MWh, comparable to estimates published by NREL's *Cost of Wind Energy Review: 2024 Edition* for fixed-bottom projects: $117 per MWh. This project presumes a 75-25 debt-equity split, a term WACC of approximately 10.28 percent, a bridge WACC of 7 percent. The project claims a 30 percent ITC, pays corporate taxes, and is subject to the model's default values for system size, capacity factors, fixed costs, etc. Insurance and interconnection costs are $100 and $50 per kW respectively. It is also subject to a 1.25 target DSCR.

Offshore wind, like enhanced geothermal power, is an example of a fixed capital investment that is subject to many of the dynamics discussed in this paper. Recent estimates of offshore wind pricing are showing its cost to be even higher. In February 2024, the weighted average development cost of New York's Empire 1 and Sunrise Wind projects was approximately $150 per MWh, a cost in the territory of new AP1000 installations like Vogtle. NREL's *Offshore Wind Market Report: 2024 Edition* notes the combination of macroeconomic and supply chain pressures causing costs to spike, rendering projects nonviable and states to cancel procurement-forcing projects to once again seek new offtake. To demonstrate how various market pressures feed through onto power prices, we run the following model scenario.

- Increase the DSCR to 1.5
- Increase insurance to $75 per kW
- Increase insurance to $150 per kW
- Increase fixed operations and maintenance costs to $175 per kWy
- Increase variable operations and maintenance costs to $30 per MWh

These changes, combined, drive up the project's initial price to over $180 per MWh. And this is without changing a critical component of recent offshore wind problems: the cost of capital. Changing the bridge WACC to 8 percent and the term WACC to 11.2 percent drove the price closer to $190 per MWh. If the growth rate of operations and maintenance costs is set to 3 percent, then the cost approaches $200 per MWh. These are arbitrary selections and are not meant to be definitive as to the cause of specific power price hikes, but they illustrate a crucial point. If developers and investors start building in buffers against real or anticipated costs, higher or more difficult demands from finance, increased cost inflation, and other factors reflecting supply chain and market difficulties, it is trivially easy to undermine pre-existing cost estimates. For investment to proceed, developers (public or private) need to be confident that they can meet their cashflow commitments with a desired (or imposed) hedge.

Jenkins, Jesse D. (@JesseJenkins). "These resurrected offshore wind projects will now cost about $150 per megawatt-hour." Feb. 29, 2024, 5:59 PM.

Staff, WPED. "New York Approves 2 Offshore Wind Projects Totaling 1.7 GW." Windpower Engineering & Development, February 29, 2024.

McCoy, Angel, et al. "Offshore Wind Market Report: 2024 Edition." Golden, CO: National Renewable Energy Laboratory, August 2024.

By: Chirag Lala

What is the implication for financing large fixed capital projects such as enhanced geothermal, nuclear, or other "advanced technologies" in the energy sector to a point where they can be commercialized? Given that the chief vulnerability of public finance policies is uncertainty, one answer is for the state to do everything in its power to create *certainties* the project developer can rely on. Three categories of industrial and public finance policies immediately come to mind. These do not directly supply sources of upfront capital for the capital stack of the project. Rather, they either mitigate or tackle key sources of uncertainties facing a project's expected cash flow projections, or make it easier for investment to proceed despite high uncertainties and considerable risks.

1. **Cost or revenue insurance.** The state can insure against particular exigencies: supply chain shocks, input prices falling below a certain floor or input prices shooting past identified ceilings, interconnection failure, the cost of capital on particular financial instruments, or the appearance

of sudden costs due to *force majeure*-type natural or human-made disasters. Insurance mechanisms like these can directly compensate for key sources of volatility in the market or supply chains in a manner that also hedges against additional and more direct government efforts to deal directly with those issues. For the purposes of the model, one can think of these mechanisms as putting floors and ceilings around key model variables.

2. **Offtake commitments.** The state can promise to buy output at a given price for a certain length of time. Even if certain shocks do occur, offtake commitments ensure that purchases will continue and the firm will continue to have a reliable stream of cash. Purchase commitments can also be set at a quantity or price high enough to offset a variety of different shocks or to secure a buffer (risk premium) against exigencies that could affect the project for the project itself—though that will come at a cost to the public or private entity providing them. From the point of view of CPE's model, offtake commitments ensure the accuracy of the project's assumed revenue flows.

3. **Public developers.** The state can establish its own firm for undertaking investments, owning and operating projects, holding equity stakes, or otherwise engaging in market transactions as any private developer would.[20] Public development can provide specific advantages for raising capital and bypassing the risk hesitancy of analogous private firms, allowing these developers to proceed with investment that other firms would not make. In turn, if investments succeed, they can utilize the resulting windfalls for various public purposes or to cross-subsidize their portfolios of projects. Public developers can also function as co-investors with private parties for similar reasons. The Elective Pay Model enables its users to assess and compare the stated benefits of public development: a lower threshold DSCR, no tax obligations, the possibility of direct payment of tax payments, no "private" equity involvement, different financing options, and more.[21]

We mention these three avenues for several reasons. First, early-stage fixed capital technologies may not yet be able to fetch a competitive price[22] for their outputs without further investment in lowering the cost and increasing the speed of their deployment. Investment must proceed to beget improvements and

[20]Lala, C., Y. Feygin. 2024. Public Developers. Center for Public Enterprise.

[21]Crucially, none of these advantages are given and policy may be required to secure them for the public developer. For instance, a public developer may still have to keep a high credit rating, or might be required under statute to pursue a rate of return or DSCR analogous to those of private entities. They may face restrictions on how they utilize their funds that no comparable private entity would face. They may face positive obligations to spend money on things that private entities do not. They may face restrictions on hiring, additional forms of due diligence, specialized permitting rules, or unique procurement requirements as well. Without commenting on the desirability of these various limitations, it is important to recognize they can clash with or dilute other commonly recognized advantages of public development *if the developer's design, authority, political backing, and financing are not made to compensate by policy.*

[22]Nor perhaps a price that could be made competitive with available or likely pricing adjustments such as carbon taxation, renewable or clean portfolio standards, or cap-and-trade systems.

learning by doing. Second, while regulatory or market-shaping policies[23] are necessary to address barriers to investment,[24] as are investments in downstream or upstream sectors—all proceed on a timeline that may not match the deployment needs of specific projects. For these projects, a hedge is required against unexpected hits to critical costs and revenues, as is protection from unexpected shocks—to say nothing of the fact that barriers to investment may not be ascertained if a project can proceed to a certain point in the learning cycle. This hedge is not a substitute for regulatory or market-shaping policies; rather the hedge further limits which specific "marginal" projects fall short of viability. Third, just as private sources of finance need demonstrations (which only come via investment), so too do potential buyers and developers. If that investment has not yet happened at sufficient scale, the lack of market-buyers (or insurers) becomes a self-fulfilling prophecy, just as the lack of financiers does. The government must step in. In doing so, the state eliminates (or renders irrelevant for modelling and planning purposes) "known" vectors of uncertainty.

Development is often about assembling and coordinating an array of actors (public or private) to proceed under the harshest of circumstances. As such, it is sometimes necessary for the state to heavily facilitate and subsidize the process, or take on certain investments and operational commitments itself. For projects whose deployment is a strategic priority, public development need not be confined only to those cases in which private development options have been exhausted. If the state is willing to take the risks of being a developer,[25] then its involvement either as a primary or co-owner need not threaten the involvement of other private entities in the supply chain or the development of a larger ecosystem of firms. State participation can also ensure the state captures significant value for the public and is able to utilize it for other purposes, including advancing more priority projects.

[23]These policies include (but are not limited to) competition or market structuring measures, electricity pricing regulations, rules for utility commissions, interconnection processes, permitting, siting, etc. For more on the state's role in shaping markets to ensure operation in line with public objectives, see Steve Vogel's book: *Marketcraft: How Governments Make Markets Work.*

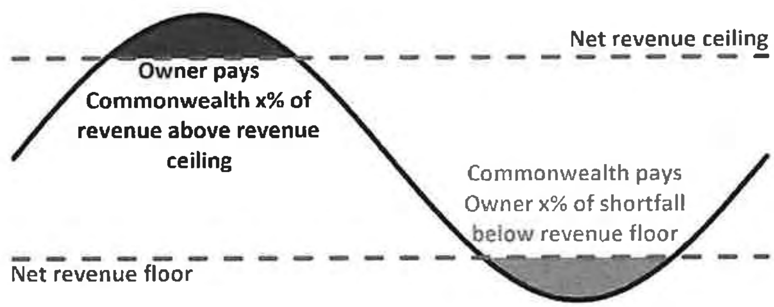
[24]For energy projects, these encompass (but are not limited to) renewable or clean portfolio standards, regulatory standards, interconnection reforms, pricing carbon, and capacity payment incentives, among others. While it is beyond the scope of this paper to explore all of these options in detail, their goal (presuming governments remain interested in ensuring a particular technology retains its role in a given market) is to ensure that a steady stream of market demand can substitute for government support and that developers are able to respond to market demand with sufficient investment, operations and maintenance, and standby or reserve capacity. It is common to see them persist with public finance measures, offtake commitments, and insurance on cost or revenues. It is also common to see them substitute for more overt forms of state support after a technology has reached a point of viability wherein the state no longer feels compelled to remain the only risk-taker.

[25]This can include purposefully shouldering the burden of particular risks that the private sector would not, even in ordinary circumstances such as potential over-investment (or the creation and maintenance of capacity without regular sources of off-take).

Box 3: Australia's Capacity Investment Scheme.

Australia has committed to move to 82 percent renewable energy by 2030, requiring an estimated 32 GW of new renewable generation. While Australia enjoys geographical features which provide it with very high capacity values for solar power, it still requires a portion of this new energy to be dispatchable—in other words, rampable and available 24/7. Australia's extremely high-capacity solar energy makes grid-scale storage via batteries an extremely attractive option.

To foster this rapid deployment and ensure price stability in energy markets, Australia has developed a revenue insurance program called the Capacity Investment Scheme (CIS). The CIS aims to foster deployment of both standalone renewable energy and dispatchable clean power by establishing a tender for a revenue insurance policy which pays out once a project falls below a certain floor. On the other hand, if revenues exceed a certain ceiling, the project pays out a portion of these excess profits back to the state.



"Revenue Underwriting Design Instrument" Capacity Investment Scheme, Public Consultation Paper, pg 4.

The CIS creates a "corridor system" which provides project developers with assurance that it will be able to recoup its investments, thus lowering the project's borrowing costs. These lower borrowing costs can be passed along to customers as a lower price of electricity. To ensure that the public's largesse is repaid via lower prices to the consumer, the ceiling creates an effective excess profits tax which not only discourages super profits but, if these are achieved, returns portions of them back to the public. The CIS thus tries to thread the needle between public insurance that benefits private firms and the re-capture of value to the public.

Capacity Investment Scheme: Public Consultation Paper, Australian Government Department of Climate Change, Energy, the Environment and Water.

By: Yakov Feygin

A willingness to experiment—and fail!

The policy options presented in this brief can make a significant difference for marginal projects close to the edge of viability. The depth of the margin depends on how much room the public entity has to lower the cost of capital without running up against its own budget or lending constraints. If they are not willing to bypass those constraints and the technology is still judged desirable, it is an indication that market-shaping or regulatory reforms may be necessary to eliminate barriers to investment that public finance, public ownership, or offtake and insurance arrangements cannot alter.[26]

If public finance is in the cards, various lending tools and financial engineering strategies to save or sustain important projects are possible. Public capital, to overcome this risk, must be willing to bypass those considerations and take the risk anyway.[27] It must also be authorized to engineer financial products that are useful for supporting the liquidity of the projects in its pipeline. An upfront equity offering is particularly important for advanced technology that needs to be piloted, while debt products are useful if a firm no longer seeks to dilute its existing equity holders. Furthermore, through the use of offtake commitments, the state can ensure a working market for public capital injections to ensure projects proceed and that their benefits are not hobbled by limited private appetites for further uncertainty. Through cost or revenue insurance, the state can then guard its priority projects against other emergencies. Through public ownership, the state can directly involve itself in critical parts of supply chains or subsectors to ensure an investment process proceeds in the face of risk and uncertainty. Like public finance, however, industrial and public finance policies must be implemented in ways that are applicable to target sectors and in ways that allow agencies to actually utilize them.

Investment is ultimately a bet on future outcomes. A willingness to take risks entails a willingness to tolerate failure is necessary. Some projects will fail: they might not work, yield the desired results, or encounter exigencies completely unforeseen by current policy. Yet there is no other way to advance desired technologies than to facilitate their deployment under the aegis of public policy and to see what works. That means building state capacity that can judiciously assess what information is available on specific technologies and their sectors, utilizing creative financial tools to respond to investment needs, and pivoting in the event of failure (or success!). It means investing in more than one project, and instead investing in a portfolio that can explore the limits of technological progress. It also requires legislatures (and other agencies who might not be tasked with public finance) undertaking structural or market reforms to facilitate the work of agencies that do. This is the work of public sector investment.

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[26]In this sense, derisking or public finance is not merely a service offered by the public sector to private projects. Public projects can also be "derisked."

[27]This willingness can come from administrator discretion to be sure. But it can also come from derisking mechanisms to providers of public capital: a secondary purchaser for debt they issue, capitalization funds from a state legislature or Congress, or co-investment partnerships with other private and public entities.

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Cover Photo

'Hoover Dam,' Nathan Roser/Unsplash.

About the Center for Public Enterprise

Center for Public Enterprise is a 501(c)(3) nonprofit organization focused on expanding public sector capacity to deliver broad economic development. Our work focuses on various sectors of the economy, including housing, energy, and finance. For more information, visit our website at publicenterprise.org.

Attachment D

MBK ENGINEERS
Water Resources • Flood Control • Water Rights

MEMORANDUM

February 25, 2025

TO: Reclamation District No. 2044
FROM: Michael Moncrief
SUBJECT: **February 2025 Engineer's Report**

Board Members and Representatives:
Described below are the engineering items to be discussed at your February 2025 meeting.

Subventions 2023-24 – Your Subventions Claim inspection was performed with DWR and CDFW, there are no mitigation requirements. Your total Claim submittal was for $194,881.94. After the $1,000 per mile deduction, your 75 % reimbursement would be approximately $139,336 if there are no adjustments. We still need the GM levee patrol inspection forms for the 2023-24 FY to be provided to ensure reimbursement of that eligible item.

2025-26 Subventions Program – The District's 2025-26 application is due April 1. We recommend requesting $485K, similar to last year (approximately $350K in State cost share); to maintain a buffer for emergency work. If you would like any adjustments to the recommended budget below, please let us know. Anticipated routine maintenance of the levees, under the jurisdiction of the District for 2025-26, will consist of the following items along with the estimated cost.

Annual Routine Maintenance Items	Estimated Cost ($)
Levee Patrol	10,000
Rodent Control	15,000
All Weather Road	75,000
Subsidence, Sloughing, and Slipouts	40,000
Debris Removal	0
Seepage Control	100,000
Clean Drains and Toe Ditches	0
Vegetation Control	45,000
Waterside Slope Protection	125,000
Flood Planning and Preparation	10,000
Remove or Modify Encroachments	5,000
Surveying	20,000
Engineering	25,000
Misc. (gates, signage, etc.)	5,000
Environmental (CDFW, CEQA, etc.)	10,000
Total Routine Maintenance	**$485,000**

Erosion Repair Project Recap – The District may consider this list for future ongoing repairs next construction season, with coverage under your existing CDFW LSAA, see attached updated list. MBK can perorm a site review to determine if a spring sole-source repair to address sites prior to EOFY would

455 University Ave., Suite 100 Sacramento, CA 95825 Phone 916/456-4400 FAX 916/456-0253

be appropriate or consider an annual repair preojct to address any outstanding sites; Yellow denotes coverage under SAA. A spring bloow survey will need to be performed if eosion is continued to be addressed.

Marina Anomaly Repair – The first of two repairs were completed in 2024, the second site is still pending. The GM is coordinating schedules with Archer, consideration should be made to move forward with an alternative contractor if necessary. The GM is coordinating with the marina on their Boat Ramp and danage to their wall, beyond the levee template.

District Roadway Repairs and Chip Seal – The District will re-eavaluate roadway damages along their primary access route along the District and identify outstanding all-weather access repairs, and subsequent in-kind replacement of chip seal roads, where necessary. Primary chip seal or asphalt locations are between station 0+00 – 55+00 and 274+00 – 310+00.

Flood Safety Plan Update – MBK is updating your Emergency Operation Plan/FloodContingency Map. The final draft product will be available for your review in March; all invoicing will be submitted through San Joaquin County OES for 100% reimbursement.

Winter – Spring 2025 Monitoring-Maintenance Activities – Routine maintenance, ongoing repair, flood preparation during 2024-25 Flood Season.

1) Erosion Repair Planning– There are 35 serious sites that need to be addressed and prioritized for potential future repairs. We have an agreement with CDFW to repair these sites under LSAA #EPIMS-SJN-40749-R3, which expires December 31, 2027. Work outside this permit coverage could be done under your RMA over several years. Estimated cost for all remaining serious repairs is $185,000. Sites should be monitored, see attached list

2) Flood Season: District General Manager and District Engineer have discussed current emergency operation plan. Your drone survey is available for review; the files are large, request a link for download if interested. Alternatively we'll keep the video as a snapshot of conditions as of November 22, 2024.

3) Rodent Activity – Monitor new animal activity; a possible den was removed during the last erosion repair, but it turned out to be a rotted old tree stump. Any rodent activity needs to be controlled with baiting or other methods, backfill of holes and excavation of dens is critical; coordinate with MBK for any signs of beaver dens.

4) Levee sloughing, cracking, rodent repairs, landside anomalies – Continue to monitor for levee movement at key locations around the District, especially pump stations locations (3 locations around District), pipe penetrations, ramps, and historic seepage areas like the southern levee from the old pumpstation east towards Paradise Point Marina.

5) Vegetation Control; General Manager report on required maintenance. If there remains any dead/dying Acatia Trees (Tree of Heaven) on east levee, we can notified CDFW of the dead trees on the east levee south of Eight Mile Road and they can be removed without any mitigation. The District must consult first with CDFW, but they will approve removal. Remove Palm tree on landside shoulder of north levee adjacent to Foppiano Property. Mow and clear landside toe berm and adjacent toe along south levee to avoid establishment of woody vegetation, wetland features, and native plants that would create mitigation problems for the District.

6) Pumpstation repairs to main pumphouse: any additional pipe/pump issues to address? Harris valve replacement; shifting pumps on platforms? What is the status of the District pumpstations?

FEMA/OES Update – Districts that have been fully obligated, like RD 2044, are starting to see some funding come through. Look for payments in the amount of ($95,991.33, $5,202.22, $6,039.70 and $1,509) respectively from State of California.. We are not sure of timing of payments.

SEARCH

Project #	Category	Title	Type	Process Step	Activity Completion Deadline	# Damages	Best Available Cost
742437	Z - Management Costs	Mangement Costs	Management Costs	Obligated	01/14/2031	1	$5,202.22
720899	D - Water Control Facilities	Levee Crown Damage	Work Completed / Fully Documented	Obligated	07/14/2024	1	$8,052.93
716068	B - Emergency Protective Measures	Emergency Protective Measures-100% FedShare 60 Days	Work Completed / Fully Documented	Obligated	07/14/2023	1	$95,991.33

Encroachment Permit Update – New Interior Pumpstation Planset Reflects MBK survey
The District (MBK Engineers) received an updated plan set on 2/13/2025 from Seigfried Engineering with an updated plan view page showing the extent of the rip rap that matched our surveys. The General Manager should coordinate with the permit holder to determine a schedule to either modify the plan to add erosion scour protection or consider a monitoring period to make annual obersvations to track change in conditions from pumping operations. The annual cost for the District to track changes will be excessive. Did the contractor and engineer verify soil characteristics in the channel will counteract erosion and scour from pump discharge over time? This site should continue to be monitored by the District.

2024-25 Flood Season – MBK Engineers has been tracking the 2024-25 flood season which has been relatively calm for the Central Delta. Recent storms did push us closer to monitor stage on several instances, but no major storm surge or flows pushed into Monitor stage. Miracle March is always a potential, stay vigalent, stay prepared. Continue to look for change in conditions, sinkholes, erosion and animal activity.

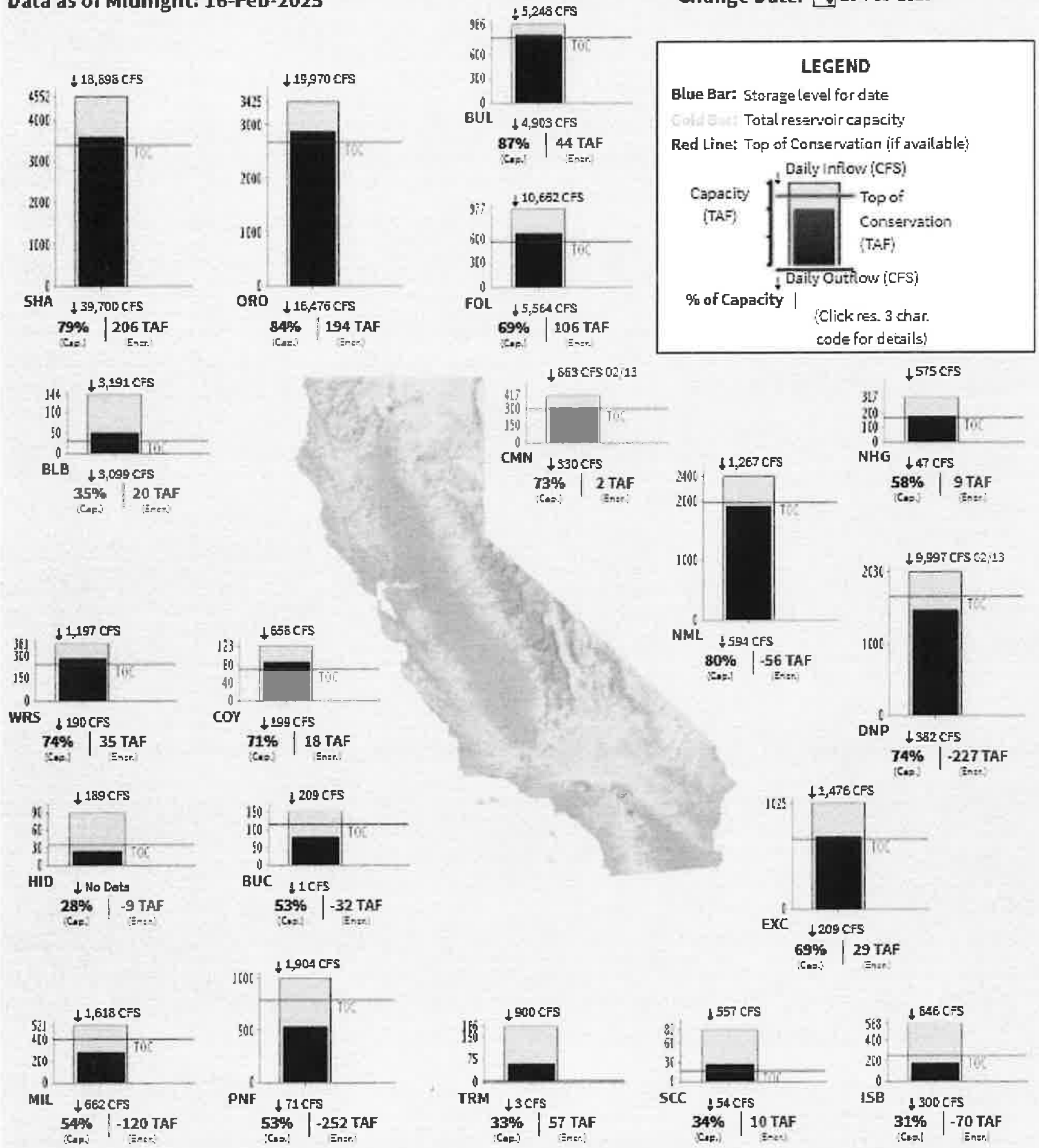
DSC Delta Adapts – DSC recently updated their Delta Adapts plan highlighting general strategies in the Delta to sustain or modify landscapes over the next 50 years. The plan was light on details on how flood control would be maintained over time. The CCVFCA submitted a comment letter based on lack of details on how sustainable flood control would be achieved over the next 50 years.

Thanks,

455 University Ave., Suite 100 Sacramento, CA 95825 Phone 916/456-4400 FAX 916/456-0253

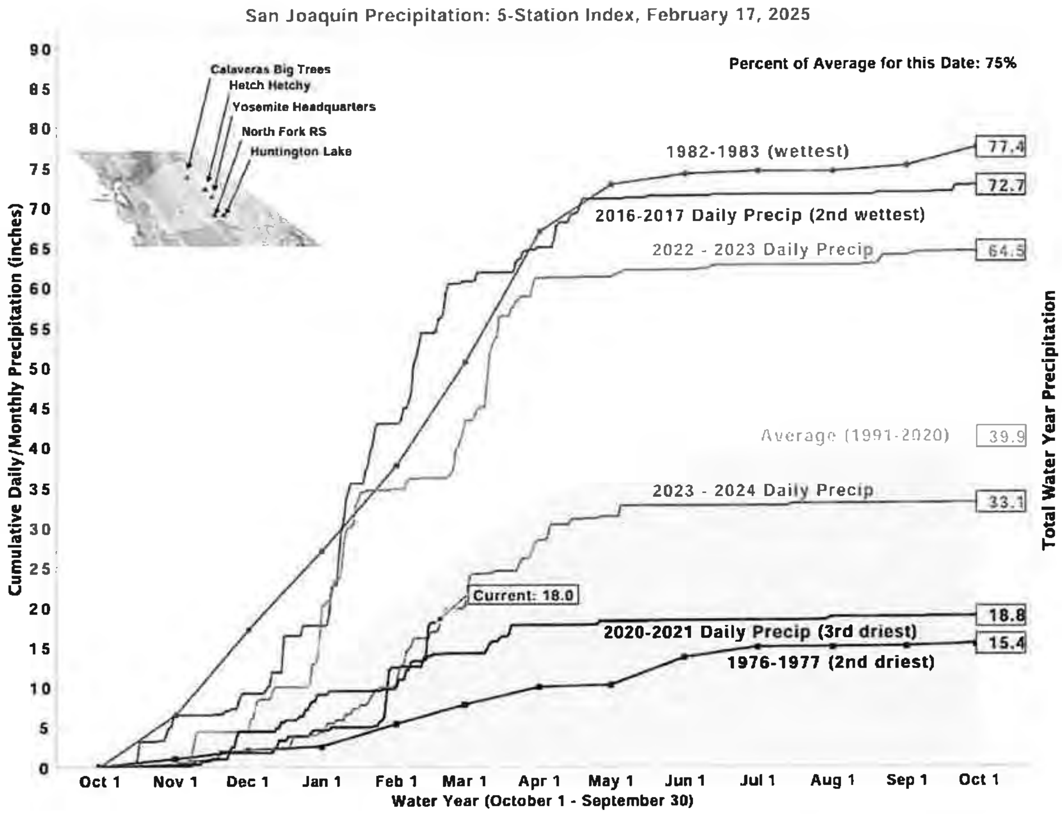
TOP OF CONSERVATION CONDITIONS:
CENTRAL VALLEY AND RUSSIAN RIVER FLOOD CONTROL RESERVOIRS: 16-FEB-2025

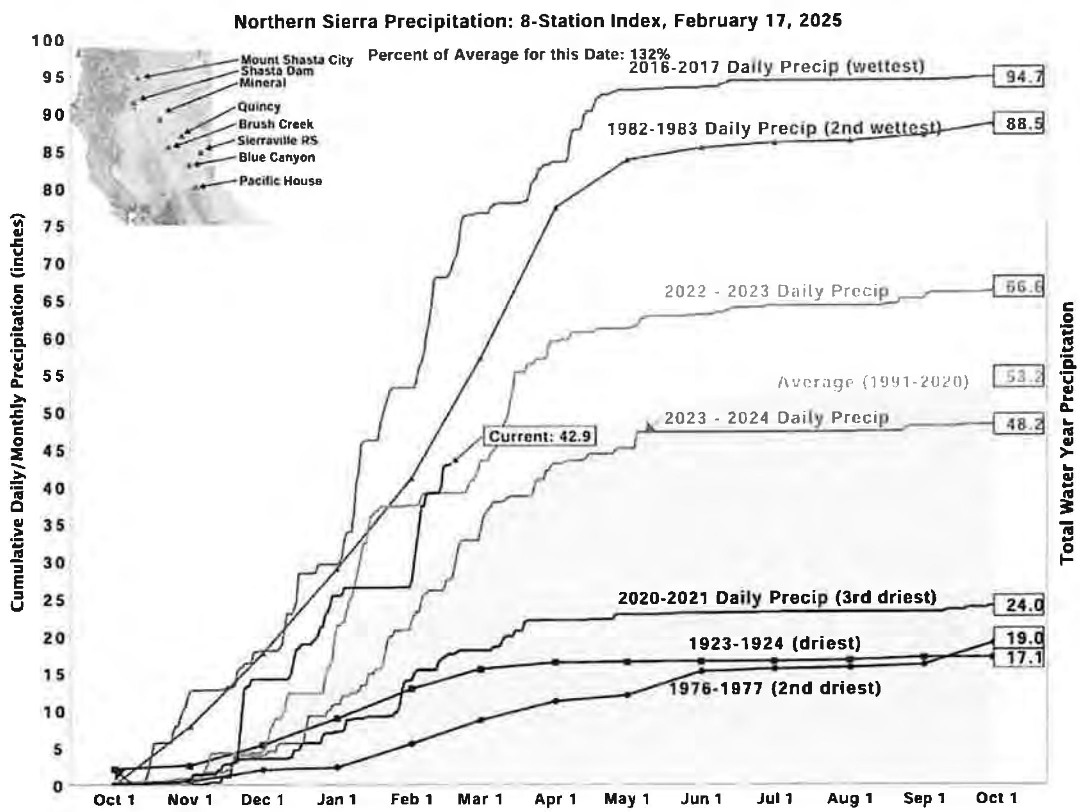
Data as of Midnight: 16-Feb-2025 **Change Date:** 16-Feb-2025



Click for printable version of current data.

Report Generated: 17-Feb-2025 3:45 PM


San Joaquin Precipitation: 5-Station Index, February 17, 2025
Percent of Average for this Date: 75%
Calaveras Big Trees
Hetch Hetchy
Yosemite Headquarters
North Fork RS
Huntington Lake
1982-1983 (wettest)
2016-2017 Daily Precip (2nd wettest)
2022 - 2023 Daily Precip
Average (1991-2020)
2023 - 2024 Daily Precip
Current: 18.0
2020-2021 Daily Precip (3rd driest)
1976-1977 (2nd driest)
77.4
72.7
64.5
39.9
33.1
18.8
15.4
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
Oct 1 Nov 1 Dec 1 Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1
Water Year (October 1 - September 30)

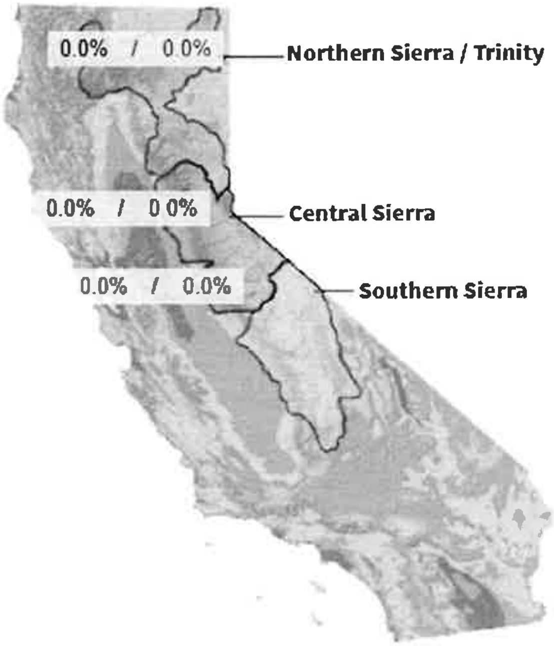

Northern Sierra Precipitation: 8-Station Index, February 17, 2025
Percent of Average for this Date: 132%
Mount Shasta City
Shasta Dam
Mineral
Quincy
Brush Creek
Sierraville RS
Blue Canyon
Pacific House
2016-2017 Daily Precip (wettest)
1982-1983 Daily Precip (2nd wettest)
2022 - 2023 Daily Precip
Average (1991-2020)
2023 - 2024 Daily Precip
Current: 42.9
2020-2021 Daily Precip (3rd driest)
1923-1924 (driest)
1976-1977 (2nd driest)
94.7
88.5
66.6
53.2
48.2
24.0
19.0
17.1
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
Oct 1 Nov 1 Dec 1 Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1

Snow Water Equivalents (inches)

Provided by the California Cooperative Snow Surveys

Data For: **16-Feb-2025**

% Apr 1 Avg. / % Normal for this Date



Change Date : 16-Feb-2025

NORTH	
Data For: 16-Feb-2025	
Number of Stations Reporting	0
Average snow water equivalent	0.0"
Percent of April 1 Average	0%
Percent of normal for this date	0%

CENTRAL	
Data For: 16-Feb-2025	
Number of Stations Reporting	0
Average snow water equivalent	0.0"
Percent of April 1 Average	0%
Percent of normal for this date	0%

SOUTH	
Data For: 16-Feb-2025	
Number of Stations Reporting	0
Average snow water equivalent	0.0"
Percent of April 1 Average	0%
Percent of normal for this date	0%

STATEWIDE SUMMARY	
Data For: 16-Feb-2025	
Number of Stations Reporting	0
Average snow water equivalent	0.0"
Percent of April 1 Average	0%
Percent of normal for this date	0%

Printable Version of Current Data

Site Data

Reclamation District No. 2044 - King Island

Eroded Slopes or High Energy Damaged Sites

Bank Protection Project(S) 2023 Damaged Sites

SERIOUS PRIORITY SITES - 2024 Re-inspection Needed				
SITE NUMBER	BEGIN STATION	END STATION	LENGTH (FT)	QUANTITY (TON)
1	6+20	6+40	20	14
2	9+00	10+00	100	70
3	12+50	12+80	30	21
4	44+30	45+50	120	84
5	60+00	61+00	100	70
6	64+80	65+00	20	14
7	75+60	75+80	20	14
8	79+80	79+95	15	11
9	91+20	91+35	15	11
10	108+90	109+10	20	14
11	120+00	120+25	25	18
12	130+10	134+30	370	259
13	157+30	158+15	85	60
14	162+10	162+25	15	11
15	172+40	173+15	75	53
16	175+80	176+00	20	14
17	184+25	187+00	275	193
18	235+00	237+20	220	154
19	243+70	244+20	50	35
20	248+90	250+30	140	98
21	274+90	275+20	30	21
22	277+50	277+90	40	28
23	290+40	291+10	70	49
24	298+20	298+40	20	14
25	302+00	302+20	20	14
26	304+00	304+25	25	18
27	321+00	324+00	300	210
28	337+50	339+00	150	105
29	340+40	340+70	30	21
30	351+00	352+00	100	70
31	401+90	404+30	240	168
32	404+70	405+00	30	21
33	406+40	409+50	310	217
34	466+00	466+20	20	14
35	473+50	474+00	50	35
		TOTALS	**3,170**	**2,325**

COST ESTIMATE **$185,000**

SITES COVERED UNDER 2023 LSAA

Attachment E

RECLAMATION DISTRICT #2044

DATE: 9/12/2024 ACCOUNT: 52301

WARRANT #	DATE REGISTERED	CALL DATE	DAYS OUTSTANDING	RATE	PRINCIPAL	INTEREST		TOTAL	
104	9/16/2024	2/20/2025	157	5.50%	50,000.00	1,182.88		51,182.88	1
105	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	2
106	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	3
107	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	4
108	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	5
109	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	6
110	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	7
111	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	8
112	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	9
113	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	10
114	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	11
115	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	12
116	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	13
117	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	14
118	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	15
119	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	16
120	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	17
121	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	18
122	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	19
123	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	20
124	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	21
125	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	22
126	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	23
127	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	24
128	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	25
129	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	26
130	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	27
131	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	28
132	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	29
133	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	30
134	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	31
135	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	32
136	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	33
137	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	34
138	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	35
139	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	36
140	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	37
141	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	38
142	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	39
143	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	40
144	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	41
145	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	42
146	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	43
147	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	44
148	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	45
149	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	46
150	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	47
151	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	48
152	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	49
153	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	50
154	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	51
155	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	52
156	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	53
157	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	54

158	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	55
159	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	56
160	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	57
161	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	58
162	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	59
163	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	60
164	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	61
165	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	62
166	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	63
167	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	64
168	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	65
169	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	66
170	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	67
171	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	68
172	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	69
173	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	70
174	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	71
175	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	72
176	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	73
177	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	74
178	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	75
179	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	76
180	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	77
181	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	78
182	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	79
183	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	80
184	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	81
185	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	82
186	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	83
187	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	84
188	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	85
189	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	86
190	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	87
191	9/16/2024	2/20/2025	157	5.50%	25,000.00	591.44		25,591.44	88
192	9/16/2024	2/20/2025	157	5.50%	25,000.00	591.44		25,591.44	89
193	9/16/2024	2/20/2025	157	5.50%	25,000.00	591.44		25,591.44	90
194	9/16/2024	2/20/2025	157	5.50%	5,000.00	118.29		5,118.29	91
195	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	92
196	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	93
197	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	94
198	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	95
199	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	96
200	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	97
201	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	98
202	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	99
203	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	100
204	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	101
205	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	102
206	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	103
207	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	104
208	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	105
209	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	106
210	10/16/2024	2/20/2025	127	5.50%	5,000.00	95.68		5,095.68	107
211	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	108
212	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	109
213	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	110
214	11/14/2024	2/20/2025	98	5.50%	5,000.00	73.84		5,073.84	111
215	11/14/2024	2/20/2025	98	5.50%	5,000.00	73.84		5,073.84	112
216	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	113
217	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	114

218	11/14/2024	2/20/2025	98	5.50%	5,000.00	73.84		5,073.84	115
219	11/14/2024	2/20/2025	98	5.50%	5,000.00	73.84		5,073.84	116
220	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	117
221	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	118
222	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	119
223	11/14/2024	2/20/2025	98	5.50%	10,000.00	147.67		10,147.67	120
224	11/14/2024	2/20/2025	98	5.50%	5,000.00	73.84		5,073.84	121
225	12/11/2024	2/20/2025	71	5.50%	10,000.00	106.99		10,106.99	122
226	1/8/2025	2/20/2025	43	5.50%	10,000.00	64.79		10,064.79	123
227	1/8/2025	2/20/2025	43	5.50%	10,000.00	64.79		10,064.79	124
228	2/7/2025	2/20/2025	13	5.50%	10,000.00	19.59		10,019.59	125
229	2/7/2025	2/20/2025	13	5.50%	10,000.00	19.59		10,019.59	126
			0			0.00		-	
			0			0.00		-	
			0			0.00		-	
			0			0.00		-	
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			0			0.00		-	
			0			0.00		-	
			0			0.00		-	
			0			0.00		-	
			0			0.00		-	
				Totals:	**805,000.00**	**16,753.29**		**821,753.29**	

Attachment F

Alan Richard Coon
Secretary

Telephone
(209) 601-9624

RECLAMATION DISTRICT NO. 2044
400 E. Kettleman Lane, Clear Suits
Lodi, CA 95240

MINUTES

On November 12, 2024, Reclamation District 2044 was called to Order at 8:30 a.m. at 400 E. Kettleman Lane, Suite 20-K Clearsuites Conference Room, Lodi, CA. It is noted that this the Annual Meeting which was moved to current date because of lack of quorum. The District's Secretary advised of the intent to advance the Engineer's Report (Item #3) after Public Comment.

Present: Trustees Skip Foppiano, Andy Solari, Henry Foppiano IV and John Jackson. Also present was Manager Geno Celli, Engineer Michael Moncrief and Brad Conklin of Renewable Technologies.

1. Public Comment: There was no public comment.

The Board elected to advance the Engineer's Report.

3. Engineer's Report: Michael Moncrief, of MBK Engineers (MBK), submitted an Engineer's Report which is attached and incorporated herein by reference.

In addition to the Report items MBK reported that the excavation project at the levee adjacent to the King Island Marina was completed with the cavity, presumed a beaver hole, filled. MBK advised that the owner of the KI Marina is OK with delaying the asphalt because of weather conditions and also that a new anomaly was discovered near the first site which will require a new small project and subsequent asphalt covering in 2025 once weather permits. MBK intends to send out requests for quotes to complete work as soon as possible including sending invitations for quotes from Dino & Sons and D. A. Archer Construction. The secretary requested MBK send confirming letter to KI Marina confirming planned work and timing on the asphalt.

Thereafter followed a Board discussion of improved and alternate access through the Marchetti parcel by district personnel and north side landowners and the need for repair and removal of unauthorized speed bumps. MBK advised of the possible use of grant funds under 2024-25 Subventions Work Agreement for the repair including chipseal of current asphalt locations, especially the toe road access points. Board then authorized and directed MBK include chip sealing of this location when there was a chip seal at the KI Marina locations. i.e. spring 2025.

Engineer Moncrief then reported that repair had been completed of all "critical sites", as listed in previous Site Data (see Engineer's Report). i.e. 4,900 linear feet of repair over the last 2 years. There is now the need to focus on the 35 "Serious Sites", which should be considered for completion before Dec. of 2027.

Manager and Engineer provided the code to the combination lock securing the Flood Fighting Material Shed. The Board discussed also using the planned Solar Project facility as a future depot location for storage of flood fighting because of its location.
The parties present then discussed the "seepage" spots of long duration at the south east corner of the Jackson parcel and the north east corner of the Foppiano parcel. The Board then directed MBK Engineers to look at options to be funded through the 2025-2026 depending upon price and type of project. Engineer Moncrief recommended "thermal" investigation (drone) instead of relying on LDAR.

Engineer then discussed with the Board the status of the "drain project" for the Jackson parcel pursuant to existing Encroachment Permit and following his topo survey. In short, the construction did not follow the submitted plans and Engineer had concerns as more fully discussed in the Engineer's Report, detail incorporated herein. There were concerns that there should be larger "rock revetment", consider a concrete "armory" and a deeper "sump" in front of the weir before discharge into canal. In addition, there was concern that the current construction, which differed from original plans, might make it difficult for annual maintenance.

Finally, Engineer Moncrief discussed the recent Victoria Island disaster (levee breach) and their planned long-term repair.

Special Presentation: Renewable Technologies presented an update on the difficulties with the San Joaquin County building permit application which should be resolved with the construction of a "building" estimated size at 165 feet by 119 feet. Landowners, Skip and Henry Foppiano, also Trustees, who did not participate in this discussion other than to state an agreement for construction provided they were given ability to store under the building during Lease period. The secretary advised that the parties would need to negotiate the change in the Lease terms, especially depending upon ultimate financing arrangements. Brad Conklin advised that the proposed construction can be completed by June of 2025. There was a discussion on the financing of the alternative proposal and construction deadlines with Mr. Conklin advising of his locating Green Bridge as possible alternate financier. The parties also discussed the ongoing concern with maintenance of the solar panels as well as the security. Mr. Conklin will include the maintenance in the price. In addition, there was much discussion about the yet unknown PG&E cost and the usual inordinate delay caused by PG&E. The Board reconfirmed earlier direction and discretion given to Alan Coon, acting as Secretary and General Counsel.

2. Manager's Report: Manager Gino Celli advised the Board of the oil maintenance and repair of all pumps, now working "good". However, there was a pipe that was still leaking which needs to be repaired when funds are available. Manager advised of the preparation for flood season with the deliver of sand and a load of AB in reserve. There were questions from the Board as to the Manager's opinion on the quality of the work done on recent KI Marina bid. The manager noted the recent increased "silt" in front of the pump at the Jackson parcel which supported prevented discharge toward the main pumps. Manager requested authority to spend monies on repair and upgrades to the gates which the Board added as Action Item J, infra. Finally, Manager felt he was better prepared, now in his second flood season, for the winter rains.

4. Secretary's Report and Financial Matters: Secretary provided handouts of the current monthly bills and expenses, financial reports and current warrant obligations (status of warrants, principle and current interest rate), information incorporated herein by reference. The Board was presented with the Audit for the period July 1, 2023, through June 30, 2024, an Action Item, infra. There was discussion

regarding the annual assessments, the recent interest savings from new lender for warrants, and current expenses, etc. Secretary advised of continued increases in the PG&E bills and the Board authorized amendment of working budget but felt that the assessments should be remain as planned. Finally, Secretary Coon advised of the plan to final "go digital" and copy all District files but saving originals of certain records including water right matters, maps, current audit matters (4 years plus) and those records required or necessary for any local, state, and federal agencies.

5. Action Item(s): The Board discussed each of the Action items and then the Trustees, upon one joint motion by Trustee Andy Solari, seconded by Skip Foppiano, and unanimously passed, Action Item A-D, F, G, and J (i), the board having tabled Action Items E, pending amendment to the Jackson Encroachment Permit, and H, until Renewable Technology provides updated solar project proposal, as follows:

B. Approved and ratified payment of current invoices;

C. Approved and ratified the creation of new District email account and authorized Secretary to contract for the copying and/or destruction of aged District folders/files;

D. Approved Levy of the District's Operation and Maintenance Assessment No. 18 and Resolution thereon (see attached CPI Worksheet) providing direction and authority to Secretary for all actions consistent with this Resolution;

E. TABLED amendment of an encroachment agreement with Jackson Land & Cattle LP;

F. Consider the ratification and approval of the renewal of insurance and payment of premium for 2024-2025 [$14,993.00];

G. Consider Action to approve MBK Engineer's "Agreement for Professional Services – Standard Terms and Conditions";

H. TABLED action approving updated construction and financing agreements (including Renewable Technology proposal, Power Purchase Agreement, financing agreements, permitting agencies and amendment of existing lease agreements, all related to the proposed Solar Project;

I. Approved the 2023-2024 Audit and ratified Secretary execution of the Representation Agreement; and

J. Approved Manager's request for expenditure of funds for gate repair and updating.

6. Informational Item: Discussed the CalOES and Subvention Program Funding information.

7. Closed Session: Closed Session was tabled.

8. Adjournment:

Dated: February __, 2025

Alan Richard Coon, Secretary
Reclamation District No. 2029

Attachment G

DELTA FARMS RECLAMATION DISTRICT NO. 2044
(KING ISLAND)
LAW OFFICE OF ALAN R. COON
400 EAST KETTLEMAN LANE, SUITE 20-K
LODI, CA 95240
TELEPHONE: (209) 601-9624
arcoon@arcoonlaw.com

March 20, 2025

Andrea L. Lobato, P.E., Manager
Delta Levees Program (Subventions)
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Subject: **Reclamation District No. 2044**
Delta Levees Maintenance Subventions Program
2025-2026 Application

Dear Ms. Lobato:

In accordance with Section 3.1 of your Delta Levees Maintenance Subventions Program Procedures and Criteria (adopted August 26, 2016), and your letter dated February 6, 2025, Reclamation District No. 2044 (District), hereby notifies you of its intent to participate in the Subventions Program for fiscal year 2025-2026.

Attached is the District's application, drafted in agreement with the above procedures and criteria. If you have any questions regarding the application, or require additional information, please contact Michael Moncrief of MBK Engineers at (916) 4564400.

Very truly yours,

Alan R. Coon
District Secretary

NL
4375.6 RD 2044 ANDREA LOBATO

cc: Central Valley Flood Protection Board (without enclosures)
Mr. Todd Gardner, Department of Fish and Wildlife
MBK Engineers

RESOLUTION
OF THE BOARD OF TRUSTEES
OF RECLAMATION DISTRICT No. 2044

RESOLVED that the work included in Reclamation District No. 2044's ("District") 2025-2026 Delta Levees Maintenance Subventions Program Application consists of the maintenance and/or repair of existing levee improvements which involves negligible or no expansion of said improvements' existing uses and, hence, falls within the categorical exemption to the California Environmental Quality Act set forth in California Code of Regulations, title 14, section 15301; that said work does not constitute an exception to the exemptions of the California Environmental Quality Act; and that the District's Engineer is authorized to prepare and file with the County of San Joaquin the appropriate Notice of Exemption on behalf of the District.

RESOLVED that the Secretary of Reclamation District No. 2044 be and hereby is authorized to execute on behalf of District that Agreement between the Central Valley Flood Protection Board and the District covering participation in the Delta Levees Maintenance Subventions Program pursuant to Part 9, Division 6 of the Water Code as amended by SB 34, Chapter 28, Statutes of 1988 for fiscal year 2025-2026 and the work to be reported to the State thereunder is determined to be categorically exempt under the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) for the reasons set forth above.

CERTIFICATION

I, Alan Richard Coon, Secretary of Reclamation District No. 2044, do hereby certify that the above is a true and correct copy of the resolution duly adopted by the Board of Trustees of Reclamation District No. 2044 on this day, February 25, 2025, in Stockton, California.

Alan Richard Coon
Secretary

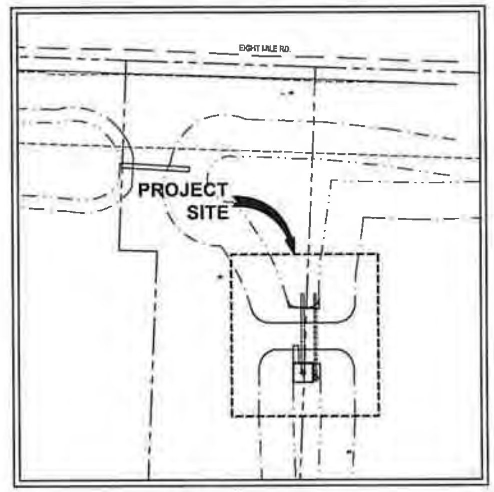
Attachment U

KING ISLAND PUMP STATION

STOCKTON, CA 95219

ABBREVIATION	DESCRIPTION
@	AT
AB	AGGREGATE BASE
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ASPHALT CONCRETE
BCR	BEGINNING OF CURB RETURN
BO	BLOWOFF
BOC	BACK OF CURB
BOW	BACK OF WALK
C & G	CURB AND GUTTER
C,G, & SW	CURB, GUTTER, AND SIDEWALK
CL	CENTERLINE
CB	CATCH BASIN
CJ	CONSTRUCTION JOINT
CO	CLEANOUT
COR	CITY OF ROSEVILLE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EBOW	EXISTING BACK OF WALK
ECR	END OF CURB RETURN
EL	ELEVATION
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT, EXISTING PAVEMENT
ESMT	EASEMENT
EX.	EXISTING
FL	FLOWLINE
FH	FIRE HYDRANT
FOC	FACE OF CURB
FT.	FEET
G	GROUND
GB	GRADE BREAK
HP	HIGH POINT
ID	INSIDE DIAMETER
IN.	INCH
LF	LINEAL FEET
LH	LAMP HOLE
LP	LOW POINT
LT	LEFT
LTS	LIME TREATED SUB-BASE
MAX	MAXIMUM
MH	MAINTENANCE HOLE
MIN	MINIMUM
NO.	NUMBER
NRCP	NON-REINFORCED CONCRETE PIPE
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
P	PAVEMENT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
POT	POINT OF TANGENCY
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PL	PROPERTY LINE
R	RADIAL OR RADIUS
R/W	RIGHT-OF-WAY
RC	ROLL-CURB
RCP	REINFORCED CONCRETE PIPE
RP	RADIUS POINT
RT	RIGHT
SD	STORM DRAIN
SS	SANITARY SEWER
SL	STREET LIGHT
SW	SIDEWALK
SDMH	STORM DRAIN MAINTENANCE HOLE
SHT	SHEET
SSMH	SANITARY SEWER MAINTENANCE HOLE
STA	STATION
STD	STANDARD
TC	TOP OF CURB
TOW	TOP OF WALL
THRU	THROUGH
TI	TRAFFIC INDEX
TYP	TYPICAL
VERT	VERTICAL
W	WATER
WP	WEAKENED PLANE
(W)	WEST
(E)	EAST
(S)	SOUTH
(N)	NORTH
±	PLUS OR MINUS

VICINITY MAP
NOT TO SCALE



SITE PLAN
0 15 30 60
SCALE: 1"=30'

PROJECT CONTACTS:

CIVIL ENGINEER:
SIEGFRIED ENGINEERING INC.
3428 BROOKSIDE ROAD
STOCKTON CA 95219
CONTACT: ADAM MERRILL, P.E.
(209) 943-2021

SHEET INDEX

SHEET NO.	SHEET TITLE
C1.0	COVER SHEET
C1.1	GENERAL NOTES
C2.0	TOPOGRAPHY & DEMOLITION PLAN
C3.0	IMPROVEMENTS PLAN
C4.0	DEWATERING PLAN FOR CONSTRUCTION
S2.1	DETAILS

LEGEND

EXISTING		PROPOSED
	CONTOUR MAJOR	100
	CONTOUR MINOR	95
11.93EC	CONCRETE ELEVATION	11.93C
11.93ETC / 11.43EP	TOP OF CURB ELEVATION / PAVEMENT ELEVATION	11.93TC / 11.43P
12.05EP	PAVEMENT ELEVATION	12.05P
11.93ETC / 11.43EFL	TOP OF CURB ELEVATION / FLOW LINE ELEVATION	11.93TC / 11.43FL
12.05EFL	FLOW LINE ELEVATION	12.05FL
12.05EFG	FINISHED GRADE ELEVATION	12.05FG
	PROPERTY & R/W LINE	
	EASEMENT LINE	
	SANITARY SEWER LINE	SS
	STORM DRAIN LINE	SD
	WATER LINE	12"W
	FIRE SERVICE LINE	6" FS
	AREA DRAIN	
	DRAIN INLET	
	CATCH BASIN	
	CONCRETE WALK	
	6" VERTICAL CURB	
	GATE VALVE	
	SITE LIGHT	
	FIRE HYDRANT	
	UTILITY POLE	
	ANCHOR GUY	
	SIGN	
	BOLLARD	
	TREE	
	BACKFLOW PREVENTER	BFP
	FIRE DEPARTMENT CONNECTION	
	ELECTRICAL BOX	E
	WATER METER	W
	MAINTENANCE HOLE PER COR STD DETAIL NO. DR-4	
	TRAFFIC SIGNAL BOX/VAULT	TSB
	CABLE BOX	
	TRUNCATED DOMES	

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- CIVIL
- STRUCTURAL
- LANDSCAPE ARCHITECTURE
- SURVEYING
- PLANNING
- ATHLETIC FACILITY DESIGN
- GEOTECHNICAL

REVISIONS
No Date Description

PROJECT
KING ISLAND PUMP STATION
EIGHT MILE RD
STOCKTON, CA 95219

DATE SIGNED: 02/13/25

SHEET TITLE
COVER SHEET

Proj Mgr	AKM
Drawn by	ARM
Date	02/13/2025
Job No.	22021
SHEET:	C1.0

GENERAL NOTES

1. ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE CITY OF STOCKTON STANDARD SPECIFICATIONS AND PLANS LATEST EDITION AND ALL AMENDMENTS THERE TO-DATE.

   FOR ELEVATIONS REFER TO THE FOLLOWING BENCHMARK:

2. PRIOR TO AND DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR BEING FAMILIAR WITH THE CURRENT CITY OF STOCKTON STANDARDS AND ALL UPDATES AND REVISIONS MADE TO ANY OF THE CITY OF ROSEVILLE STANDARD DETAILS SHOWN ON THESE PLANS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR BEING FAMILIAR WITH THE WRITTEN SPECIFICATIONS AND/OR OTHER STANDARD DETAILS NOT SHOWN BUT WHICH ARE INCLUDED IN THE "CITY OF STOCKTON STANDARD SPECIFICATIONS AND PLANS".
3. DRAWING NUMBERS SHOWN ON THE PLANS REFER TO CITY OF STOCKTON STANDARD PLANS, SHOWN THUS: C.O.S. DETAIL NO.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING FROM DAMAGE ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN. SUCH IMPROVEMENTS THAT ARE DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT HIS EXPENSE.
5. ALL TRENCH EXCAVATION SHALL BE IN ACCORDANCE WITH CITY OF STOCKTON STANDARD SPECIFICATIONS.
6. EXCAVATION OF 5 FEET OR MORE IN DEPTH WILL REQUIRE AN EXCAVATION PERMIT FROM THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY.
7. THE CONTRACTOR SHALL DEMOLISH EXCAVATE REMOVE AND DISPOSE OF ALL EXISTING CONCRETE CURB GUTTER OR SIDEWALK, ASPHALT CONCRETE PAVING AND DELETERIOUS MATERIAL AS REQUIRED TO CONSTRUCT THE CONTRACT WORK. ALL SUCH EXCESS MATERIAL GENERATED SHALL BE DISPOSED OF FROM THE SITE BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FOR ANY WORK DONE WITHIN THE CITY RIGHT-OF-WAY FROM THE CITY OF STOCKTON PUBLIC WORKS DEPARTMENT AND NOTIFY THE CITY 48 HOURS IN ADVANCE OF STARTING ANY WORK TO BE ACCEPTED FOR OWNERSHIP AND MAINTENANCE BY THE CITY OF STOCKTON.
9. EXISTING UTILITIES ARE SHOWN AS THEY ARE BELIEVED TO EXIST. THE OWNER AND THE ENGINEER DO NOT ACCEPT RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL HAVE EACH UTILITY COMPANY ACCURATELY LOCATE IN THE FIELD THEIR MAINS AND SERVICE LINES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES.
10. ATTENTION IS CALLED TO: SECTION 1540 (A) (1) OF THE CONSTRUCTION SAFETY ORDERS (TITLE 8 CALIFORNIA ADMINISTRATION CODE SECTION 1540), ISSUED BY THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD PURSUANT TO THE CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT OF 1973 AS AMENDED WHICH STATES.

    PRIOR TO OPENING AN EXCAVATION EFFORT SHALL BE MADE TO DETERMINE WHETHER UNDERGROUND INSTALLATION I.E., SEWER WATER FUEL ELECTRIC LINES, ETC., WILL BE ENCOUNTERED AND IF SO WHERE SUCH UNDERGROUND INSTALLATIONS ARE LOCATED. WHEN THE EXCAVATION APPROACHES THE APPROXIMATE LOCATION OF SUCH AN INSTALLATION THE EXACT LOCATION SHALL BE DETERMINED BY CAREFUL PROBING OR HAND DIGGING AND WHEN IT IS UNCOVERED, ADEQUATE PROTECTION SHALL BE PROVIDED FOR THE EXISTING INSTALLATION. ALL KNOWN OWNERS OF UNDERGROUND FACILITIES IN THE AREA CONCERNED SHALL BE ADVISED OF PROPOSED WORK AT LEAST 48 HOURS PRIOR TO THE START OF ACTUAL EXCAVATION."
11. THE CONTRACTOR SHALL CONTACT THE CITY OF ROSEVILLE AT LEAST 72 HOURS IN ADVANCE OF THE CONTRACTOR'S INTENT TO CONNECT TO PUBLIC UTILITIES TO COORDINATE THE CONNECTION TO PUBLIC WATER SEWER AND STORM DRAINAGE SYSTEMS.
12. PRIOR TO COMMENCING ANY WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE EACH UTILITY COMPANY LOCATE IN THE FIELD THEIR MAIN SERVICE LINES. THE CONTRACTOR SHALL NOTIFY MEMBERS OF THE UNDERGROUND SERVICE ALERT (U.S.A.) 48 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING THE TOLL-FREE NUMBER (800-227-2600).
13. THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES AND VERIFY ALL UTILITY LOCATIONS. IT SHALL BE CONTRACTOR'S SOLE RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES SO THAT NO DAMAGE RESULTS TO THEM DURING THE PERFORMANCE OF HIS CONTRACT. THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH OTHER CONTRACTORS AND UTILITY COMPANIES INSTALLING NEW STRUCTURES UTILITIES AND SERVICES TO THE DEVELOPMENT.
14. WHENEVER EXISTING PAVEMENT IS BROKEN OR CUT DURING THE INSTALLATION OF THE WORK COVERED BY THESE PLANS AND SPECIFICATIONS THE PAVEMENT SHALL BE REPLACED WITH PAVEMENT MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL PAVING. THE FINISHED PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER IF LOCATED WITHIN CITY RIGHT-OF-WAY.
15. PAYMENT FOR PAVEMENT WILL BE MADE FOR THE AREAS SHOWN ON THE PLANS. REPLACEMENT OF PAVEMENT WHICH IS BROKEN OR CUT IN THE INSTALLATION OF THE IMPROVEMENTS COVERED BY THESE PLANS AND SPECIFICATIONS, AND WHICH LIES OUTSIDE OF SAID AREAS, SHALL BE INCLUDED IN THE STREET CONTRACTOR'S UNIT PRICE FOR PAVEMENT, AND NO ADDITIONAL PAYMENT SHALL BE MADE FOR SUCH WORK.
16. THE CONTRACTOR SHALL EXPOSE EXISTING STORM DRAINS, WATER MAINS AND SANITARY SEWERS WHERE CONNECTIONS AND CROSSINGS ARE TO BE MADE SO EXISTING FLOWLINES AND LOCATIONS CAN BE VERIFIED BEFORE THE START OF CONSTRUCTION.
17. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
18. CONSTRUCTION STAKING: CONSTRUCTION STAKING IS NORMALLY PERFORMED BY THE ENGINEER WHO PREPARED THE PLAN. THIS PERMITS APPROPRIATE ON-SITE INTERPRETATION AND ADJUSTMENT OF THE PLANS, IF NECESSARY. CONTRACTOR SHALL NOTIFY THE ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO THE ACTUAL NEED FOR STAKING. ANY STAKING REQUESTED BY THE CONTRACTOR OR HIS SUBCONTRACTORS WHICH EXTENDS BEYOND THE ORIGINAL SCOPE OF WORK DEFINED IN THESE PLANS SHALL BE SUBJECT TO AN EXTRA WORK CHARGE TO THE CONTRACTOR. THIS NOTE GIVES FORMAL NOTICE THAT THE FIRM OF SIEGFRIED ENGINEERING INC. CANNOT, AND WILL NOT, TAKE RESPONSIBILITY FOR ERRORS OR OMISSIONS IF ANY WHICH MIGHT OCCUR AND WHICH COULD HAVE BEEN AVOIDED OR DETECTED AND/OR CORRECTED OR MITIGATED HAD SIEGFRIED ENGINEERING, INC. PERFORMED THE CONTRACT STAKING WORK.
19. THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE CITY OF STOCKTON FOR USE OF WATER FROM FIRE HYDRANTS FOR CONSTRUCTION PURPOSES. THE PERMIT SHALL BE APPROVED BY THE CITY OF STOCKTON FIRE DEPARTMENT.
20. THE PROPERTY OWNERS, DEVELOPERS, AND/OR SUCCESSORS IN INTEREST SHALL COMPLY WITH THE PROVISIONS OF THE CALIFORNIA GENERAL CONSTRUCTION ACTIVITY STORM WATER PERMIT AND STATE WATER RESOURCES CONTROL BOARD ORDER NUMBER 99-08-DWQ COMPLIANCE IS MANDATORY PER THE CITY OF STOCKTON'S GRADING AND EROSION CONTROL STANDARDS.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND LICENSES REQUIRED FOR THE CONSTRUCTION AND COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT AND A GRADING AND EROSION CONTROL PERMIT PRIOR TO STARTING ANY WORK, UNLESS OTHERWISE APPROVED BY THE CITY.
22. DUST CONTROL SHALL BE PERFORMED AT ALL TIMES, AT THE CONTRACTORS' EXPENSE, TO MINIMIZE ANY DUST NUISANCE AND SHALL BE IN ACCORDANCE WITH SECTION 10 OF CALTRANS STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE CITY OF ROSEVILLE.
23. THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE AND MAINTAIN ALL MACHINERY, APPLIANCES AND EQUIPMENT TO MAINTAIN ALL EXCAVATIONS FREE FROM WATER DURING CONSTRUCTION AND SHALL DEWATER AND DISPOSE OF THE WATER SO AS TO NOT CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY OR TO CAUSE A NUISANCE OR MENACE TO THE PUBLIC. THE DEWATERING SYSTEM SHALL BE INSTALLED AND OPERATED SO THE GROUNDWATER LEVEL OUTSIDE THE EXCAVATION IS NOT REDUCED TO THE EXTENT WHICH WOULD CAUSE DAMAGE OR ENDANGER ADJACENT STRUCTURES OR PROPERTY. ALL COSTS FOR DEWATERING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ALL PIPE CONSTRUCTION. THE STATIC WATER LEVEL SHALL BE DRAWN DOWN A MINIMUM OF 1 FOOT BELOW THE BOTTOM OF EXCAVATION OF ANY FILL TO THE SPECIFIED DENSITY. DISPOSAL OF WATER SHALL BE IN ACCORDANCE WITH THE APPROVED SWPPP AND SHALL NOT DAMAGE PROPERTY, CREATE A PUBLIC NUISANCE OR VIOLATE THE LAW. THE CONTRACTOR SHALL HAVE ON HAND, PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR EMERGENCIES AND SHALL HAVE WORKMEN AVAILABLE FOR ITS OPERATION. THE DEWATERING SYSTEM SHALL OPERATE CONTINUOUSLY UNTIL BACK-FILL HAS BEEN COMPLETED TO 1 FOOT ABOVE THE NORMAL STATIC GROUNDWATER LEVEL.
24. SITE PREPARATION SHALL INCLUDE STRIPPING AND REMOVAL OF ALL VEGETATION AND ANY DEBRIS FROM THE CONSTRUCTION AREAS. THE DEPTH OF STRIPPING ONSITE SHALL BE EVALUATED BY THE OWNER'S SOILS ENGINEER.
25. ANY VOIDS LEFT BY THE REMOVAL OF UNDERGROUND UTILITIES OR OTHER BURIED OBJECTS SHALL BE CLEANED OF ALL LOOSE SOILS AND SHALL BE PROPERLY BACKFILLED WITH ENGINEERED FILL AND THAT THE OWNER'S SOIL ENGINEER APPROVES, MONITORS, TESTS, AND APPROVES.
26. THE SUBGRADE SOILS BENEATH ALL PAVING AREAS SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE DRY DENSITY WHICH THE OWNER'S SOIL ENGINEER SPECIFIES.
27. ANY SOFT OF LOOSE SOIL POCKETS FOUND ONSITE DURING THE STRIPPING OR RECOMPACTION PROCESS, THEY SHALL BE OVER EXCAVATED AND RECOMPACTED.
28. ENGINEERED FILL SHALL BE PLACED IN HORIZONTAL LAYERS A MAXIMUM OF 8 INCHES IN LOOSE THICKNESS AND BE COMPACTED TO A MINIMUM OF 90 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE OWNER'S SOIL ENGINEER.
29. SUBGRADE SOILS UNDER EXTERIOR CONCRETE SHALL BE MOISTURE CONDITIONED AS APPROVED, TESTED AND INSPECTED BY THE OWNER'S SOIL ENGINEER.
30. CONTRACTOR SHALL MAINTAIN MOISTURE CONDITION RIGHT UP TO POURING OF CONCRETE.

GRADING NOTES

1. GRADING AND LAND STABILIZATION SHALL INCLUDE EXCAVATION AND FILL OF STREETS IN ACCORDANCE WITH THE SPECIFICATIONS OF THE SOILS ENGINEER AND UNDER THE DIRECTION SUPERVISION MONITORING, TESTING AND APPROVAL OF THE OWNER AND OWNER'S SOILS ENGINEER.
2. GRADING AND LAND STABILIZATION SHALL INCLUDE COST OF DEWATERING REMOVING FROM THE SITE ALL STRIPPED VEGETATION, DEBRIS STRUCTURES POWER POLES, EXISTING PAVEMENT BUILDINGS TREES AND OTHER DELETERIOUS MATERIALS.
3. STOCKPILES OF EXISTING DELETERIOUS MATERIAL SHALL BE DISPOSED OF UNDER THE DIRECTION AND SUPERVISION OF THE OWNER AND OWNER'S SOILS ENGINEER.
4. ALL IMPORTED FILL SHALL BE APPROVED BY THE SOILS ENGINEER.
5. TOPOGRAPHICAL INFORMATION SHOWN REFLECTS A TOPOGRAPHY SURVEY PERFORMED BY SIEGFRIED ENGINEERING AND RECORD INFORMATION, CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.
6. ANY AND ALL SEDIMENT AND/OR EROSION CONTROL DETAILS CONTAINED WITHIN THESE PLANS ARE TO BE CONSIDERED AS "REFERENCE DETAILS" ONLY AND THE CITY'S APPROVAL OF THESE PLANS AND "REFERENCE DETAILS" DOES NOT RELIEVE THE OWNER/DEVELOPER FROM COMPLIANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN AS APPROVED BY THE CITY'S STORM WATER DIVISION.

UTILITY NOTES

WATER

1. ALL WATER LINES SHALL BE PRESSURE-TESTED, DISINFECTED, FLUSHED AND TESTED FOR BACTERIA IN CONFORMANCE WITH THE CITY OF STOCKTON SPECIFICATIONS PRIOR TO FINAL ACCEPTANCE BY THE CITY.
2. ALL WATER SERVICES SHALL BE 1" MINIMUM WATER SERVICE SHALL BE CONNECTED TO WATER MAINS WITH TWO-STRAP BRONZE SADDLES. CITY SHALL MAKE ALL TAPS ON EXISTING WATER MAINS ONLY.
3. ALL VALVES, TEES AND CROSSES TO BE FLANGED TO THEIR RESPECTIVE FITTINGS. WATER VALVES TO BE RESILIENT SEAT ONLY.
4. WATER LINES VALVES, BACKFLOW PREVENTER DEVICES FIRE HYDRANTS ETC. SHALL BE IN ACCORDANCE WITH CITY OF ROSEVILLE STANDARDS.
5. ALL VALVE STEMS MUST BE BROUGHT TO A MINIMUM OF 4' BELOW FINISH GRADE WITH STEM EXTENSION UNITS.
6. THRUST BLOCKS SHALL BE PROVIDED AT ALL REQUIRED LOCATIONS ON WATER LINE IN ACCORDANCE WITH THE CITY OF STOCKTON SPECIFICATIONS AND DETAILS.

STORM DRAIN

1. STORM DRAIN PIPE SIZES SHALL NOT BE CHANGED WITHOUT THE APPROVAL OF THE CITY ENGINEER AND THE DESIGN ENGINEER.
2. STORM DRAIN PIPE ALTERNATIVES
   a. PRECAST REINFORCED CONCRETE PIPE (RCP), PER CITY OF STOCKTON STANDARD
   b. HIGH DENSITY POLYETHYLENE PIPE (HDPE), PER CITY OF STOCKTON STANDARD
   c. POLYVINYL CHLORIDE PIPE (PVC), PER CITY OF STOCKTON STANDARD
   d. STEEL REINFORCED HIGH DENSITY POLYETHYLENE PIPE (SRHDPE), PER CITY OF STOCKTON STANDARD
   e. CAST-IN-PLACE CONCRETE PIPE, PER CITY OF STOCKTON STANDARD
3. CATCH BASINS TO BE CONSTRUCTED PER CITY STANDARD DETAILS.
4. ALL CONSTRUCTION SITE ACTIVITIES REGARDLESS OF PROJECT SIZE, SHALL CONFORM TO CHAPTER 16 OF THESE STANDARDS. PROJECTS GREATER THAN ONE (1) ACRE SHALL ALSO CONFORM TO THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) GENERAL CONSTRUCTION ACTIVITY STORM WATER PERMIT.

SANITARY SEWER

1. SANITARY SEWER MANHOLES AND PIPE SHALL BE IN ACCORDANCE WITH CITY OF STOCKTON STANDARDS.

CONCRETE NOTES

1. GENERAL
   a. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL [illegible] BUILDING CODES.
   b. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH THE BUILDING CODE, SEE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
   c. READY MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94. CONCRETE SHALL NOT BE PLACED BEYOND 1 ½ HOURS FOLLOWING BATCHING.
   d. CEMENT SHALL CONFORM TO ASTM C150 TYPE [illegible]
   e. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33. NORMAL WEIGHT CONCRETE SHALL HAVE A MAXIMUM DRY DENSITY OF 150 PCF.
   f. AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL BE EXPANDED SHALE TYPE AND CONFORM TO ASTM C330. LIGHTWEIGHT CONCRETE SHALL HAVE A MAXIMUM DRY DENSITY OF 115 PCF.
   g. FLY ASH SHALL CONFORM TO ASTM C618 CLASS F. FLY ASH SHALL BE LIMITED TO NO MORE THAN 15% OF THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS IN THE CONCRETE DESIGN WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
   h. THE CONTRACTOR SHOULD BE AWARE THAT FLY ASH USE MAY SIGNIFICANTLY RETARD THE SETTING TIME OF CONCRETE POTENTIALLY DELAYING FINISHING OPERATIONS. FURTHER FLY ASH IS EXPECTED TO RETARD THE EARLY CONCRETE STRENGTH (BEFORE 28 DAYS) THUS IF HIGH EARLY STRENGTH IS REQUIRED BY THE CONSTRUCTION SCHEDULE THE AMOUNT OF FLY ASH SHOULD BE REDUCED AND/OR THE MIX DESIGN AND/OR CURING METHODS MUST BE USED TO COMPENSATE AS NECESSARY.
   i. CONCRETE MIX SHALL BE DESIGNED BY QUALIFIED TESTING LABORATORY AND SHALL BEAR THE SEAL AND SIGNATURE OF A CALIFORNIA LICENSED CIVIL ENGINEER. THE MIX DESIGN SHALL STATE THE PROJECT NAME AND INTENDED USAGE OF THE CONCRETE.
   j. MIX DESIGNS SHALL BE SUBMITTED TO STRUCTURAL ENGINEER OF RECORD (SEOR) FOR REVIEW AND APPROVAL PRIOR TO USE.
   k. CONSTRUCTION AND CONTROL JOINTS SHALL BE PROVIDED AS INDICATED FOR WALLS SLABS AND OTHER ELEMENTS. THE LOCATIONS OF JOINTS NOT SPECIFICALLY INDICATED SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER AND APPROVED BY THE ARCHITECT.
   l. CONDUIT PIPES OR DUCTS SHALL NOT BE PLACED IN CONCRETE ON METAL DECK, CONCRETE COLUMNS, CONCRETE WALLS OR CONCRETE FOOTINGS UNLESS SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS OR APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
   m. WHERE PERMITTED BY STRUCTURAL ENGINEER, CONDUIT OR SLEEVES WITHIN SLABS AND WALLS SHALL BE PLACED WITHIN THE MIDDLE THIRD OF THE THICKNESS OF THE SLAB OR WALL. THE MAXIMUM SIZE OF CONDUIT IS ⅓ OF THE SLAB OR WALL THICKNESS. CONDUITS OR SLEEVES SHALL BE SPACED AT LEAST 3 TIMES THEIR DIAMETER ON CENTER. IT IS NOT ACCEPTABLE TO CUT OR [illegible]
2. CONCRETE STRENGTH
   a. [illegible]

DESCRIPTION	f'c	MAX W/C	SLUMP
(a) SPREAD FOOTINGS	[illegible] PSI	0.50	
(b) MAT FOUNDATIONS	[illegible] PSI	0.50	
(c) SLAB ON GRADE	[illegible] PSI	0.45	
(d) CONC. COLUMNS	[illegible] PSI	0.45	
(e) RETAINING WALLS	[illegible] PSI	0.45	
(f) TILT-UP WALLS	[illegible] PSI	0.45	
(g) PRECAST WALLS	[illegible] PSI	0.45	
(h) SHEAR WALLS	[illegible] PSI	0.45	
(i) CONCRETE ON METAL DECK	[illegible] PSI	0.45	
(j) FORMED ELEVATED SLABS	[illegible] PSI	0.45	
(k) COLUMN PEDESTALS	[illegible] PSI	0.45	

   b. [illegible]
      (a) 5.5 SACK PER YARD FOR 2,500 PSI CONCRETE
      (b) 5.5 SACK PER YARD FOR 3,000 PSI CONCRETE
      (c) 6.0 SACK PER YARD FOR 3,500 PSI CONCRETE.
   c. SLUMP [illegible]
   d. CURING [illegible]
   e. VIBRATION: ALL CONCRETE SHALL BE VIBRATED INTO PLACE WITH A MECHANICAL VIBRATOR.
   f. [illegible]
   g. CONCRETE IN AREAS OF SHEAR WALLS, COLUMNS, BEAMS OR SLABS WHERE REBAR APPEARS CONGESTED SHALL INCLUDE A SUPERPLASTICIZER AND/OR SMALLER AGGREGATE SIZE WITH APPROPRIATE ADJUSTMENTS FOR AIR AND CEMENT CONTENT AS NECESSARY.
   h. WHERE SPECIFIED COLUMN CONCRETE STRENGTH EXCEEDS THAT OF THE SURROUNDING ELEVATED SLAB IT IS NECESSARY TO PUDDLE CONCRETE OF THE HIGHER STRENGTH FOR A PERIMETER OF 24" BEYOND THE COLUMN FACE.
3. REINFORCING STEEL
   a. [illegible]
   b. [illegible]
   c. WELDED REINFORCING BARS SHALL BE APPROVED BY STRUCTURAL ENGINEER IN WRITING BEFORE FABRICATION. ONLY ASTM A706 GRADE 60 CAN BE WELDED WHEN APPROVED OR DETAILED.
   d. [illegible]
   e. FOR SLABS ON GRADE, REINFORCING SHALL BE HELD IN PLACE AT THE ELEVATION NOTED ON THE DRAWINGS BY MEANS OF CONCRETE BLOCKS, BAR CHAIRS OR OTHER APPROVED METHOD. BARS SHALL NOT BE POSITIONED BY PULLING UP WITH HOOKS AS CONCRETE IS POURED.
   f. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318) AND THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION (CRSI) AS MODIFIED BY THE PROJECT DRAWINGS.
   g. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
   h. [illegible]
   i. [illegible]
   j. [illegible]
   k. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE SPACING AND NUMBER AS THE SPECIFIED VERTICAL REINFORCING, U.N.O.
4. ANCHOR BOLTS [illegible]
   a. [illegible]
      (a) [illegible]
      (b) FOUNDATION BOLTS: ASTM F1554-36 (NO HOOKS)
      (c) WALL ANCHORS: ASTM F1554-36 (NO HOOKS)
      (d) HIGH STRENGTH ANCHORS: ASTM F1554-55
      (e) PEMB ANCHOR BOLTS: F1554-55
   b. ANCHOR BOLTS EXTENDING THROUGH PRESSURE TREATED WOOD SHALL BE HOT DIPPED GALVANIZED AT LEAST FOR THE PORTION OF THE BOLTS IN CONTACT WITH PRESSURE TREATMENT. HOT DIP GALVANIZED IS NOT REQUIRED FOR ANCHOR BOLTS WITH [illegible]
   c. [illegible]
5. [illegible]
   a. PROVIDE ¾" CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED ON THE PLANS.
   b. ANCHOR BOLTS AND DOWELS MUST BE SECURELY SUPPORTED IN PLACE BEFORE POURING CONCRETE TO ENSURE PROPER LOCATION PER PLAN.
6. [illegible]
7. CONCRETE BONDING ADDITIONS
   a. SIKA ARMATEC 110 EPOCEM
   b. [illegible]
   c. PRIOR TO APPLYING CBA, EXISTING CONCRETE SURFACE SHALL BE ROUGHENED TO A ¼" AMPLITUDE AND CLEANED OF ALL DEBRIS. APPLY CBA PER MANUFACTURER'S RECOMMENDATIONS.
8. [illegible]
   a. [illegible]
   b. [illegible]
   c. [illegible]
   d. [illegible]
   e. [illegible]

SPECIAL INSPECTIONS

1. [illegible]
2. [illegible]

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- CIVIL
- STRUCTURAL
- LANDSCAPE ARCHITECTURE
- SURVEYING
- PLANNING
- ATHLETIC FACILITY DESIGN
- [illegible]

REVISIONS

No.	Date	Description

PROJECT

KING ISLAND PUMP STATION

EIGHT MILE RD
STOCKTON, CA 95219

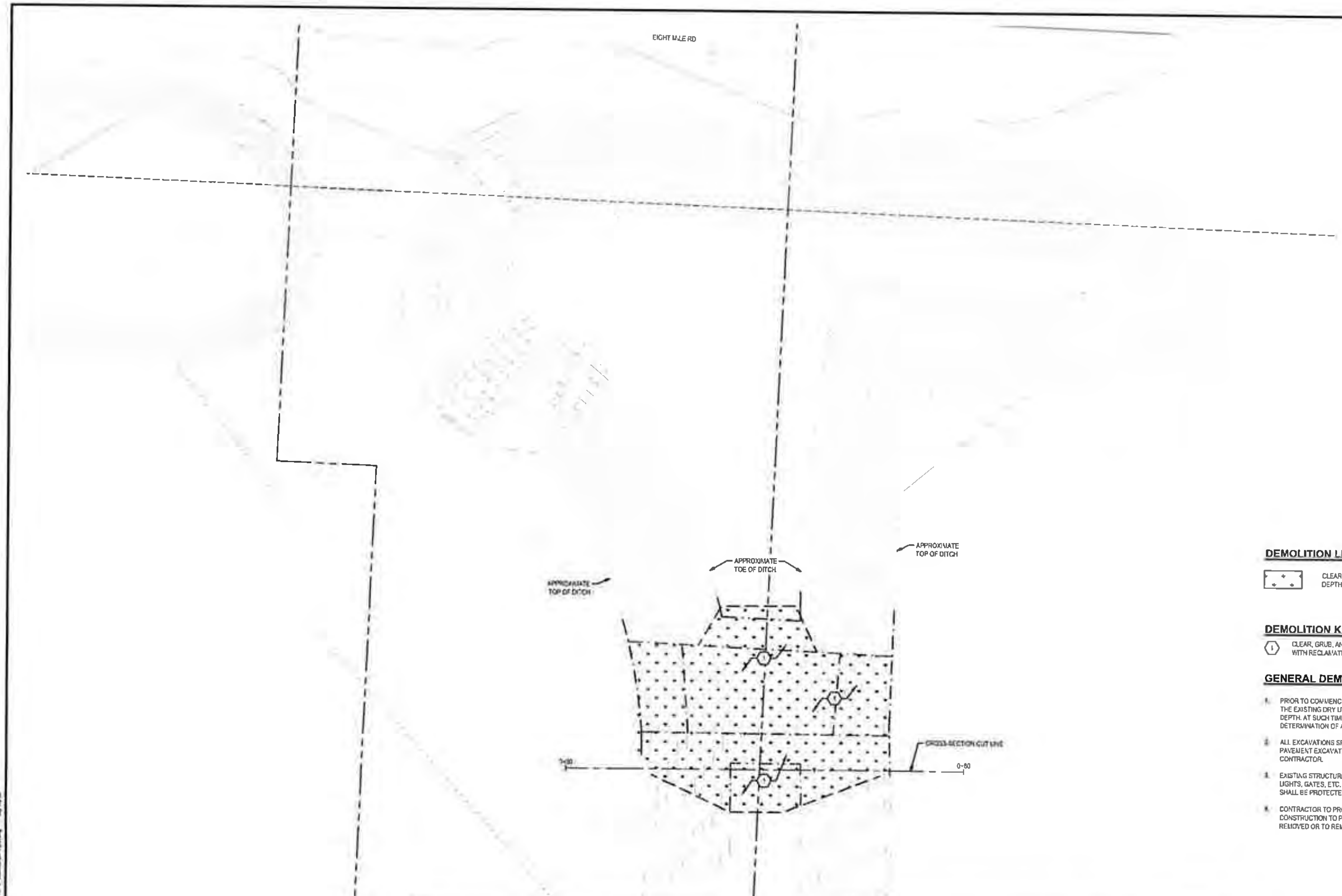
DATE SIGNED: 02/13/25

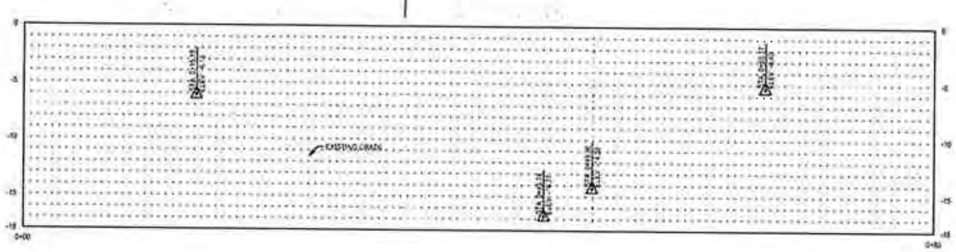
SHEET TITLE

GENERAL NOTES

Proj Mgr	AKM
Drawn by	ARM
Date	02/13/2025
Job No.	22021

SHEET:
C1.1





King Island Ditch
HORZ. SCALE: 1"=5'
VERT. SCALE: 1"=5'

DEMOLITION LEGEND:

CLEAR, GRUB AND EXCAVATE EXISTING UNDEVELOPED AREAS. REMOVAL DEPTH SHALL ACCOMMODATE DEPTH OF PROPOSED IMPROVEMENTS

DEMOLITION KEY NOTES:

1. CLEAR, GRUB, AND EXCAVATE PER LEGEND THIS SHEET. CONTRACTOR TO COORDINATE WITH RECLAMATION DISTRICT 2044

GENERAL DEMOLITION NOTES:

1. PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES, THE CONTRACTOR SHALL HAVE THE EXISTING DRY UTILITES POT HOLED FOR VERIFICATION OF LOCATION AND DEPTH. AT SUCH TIME, POT HOLE DATA SHALL BE PROVIDED TO THE ENGINEER FOR DETERMINATION OF ADEQUATE CLEARANCE AND SEPARATION.
2. ALL EXCAVATIONS SPOILS, INCLUDING BUT NOT LIMITED TO CONCRETE AND PAVEMENT EXCAVATION SHALL BE EXPORTED AND DISPOSED OF BY THE CONTRACTOR.
3. EXISTING STRUCTURES, CONCRETE, PAVEMENT, FENCES, CURBS, UTILITY BOXES LIGHTS, GATES, ETC. NOT CALLED OUT IN PLANS TO BE REMOVED OR TO REMAIN SHALL BE PROTECTED IN PLACE.
4. CONTRACTOR TO PROVIDE TREE PROTECTION AS NECESSARY DURING CONSTRUCTION TO PRESERVE EXISTING TREES. TREES NOT IDENTIFIED AS TO BE REMOVED OR TO REMAIN ARE ASSUMED TO REMAIN.

0 5' 10' 20'
SCALE: 1"=10'

Know what's below. Call before you dig.

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3428 Brookside Road
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209-943-2021
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REVISIONS
No. Date Description

PROJECT

KING ISLAND PUMP STATION

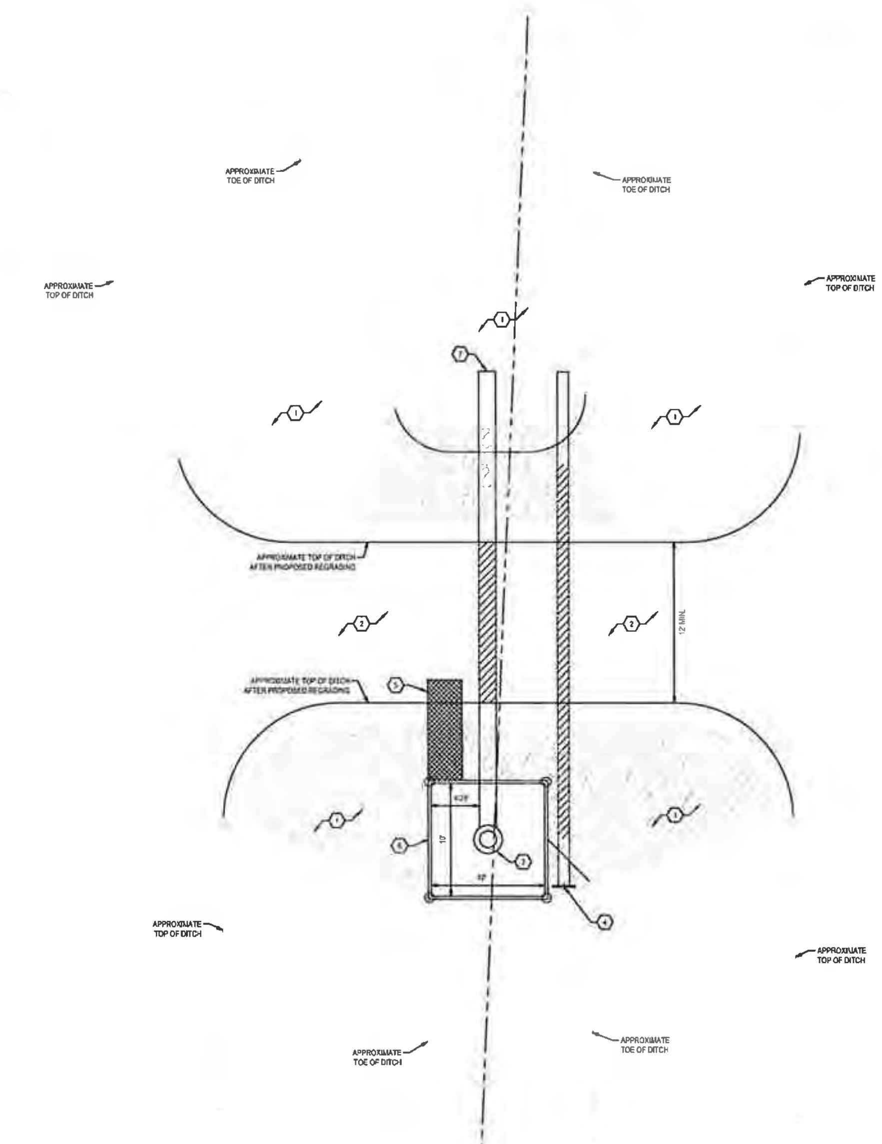
EIGHT MILE RD
STOCKTON, CA 95219

DATE SIGNED: 02/13/25

SHEET TITLE

TOPOGRAPHY & DEMOLITION PLAN

Proj Mgr: AKM
Drawn by: AKM
Date: 02/13/2025
Job No.: 22021
SHEET: C2.0



LEGEND:

NO. 1 NO. 2 RIP RAP AT A DEPTH OF 2' PER CALTRANS STANDARD SPECIFICATIONS SECTION 72. THE TOP OF RIP RAP ELEVATION SHALL MATCH THE EXISTING ELEVATION OF THE SIDE SLOPES AND BOTTOM OF THE DITCH.

KEY NOTES:

1. INSTALL RIP-RAP PER LEGEND, THIS SHEET
2. REGRADE EXISTING EARTHEN DAM PER DETAILS ON SHEET S2.1
3. INSTALL PUMP SYSTEM PROVIDED BY OWNER AND CONTRACTOR
4. INSTALL CANAL GATE VALVE, SEE DETAILS 1 & 2 ON SHEET S2.1 FOR FURTHER DETAIL
5. INSTALL CATWALK TO ELEVATED PLATFORM, SEE DETAILS 1 & 3 ON SHEET S2.1 FOR FURTHER DETAIL
6. INSTALL ELEVATED PLATFORM, SEE DETAILS 1 & 3 ON SHEET S2.1 FOR FURTHER DETAIL
7. INSTALL "DOLPHIN" DISCHARGE

SCALE: 1"=5'

Know what's below. Call before you dig.

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Fax: 209-942-0214
www.siegfriedeng.com

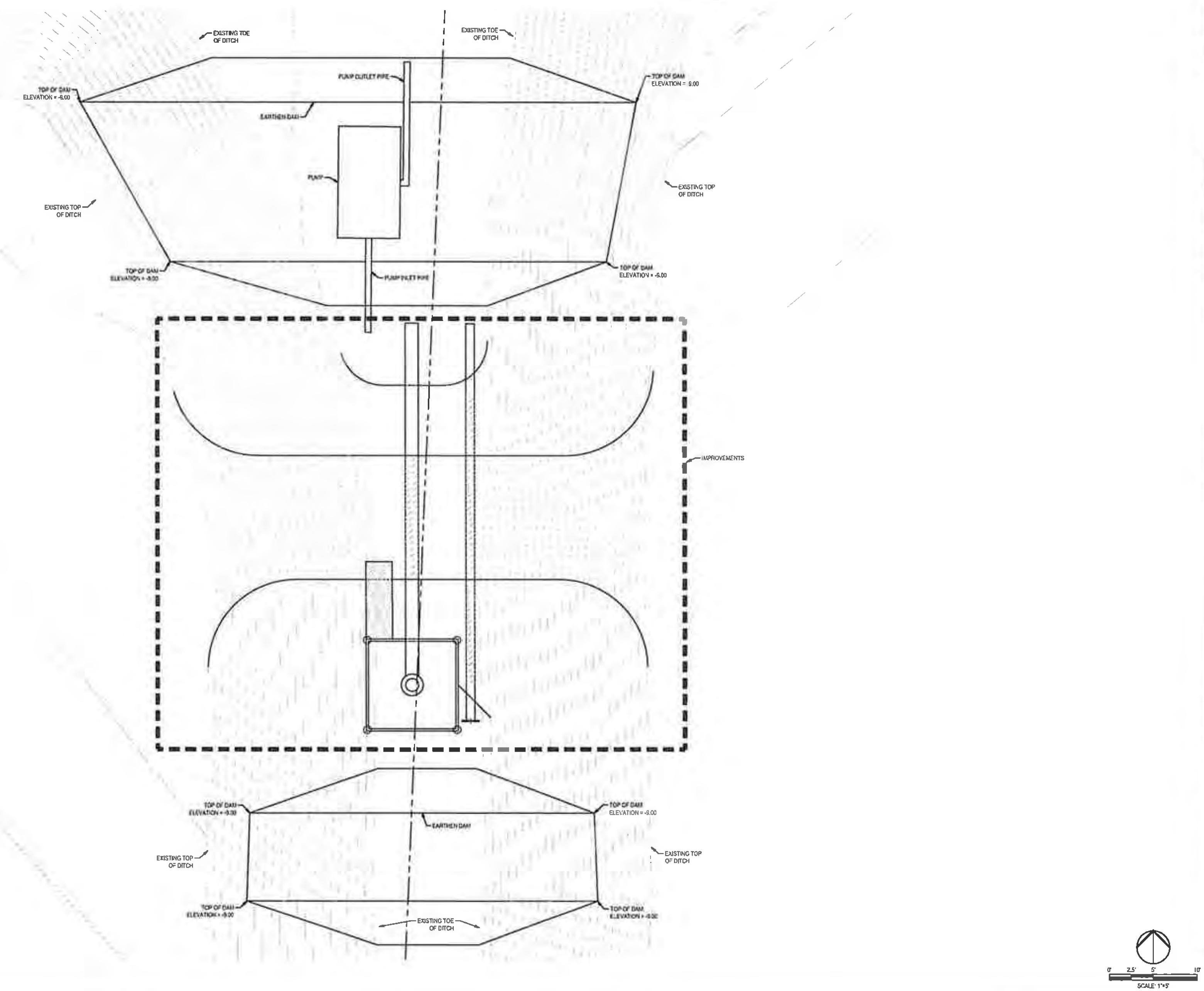
REVISIONS
No. Date Description

PROJECT
KING ISLAND PUMP STATION
EIGHT MILE RD STOCKTON, CA 95219

DATE SIGNED: 02/13/25

SHEET TITLE
IMPROVEMENTS PLAN

Proj Mgr	AKM
Drawn by	ARM
Date	02/13/2025
Job No.	22021
SHEET:	C3.0



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- CIVIL
- STRUCTURAL
- LANDSCAPE ARCHITECTURE
- SURVEYING
- PLANNING
- ATHLETIC FACILITY DESIGN
- GEOTECHNICAL

REVISIONS

No. Date Description

PROJECT

KING ISLAND PUMP STATION

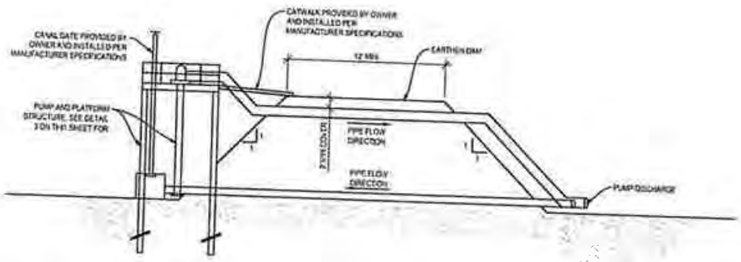
EIGHT MILE RD
STOCKTON, CA 95219

DATE SIGNED: 02/13/25

SHEET TITLE

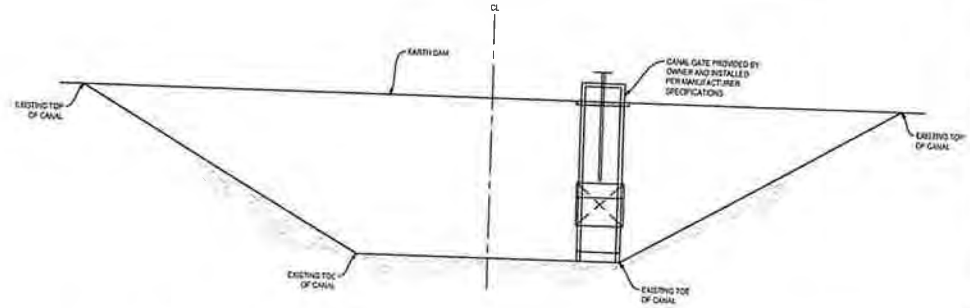
DEWATERING PLAN FOR CONSTRUCTION

Proj Mgr	AKM
Drawn by	ARM
Date	02/13/2025
Job No.	22021
SHEET:	C4.0



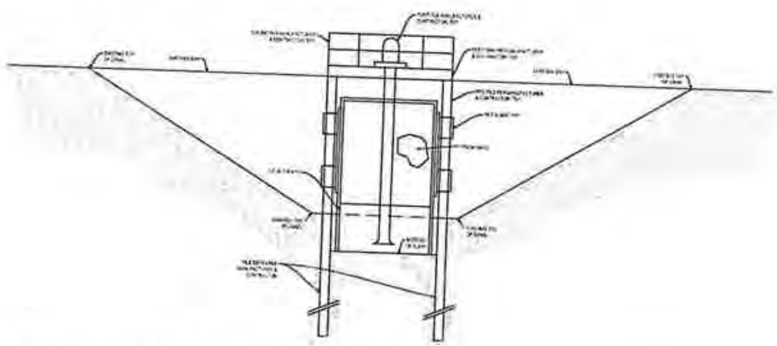
1 CROSS-SECTION OF EARTHEN DAM, LIFT STATION, & CANAL GATE

NTS



2 ELEVATION OF CANAL GATE

NTS



3 ELEVATION OF PUMP & LIFT STATION STRUCTURE

NOT TO SCALE

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REVISIONS

No. Date Description

PROJECT

KING ISLAND PUMP STATION

EIGHT MILE RD
STOCKTON, CA 95219

DATE SIGNED: 02/13/25

SHEET TITLE

DETAILS

Proj Mgr	ARM
Drawn By	ARM
Date	02/13/2025
Job No.	20021

SHEET: S2.1