Ventura Compressor Modernization Project

Ventura, CA

Work Order Authorization #91651

Class 4 Estimate*

April 2023

Revision 1

* See section 1.3 for further explanation

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1. Project Overview

Southern California Gas Company (SoCalGas) transmission systems play a vital role in the delivery of natural gas to millions of residential, commercial, and industrial consumers throughout Southern California. It is therefore essential that gas transmission equipment maintain a high level of reliability and operability and meet Federal and State regulatory agency regulations and comply with Company site technical practices.

This project is being executed to improve reliability and reduce equipment-regulated emissions. It includes the installation of new reciprocating gas engine-driven gas compressors, utilities and associated controls, electrical, instrumentation, and emission control equipment.

The Ventura Compression Station is located in Ventura, CA, and is utilized to transfer natural gas from Los Angeles to Goleta. These compressors feed the Goleta storage facility and occasionally provide gas to the coastal region as needed. Natural gas comes to the station via Lines 404 (18”) and 406 (22”).

The existing Ventura Facility utilizes three 1,100 HP Cooper Superior reciprocating compressors for this purpose. The required discharge pressure onsite is approximately 995 pounds per square inch gauge (psig) into the pipeline to adequately feed the Goleta reservoir. Currently, each machine is run as needed, which gives the facility an effective flow range of 40 – 120 million standard cubic feet/day (MMSCFD) of gas at an average inlet pressure of approximately 575 psig.

The overall goal of the project is to design/engineer/construct Plant 2 which will consist of two (2) gas-powered compressors and two (2) electric-powered compressors. When completed, Plant 2 will have the capability of providing all the gas compression required (160 million standard cubic feet per day [MMSCFD] maximum for Summer Case) for the Ventura Compressor Station.

The project will be executed in two phases. Phase 1 will be reimbursable and go up to 60% engineering. Phase 2 of the project will be a lump sum from 60% through the end of construction.

Figure 1: Compressor Site

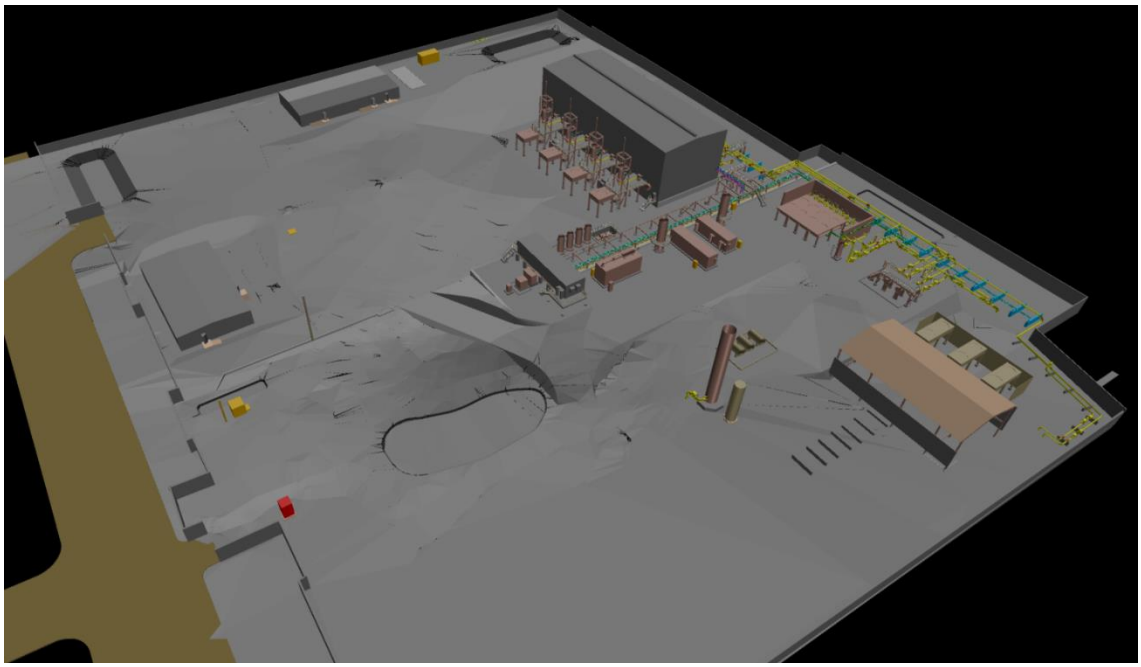


Figure 2: Preliminary Site Design

1.1. Document Breakdown Structure

- EPC – Engineering / Design Services
- EPC – Construction
- EPC – Construction Management
- SCG Labor – Management & Non-Labor
- SCG Labor – Union T/H
- SCG Labor – Outreach & Public Affairs
- Material - Other
- PM / Project Services
- Inspection Services
- Surveying / As-Builts
- Environmental Services
- Pressure Test Certification
- Land Services
- Miscellaneous Services
- Permits
- Other Non-Labor Costs

1.2. Reference Documents

- SoCalGas VCM Capital Cost Estimate Rev 1_11Feb2020
- Ventura - TM1 PTD Costs by PO_For Campos Estimate_Function
- VCM P&ID - 111419 _09Dec2019 Comments
- VCMModelReview_20200203 – Navisworks
- CSUP-VCU-PM-BOD-0002_Working_Version_11-15-2019 _Fluor Comments
- EPC SOW Rev B_Final
- E15043-VCM_GE_Support-FTE_Estimate_Rev.B_03-03-2020
- Ventura Env Cost Estimate 01312020
- Ventura Master Staffing Plan EPC_ PMT Only
- Ventura Compressor Station - Land Services Cost Estimate Spreadsheet
- Feasibility_Study_Full
- Burns & McDonnell Electrical Study
- Ventura Electric Motor Driver Analysis Rev C 10/7/21
- Ventura Estimate (CPCN)_Class 3 w ROM Adj (Hybrid Option)_Rev 5
- Ventura Estimate (CPCN)_Class 3 w ROM Adj (Hybrid Option)_Rev 6

1.3. Estimate Classification and Definitions

1.3.a. Classification and Accuracy

- Pricing is based on current construction costs in Ventura, California

- Construction staging will occur on site.
- Construction will be performed by a General Contractor at Risk (GCAR) using a Lump Sum type of contract
- Estimate pricing is based on full and open competition from local regional contractors.
- The construction, commissioning, and startup schedule is assumed to be 30 months
- The estimate was originally developed in April 2020 as a Class 3 estimate according to the AACE Recommended Practice No. 18R-97. In April 2023, several below the line adjustments were made to the estimate which were at either a Class 4 or Class 5 Estimate classification resulting in an overall Class 4 estimate. A revised FEED phase will need to be completed going forward.
- Description: Class 4 estimates are generally prepared based on limited information and subsequently have wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 15% complete of full project definition
- End Usage: Class 4 estimates are prepared for a number of purposes, such as but not limited to, detailed strategic planning, business development, project screening at more developed stages, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval or approval to proceed to next stage.
- Estimating Methods Used: Class 4 estimates virtually always use stochastic estimating methods such as equipment factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, the Miller method, gross unit costs/ratios, and other parametric and modeling techniques.
- Expected Accuracy Range: Typical accuracy ranges for Class 4 estimates are -15% to -30% on the low side, and +20% to +50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

1.3.b. Contingency

The Ventura Compressor Modernization Project estimate can be divided into two sub-sections. The first section consists of a Class 3 estimate originally developed by Flour. For this section, contingency was determined utilizing a Monte Carlo Assessment for production, scope, and pricing fluctuations. The assessment resulted in a total contingency of 19.1% of direct costs). The

second section of the estimate was developed using ROM costs (Below the Line Changes) resulting from the hybrid compressor configuration. For this section, contingency was determined at the estimator's discretion based on experience and historical data from past compressor stations. The contingency was further reviewed and approved by the project manager. The total contingency for the second section is 25.8% of direct costs. The overall project contingency is 20.8% of the costs prior to escalation and loaders.

2. Estimate Information

2.1. Scope of the Estimate

The scope of the Ventura Compressor Modernization Project estimate includes the anticipated all-inclusive costs of the following:

- EPC Contractor costs including:
  - Engineering and Design Services
  - Construction
  - Construction Management
- Southern California Gas Company Management, Union Labor, and Non-Labor Costs
- Project Management and Project Services
- Material Procurement and Management
- Survey / As-Builts
- Hydrotest Certification Services
- Environmental Planning, Management, Monitoring, and Abatement Support
- Construction Management
  - Inspection
  - District Personnel (Management, PSEP Liaison, DOM, Union Labor, Instrumentation, and FOS).
  - M&R (Meters and Regulation)
  - Pipeline Integrity
- Land Services
- Permitting

2.2. Key Personnel

Position	Name	Office Phone	Mobile Phone
Sr. Director			
SoCalGas			
Execution Manager			
SoCalGas			
Portfolio Manager			
SoCalGas			
Project Manager			
SoCalGas			
Gas Engineering			

Position	Name	Office Phone	Mobile Phone
SoCalGas			
Construction Management			
SoCalGas			
Estimating			
Contractor			
Contractor			
SoCalGas			
Environmental			
SoCalGas			
Land Acquisition			
SoCalGas			
Supply Management			
SoCalGas			
Water Management			
SoCalGas			
Permitting			
SoCalGas			

2.3. Estimate Schedule

- **Project Kick-Off with Fluor** 7/24/2019
- **Receive Estimate Plan from Fluor** 9/27/2019
- **Fluor Engineering Develop MTO** 10/18/2019
- **Receive Rev 0 Fluor's EPC Estimate** 1/24/2020
- **SCG/Campos Review with Fluor** 2/5/2020
- **Receive Rev 1 Fluor's EPC Estimate** 2/11/2020
- **Incorporate Comments, Sign-Off, Issue Class 3 Est** 4/30/2020
- **Begin revisions to estimate (Below the Line changes)** Feb 2023
- **Finalize ROM Estimate Adjustments** 4/14/2023

2.4. Assumptions and Exclusions

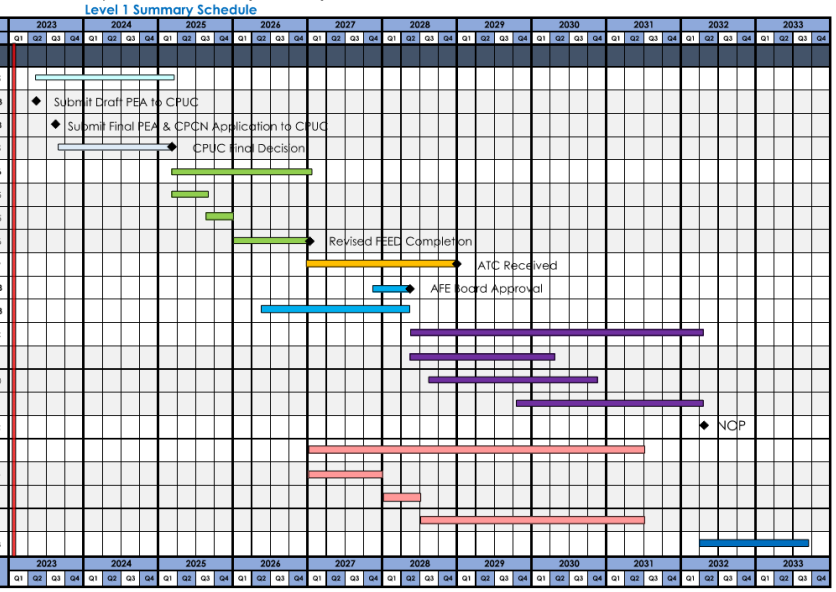
- No night or weekend work will be performed
- No cultural resources are anticipated.
- No groundwater will be encountered
- Soil remediation for the Ventura site is assumed to be part of a separate WOA and the estimate assumes the EPC contractor will receive a clean, graded site
- Study/design/engineering (if required) of any retrofit/demolition work at existing compressor site is excluded
- Demolition of the administration and warehouse buildings is excluded and assumed to be part of the soil remediation contract
- Demolition of the existing Compressor station is excluded from this scope of work.
    - Assumed to take place 1 year after the new facility is constructed and fully operational.
    - Separate price to perform the work will include the removal of old compressor equipment, coolers, and ancillary equipment which is to be sold as complete packages.
    - Selling remining structures, exhaust stack, piping, controllers, and valves as scrap metal.
    - Existing concrete floor stabs assumed to remain in place.
    - Assumes area is less than or equal to the area of the new facility construction footprint.
    - A separate Class 5 estimate of $5MM was completed by Burns & McDonnell for this scope

2.5. Current Project Schedule

The following schedule forms the basis for the updated Class 4 estimate.See appendix for enlarged schedule and schedule assumptions

Ventura Compressor Modernization (Base Case)
Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (Base Case)			
1	**CPCN Process**	22	May-23	Feb-25
2	Submit Draft PEA to CPUC			May-23
3	Submit Final PEA & CPCN Application			Aug-23
4	CPCN Proceedings	18	Aug-23	Feb-25
5	**Revised FEED Phase**	22	Feb-25	Dec-26
6	Refresh Scope / RFP Development	6	Feb-25	Aug-25
7	RFP Issue & Award	4	Aug-25	Dec-25
8	Revised FEED Study	12	Jan-26	Dec-26
9	**New Air Permit Application & Approval (ATC)**	24	Dec-26	Jan-29
10	**New AFE Board Approval**	6	Nov-27	May-28
11	**New EPC RFP Development & Award**	24	May-26	May-28
15	**EPC Phase**	47	May-28	Apr-32
16	Detailed Engineering (Phase 1 & 2)	23	May-28	Apr-30
17	Procurement	28	Jul-28	Nov-30
18	Construction, Commissioning, Startup	30	Oct-29	Apr-32
19	**In-Service Date (NOP)**	0		Apr-32
20	**SoCal Edison (Method of Service & Execution)**	54	Jan-27	Jun-31
21	Develop SCE Application & MOS Agreement Signed	12	Jan-27	Jan-28
22	Method of Service Study	6	Jan-28	Jun-28
23	Construction, Commissioning, Startup	36	Jun-28	Jun-31
24	**Closeout**	18	Apr-32	Oct-33



Schedule Assumptions:

NOTE: THE SCHEDULE AND ITS ASSUMPTIONS ARE ONLY VALID IF THE LOCATION OF THE PROJECT REMAINS THE SAME.

1 **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23. Final PEA & CPCN Application Submittal is Due on 24-Aug-23, and CPUC Final Decision will be made 18-months after that.
2 **REVISED FEED** - Revised FEED RFP development starts upon receipt of CPUC Final Decision. The entire Revised FEED Phase including the bidding period, Contract Award & FEED STUDY will take 22-months to complete.
3 **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. 24-months after application submittal.
4 **AFE** - Upon completion of the Revised FEED, new AFE Board Approval process will take place and takes 3-6 Months to complete.
5 **New EPC RFP** - Starts as early as possible to finish within 4-5 months after completion of the Revised FEED, and will take appox. Another 12-months to Award the EPC Contract.
6 **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.23-months to complete. The entire EPC Phase will take Approx. 47-Months until NOP.
7 **SCE** - SoCal Edison Method of Service study and execution (engineering, procurement & construction) will take no longer than 54-Months to complete.
8 **NOP** - NOP/In-Service Date in Q2-2032

2.6. Procurement Clarifications

2.6.a. Freight

Freight has been included in the EPC estimate provided by Fluor at 8%

2.6.b. Tax

Sales tax has been included in the EPC estimate provided by Fluor at 7.75%

2.6.c. Escalation

Escalation was included based on current indices and the current EPC project schedule.

The average overall escalation added to the project is 12.21%

Escalation was applied to each activity based on the midpoint of expenditure for each item. The table below indicates the escalation percentages utilized in the estimate.

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Escalation was applied to all direct costs including contingency since contingency is intended to be spent.

Excluded from escalation were SoCalGas Indirect costs (Loaders) as well as actuals to date.

2.6.d. Allowances

Allowances have been included in the EPC estimate by Fluor and are reflected in the estimate. The table below shows the allowances included by discipline:

Prime Account	Material Design Allowance (MDA)	Material Take-Off Allowance (MTOA)
Site/Civil	N/A	10%
Concrete	N/A	10%
Structural Steel	N/A	10%
Architectural	15%	N/A
Mechanical Equipment	15%	N/A
Piping Large Bore	N/A	5%
Piping Small Bore	N/A	15%
Piping Specialties	N/A	10%
Electrical Equipment	15%	N/A
Electrical Bulks	N/A	20%
Control Systems	N/A	20%

Design allowance does not cover for scope changes.

Weather allowance has also been included in the estimate at 2.5% of labor and subcontract costs for construction.

3. EPC Estimate (provided by Fluor) for Class 3 Estimate

3.1. Overall Assumptions and Basis

The overall assumptions and basis presented is a high-level view of the basis of Fluor's estimate. For a more detailed analysis by discipline, please refer to Fluor's attached Basis of Estimate.

- The base estimate is based on 4th quarter 2019 pricing and is escalated accordingly
- Work schedule is based on 10-hour days, 5 days a week, Monday through Friday
- No weekend or night work is anticipated
- Construction is based on Union labor work force
- The project schedule provided assumes 28 months of construction
- Transportation for craft workers to and from off-site parking area is required. Busing equipment cost and the cost of craft labor during transit is included in the estimate on the basis of 15 minutes per day, twice a day.
- Decommissioning of existing site features (flanging the old assets) has been included in the estimate with the exception of the administration building and warehouse building.
- Demolition of the existing compressors and compressor building has been excluded from this estimate.
- The estimate is based on input from the following Engineering disciplines
    - Civil
    - Structural
    - Control Systems
    - Piping
    - Electrical
    - Mechanical
    - HSE

3.2. Key Quantities

The following table shows key quantities for the project at the time of the Class 3 Estimate in April 2020. This portion of the estimate did not change with regard to key quantities. However, several of the scope adjustments outlined in section 3.9 have separate quantities that are not accounted for in the table below.

SUMMARY	Qty	UOM
Earthwork and Civil	36,872	CY
Concrete	5,007	CY
Structural Steel	318	TON
Architectural	20,214	SF
Machinery & Equipment	53	EA
Piping	25,181	LF
Pipe Fabrication	455,549	LBS
Electrical	161,321	LF
Control Systems	636	EA

3.3. Equipment and Bulk Materials

The estimate assumes the EPC contractor will purchase all equipment and materials.

Quantities were developed by Fluor's design engineers and priced and labored by Fluor's estimating team.

The estimate includes pricing for all mechanical equipment greater than $15,000 from budgetary vendor quotes. 95% of mechanical equipment was based on budgetary quotes and the rest of the 5% based on in-house pricing.

Budgetary vendor quotes were also received for the following:

- Concrete pricing based on quoted local area costs for ready mix concrete at 4500 psi.
- PDC
- MCC
- SWGR #1
- SWGR #2
- Control and On/Off valves
- Relief Valves
- CEMS shelters and associated analyzers
- BPCS equipment

The remainder of bulk materials were priced based on in-house pricing.

3.4. Craft Labor Rate

The all-in labor rates were developed using current Ventura County Union wage rates and benefits and burdens (fringes and PT&I) obtained from local unions and combing them with subcontractor indirect costs. The bare wage rate is a blended 50 hour per week rate consisting of 40 standard rate hours and 10 premium time hours.

The subcontractor indirect costs below vary by account (within the ranges show in parenthesis). They have been applied as a percentage of the Bare Wage Rate and are consistent with historical metrics:

- Small tools and consumables (4%-8%)
- Construction equipment & cranes up to 60 tons (18%-22%)
- Contractor field staffing (10%-20%)
- Temporary facilities and services (12%-20%)
- Miscellaneous expenses (5%)
- Subcontractor fee & contingency (10%-16%)

The all-in rates used in the 2020 Class 3 estimate by major account are shown below

Description	All-In Rate/Hr
Earthwork Civil	$ 141.45
Demo	$ 141.45
Concrete	$ 145.32
Structural Steel	$ 152.36
Building	$ 136.12
Mechanical	$ 171.74
Piping	$ 176.97
Electrical / EICS	$ 168.73
Control Systems	$ 166.16
Painting	$ 121.39
Insulation	$ 140.94
Scaffolding	$ 132.82
Safety Watch	$ 115.00
Subcontractor Rate	$ 250.00

3.5. Productivity

Productivity adjustments were developed based on historical metrics and were applied to Fluor Standard Unit Work Hours. These adjustments include items which may affect craft productivity including craft availability, craft skills, climate and weather, specific site and project information, overtime consequences and site accessibility.

The productivities from Fluor were adjusted to achieve an average productivity of 1.3. The adjusted productivities utilized in the estimate are shown below:

Description	Productivity
Earthwork Civil	1.25
Concrete	1.00
Structural Steel	1.25
Building	1.30
Mechanical	1.30
Piping	1.40
Electrical/EICS	1.30
Control Systems	1.30
Painting	1.30
Insulation	1.40

3.6. Engineering Costs

Engineering costs cover Detail Engineering and Design and Procurement services. The estimate is based on Fluor's historical averages for similarly sized projects and is equivalent to approximately 14% of the total direct TIC.

Engineering support during construction was adjusted based on historical average seen on the Blythe Plant 4 Compressor project.

3.7. Construction Management

Listed below are the major items included:

- Field office, temporary warehouse, break area, and first-aid office
- Set up and maintenance of temporary power and lighting
- Temporary construction water, and potable water
- Road upgrades, janitorial service, and material offload
- Testing and inspection during construction, and waste removal
- Field staff and office supplies
- Cranes in excess of 60 tons
- Insurance, Bonds, Permits, and Licenses

3.8. Estimate Adjustments to Fluor Class 3 Estimate

- Added allowance for security cameras, CCTV, networking (phone/internet) etc.
    - Added $100K for materials and $100K for labor in the “Architectural” account
- Included ROM estimate from Field Operations for the communications relocation scope of work
    - Added allowance of $525,000
- Added 10% of all materials to account for the material handling and mark-up fees by the EPC contractor
- Fluor assumed only 20% of the craft labor will receive per diem at $100 per day for 5 days a week.
    - Adjusted estimate to reflect 100% of craft labor to receive per diem at $100 per day for 5 days a week
- Added 10% for material handling fee by the construction contractor
- Reduced concrete manhours per cubic yard from 14 to 9 based on historical benchmarks
- Reduced piping manhours per foot from 4.05 to 2.5 based on historical benchmarks
- Reduced productivity from an average of 1.4 to 1.3 based on better conditions in Ventura as opposed to Blythe
- Increased Vendor Representatives and included 700 man-days x $2,500 a day

4. Stakeholder Impacts for Class 3 Estimate

4.1. SCG Labor

SCG Non-Union Labor is estimated based upon a staffing plan and project duration provided by the project team beginning January 2020 for the start of Detail Design and ending June 2024 for closeout.

4.2. Material – Pipe, Fittings, Valves, and Other

Equipment and materials were included in Fluor's EPC estimate.

Additional materials included by SCG include the following:

- Office furniture for the Administration building at $60,000 allowance
- Shop equipment for the warehouse at $50,000 allowance

4.3. PM / Project Services

Project Management and Support Costs were developed based upon a staffing plan and project duration provided by the project team beginning in January 2020 for the start of Detail Design and ending in December of 2031 for closeout. Project services include contractor support for:

- Project Management
- Project Controls
- Estimating
- Supply Management
- Field Engineers
- Gas Engineering Support
- Land Services

4.4. 3rd Party Inspection

Inspectors were developed as part of the staffing plan provided by the project team.

4.5. Surveying / As-Builts

The estimate includes survey support staff for the project and site facility layout and as-builts for both Phase 1 and Phase 2.

The estimate also includes material support in the development of as-built close-out packages.

4.6. Environmental Services

Environmental services include the following:

- Assumes 26 months of pre-construction planning based on Fluor's schedule dated 12/20/2019
- Assumed 23 months of construction based on Fluor's schedule dated 12/20/2019
- Abatement duration assumed 10 tie-ins, with 1 day of abatement per tie-in
- SCG labor to support environmental services
- Construction monitoring, SWPPP Development, air permitting, etc.

- Assumes no CEQA/NEPA documents or other environmental studies/surveys are needed
- Assumes soil remediation is excluded from this capital budget and will be accounted for on another WOA
- Assumes water will be discharged to land for dust control or compaction
- Includes hazardous materials cost for disposal, paint and asbestos sampling, and analysis of soil
- Includes VCAPCD Authority to Construct (ATC) Permit Fee and Construction General Permit/SWPPP fee

4.7. Pressure Test Certification Services

An allowance of pressure test certification services has been included at $200K

4.8. Land Services

This estimate has assumed construction easements will be procured from existing landowners at current rates.

Costs for TREs for placement of 2 laydown yards have been included, including one laydown yard that has been acquired for a PSEP project.

Costs for TREs for access to the facility has been included

All labor costs associated with support for land services are included

4.9. CNG / LNG

No CNG/LNG support has been assumed for this project.

4.10. Miscellaneous Services

Miscellaneous Services include the following:

- Stopple Fitting and PCF tapping services for hot tie-in
- Vendor Representatives through construction
- Initial Fills
- Commissioning and Start-up support services

4.11. Permits

This estimate has included the anticipated cost of building permits

4.12. Other Non-Labor Costs

Non-labor costs included in this estimate address travel, meals, expenses, and lodging incurred for SCG Labor.

5. Scope Adjustments for Hybrid 2 gas, 2 electric Class 4 Estimate (Below the line Changes)

The scope adjustments listed below are included to capture the various additional costs associated with installing 2 gas and 2 electric drive compressors rather than 4 gas compressors as well as additional items that resulted from lessons learned during the construction of past compressor projects.

- BMcD electric study adder for the hybrid blend of gas and electric compressors (2 ea)
    - BMcD provided a Class 5 estimate which was the basis used to determine the additional cost
    - Based on the Rev1 B schedule, 2030 is anticipated to be mid-way through construction, so associated costs were escalated accordingly
    - Accounts for additional SoCal Edison (SCE) and SoCalGas (SCG) electrical equipment including:
        - SCE Equipment
            - 2 ea 4160V Oil Filled Transformers
            - 1 ea Gas Switch for 16KV service
            - 1 ea Vacuum Fault Interrupter for 16KV service
        - SCG Equipment
            - 1 ea 480V Transformer
            - 1 ea Metering Panel
    - Updated quotes for the compressors were obtained by Gas Engineering
- Piling and micro-piling costs were added based on feasibility studies and a 2030 escalation adjustment.
    - The addition of micropile cost was intended to cover the additional costs associated with existing rock fill at the site location
- An additional transformer and Method of Service (MOS) study adjustment was made based on updated information received from SCE and historical Honor Rancho Compressor Modernization project costs
    - Includes associated electrical materials
- FEED engineering addition to cover full FEED contractor engineering
    - The estimate assumes this cost will be incurred in 2026 per project schedule and was escalated accordingly
- The estimate includes a new cost intended to cover the addition of (2) vapor recovery unit skids.

    - The price was derived utilizing the historical price from the Blythe Compressor Station which was $6MM for (1) skid. This is also the same amount used for the HRCM estimate
- Deodorizing unit costs were incorporated into the estimate.
    - Based on a quote received from a carbon adsorber vendor (Carbtrol - model: G-15PPL), these adsorbers were priced at $150k ea. The station design max flow rate resulted in (14) total adsorbers needed. An equipment factor of 3 was used to include costs for associated bulk materials and installation the adsorbers, blowers and associated bulk materials
    - A larger amount of contingency (40% total) is intended to account for unforeseen pricing associated with a different vendor in the event the Carbtrol units cannot handle the flow rate.
- A cooling motor blower addition was made to cover the cost of blowers for the (2) induction drive compressors.
    - The amount came from historical blower costs from the HRCM station
    - An installation factor of 3 was chosen to account for the necessary concrete pads, interconnected mechanical pipe/valves/fittings, and electrical components.
- Added to the estimate for the addition of a 4160V switchgear, battery charger, batteries, and 15ft run to the new PDC building
    - The amount is based on PDC quotes received for past MCM and HRCM projects
- An additional cost was allotted to cover the installation, maintenance, and removal of an alternate access ramp to be utilized for construction traffic.
    - $160k was estimated for the access ramp installation, $25k for ramp removal and $50k for ramp maintenance.
- The estimate includes an additional cost for proponent environmental assessments (PEA) and environmental impact reports (EIR) to be executed during CPCN proceedings and construction.
    - The costs were escalated to 2026 and 2030 respectively
- Added a new line item intended to offset the additional engineering required for deodorizing and methane capture units
    - The amount is an allowance that was expected to occur in 2029 and escalated accordingly
- An estimate line item was added for the purchase and installation of emission control catalysts installed at the exhaust side of the (2) gas compressors
    - The cost is from an Aerinox emissions control catalyst quote multiplied by an installation factor of 2. The amount of supporting infrastructure is anticipated to be less for the control catalyst install as compared to other units within the estimate

- An additional cost for EPC contractor insurance, warranty, and letter of credit costs can now be found within the estimate
    - This number was based on historical differences between estimates and bids received on the MCM and HRCM projects.
    - Two separate line items for: (1) additional SCG Company labor, and (2) 3rd Party Project Management/Project Services were estimated as a result of an extended CPCN schedule. The costs for these two scopes assume the following:
        - Both FEED and EPC will be re-bid
        - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
        - Monthly spend rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPUC delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC
- The estimate includes a line item for 3rd party environmental costs expected to occur in 2029 for remediation work and asphalt removal
- The estimate includes a line item to add the incremental actual costs charged to the project between February 2020 and December 2022. The previous Class 3 estimate included actuals through January 2020. The actual costs as of December 2022 ($12.6 MM) assumes $8.8MM of current project costs will be transferred to the Tech Services group as part of operations and station improvements including: temporary office installation, perimeter security cameras, and fend line methane monitoring.
    - The $8.8MM number for actuals that have been excluded is also expected to increase as more costs are accumulated prior to the project start date

6. *Indirect Costs (Loaders)*

Indirect costs, also known as Loaders were added to the estimate based on calculations resulting from the direct cost estimates (prior to Loaders) being entered into the TM1 system by the project controls group. The TM1 system takes into account the projected spend of direct costs over the project schedule and calculates the costs of company overhead, property taxes, and financing costs (also referred to as the allowance for funds used during construction (AFUDC)).

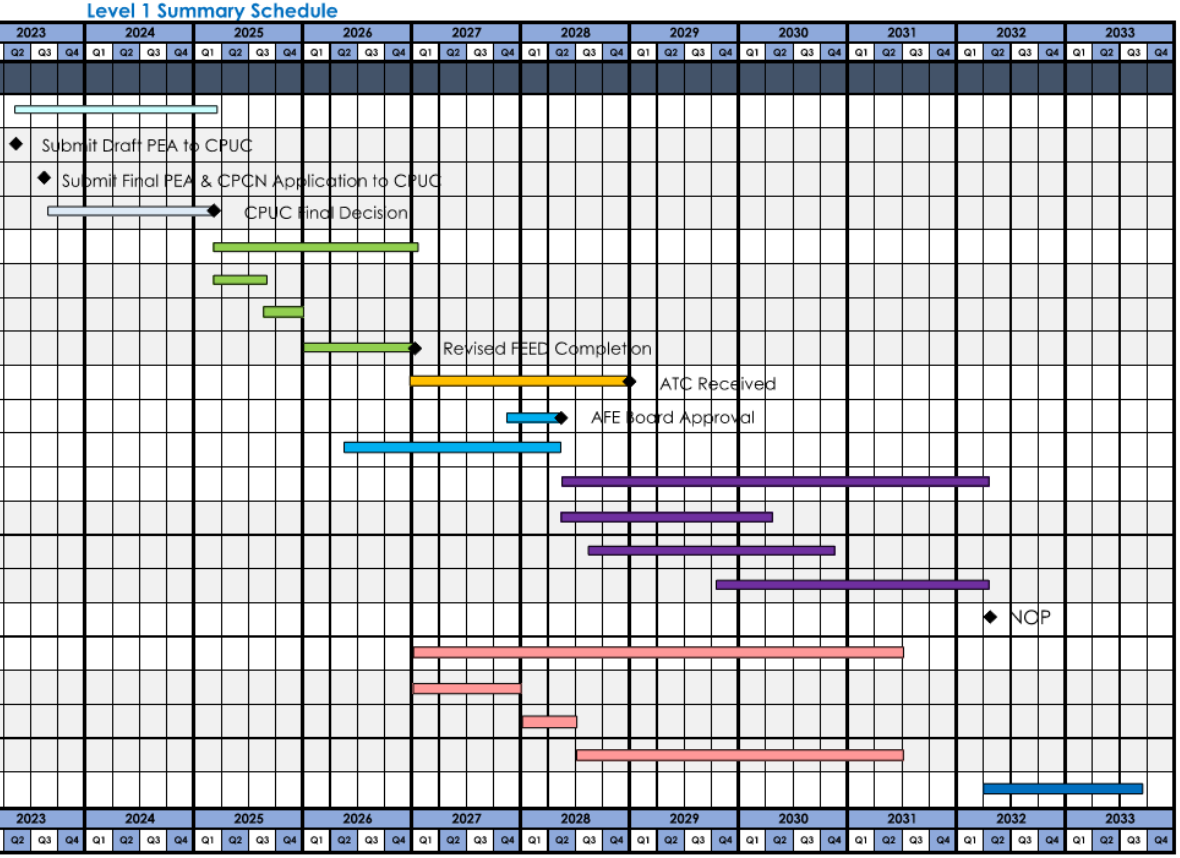
7. Appendix

7.1. Project Schedule & Assumptions

Ventura Compressor Modernization (Base Case)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (Base Case)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC			**May-23**
3	Submit Final PEA & CPCN Application			**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Revised FEED Phase**	**22**	**Feb-25**	**Dec-26**
6	Refresh Scope / RFP Development	6	Feb-25	Aug-25
7	RFP Issue & Award	4	Aug-25	Dec-25
8	Revised FEED Study	12	Jan-26	Dec-26
9	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-26**	**Jan-29**
10	**New AFE Board Approval**	**6**	**Nov-27**	**May-28**
11	**New EPC RFP Development & Award**	**24**	**May-26**	**May-28**
15	**EPC Phase**	**47**	**May-28**	**Apr-32**
16	Detailed Engineering (Phase 1 & 2)	23	May-28	Apr-30
17	Procurement	28	Jul-28	Nov-30
18	Construction, Commissioning, Startup	30	Oct-29	Apr-32
19	**In-Service Date (NOP)**	**0**		**Apr-32**
20	**SoCal Edison (Method of Service & Execution)**	**54**	**Jan-27**	**Jun-31**
21	Develop SCE Application & MOS Agreement Signed	12	Jan-27	Jan-28
22	Method of Service Study	6	Jan-28	Jun-28
23	Construction, Commissioning, Startup	36	Jun-28	Jun-31
24	**Closeout**	**18**	**Apr-32**	**Oct-33**



Schedule Assumptions:

NOTE: THE SCHEDULE AND ITS ASSUMPTIONS ARE ONLY VALID IF THE LOCATION OF THE PROJECT REMAINS THE SAME.

1 **CPCN Process:** Submittal of the DRAFT PEA is due on **24-May-23**. Final PEA & CPCN Application Submittal is Due on **24-Aug-23**, and CPUC Final Decision will be made **18-months** after that.

2 **REVISED FEED** - Revised FEED RFP development starts upon receipt of CPUC Final Decision. The entire Revised FEED Phase including the bidding period, Contract Award & FEED STUDY will take **22-months** to complete.

3 **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. **24-months** after application submittal.

4 **AFE** - Upon completion of the Revised FEED, new AFE Board Approval process will take place and takes 3-6 Months to complete.

5 **New EPC RFP** - Starts as early as possible to finish within **4-5 months** after completion of the Revised FEED, and will take appox. Another **12-months** to Award the EPC Contract.

6 **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.**23-months** to complete. The entire EPC Phase will take Approx. **47-Months** until NOP.

7 **SCE** - SoCal Edison Method of Service study and execution (engineering, procurement & construction) will take no longer than **54-Months** to complete.

8 **NOP** - NOP/In-Service Date in **Q2-2032**

Ventura Compressor Modernization Project

Hybrid Compressor Option

Estimated Cost

$ 578,000,000

Ventura Supplemental Estimate	Class 3 - FEED Estimate (2021 $)	% Breakdown	Actuals (Jan. 2020)	Contingency %	Contingency	Sub-Total	% Esc.	Escalation	TOTAL	Basis
EPC - Engineering / Design Services			$ 6,426,647	34.4%			11%			2020 FEED Estimate w/updated escalation
EPC - Construction			$ 114,320	20.8%			15%			2020 FEED Estimate w/updated escalation
EPC - Construction Management			$ -	12.5%			16%			2020 FEED Estimate w/updated escalation
SCG Labor - Mgmt. & Non Labor	$ 8,135,466		$ 1,398,450	-0.3%	$ (23,895)	$ 9,510,021	14%	$ 1,098,856	$ 10,608,877	2020 FEED Estimate w/updated escalation
SCG Labor - Union T/H	$ 791,500		$ -	-0.4%	$ (3,401)	$ 788,099	14%	$ 106,762	$ 894,861	2020 FEED Estimate w/updated escalation
SCG Labor - Outreach & Public Affairs	$ 609,000		$ -	0.6%	$ 3,606	$ 612,606	14%	$ 82,988	$ 695,594	2020 FEED Estimate w/updated escalation
Material- Other	$ 110,000		$ -	36.3%	$ 39,883	$ 149,883	16%	$ 23,588	$ 173,471	2020 FEED Estimate w/updated escalation
PM / Project Services	$ 15,523,720		$ 2,080,696	2.1%	$ 320,106	$ 17,924,523	11%	$ 1,804,502	$ 19,729,024	2020 FEED Estimate w/updated escalation
Inspection Services	$ 1,117,080		$ -	12.5%	$ 140,087	$ 1,257,167	18%	$ 227,062	$ 1,484,229	2020 FEED Estimate w/updated escalation
Surveying / As-builts	$ 307,547		$ -	15.1%	$ 46,346	$ 353,893	18%	$ 63,918	$ 417,811	2020 FEED Estimate w/updated escalation
Environmental Services	$ 365,952		$ 180,526	12.8%	$ 46,908	$ 593,387	16%	$ 64,975	$ 658,362	2020 FEED Estimate w/updated escalation
Pressure Test Certification Services	$ 200,000		$ -	8.3%	$ 16,652	$ 216,652	16%	$ 34,096	$ 250,749	2020 FEED Estimate w/updated escalation
Land Services	$ 1,029,438		$ -	8.3%	$ 85,797	$ 1,115,235	16%	$ 175,514	$ 1,290,749	2020 FEED Estimate w/updated escalation
Miscellaneous Services	$ 5,960,000		$ -	13.3%	$ 791,879	$ 6,751,879	18%	$ 1,219,485	$ 7,971,364	2020 FEED Estimate w/updated escalation
Permits	$ 30,736		$ -	20.9%	$ 6,414	$ 37,150	16%	$ 5,847	$ 42,997	2020 FEED Estimate w/updated escalation
Other Non-Labor Costs	$ 476,798		$ 20,898	4.1%	$ 19,724	$ 517,421	0%	$ -	$ 517,421	2020 FEED Estimate w/updated escalation
Sub-Total Un-Loaded Direct Estimated Cost	**$ 200,415,047**	**75%**	**$ 10,221,538**	**19.1%**	**$ 38,189,217**	**$ 248,825,802**	**14.3%**	**$ 34,026,119**	**$ 282,851,921**	**2020 FEED Estimate w/updated escalation**

Year	Esc. %	Below the Line Changes			Actuals (Feb. 2020 to Dec. 2022)							
2030	9.13%	ROM Equipment and Construction adder for Hybrid (2 gas x 2 elec)				40%			9.13%			BMcD Electric Study
2030	9.13%	Add Piling Costs	$ 320,000			40%	$ 128,000	$ 448,000	9.13%	$ 40,898	$ 488,898	Feasibility Study
2030	9.13%	Add Micropiles through areas of rockfill	$ 390,000			40%	$ 156,000	$ 546,000	9.13%	$ 49,845	$ 595,845	Feasibility Study
2030	9.13%	Additional SCE Transformer cost and Method of Service (MOS) Study	$ 1,150,000			20%	$ 230,000	$ 1,380,000	9.13%	$ 125,981	$ 1,505,981	Based on updated info received from SCE and HRCM Est; $150k for MOS study
2026	1.27%	Additional FEED Engineering				35%			1.27%			Assume full FEED Contractor Engineering (BMcD)
2030	9.13%	Add 2 Vapor Recovery Unit (VRU) Skids - use Blythe/HRCM cost	$ 12,000,000			20%	$ 2,400,000	$ 14,400,000	9.13%	$ 1,314,582	$ 15,714,582	Cost from Blythe for 1 skid (also used for HRCM)
2030	9.13%	Add Deodorizing Unit	$ 6,750,000			40%	$ 2,700,000	$ 9,450,000	9.13%	$ 862,695	$ 10,312,695	Potential vendor Carbtrol - G-15PPL Adsorbers ($150k ea) x 14 plus blowers and install factor of 3
2030	9.13%	Add Cooling Motor Blowers (2 ea) for EDCs	$ 120,000			25%	$ 30,000	$ 150,000	9.13%	$ 13,694	$ 163,694	HRCM Blower cost plus installation factor of 3
2030	9.13%	Add SCE supplied Electrical Equipment (in $1,150,000 above)	$ -				$ -	$ -		$ -	$ -	
2030	9.13%		$ -				$ -	$ -		$ -	$ -	
2030	9.13%	Add 4160V Switchgear, Battery charger, and batteries and 15ft to PD	$ 1,500,000			25%	$ 375,000	$ 1,875,000	9.13%	$ 171,170	$ 2,046,170	ROM Estimate based on PDC and Switchgear quotes from MCM and HRCM
2030	9.13%	Alternate Access Ramp Install, Maintenance, & Removal	$ 235,000			40%	$ 94,000	$ 329,000	9.13%	$ 30,035	$ 359,035	Install and Removal based on 2022 bids plus $50k for maintenance
2030	9.13%	Construction Contractor Wage Rate Adjustment	$ -									Recommend no changes at this time
		Proponent Env Assess (PEA)/Environ Impact Report (EIR)	$ 4,000,000			25%	$ 1,000,000	$ 5,000,000	0.00%	$ -	$ 5,000,000	Dudek and Subcontractor cost (executed during CPCN Proceedings)
2030	9.13%	Proponent Env Assess (PEA)/Environ Impact Report (EIR)	$ 2,000,000			25%	$ 500,000	$ 2,500,000	9.13%	$ 228,226	$ 2,728,226	Dudek and Subcontractor cost (executed during construction)
2029	7.06%	Deodorizing unit and Methane capture Engineering	$ 500,000			30%	$ 150,000	$ 650,000	7.06%	$ 45,910	$ 695,910	Allowance for Engineering
2030	9.13%	Emission control catalyst installed in compressor exhaust	$ 480,000			30%	$ 144,000	$ 624,000	9.13%	$ 56,965	$ 680,965	Aerinox quote ($120k each, 2 req'd) plus install factor of 2
2030	9.13%	EPC Contractor Insurance, Warranty, Letter of Credit	$ 10,000,000			25%	$ 2,500,000	$ 12,500,000	9.13%	$ 1,141,130	$ 13,641,130	Experience from MCM and HRCM bids vs Original Estimates
		SCG Company Labor Extended Schedule				15%			1.06%			*See "Extended CPCN Sched" Tab*
		3rd Party Project Mangement / Project Services				15%			1.04%			*See "Extended CPCN Sched" Tab*
2029	7.06%	3rd Party Environmental				20%			7.06%			Added owner subsurface / remediation work and asphalt removal
		Actuals as of December 2022			$ 12,612,307	0%	$ -	$ 12,612,307		$ -	$ 12,612,307	From Jan. 2020 to Dec. 2022
		Sub-Total Below the Line Changes	**$ 68,527,500**	**25%**	**$ 12,612,307**	**25.8%**	**$ 17,705,000**	**$ 98,844,807**	**6.5%**	**$ 5,645,764**	**$ 104,490,571**	

Sub-Total Direct Cost with Below the Line Changes	**$ 268,942,547**		**$ 22,833,845**	**$ 55,894,217**	**$ 347,670,609**		**$ 39,671,883**	**$ 387,342,492**	
Actuals	$ 22,833,845								Total Actuals as of Dec. 2022 (Actuals up to Jan 2020 plus Feb 2020 to Dec 2022)
Contingency	$ 55,894,217	21%							
Total Un-Loaded Direct Cost[1]	**$ 348,000,000**								
(1) Excludes Escalation and Loaders									
Escalation	$ 39,671,883	12.21%							
Loaders	$ 190,757,084	52%							
Total Loaded Direct Cost	**$ 578,000,000**								

	Primary Characteristic	*Secondary Characteristic*		
ESTIMATE CLASS	**MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES** Expressed as % of complete definition	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXPECTED ACCURACY RANGE** Typical variation in low and high ranges at an 80% confidence interval
Class 5	0% to 2%	Concept screening	Cost/length factors, parametric models, judgment, or analogy	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Study or feasibility	Cost/length, factored or parametric models	L: -15% to -30% H: +20% to +50%

Based on NOP of 2032

Based on NOP of 2032

STAGE GATE 3 ESTIMATE

Ventura Compressor Modernization Project	PROJECT TITLE	Stage 3 SCG Estimating Template Rev 5 (11/1/2017)	PROJECT STATIONING			WOA NUMBER	91651
Other	ASSET		GENERAL MANAGEMENT & ADMINISTRATION (GMA)	0.00%		I/O NUMBER	
1B		ESTIMATE REV 4/23/2020	CONSTRUCTION DURATION	460	MUNICIPALITY: Ventura	LINE NUMBER	
Compressor Upgrade	ACTIVITY	PREPARED BY	TAX	0.0%	OPERATING AREA / DISTRICT	PIPE NOM. O.D. - IN.	
1/23/2024 13:24	DATE PRINTED	REVIEWED BY	FREIGHT	0.00%	TOTAL ESTIMATED PROJECT COST: $282,900,000	TOTAL LENGTH - FT.	

KPMG	Description	Qty	Unit	$/UOM	Material	Labor and Equipment	Subcontracts	Tax & Freight	Subtotal	Risk Assessment %	Risk Assessment Amount	Subtotal Excluding Escalation	Escalation %	Escalation Amount	Estimated Costs	Comments
	CONSTRUCTION CONTRACTOR															
	COMPRESSOR UPGRADE															
	Earthwork and Civil	36,872	CY							21.13%			13.55%			Reduce productivity from 1.35 to 1.25
	Demolition	1	LS							0.00%			13.55%			
	Concrete	5,007	CY							21.13%			13.55%			Reduce concrete manhours/cy from 14 to 9
	Structural Steel	318	TON							14.12%			15.74%			Reduce productivity from 1.35 to 1.25
	Mechanical Utilities	1	LS							0.00%			15.74%			
	Architectural	20,214	SF							12.04%			15.74%			Added $100K to materials and $100K to labor to account for Security cameras, CCTV, networking (phone/internet) etc.; reduced productivity from 1.4 to 1.3
	Machinery & Equipment	53	EA							40.00%			15.74%			Reduce productivity from 1.4 to 1.3
	Piping	25,181	LF							40.00%			15.74%			Reduce piping hours from 4.05 manhours/lf to 2.5 manhours/lf
	Pipe Fabrication	455,549	LBS							21.52%			15.74%			
	Electrical	161,321	LF							40.00%			15.74%			Reduce productivity from 1.4 to 1.3
	Control Systems	636	EA							14.12%			15.74%			Reduce productivity from 1.4 to 1.3
	Painting	1	LS							27.33%			15.74%			Reduce productivity from 1.4 to 1.3
	Insulation	1	LS							27.33%			15.74%			Reduce productivity from 1.8 to 1.4
	Scaffolding	1	LS							14.12%			15.74%			
	Safety Watch	1	LS							9.66%			15.74%			
	DFL Craft Per Diem	1	LS							9.66%			15.74%			
	Craft Bussing	1	LS							9.66%			15.74%			Reduce by 81% based on reduction in total manhours
	Cranes greater than 60 Ton	1	LS							9.66%			15.74%			Reduce by 81% based on reduction in total manhours
	EPC Contractor Fee	1	LS							4.08%			13.55%			Keep Contractor Fee at 15%
	Demo Existing Site Features	1	LS							23.83%			13.55%			
	Communications Relocation	1	LS							21.13%			13.55%			High level ROM received from Field Operations
	Capital and Construction Spare Parts	1	LS							8.50%			15.74%			Added Capital Spares
	Operational Spare Parts (Allowance for Initial Operations)	1	LS							8.50%			18.06%			
	Tax @ 7.75% (Ventura County Rate)	1	LS							0.97%			13.55%			
	Inland Freight	1	LS							8.50%			13.55%			
	Material Handling (10%)	1	LS							8.50%			13.55%			Add 10% for EPC contractor to handle materials procured for the project (Mark-up/handling fee)
Material & Equipment										37.85%						
Construction										62.15%						
	Contractor Cost Allowances											$ -				
Construction	Weather Allowance	2.50%	LOT							4.1%			15.74%			
	Design Allowance	0.00%	LOT		$ -	$ -	$ -		$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	PURCHASED MATERIALS (includes tax and freight)											$ -				
	Pipe and Fittings				$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
	Material-Valves				$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
	Material-Other				$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
Material & Equipment	Interior Furnishings for Admin Building	1	LS	$ 60,000.00	$ 60,000.00			$ -	$ 60,000	36.3%	$ 21,754	$ 81,754	15.74%	$ 12,866	$ 94,621	Allowance
Material & Equipment	Warehouse Shop Equipment	1	LS	$ 50,000.00	$ 50,000.00			$ -	$ 50,000	36.3%	$ 18,129	$ 68,129	15.74%	$ 10,722	$ 78,851	Allowance
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
	Material-Other Electical				$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
	Miscellaneous Piping Allowance 5%	0%	LOT		$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
	Miscellaneous Electrical Material	0%	%		$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
	Material Allowances											$ -				
	Design Allowance	0.00%	LOT		$ -			$ -	$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	Procurement Allowance	0.00%	LOT		$ -			$ -	$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	Material Allowance	0.00%	LOT		$ -			$ -	$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	SCG COMPANY LABOR											$ -				
	MASTER COMPANY LABOR TOTALS											$ -				
	CAPITAL INSTALLATION											$ -				
Company Labor & Project Services	SCG - Project (Field Management)	13956	HR	$ 70.28		$ 980,760.00			$ 980,760	-0.3%	$ (2,881)	$ 977,879	13.55%	$ 132,471	$ 1,110,350	
Company Labor & Project Services	SCG - Project Management	71323	HR	$ 70.00		$ 4,992,582.00			$ 4,992,582	-0.3%	$ (14,664)	$ 4,977,918	13.55%	$ 674,347	$ 5,652,265	
Company Labor & Project Services	SCG - Environmental Services	12888	HR	$ 70.69		$ 911,040.00			$ 911,040	-0.3%	$ (2,676)	$ 908,364	13.55%	$ 123,054	$ 1,031,418	
Company Labor & Project Services	SCG - Engineering Services	17625	HR	$ 70.00		$ 1,233,733.69			$ 1,233,734	-0.3%	$ (3,624)	$ 1,230,110	13.55%	$ 166,640	$ 1,396,750	
Company Labor & Project Services	SCG - Inspectors / CA's	0	HR			$ -			$ -	-0.3%	$ -	$ -	13.55%	$ -	$ -	
Company Labor & Project Services	SCG - Other Departments	350	HR	$ 49.57		$ 17,350.00			$ 17,350	-0.3%	$ (51)	$ 17,299	13.55%	$ 2,343	$ 19,643	
Company Labor & Project Services	SCG - Transmission Field Services	0	HR			$ -			$ -	-0.3%	$ -	$ -	13.55%	$ -	$ -	
Company Labor & Project Services	SCG - Outreach & Public Affairs	8700	HR	$ 70.00		$ 609,000.00			$ 609,000	0.6%	$ 3,606	$ 612,606	13.55%	$ 82,988	$ 695,594	

STAGE GATE 3 ESTIMATE

Ventura Compressor Modernization Project	PROJECT TITLE		Stage 3 SCG Estimating Template Rev 5 (11/1/2017)	PROJECT STATIONING												WOA NUMBER	91651
Other	ASSET			GENERAL MANAGEMENT & ADMINISTRATION (GMA)									0.00%			I/O NUMBER	
1B			ESTIMATE REV 4/23/2020	CONSTRUCTION DURATION									460	MUNICIPALITY	Ventura	LINE NUMBER	
Compressor Upgrade	ACTIVITY		PREPARED BY	TAX									0.0%	OPERATING AREA / DISTRICT		PIPE NOM. O.D. - IN.	
1/23/2024 13:24	DATE PRINTED		REVIEWED BY	FREIGHT									0.00%	TOTAL ESTIMATED PROJECT COST	$282,900,000	TOTAL LENGTH - FT.	

KPMG	Description	Qty	Unit	$/UOM	Material	Labor and Equipment	Subcontracts	Tax & Freight	Subtotal	Risk Assessment %	Risk Assessment Amount	Subtotal Excluding Escalation	Escalation %	Escalation Amount	Estimated Costs	Comments
Company Labor & Project Services	SCG - Union Field Services	11010	HR	$ 71.31		$ 785,100.00			$ 785,100	-0.4%	$ (3,374)	$ 781,726	13.55%	$ 105,899	$ 887,625	
Company Labor & Project Services	SCG - Pipeline Integrity Services	80	HR	$ 80.00		$ 6,400.00			$ 6,400	-0.4%	$ (28)	$ 6,372	13.55%	$ 863	$ 7,236	
	CAPITAL ABANDONMENT											$ -				
	O & M PROJECT											$ -				
	ADDITIONAL COSTS											$ -				
	MASTER ADDITIONAL COSTS TOTALS											$ -				
	CAPITAL INSTALLATION											$ -				
Company Labor & Project Services	PM Services (Stage 1-5)	1	LOT							2.1%			11.39%			See "PM Team" and "Gas Engineering" tabs for details
Design & Engineering	Engineering & Design Services (Stages 1-5)	1	LOT							34.4%			11.39%			
Environmental	Environmental Services	1	LOT				$ 324,085		$ 324,085	12.8%	$ 41,542	$ 365,627	15.74%	$ 57,542	$ 423,169	See "Environmental" tab for details
Environmental	Abatement / IH Services	1	LOT				$ 28,437		$ 28,437	12.8%	$ 3,645	$ 32,082	15.74%	$ 5,049	$ 37,131	See "Environmental" tab for details
Environmental	Water Treatment Services	0	GAL				$ -		$ -	12.8%	$ -	$ -	15.74%	$ -	$ -	See "Environmental" tab for details
Environmental	Hazardous Materials Management (On-Call)	1	LOT				$ 13,430		$ 13,430	12.8%	$ 1,721	$ 15,151	15.74%	$ 2,385	$ 17,536	See "Environmental" tab for details
Environmental	Environmental Mitigation	1	LOT				$ -		$ -	12.8%	$ -	$ -	15.74%	$ -	$ -	See "Environmental" tab for details
Environmental	Environmental Permits. Fees, etc.	1	LOT				$ 25,736		$ 25,736	20.9%	$ 5,371	$ 31,107	15.74%	$ 4,896	$ 36,002	See "Environmental" tab for details
Environmental	Water Storage	1	LOT				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	See Water Storage Stake Holders
Environmental	Water Disposal Services	0	GAL				$ -		$ -	12.8%	$ -	$ -	15.74%	$ -	$ -	See Water Storage Stake Holders
Construction	Construction Management	0	HR				$ 19,299,000		$ 19,299,000	12.5%	$ 2,420,182	$ 21,719,182	15.74%	$ 3,418,122	$ 25,137,304	See "Fluor EPC Estimate" tab and CM tab for details
Construction	CM/Inspection Services	1	LOT				$ 1,117,080		$ 1,117,080	12.5%	$ 140,087	$ 1,257,167	18.06%	$ 227,062	$ 1,484,229	See "PM Team" tab and CM tab for details
Company Labor & Project Services	Surveying Services (Stage 1-5)	1	LOT				$ 307,547		$ 307,547	15.1%	$ 46,346	$ 353,893	18.06%	$ 63,918	$ 417,811	See "Survey" tab for details
Environmental	Total for all crop damaged and restoration	1	LOT				$ -		$ -	8.3%	$ -	$ -	15.74%	$ -	$ -	See "Land" tab for details
Company Labor & Project Services	Land Services (Project Services)	1	LOT				$ 39,800		$ 39,800	2.1%	$ 821	$ 40,621	11.39%	$ 4,626	$ 45,247	See "Land" tab for details
Company Labor & Project Services	Land Services (Easements)	1	LOT				$ 1,029,438		$ 1,029,438	8.3%	$ 85,797	$ 1,115,235	15.74%	$ 175,514	$ 1,290,749	See "Land" tab for details
Company Labor & Project Services	Pre-land Acquisitions	1	LOT				$ -		$ -	8.3%	$ -	$ -	15.74%	$ -	$ -	See "Land" tab for details
Construction	Construction Permits	1	LOT				$ 5,000		$ 5,000	20.9%	$ 1,043	$ 6,043	15.74%	$ 951	$ 6,995	See "Land" tab for details
Construction	Other Direct Costs	1	LOT							13.3%			18.06%			
Company Labor & Project Services	Geotechnical Services	1	LOT				$ -		$ -	34.4%	$ -	$ -	11.39%	$ -	$ -	0
Company Labor & Project Services	Valve Modification Services	1	LOT				$ -		$ -	13.3%	$ -	$ -	18.06%	$ -	$ -	0
Construction	CNG/LNG	1	LOT				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	See "CNG - LNG" tab for details
Company Labor & Project Services	Outreach & Public Affairs	1	LOT				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	Assume Outreach will be all SCG Labor
Company Labor & Project Services	NDE/Field X-ray Services	0	WELDS	$ 200.00			$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
Company Labor & Project Services	NDE/Field X-ray Auditing Services	0	WELDS				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
Company Labor & Project Services	Hydrotest Certification Services		LOT				$ 200,000		$ 200,000	8.3%	$ 16,652	$ 216,652	15.74%	$ 34,096	$ 250,749	Based on historical Milbar cost
Company Labor & Project Services	Spreadboss		DAYS	$ 1,200.00			$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	0
Company Labor & Project Services	Surveying Services Pot Holing		EA				$ -		$ -	15.1%	$ -	$ -	18.06%	$ -	$ -	0
Environmental	Water purchase		GAL						$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	0
Material & Equipment	Trucking Costs		EA				$ -		$ -	13.3%	$ -	$ -	18.06%	$ -	$ -	0
Material & Equipment	Blow down Pipeline - see General Reference tab	0	MCF		$ -		$ -		$ -	4.1%	$ -	$ -	0.00%	$ -	$ -	See "General Ref" tab for details
Other	Other Non-Labor	5.0%	%			$ 476,798			$ 476,798	4.1%	$ 19,724	$ 496,522	0.00%	$ -	$ 496,522	See "General Ref" tab for details

STAGE GATE 3 ESTIMATE

Ventura Compressor Modernization Project	PROJECT TITLE	Stage 3 SCG Estimating Template Rev 5 (11/1/2017)	PROJECT STATIONING			WOA NUMBER	91651
Other	ASSET		GENERAL MANAGEMENT & ADMINISTRATION (GMA)	0.00%		I/O NUMBER	
1B		ESTIMATE REV 4/23/2020	CONSTRUCTION DURATION	460	MUNICIPALITY Ventura	LINE NUMBER	
Compressor Upgrade	ACTIVITY	PREPARED BY	TAX	0.0%	OPERATING AREA / DISTRICT	PIPE NOM. O.D. - IN.	
1/23/2024 13:24	DATE PRINTED	REVIEWED BY	FREIGHT	0.00%	TOTAL ESTIMATED PROJECT COST $282,900,000	TOTAL LENGTH - FT.	

KPMG	Description	Qty	Unit	$/UOM	Material	Labor and Equipment	Subcontracts	Tax & Freight	Subtotal	Risk Assessment %	Risk Assessment Amount	Escalation Subtotal Excluding Escalation	Escalation %	Escalation Amount	Estimated Costs	Comments
	ABANDONMENT PROJECT											$ -				
	O & M PROJECT											$ -		$ -		
	GMA-Plant											$ -				
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon											$ -				
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M											$ -				
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	Actuals											$ -				
Company Labor & Project Services	Land Services (Contract Labor)	1	LOT			$ -	$ -		$ -			$ -			$ -	
Environmental	Environmental (Contract Labor)	1	LOT				$ 180,526		$ 180,526			$ 180,526			$ 180,526	
Company Labor & Project Services	SCG - Project Management	1	LOT			$ 1,398,450	$ -		$ 1,398,450			$ 1,398,450			$ 1,398,450	
Company Labor & Project Services	SCG - Union	1	LOT			$ -	$ -		$ -			$ -			$ -	
Construction	Construction	1	LOT				$ 114,320		$ 114,320			$ 114,320			$ 114,320	
Company Labor & Project Services	Project Services	1	LOT				$ 2,080,696		$ 2,080,696			$ 2,080,696			$ 2,080,696	
Design & Engineering	Project Engineering	1	LOT				$ 6,426,647		$ 6,426,647			$ 6,426,647			$ 6,426,647	
Company Labor & Project Services	SCG - GMA	1	LOT			$ -	$ -		$ -			$ -			$ -	
Other	Other Non-Labor	1	LOT			$ 20,898			$ 20,898			$ 20,898			$ 20,898	
	TOTAL ESTIMATED PROJECT COST				$ 44,125,482.30	$ 58,334,606.35	$ 108,176,496.30	$ -	$ 326,936,366.78		$ 62,638,556.30			$ 34,026,119.46	$ 282,851,921.35	
									$ 210,636,584.96		Sub+Risk:				$ 423,601,042.55	
															$ (140,749,121.19)	

DIRECT FIELD MH	
ALL_IN COST	
RISK AMOUNT	**$ 62,638,556**
RISK % of TDC	**30%**
	$ 272,810,000

Table 1: 2020 FEED Estimate Equipment Costs

Table 1 from above was put into Table 2 for the Base Scope portion. The equipment prices for the (2) Engine & (2) EMD option were adjusted to account for the price increases since the original FEED was completed in 2020.

Table 2: Revised ROM Estimate Adjustments - Feb 2023

Base Scope					**Option 1: (2) Engines & (2) EMDs**			
			2020 FEED Est				Feb 2023 Est	
Scope			(4) Natural Gas Engines				(2) NG Engines, 2 EMDs	
Equipment & Material	Qty	Unit Cost	Total		Qty	Unit Cost	Total	
Engine Compressor Package								updated pricing
EMD Compressor Package								updated pricing
VFD w/Coolers								updated pricing
VFD Building								
Starting Air Compressor/Receiver								
Coolant Storage Drum								
Coolant Drain Sump								
Coolant Charge Pump								
New Transformer (10 MVa)								
New Transformer (7 MVa)								
Metering Panel								
Reclosure								
CEMS Building								
Utility Piping Lot								
TOTAL MECH/ELEC EQ COST								
Construction/Indirects								
ROM Factor (Eq Cost * 2.5)								

Table 3: Additional Engineering Costs Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)

Additional Engineering (ROM)								
SCE T-Line Improvements								

Table 4: Additional SCE & SCG Equipment Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)

SCE Equipment Needed							
2 ea 4160V Oil Filled Transformers			$300,000				
1 Gas Switch for 16KV Service			$250,000				
1 Vacuum Fault Interrupter for 16KV Service			$250,000				
			$800,000				
SCG Equipment Needed							
1 ea 480V Transformer			$185,000				
1 ea Metering Panel (use $500k)			$500,000				

		Existing Location Extended CPCN Schedule								
		~~GRC Application (N/A)~~	CPCN Proposed Schedule[2]	Development of Refeed RFP[1]	RFP Issued/Eval/Award	Revised FEED	AFE Board Approval	Develop EPC RFP[1]	RFP Issued/Eval/Award	**Total**
Months	SCG Company Labor	~~0~~	26	6	4	12	6	12	12	
	Project Services	~~0~~	26	6	4	12	6	12	12	
Monthly Burn Rate	SCG Company Labor	~~$40,000~~	$40,000	$80,000	$80,000	$100,000	$60,000	$80,000	$80,000	
	Project Services	~~$60,000~~	$60,000	$100,000	$100,000	$200,000	$90,000	$100,000	$100,000	
	Combined	~~$100,000~~	$100,000	$180,000	$180,000	$300,000	$150,000	$180,000	$180,000	
Cost	SCG Company Labor	~~$0~~	$1,040,000	$480,000	$320,000	$1,200,000	$360,000	$960,000	$960,000	**$5,320,000**
	Project Services	~~$0~~	$1,560,000	$600,000	$400,000	$2,400,000	$540,000	$1,200,000	$1,200,000	**$7,900,000**

		~~2022~~	2024	2025	2025	2026	2028	2026	2027	
	Escalation %	~~0.00%~~	-0.95%	-0.09%	-0.09%	1.27%	5.03%	1.27%	3.09%	
Escalation	SCG Company Labor	~~$0.00~~	-$9,835.54	-$426.55	-$284.37	$15,190.30	$18,103.85	$12,152.24	$29,707.39	**$64,607**
	Project Services	~~$0.00~~	-$14,753.31	-$533.19	-$355.46	$30,380.60	$27,155.78	$15,190.30	$37,134.24	**$94,219**

Escalated Cost	SCG Company Labor	~~$0~~	$1,030,164	$479,573	$319,716	$1,215,190	$378,104	$972,152	$989,707	**$5,384,607**
	Project Services	~~$0~~	$1,545,247	$599,467	$399,645	$2,430,381	$567,156	$1,215,190	$1,237,134	**$7,994,219**

Based on 2022 $$

1 Assume FEED and EPC will both be re-bid

2 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

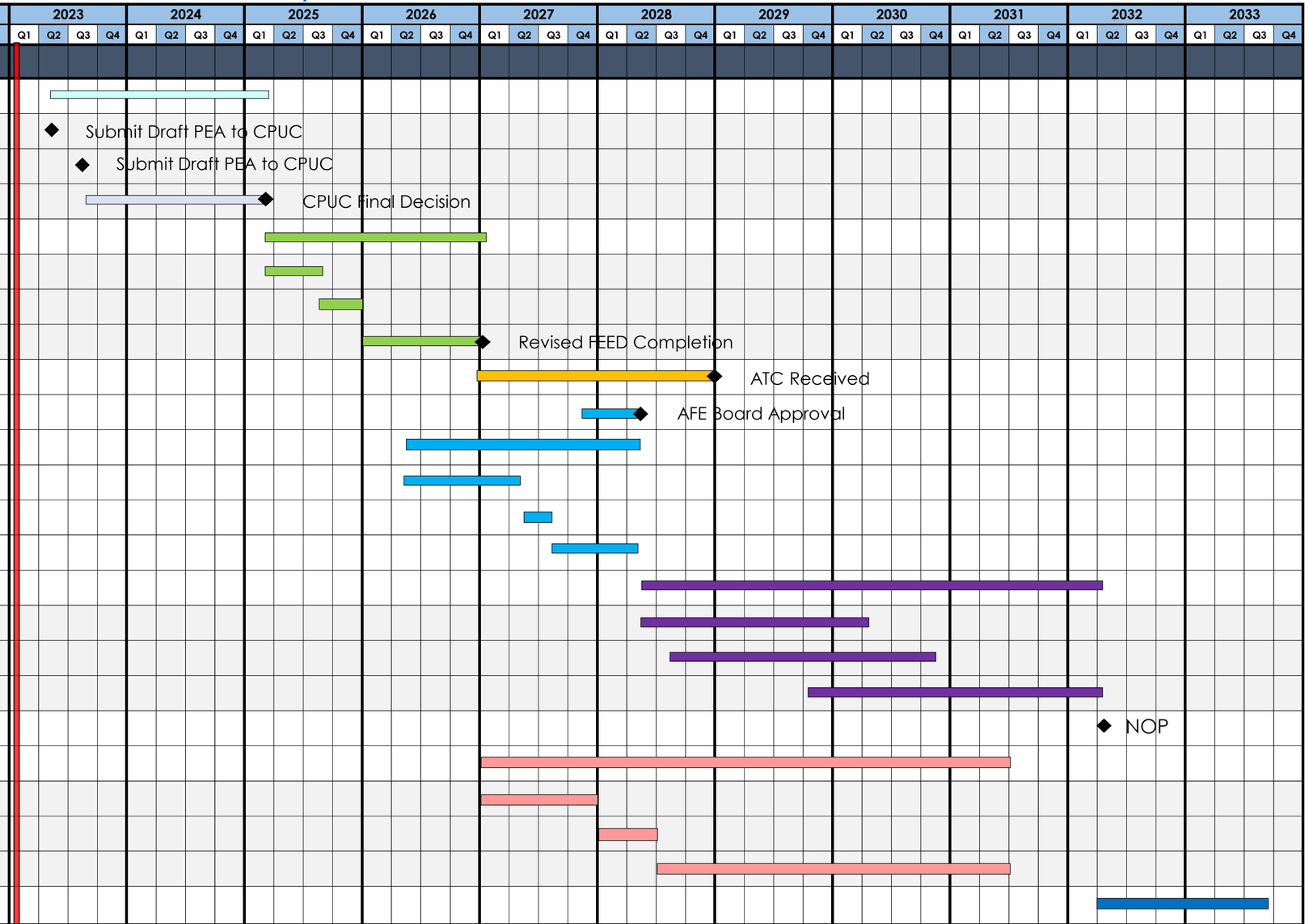
3 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

4 Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPUC delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC

Ventura Compressor Modernization (Base Case)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (Base Case)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC			**May-23**
3	Submit Final PEA & CPCN Application			**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Revised FEED Phase**	**22**	**Feb-25**	**Dec-26**
6	Refresh Scope / RFP Development	6	Feb-25	Aug-25
7	RFP Issue & Award	4	Aug-25	Dec-25
8	Revised FEED Study	12	Jan-26	Dec-26
9	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-26**	**Jan-29**
10	**New AFE Board Approval**	**6**	**Nov-27**	**May-28**
11	**New EPC RFP Development & Award**	**24**	**May-26**	**May-28**
12	EPC RFP Development	12	May-26	May-27
13	EPC RFP Issued	6	May-27	Aug-27
14	EPC Award	6	Aug-27	May-28
15	**EPC Phase**	**47**	**May-28**	**Apr-32**
16	Detailed Engineering (Phase 1 & 2)	23	May-28	Apr-30
17	Procurement	28	Jul-28	Nov-30
18	Construction, Commissioning, Startup	30	Oct-29	Apr-32
19	**In-Service Date (NOP)**	**0**		**Apr-32**
20	**SoCal Edison (Method of Service & Execution)**	**54**	**Jan-27**	**Jun-31**
21	Develop SCE Application & MOS Agreement Signed	12	Jan-27	Jan-28
22	Method of Service Study	6	Jan-28	Jun-28
23	Construction, Commissioning, Startup	36	Jun-28	Jun-31
24	**Closeout**	**18**	**Apr-32**	**Oct-33**



Schedule Assumptions:

NOTE: THE SCHEDULE AND ITS ASSUMPTIONS ARE ONLY VALID IF THE LOCATION OF THE PROJECT REMAINS THE SAME.

1 **CPCN Process:** Submittal of the DRAFT PEA is due on **24-May-23**. Final PEA & CPCN Application Submittal is Due on **24-Aug-23**, and CPUC Final Decision will be made **18-months** after that.
2 **REVISED FEED** - Revised FEED RFP development starts upon receipt of CPUC Final Decision. The entire Revised FEED Phase including the bidding period, Contract Award & FEED STUDY will take **22-months** to complete.
3 **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. **24-months** after application submittal.
4 **AFE** - Upon completion of the Revised FEED, new AFE Board Approval process will take place and takes 3-6 Months to complete.
5 **New EPC RFP** - Starts as early as possible to finish within **4-5 months** after completion of the Revised FEED, and will take appox. Another **12-months** to Award the EPC Contract.
6 **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.**23-months** to complete. The entire EPC Phase will take Approx. **47-Months** until NOP.
7 **SCE** - SoCal Edison Method of Service study and execution (engineering, procurerment & construction) will take no longer than **54-Months** to complete.
8 **NOP** - NOP/In-Service Date in **Q2-2032**

Escalation - From 2021	
Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Table 1: Cost Index Study Published by

JUGPDSTCM@PCF = Utility Cost Index: Gas Distribution Plant, Pacific Region--Compressor Station Equipment
JUGPSHEF@PCF = Utility Cost Index: Gas Storage Plant, Pacific Region--Gas Holders Excluding Foundation
Construction-related cost index (includes labor and nonlabor)
Source: Global Insight 4th Quarter 2021 utility cost forecast (published January 25, 2022); recorded data from Handy-Whitman

Year	JUGPDSTCM@PCF			JUGPSHEF@PCF		% change
	2021=1.0000	1973=100	% change	2021=1.0000	1973=100	
2016	0.8439	689.00	1.62%	0.8183	499.25	1.58%
2017	0.8598	702.00	1.89%	0.8248	503.25	0.80%
2018	0.8917	728.00	3.70%	0.8580	523.50	4.02%
2019	0.9186	750.00	3.02%	0.8896	542.75	3.68%
2020	0.9391	766.75	2.23%	0.9129	557.00	2.63%
2021	1.0000	816.45	6.48%	1.0000	610.12	9.54%
2022	1.0606	865.90	6.06%	1.0183	621.26	1.83%
2023	1.0513	858.35	-0.87%	1.0060	613.78	-1.20%
2024	1.0505	857.71	-0.07%	1.0237	624.58	1.76%
2025	1.0596	865.13	0.87%	1.0480	639.38	2.37%
2026	1.0740	876.86	1.36%	1.0739	655.19	2.47%
2027	1.0934	892.69	1.81%	1.1016	672.11	2.58%
2028	1.1139	909.44	1.88%	1.1297	689.23	2.55%
2029	1.1355	927.06	1.94%	1.1577	706.35	2.48%
2030	1.1574	944.94	1.93%	1.1859	723.55	2.44%
2031	1.1806	963.92	2.01%	1.2153	741.45	2.47%
2032	1.2043	983.27	2.01%	1.2453	759.79	2.47%
2033	1.2285	1003.01	2.01%	1.2761	778.59	2.47%
2034	1.2532	1023.15	2.01%	1.3077	797.86	2.47%
2035	1.2783	1043.69	2.01%	1.3401	817.60	2.47%
2036	1.3040	1064.64	2.01%	1.3732	837.82	2.47%
2037	1.3302	1086.01	2.01%	1.4072	858.55	2.47%
2038	1.3569	1107.82	2.01%	1.4420	879.80	2.47%
2039	1.3841	1130.06	2.01%	1.4777	901.56	2.47%
2040	1.4119	1152.75	2.01%	1.5142	923.87	2.47%
2041	1.4402	1175.89	2.01%	1.5517	946.73	2.47%
2042	1.4692	1199.50	2.01%	1.5901	970.15	2.47%
2043	1.4987	1223.58	2.01%	1.6294	994.15	2.47%
2044	1.5287	1248.15	2.01%	1.6697	1018.75	2.47%
2045	1.5594	1273.20	2.01%	1.7111	1043.95	2.47%
2046	1.5907	1298.76	2.01%	1.7534	1069.78	2.47%
2047	1.6227	1324.84	2.01%	1.7968	1096.25	2.47%
2048	1.6553	1351.44	2.01%	1.8412	1123.37	2.47%
2049	1.6885	1378.57	2.01%	1.8868	1151.17	2.47%
2050	1.7224	1406.25	2.01%	1.9335	1179.65	2.47%

Escalation - From 2022	
Year	Escalation
2022	0.00%
2023	-0.87%
2024	-0.95%
2025	-0.09%
2026	1.27%
2027	3.09%
2028	5.03%
2029	7.06%
2030	9.13%
2031	11.32%
2032	13.55%
2033	15.83%

Table 2: FEED ESCALATION - From 2021

WBS	Name	Year	Escalation
1CC	Earthwork and Civil	2029	13.55%
2CC	Demolition	2029	13.55%
3CC	Concrete	2029	13.55%
4CC	Structural Steel	2030	15.74%
5CC	Mechanical Utilities	2030	15.74%
6CC	Architectural	2030	15.74%
7CC	Machinery & Equipment	2030	15.74%
8CC	Piping	2030	15.74%
9CC	Pipe Fabrication	2030	15.74%
10CC	Electrical	2030	15.74%
11CC	Control Systems	2030	15.74%
12CC	Painting	2030	15.74%
13CC	Insulation	2030	15.74%
14CC	Scaffolding	2030	15.74%
15CC	Safety Watch	2030	15.74%
16CC	DFL Craft Per Diem	2030	15.74%
17CC	Craft Bussing	2030	15.74%
18CC	Cranes greater than 60 Ton	2030	15.74%
19CC	EPC Contractor Fee	2029	13.55%
20CC	Demo Existing Site Features	2029	13.55%
21CC	Communications Relocation	2029	13.55%
22CC	Construction Spare Parts	2030	15.74%
23CC	Operational Spare Parts (Allowance for Initial Operations)	2031	18.06%
24CC	Tax @ 7.75% (Ventura County Rate)	2029	13.55%
25CC	Inland Freight	2029	13.55%
26CC	Material Handling (10%)	2029	13.55%
2M	SCG Labor - Mgmt. & Non Labor	2029	13.55%
2U	SCG Labor - Union T/H	2029	13.55%
2PA	SCG Labor - Outreach & Public Affairs	2029	13.55%
3	Material- Pipe & Fittings	N/A	0.00%
4	Material-Valves	N/A	0.00%
5	Material- Other	2030	15.74%
6D	Engineering / Design Services	2028	11.39%
6P	PM / Project Services	2028	11.39%
6CM	Construction Management	2030	15.74%
6I	Inspection Services	2031	18.06%
6S	Surveying / As-builts	2031	18.06%
6E	Environmental Services	2030	15.74%
6H	Pressure Test Certification Services	2030	15.74%
15W	Water Storage	N/A	0.00%
6X	X-ray / NDE	N/A	0.00%
6LS	Land Services	2030	15.74%
6C	CNG / LNG	N/A	0.00%
6SP	Spreadboss	N/A	0.00%
6M	Miscellaneous Services	2031	18.06%
6PA	Outreach & Public Affairs	N/A	0.00%
7	Permits	2030	15.74%
8	Other Non-Labor Costs	N/A	0.00%
15	GMA	N/A	0.00%
AL	Allowances	2030	15.74%
A	Actuals	N/A	0.00%

Escalation - From 2021	
Year	Escalation
2021	0.00%
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%

Previous	Current
Based on "old" schedule	Based on 012523 schedule
Year	Year
2028	2029
2028	2029
2028	2029
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
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2028	2029
2028	2029
2028	2029
2029	2030
2030	2031
2028	2029
2028	2029
2028	2029
2028	2029
2028	2029
2028	2029
N/A	N/A
N/A	N/A
2029	2030
2027	2028
2027	2028
2029	2030
2030	2031
2030	2031
2029	2030
2029	2030
N/A	N/A
N/A	N/A
2029	2030
N/A	N/A
N/A	N/A
2030	2031
N/A	N/A
2029	2030
N/A	N/A
N/A	N/A
2029	2030
N/A	N/A

Ventura Compressor Modernization Project

(Electric Compressor Plant Integration Alternate) Ventura, CA

Work Order Authorization #91651

Class 4 Estimate*

April 2023

Revision 1

* See section 1.3 for further explanation

Table of Contents

1. Project Overview

Southern California Gas Company (SoCalGas) transmission systems play a vital role in the delivery of natural gas to millions of residential, commercial, and industrial consumers throughout Southern California. It is therefore essential that gas transmission equipment maintain a high level of reliability and operability and meet Federal and State regulatory agency regulations and comply with Company site technical practices.

This project is being executed to improve reliability and reduce equipment-regulated emissions. It includes the installation of new reciprocating gas engine-driven gas compressors, utilities and associated controls, electrical, instrumentation, and emission control equipment.

The Ventura Compression Station is located in Ventura, CA, and is utilized to transfer natural gas from Los Angeles to Goleta. These compressors feed the Goleta storage facility and occasionally provide gas to the coastal region as needed. Natural gas comes to the station via Lines 404 (18”) and 406 (22”).

The existing Ventura Facility utilizes three 1,100 HP Cooper Superior reciprocating compressors for this purpose. The required discharge pressure onsite is approximately 995 pounds per square inch gauge (psig) into the pipeline to adequately feed the Goleta reservoir. Currently, each machine is run as needed, which gives the facility an effective flow range of 40 – 120 million standard cubic feet/day (MMSCFD) of gas at an average inlet pressure of approximately 575 psig.

The Supplemental Electric-Driven Compressor Installation Only Alternative would leave the three existing natural gas compressors and install new electric compressors at the site. The operation of the compressor station would primarily utilize the electric compressors and use the existing natural gas compressors only as needed. No removal of the existing equipment and buildings related to the natural gas compressors would occur. Construction of a new building to house the new electric compressors and the associated improvements and infrastructure necessary would be completed as part of this alternative.

Currently, the project is planned and estimated to be executed in two phases. Phase 1 will be reimbursable and go up to 60% engineering. Phase 2 of the project will be a lump sum from 60% through the end of construction.

Figure 1: Compressor Site

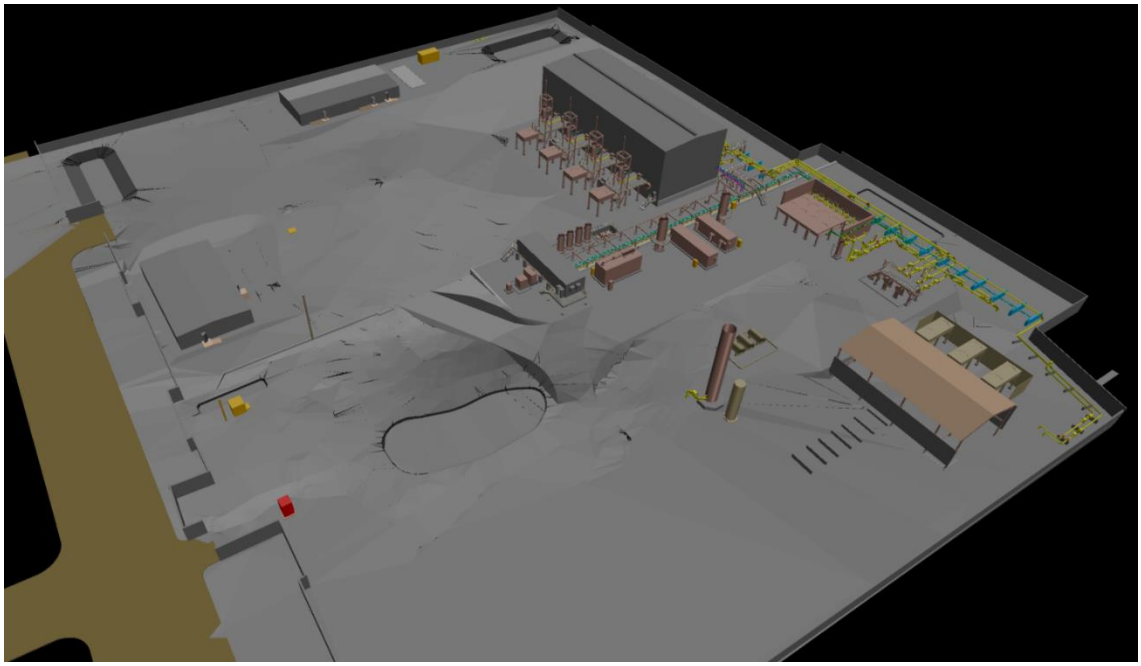


Figure 2: Preliminary Site Design

1.1. Document Breakdown Structure

- EPC – Engineering / Design Services
- EPC – Construction
- EPC – Construction Management
- SCG Labor – Management & Non-Labor
- SCG Labor – Union T/H
- SCG Labor – Outreach & Public Affairs
- Material - Other
- PM / Project Services
- Inspection Services
- Surveying / As-Builts
- Environmental Services
- Pressure Test Certification
- Land Services
- Miscellaneous Services
- Permits
- Other Non-Labor Costs

1.2. Reference Documents

- SoCalGas VCM Capital Cost Estimate Rev 1_11Feb2020
- Ventura - TM1 PTD Costs by PO_For Campos Estimate_Function
- VCM P&ID - 111419 _09Dec2019 Comments
- VCMModelReview_20200203 – Navisworks
- CSUP-VCU-PM-BOD-0002_Working_Version_11-15-2019 _Fluor Comments
- EPC SOW Rev B_Final
- E15043-VCM_GE_Support-FTE_Estimate_Rev.B_03-03-2020
- Ventura Env Cost Estimate 01312020
- Ventura Master Staffing Plan EPC_ PMT Only
- Ventura Compressor Station - Land Services Cost Estimate Spreadsheet
- Feasibility_Study_Full
- Burns & McDonnell Electrical Study
- Ventura Electric Motor Driver Analysis Rev C 10/7/21
- Revised Ventura Estimate (CPCN)_Class 3 w ROM Adj_Rev 4_Electric Compressor Plant Integration
- Revised Ventura Estimate (CPCN)_Class 3 w ROM Adj_Rev 6_Electric Compressor Plant Integration

1.3. Estimate Classification and Definitions

1.3.a. Classification and Accuracy

- Pricing is based on current construction costs in Ventura, California
- Construction staging will occur on site.
- Construction will be performed by a General Contractor at Risk (GCAR) using a Lump Sum type of contract
- Estimate pricing is based on full and open competition from local regional contractors.
- The construction, commissioning, and startup schedule is assumed to be 27 months
- The estimate was originally developed in April 2020 as a Class 3 estimate according to the AACE Recommended Practice No. 18R-97. In April 2023, several below the line adjustments were made to the estimate which were at either a Class 4 or Class 5 Estimate classification resulting in an overall Class 4 estimate. A revised FEED phase will need to be completed going forward.
- Description: Class 4 estimates are generally prepared based on limited information and subsequently have wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 15% complete of full project definition
- End Usage: Class 4 estimates are prepared for a number of purposes, such as but not limited to, detailed strategic planning, business development, project screening at more developed stages, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval or approval to proceed to next stage.
- Estimating Methods Used: Class 4 estimates virtually always use stochastic estimating methods such as equipment factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, the Miller method, gross unit costs/ratios, and other parametric and modeling techniques.
- Expected Accuracy Range: Typical accuracy ranges for Class 4 estimates are -15% to -30% on the low side, and +20% to +50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

1.3.b. Contingency

The Ventura Compressor Modernization Project estimate can be divided into two sub-sections. The first section consists of a Class 3 estimate originally developed by Flour. For this section, contingency was determined utilizing a Monte Carlo Assessment for production, scope, and pricing fluctuations. The assessment resulted in a total contingency of 19% of direct costs). The second section of the estimate was developed using ROM costs (Below the Line Changes) resulting from the hybrid compressor configuration. For this section, contingency was determined at the estimator's discretion based on experience and historical data from past compressor stations. The contingency was further reviewed and approved by the project manager. The total contingency for the second section is 25.3% of direct costs. The overall project contingency is 20.17% of the costs prior to escalation and loaders.

2. Estimate Information

2.1. Scope of the Estimate

The scope of the Ventura Compressor Modernization Project estimate includes the anticipated all-inclusive costs of the following:

- EPC Contractor costs including:
  - Engineering and Design Services
  - Construction
  - Construction Management
- Southern California Gas Company Management, Union Labor, and Non-Labor Costs
- Project Management and Project Services
- Material Procurement and Management
- Survey / As-Builts
- Hydrotest Certification Services
- Environmental Planning, Management, Monitoring, and Abatement Support
- Construction Management
  - Inspection
  - District Personnel (Management, PSEP Liaison, DOM, Union Labor, Instrumentation, and FOS).
  - M&R (Meters and Regulation)
  - Pipeline Integrity
- Land Services
- Permitting

2.2. Key Personnel

Position	Name	Office Phone	Mobile Phone
Sr. Director			
SoCalGas			
Execution Manager			
SoCalGas			
Portfolio Manager			
SoCalGas			
Project Manager			
SoCalGas			
Gas Engineering			
SoCalGas			
Construction Management			
SoCalGas			
Estimating			
Contractor			
Contractor			
SoCalGas			
Environmental			
SoCalGas			
Land Acquisition			
SoCalGas			
Supply Management			
SoCalGas			
Water Management			
SoCalGas			
Permitting			
SoCalGas			

2.3. Estimate Schedule

- **Project Kick-Off with Fluor** 7/24/2019
- **Receive Estimate Plan from Fluor** 9/27/2019
- **Fluor Engineering Develop MTO** 10/18/2019
- **Receive Rev 0 Fluor's EPC Estimate** 1/24/2020
- **SCG/Campos Review with Fluor** 2/5/2020
- **Receive Rev 1 Fluor's EPC Estimate** 2/11/2020
- **Incorporate Comments, Sign-Off, Issue Class 3 Est** 4/30/2020
- **Begin revisions to estimate (Below the Line changes)** Feb 2023
- **Finalize ROM Estimate Adjustments** 4/14/2023

2.4. Assumptions and Exclusions

- No night or weekend work will be performed
- No cultural resources are anticipated.
- No groundwater will be encountered
- Soil remediation for the Ventura site is assumed to be part of a separate WOA and the estimate assumes the EPC contractor will receive a clean, graded site
- Study/design/engineering (if required) of any retrofit/demolition work at existing compressor site is excluded. The existing plant is necessary to remain in place for this alternative
- Demolition of the administration and warehouse buildings is excluded and assumed to be part of the soil remediation contract
- Excludes backup power for the site, assumes not needed

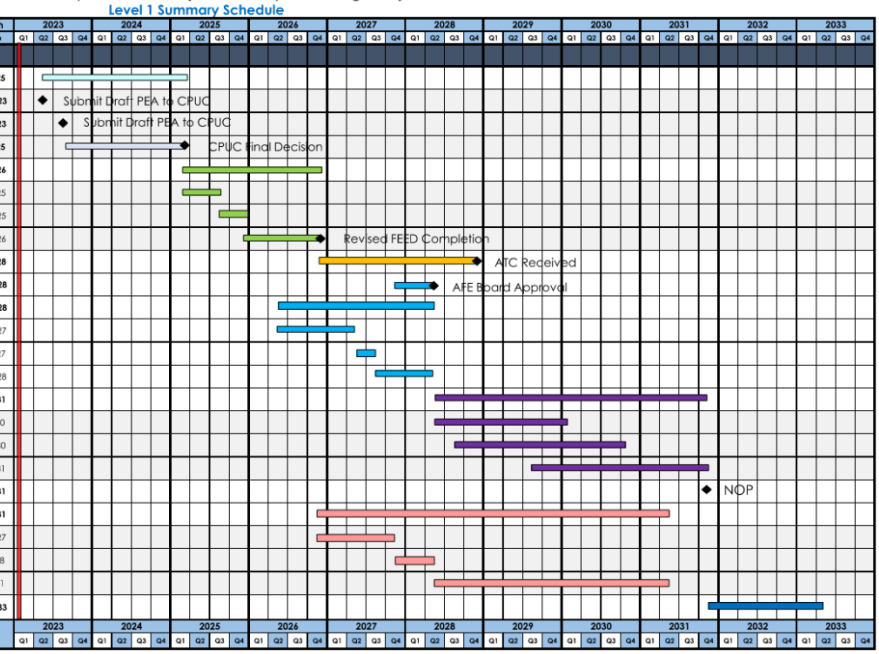
2.5. Current Project Schedule

The following schedule forms the basis for the updated Class 4 estimate. See appendix for enlarged schedule and schedule assumptions

Ventura Comp Modernization (Electric Comp. Plant Integration)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Comp Modernization (Electric Comp. Plant Integration)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC	0		**May-23**
3	Submit Final PEA & CPCN Application	0		**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Revised FEED Phase**	**22**	**Feb-25**	**Dec-26**
6	Refresh Scope / RFP Development	6	Feb-25	Aug-25
7	RFP Issue & Award	4	Aug-25	Dec-25
8	Revised FEED Study	12	Dec-25	Dec-26
9	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-26**	**Dec-28**
10	**New AFE Board Approval**	**6**	**Nov-27**	**May-28**
11	**New EPC RFP Development & Award**	**24**	**May-26**	**May-28**
12	EPC RFP Development	12	May-26	May-27
13	EPC RFP Issued	3	May-27	Aug-27
14	EPC Award	9	Aug-27	May-28
15	**EPC Phase**	**42**	**May-28**	**Nov-31**
16	Detailed Engineering (Phase 1 & 2)	21	May-28	Jan-30
17	Procurement	26	Aug-28	Nov-30
18	Construction, Commissioning, Startup	27	Aug-29	Nov-31
19	**In-Service Date (NOP)**	**0**		**Nov-31**
20	**SoCal Edison (Method of Service & Execution)**	**54**	**Dec-26**	**Dec-31**
21	Develop SCE Application & MOS Agreement Signed	12	Dec-26	Dec-27
22	Method of Service Study	6	Dec-27	Jun-28
23	Construction, Commissioning, Startup	36	Jun-28	Jun-31
24	**Closeout**	**18**	**Nov-31**	**May-33**



Schedule Assumptions:

1. **REGULATORY** - CPCN Proceedings will take **18-months** until CPUC Final Decision is made.
2. **ENVIRONMENTAL** - New Air Permit Application Preparation will start after Revised FEED is complete. It will take **24 months** to obtain ATC Approval.
3. **REVISED FEED RFP** - Revised FEED RFP development effort will start after CPUC Final Decision.
4. **REVISED FEED STUDY** - The Revised FEED Study by contractor will take **12-Months** to complete.
5. **AFE** - The new TIC Estimate will be taken to Board for approval once EPC RFP is complete
6. **EPC RFP** - New EPC RFP Development starts as early as possible approximately **7-8 months** before Revised FEED is complete.
7. **EPC EXECUTION** - Execution of the EPC phase up to NOP will take an overall of **42-Months** with Engineering phase-1 Up to 90% Model Review
8. **SCE** - SoCal Edison Method of Service study and execution (engineering, procurement & construction) will take no longer than **54-Months** to complete.
9. **NOP** - NOP/In-Service Date in **Q4-2031**

2.6. Procurement Clarifications

2.6.a. Freight

Freight has been included in the EPC estimate provided by Fluor at 8%

2.6.b. Tax

Sales tax has been included in the EPC estimate provided by Fluor at 7.75%

2.6.c. Escalation

Escalation was included based on current indices and the current EPC project schedule.

The average overall escalation added to the project is 12.53%

Escalation was applied to each activity based on the midpoint of expenditure for each item. The table below indicates the escalation percentages utilized in the estimate.

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Escalation was applied to all direct costs including contingency since contingency is intended to be spent.

Excluded from escalation were SoCalGas Indirect costs (Loaders) as well as actuals to date.

2.6.d. Allowances

Allowances have been included in the EPC estimate by Fluor and are reflected in the estimate. The table below shows the allowances included by discipline:

Prime Account	Material Design Allowance (MDA)	Material Take-Off Allowance (MTOA)
Site/Civil	N/A	10%
Concrete	N/A	10%
Structural Steel	N/A	10%
Architectural	15%	N/A
Mechanical Equipment	15%	N/A
Piping Large Bore	N/A	5%
Piping Small Bore	N/A	15%
Piping Specialties	N/A	10%
Electrical Equipment	15%	N/A
Electrical Bulks	N/A	20%
Control Systems	N/A	20%

Design allowance does not cover for scope changes.

Weather allowance has also been included in the estimate at 2.5% of labor and subcontract costs for construction.

3. EPC Estimate (provided by Fluor) for Class 3 Estimate

3.1. Overall Assumptions and Basis

The overall assumptions and basis presented is a high-level view of the basis of Fluor's estimate. For a more detailed analysis by discipline, please refer to Fluor's attached Basis of Estimate.

- The base estimate is based on 4th quarter 2019 pricing and is escalated accordingly
- Work schedule is based on 10-hour days, 5 days a week, Monday through Friday
- No weekend or night work is anticipated
- Construction is based on Union labor work force
- The project schedule provided assumes 28 months of construction
- Transportation for craft workers to and from off-site parking area is required. Busing equipment cost and the cost of craft labor during transit is included in the estimate on the basis of 15 minutes per day, twice a day.
- Decommissioning of existing site features (flanging the old assets) has been included in the estimate with the exception of the administration building and warehouse building.
- Demolition of the existing compressors and compressor building has been excluded from this estimate.
- The estimate is based on input from the following Engineering disciplines
    - Civil
    - Structural
    - Control Systems
    - Piping
    - Electrical
    - Mechanical
      HSE

3.2. Key Quantities

The following table shows key quantities for the project at the time of the Class 3 Estimate in April 2020. This portion of the estimate did not change with regard to key quantities. However, several of the scope adjustments outlined in section 3.9 have separate quantities that are not accounted for in the table below.

SUMMARY	Qty	UOM
Earthwork and Civil	36,872	CY
Concrete	5,007	CY
Structural Steel	318	TON
Architectural	20,214	SF
Machinery & Equipment	53	EA
Piping	25,181	LF
Pipe Fabrication	455,549	LBS
Electrical	161,321	LF
Control Systems	636	EA

3.3. Equipment and Bulk Materials

The estimate assumes the EPC contractor will purchase all equipment and materials.

Quantities were developed by Fluor's design engineers and priced and labored by Fluor's estimating team.

The estimate includes pricing for all mechanical equipment greater than $15,000 from budgetary vendor quotes. 95% of mechanical equipment was based on budgetary quotes and the rest of the 5% was based on in-house pricing.

Budgetary vendor quotes were also received for the following:

- Concrete pricing is based on quoted local area costs for ready-mix concrete at 4500 psi.
- PDC
- MCC
- SWGR #1
- SWGR #2
- Control and On/Off valves
- Relief Valves
- CEMS shelters and associated analyzers
- BPCS equipment

The remainder of the bulk materials were priced based on in-house pricing.

3.4. Craft Labor Rate

The all-in labor rates were developed using current Ventura County Union wage rates and benefits and burdens (fringes and PT&I) obtained from local unions and combining them with subcontractor indirect costs. The bare wage rate is a blended 50-hour-per-week rate consisting of 40 standard rate hours and 10 premium time hours.

The subcontractor indirect costs below vary by account (within the ranges shown in parenthesis). They have been applied as a percentage of the Bare Wage Rate and are consistent with historical metrics:

- Small tools and consumables (4%-8%)
- Construction equipment & cranes up to 60 tons (18%-22%)
- Contractor field staffing (10%-20%)
- Temporary facilities and services (12%-20%)
- Miscellaneous expenses (5%)
- Subcontractor fee & contingency (10%-16%)

The all-in rates used in the 2020 Class 3 estimate by major account are shown below

Description	All-In Rate/Hr
Earthwork Civil	$ 141.45
Demo	$ 141.45
Concrete	$ 145.32
Structural Steel	$ 152.36
Building	$ 136.12
Mechanical	$ 171.74
Piping	$ 176.97
Electrical / EICS	$ 168.73
Control Systems	$ 166.16
Painting	$ 121.39
Insulation	$ 140.94
Scaffolding	$ 132.82
Safety Watch	$ 115.00
Subcontractor Rate	$ 250.00

3.5. Productivity

Productivity adjustments were developed based on historical metrics and were applied to Fluor Standard Unit Work Hours. These adjustments include items that may affect craft productivity including craft availability, craft skills, climate and weather, specific site and project information, overtime consequences, and site accessibility.

The productivities from Fluor were adjusted to achieve an average productivity of 1.3. The adjusted productivities utilized in the estimate are shown below:

Description	Productivity
Earthwork Civil	1.25
Concrete	1.00
Structural Steel	1.25
Building	1.30
Mechanical	1.30
Piping	1.40
Electrical/EICS	1.30
Control Systems	1.30
Painting	1.30
Insulation	1.40

3.6. Engineering Costs

Engineering costs cover Detail Engineering and Design and Procurement services. The estimate is based on Fluor's historical averages for similarly sized projects and is equivalent to approximately 14% of the total direct TIC.

Engineering support during construction was adjusted based on the historical average seen on the Blythe Plant 4 Compressor project.

3.7. Construction Management

Listed below are the major items included:

- Field office, temporary warehouse, break area, and first-aid office
- Set up and maintenance of temporary power and lighting
- Temporary construction water, and potable water
- Road upgrades, janitorial service, and material offload
- Testing and inspection during construction, and waste removal
- Field staff and office supplies
- Cranes in excess of 60 tons
- Insurance, Bonds, Permits, and Licenses

3.8. Estimate Adjustments to Fluor Class 3 Estimate

- Added allowance for security cameras, CCTV, networking (phone/internet) etc.
    - Added $100K for materials and $100K for labor in the “Architectural” account
- Included ROM estimate from Field Operations for the communications relocation scope of work
    - Added allowance of $525,000
- Added 10% of all materials to account for the material handling and mark-up fees by the EPC contractor
- Fluor assumed only 20% of the craft labor would receive per diem at $100 per day for 5 days a week.
    - Adjusted estimate to reflect 100% of craft labor to receive per diem at $100 per day for 5 days a week
- Added 10% for material handling fee by the construction contractor
- Reduced concrete manhours per cubic yard from 14 to 9 based on historical benchmarks
- Reduced piping manhours per foot from 4.05 to 2.5 based on historical benchmarks
- Reduced productivity from an average of 1.4 to 1.3 based on better conditions in Ventura as opposed to Blythe
- Increased Vendor Representatives and included 700 man-days x $2,500 a day

4. Stakeholder Impacts for Class 3 Estimate

4.1. SCG Labor

SCG Non-Union Labor is estimated based upon a staffing plan and project duration provided by the project team beginning January 2020 for the start of Detail Design and ending June 2024 for closeout.

4.2. Material – Pipe, Fittings, Valves, and Other

Equipment and materials were included in Fluor’s EPC estimate.

Additional materials included by SCG include the following:

- Office furniture for the Administration building at $60,000 allowance
- Shop equipment for the warehouse at $50,000 allowance

4.3. PM / Project Services

Project Management and Support Costs were developed based upon a staffing plan and project duration provided by the project team beginning in January 2020 for the start of Detail Design and ending in December of 2031 for closeout. Project services include contractor support for:

- Project Management
- Project Controls
- Estimating
- Supply Management
- Field Engineers
- Gas Engineering Support
- Land Services

4.4. 3rd Party Inspection

Inspectors were developed as part of the staffing plan provided by the project team.

4.5. Surveying / As-Builts

The estimate includes survey support staff for the project and site facility layout and as-builts for both Phase 1 and Phase 2.

The estimate also includes material support in the development of as-built close-out packages.

4.6. Environmental Services

Environmental services include the following:

- Assumes 26 months of pre-construction planning based on Fluor's schedule dated 12/20/2019
- Assumed 23 months of construction based on Fluor's schedule dated 12/20/2019
- Abatement duration assumed 10 tie-ins, with 1 day of abatement per tie-in
- SCG labor to support environmental services
- Construction monitoring, SWPPP Development, air permitting, etc.
- Assumes no CEQA/NEPA documents or other environmental studies/surveys are needed
- Assumes soil remediation is excluded from this capital budget and will be accounted for on another WOA
- Assumes water will be discharged to land for dust control or compaction
- Includes hazardous materials cost for disposal, paint and asbestos sampling, and analysis of soil

- Includes VCAPCD Authority to Construct (ATC) Permit Fee and Construction General Permit/SWPPP fee

4.7. Pressure Test Certification Services

An allowance of pressure test certification services has been included at $200K

4.8. Land Services

This estimate has assumed construction easements will be procured from existing landowners at current rates.

Costs for TREs for placement of 2 laydown yards have been included, including one laydown yard that has been acquired for a PSEP project.

Costs for TREs for access to the facility has been included

All labor costs associated with support for land services are included

4.9. CNG / LNG

No CNG/LNG support has been assumed for this project.

4.10. Miscellaneous Services

Miscellaneous Services include the following:

- Stopple Fitting and PCF tapping services for hot tie-in
- Vendor Representatives through construction
- Initial Fills
- Commissioning and Start-up support services

4.11. Permits

This estimate has included the anticipated cost of building permits

4.12. Other Non-Labor Costs

Non-labor costs included in this estimate address travel, meals, expenses, and lodging incurred for SCG Labor.

5. Scope Adjustments for the Addition of 2 Electric Compressors to the Existing Plant - Class 4 Estimate (Below the line Changes)

The scope adjustments listed below are included to capture the various additional costs associated with the addition of (2) new electric driven compressors to the (3) existing natural gas compressors. The number of electric compressors added may be subject to change after a full engineering evaluation is conducted and the correct horsepower is calculated.

- BMcD electric study subtraction for the hybrid blend of existing gas and new electric compressors (2 ea)
    - BMcD provided a Class 5 estimate which was the basis used to determine the cost to remove
    - Assumed costs would occur in 2030 and were escalated accordingly
    - Accounts for additional SoCal Edison (SCE) and SoCalGas (SCG) electrical equipment including:
        - SCE Equipment
            - 2 ea 4160V Oil Filled Transformers
            - 1 ea Gas Switch for 16KV service
            - 1 ea Vacuum Fault Interrupter for 16KV service
        - SCG Equipment
            - 1 ea 480V Transformer
            - 1 ea Metering Panel
        - Assumes a 5 MW linear generator and step-up transformer is not required
    - Updated quotes for the compressors were obtained by Gas Engineering
- Piling costs were added based on feasibility studies and a 2030 escalation adjustment.
    - Micropiles were removed for this option
- An additional transformer and Method of Service (MOS) study adjustment was made based on updated information received from SCE and historical Honor Rancho Compressor Modernization project costs
    - Includes associated electrical materials
- FEED engineering addition to cover full FEED contractor engineering
    - The estimate assumes this cost will be incurred in 2026 per project schedule and was escalated accordingly
- The estimate includes a new cost intended to cover the addition of (1) vapor recovery unit skid.

    - The price was derived utilizing the historical price from the Blythe Compressor Station which was $6MM for (1) skid. This is also the same amount used for the HRCM estimate
- Deodorizing unit costs were incorporated into the estimate.
    - Based on a quote received from a carbon adsorber vendor (Carbtrol - model: G-15PPL), these adsorbers were priced at $150k ea. The station design max flow rate resulted in (14) total adsorbers needed. An equipment factor of 3 was used to include costs for associated bulk materials and installation the adsorbers, blowers and associated bulk materials
    - A larger amount of contingency (40% total) is intended to account for unforeseen pricing associated with a different vendor in the event the Carbtrol units cannot handle the flow rate.
- A cooling motor blower addition was made to cover the cost of blowers for the (2) induction drive compressors.
    - The amount came from historical blower costs from the HRCM station
    - An installation factor of 3 was chosen to account for the necessary concrete pads, interconnected mechanical pipe/valves/fittings, and electrical components.
- Added to the estimate for the addition of a 4160V switchgear, battery charger, batteries, and 15ft run to the new PDC building
    - The amount is based on PDC quotes received for past MCM and HRCM projects
- An additional cost was allotted to cover the installation, maintenance, and removal of an alternate access ramp to be utilized for construction traffic.
    - $160k was estimated for the access ramp installation, $25k for ramp removal and $50k for ramp maintenance.
- The estimate includes an additional cost for proponent environmental assessments (PEA) and environmental impact reports (EIR) to be executed during CPCN proceedings and construction.
    - The costs were escalated to 2026 and 2030 respectively
- Added a new line item intended to offset the additional engineering required for deodorizing and methane capture units
    - The amount is an allowance that was expected to occur in 2029 and escalated accordingly
- Assumes emission control catalysts are not required for the natural gas compressor exhaust systems with this alternative option
- An additional cost for EPC contractor insurance, warranty, and letter of credit costs can now be found within the estimate
    - This number was based on historical differences between estimates and bids received on the MCM and HRCM projects.

- Two separate line items for: (1) additional SCG Company labor, and (2) 3rd Party Project Management/Project Services were estimated as a result of an extended CPCN schedule. The costs for these two scopes assume the following:
    - Both FEED and EPC will be re-bid
    - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
    - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
    - Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPUC delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC
- The estimate includes a line item for 3rd party environmental costs expected to occur in 2029 for remediation work and asphalt removal
- The estimate includes a line item to add the incremental actual costs charged to the project between February 2020 and December 2022. The previous Class 3 estimate included actuals through January 2020. The actual costs as of December 2022 ($12.6 MM) assumes $8.8MM of current project costs will be transferred to the Tech Services group as part of operations and station improvements including: temporary office installation, perimeter security cameras, and fend line methane monitoring.
    - The $8.8MM number for actuals that have been excluded is also expected to increase as more costs are accumulated prior to the project start date

6. *Indirect Costs (Loaders)*

Indirect costs, also known as Loaders were added to the estimate based on calculations resulting from the direct cost estimates (prior to Loaders) being entered into the TM1 system by the project controls group. The TM1 system takes into account the projected spend of direct costs over the project schedule and calculates the costs of company overhead, property taxes, and financing costs (also referred to as the allowance for funds used during construction (AFUDC)).

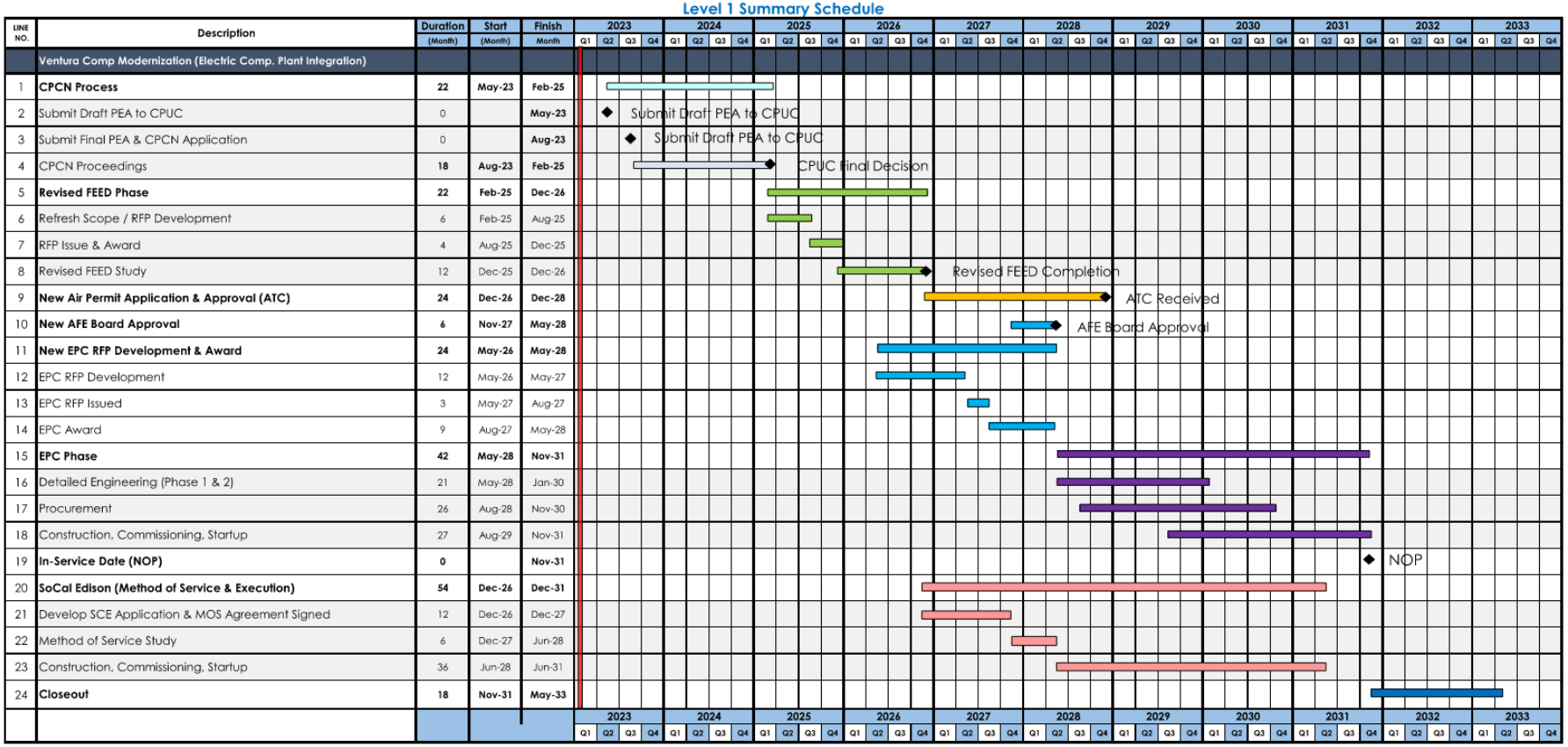
7. Appendix

7.1. Project Schedule & Assumptions

Ventura Comp Modernization (Electric Comp. Plant Integration)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Comp Modernization (Electric Comp. Plant Integration)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC	0		**May-23**
3	Submit Final PEA & CPCN Application	0		**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Revised FEED Phase**	**22**	**Feb-25**	**Dec-26**
6	Refresh Scope / RFP Development	6	Feb-25	Aug-25
7	RFP Issue & Award	4	Aug-25	Dec-25
8	Revised FEED Study	12	Dec-25	Dec-26
9	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-26**	**Dec-28**
10	**New AFE Board Approval**	**6**	**Nov-27**	**May-28**
11	**New EPC RFP Development & Award**	**24**	**May-26**	**May-28**
12	EPC RFP Development	12	May-26	May-27
13	EPC RFP Issued	3	May-27	Aug-27
14	EPC Award	9	Aug-27	May-28
15	**EPC Phase**	**42**	**May-28**	**Nov-31**
16	Detailed Engineering (Phase 1 & 2)	21	May-28	Jan-30
17	Procurement	26	Aug-28	Nov-30
18	Construction, Commissioning, Startup	27	Aug-29	Nov-31
19	**In-Service Date (NOP)**	**0**		**Nov-31**
20	**SoCal Edison (Method of Service & Execution)**	**54**	**Dec-26**	**Dec-31**
21	Develop SCE Application & MOS Agreement Signed	12	Dec-26	Dec-27
22	Method of Service Study	6	Dec-27	Jun-28
23	Construction, Commissioning, Startup	36	Jun-28	Jun-31
24	**Closeout**	**18**	**Nov-31**	**May-33**



Schedule Assumptions:

1. **REGULATORY** - CPCN Proceedings will take **18-months** until CPUC Final Decision is made.
2. **ENVIRONMENTAL** - New Air Permit Application Preparation will start after Revised FEED is complete. It will take **24 months** to obtain ATC Approval.
3. **REVISED FEED RFP** - Revised FEED RFP development effort will start after CPUC Final Decision.
4. **REVISED FEED STUDY** - The Revised FEED Study by contractor will take **12-Months** to complete.
5. **AFE** - The new TIC Estimate will be taken to Board for approval once EPC RFP is complete
6. **EPC RFP** - New EPC RFP Development starts as early as possible approximately **7-8 months** before Revised FEED is complete.
7. **EPC EXECUTION** - Execution of the EPC phase up to NOP will take an overall of **42-Months** with Engineering phase-1 Up to 90% Model Review
8. **SCE** - SoCal Edison Method of Service study and execution (engineering, procurement & construction) will take no longer than **54-Months** to complete.
9. **NOP** - NOP/In-Service Date in **Q4-2031**

Ventura Compressor Modernization Project

All Electric Drive Compressor Option

SIGNATURE	Type	PRINT NAME

Estimated Cost

$ 518,000,000

Ventura Supplemental Estimate	Class 3 - FEED Estimate (2021 $)	% Breakdown	Actuals (Jan. 2020)	Contingency %	Contingency	Sub-Total	% Esc.	Escalation	TOTAL	Basis
EPC - Engineering / Design Services			$ 6,426,647	34.4%			11%		$ 48,875,223	2020 FEED Estimate w/updated escalation
EPC - Construction			$ 114,320	20.8%			15%		$ 164,103,886	2020 FEED Estimate w/updated escalation
EPC - Construction Management			$ -	12.5%			16%		$ 25,137,304	2020 FEED Estimate w/updated escalation
SCG Labor - Mgmt. & Non Labor	$ 8,135,466		$ 1,398,450	-0.3%	$ (23,895)	$ 9,510,021	14%	$ 1,098,856	$ 10,608,877	2020 FEED Estimate w/updated escalation
SCG Labor - Union T/H	$ 791,500		$ -	-0.4%	$ (3,401)	$ 788,099	14%	$ 106,762	$ 894,861	2020 FEED Estimate w/updated escalation
SCG Labor - Outreach & Public Affairs	$ 609,000		$ -	0.6%	$ 3,606	$ 612,606	14%	$ 82,988	$ 695,594	2020 FEED Estimate w/updated escalation
Material- Other	$ 110,000		$ -	36.3%	$ 39,883	$ 149,883	16%	$ 23,588	$ 173,471	2020 FEED Estimate w/updated escalation
PM / Project Services	$ 15,523,720		$ 2,080,696	2.1%	$ 320,106	$ 17,924,523	11%	$ 1,804,502	$ 19,729,024	2020 FEED Estimate w/updated escalation
Inspection Services	$ 1,117,080		$ -	12.5%	$ 140,087	$ 1,257,167	18%	$ 227,062	$ 1,484,229	2020 FEED Estimate w/updated escalation
Surveying / As-builts	$ 307,547		$ -	15.1%	$ 46,346	$ 353,893	18%	$ 63,918	$ 417,811	2020 FEED Estimate w/updated escalation
Environmental Services	$ 365,952		$ 180,526	12.8%	$ 46,908	$ 593,387	16%	$ 64,975	$ 658,362	2020 FEED Estimate w/updated escalation
Pressure Test Certification Services	$ 200,000		$ -	8.3%	$ 16,652	$ 216,652	16%	$ 34,096	$ 250,749	2020 FEED Estimate w/updated escalation
Land Services	$ 1,029,438		$ -	8.3%	$ 85,797	$ 1,115,235	16%	$ 175,514	$ 1,290,749	2020 FEED Estimate w/updated escalation
Miscellaneous Services	$ 5,960,000		$ -	13.3%	$ 791,879	$ 6,751,879	18%	$ 1,219,485	$ 7,971,364	2020 FEED Estimate w/updated escalation
Permits	$ 30,736		$ -	20.9%	$ 6,414	$ 37,150	16%	$ 5,847	$ 42,997	2020 FEED Estimate w/updated escalation
Other Non-Labor Costs	$ 476,798		$ 20,898	4.1%	$ 19,724	$ 517,421	0%	$ -	$ 517,421	2020 FEED Estimate w/updated escalation
Sub-Total Un-Loaded Direct Estimated Cost	**$ 200,415,047**	**82%**	**$ 10,221,538**	**19.1%**	**$ 38,189,217**	**$ 248,825,802**	**14.3%**	**$ 34,026,119**	**$ 282,851,921**	**2020 FEED Estimate w/updated escalation**

Year	Esc. %	Below the Line Changes			Actuals (Feb. 2020 to Dec. 2022)						
2030	9.13%	ROM Equipment and Construction change for 2 electric driven				20%	$ (832,500)	$ (4,995,000)	9.13%	$ (455,996)	$ (5,450,996)	BMcD Electric Study
2030	9.13%	Removal of bulks associated with GDC's and smaller building	$ (6,243,750)			20%	$ (1,248,750)	$ (7,492,500)	9.13%	$ (683,994)	$ (8,176,494)	ROM adjustment based on 1.5 times the cost of the equipment and bulk costs fr
2030	9.13%	Add 5 MW Linear Generator and Step-up transformer (assume not req'd)	$ -			20%	$ -	$ -	#DIV/0!	$ -	$ -	Requested pricing from Mainspring; no response yet
2030	9.13%	Add Piling Costs	$ 320,000			40%	$ 128,000	$ 448,000	9.13%	$ 40,898	$ 488,898	Feasibility Study
2030	9.13%	Add Micropiles through areas of rockfill (removed for this case)	$ -			40%	$ -	$ -	#DIV/0!	$ -	$ -	Feasibility Study
2030	9.13%	Additional SCE Transformer cost and Method of Service (MOS) Study	$ 1,150,000			20%	$ 230,000	$ 1,380,000	9.13%	$ 125,981	$ 1,505,981	Based on updated info received from SCE and HRCM Est; $150k for MOS study
2026	1.27%	Additional FEED Engineering				35%	$ 1,400,000	$ 5,400,000	1.27%	$ 68,356	$ 5,468,356	Assume full FEED Contractor Engineering (BMcD)
2030	9.13%	Add 1 Vapor Recovery Unit (VRU) Skid - use Blythe/HRCM cost	$ 6,000,000			20%	$ 1,200,000	$ 7,200,000	9.13%	$ 657,291	$ 7,857,291	Cost from Blythe for 1 skid (also used for HRCM)
2030	9.13%	Add Deodorizing Unit	$ 6,750,000			40%	$ 2,700,000	$ 9,450,000	9.13%	$ 862,695	$ 10,312,695	Potential vendor Carbtrol - G-15PPL Adsorbers ($150k ea) x 14 plus blowers and
2030	9.13%	Add Cooling Motor Blowers (2 ea) for EDCs	$ 120,000			25%	$ 30,000	$ 150,000	9.13%	$ 13,694	$ 163,694	HRCM Blower cost plus installation factor of 3
2030	9.13%	Add SCE supplied Electrical Equipment (in $1,150,000 above)	$ -				$ -	$ -		$ -	$ -	
2030	9.13%		$ -				$ -	$ -		$ -	$ -	
2030	9.13%	Add 4160V Switchgear, Battery charger, and batteries and 15ft to PDC Bldg	$ 1,500,000			25%	$ 375,000	$ 1,875,000	9.13%	$ 171,170	$ 2,046,170	ROM Estimate based on PDC and Switchgear quotes from MCM and HRCM
2030	9.13%	Alternate Access Ramp Install, Maintenance, & Removal	$ 235,000			40%	$ 94,000	$ 329,000	9.13%	$ 30,035	$ 359,035	Install and Removal based on 2022 bids plus $50k for maintenance
2030	9.13%	Construction Contractor Wage Rate Adjustment	$ -									Recommend no changes at this time
		Proponent Env Assess (PEA)/Environ Impact Report (EIR)	$ 4,000,000			25%	$ 1,000,000	$ 5,000,000	0.00%	$ -	$ 5,000,000	Dudek and Subcontractor cost (executed during CPCN Proceedings)
2030	9.13%	Proponent Env Assess (PEA)/Environ Impact Report (EIR)	$ 2,000,000			25%	$ 500,000	$ 2,500,000	9.13%	$ 228,226	$ 2,728,226	Dudek and Subcontractor cost (executed during construction)
2029	7.06%	Methane capture Engineering	$ 250,000			30%	$ 75,000	$ 325,000	7.06%	$ 22,955	$ 347,955	Allowance for Engineering
2030	9.13%	Emission control catalyst installed in compressor exhaust (not req'd for this case)	$ -			30%	$ -	$ -	-	$ -	$ -	Aerinox quote ($120k each, 2 req'd) plus install factor of 2
2030	9.13%	EPC Contractor Insurance, Warranty, Letter of Credit	$ 10,000,000			25%	$ 2,500,000	$ 12,500,000	9.13%	$ 1,141,130	$ 13,641,130	Experience from MCM and HRCM bids vs Original Estimates
		SCG Company Labor Extended Schedule				15%			1.06%			See "Extended CPCN Sched" Tab
		3rd Party Project Mangement / Project Services				15%			1.04%			See "Extended CPCN Sched" Tab
2029	7.06%	3rd Party Environmental				20%			7.06%			Added owner subsurface / remediation work and asphalt removal
		Actuals as of December 2022			$ 12,612,307	0%	$ -	$ 12,612,307		$ -	$ 12,612,307	
		Sub-Total Below the Line Changes	**$ 43,288,750**	**18%**	**$ 12,612,307**	**25.3%**	**$ 10,963,750**	**$ 66,864,807**	**5.0%**	**$ 2,733,010**	**$ 69,597,817**	

Sub-Total Direct Cost with Below the Line Changes	**$ 243,703,797**		**$ 22,833,845**		**$ 49,152,967**	**$ 315,690,609**		**$ 36,759,130**	**$ 352,449,739**	
Actuals	$ 22,833,845									
Contingency	$ 49,152,967	20%								
Total Un-Loaded Direct Cost[1]	**$ 316,000,000**									
(1) Excludes Escalation and Loaders										
Escalation	$ 36,759,130	12.55%								
Loaders	$ 165,349,501	47%								
Total Loaded Direct Cost	**$ 518,000,000**									

Total Actuals as of Dec. 2022 (Actuals up to Jan 2020 plus Feb 2020 to Dec 2022)

	Primary Characteristic	*Secondary Characteristic*		
ESTIMATE CLASS	**MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES** Expressed as % of complete definition	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXI** Typica rang
Class 5	0% to 2%	Concept screening	Cost/length factors, parametric models, judgment, or analogy	L: - H: +
Class 4	1% to 15%	Study or feasibility	Cost/length, factored or parametric models	L: - H: +

STAGE GATE 3 ESTIMATE

Ventura Compressor Modernization Project	PROJECT TITLE	Stage 3 SCG Estimating Template Rev 5 (11/1/2017)	PROJECT STATIONING			WOA NUMBER	91651
Other	ASSET		GENERAL MANAGEMENT & ADMINISTRATION (GMA)	0.00%		I/O NUMBER	
1B		ESTIMATE REV 4/23/2020	CONSTRUCTION DURATION	460	MUNICIPALITY Ventura	LINE NUMBER	
Compressor Upgrade	ACTIVITY	PREPARED BY	TAX	0.0%	OPERATING AREA / DISTRICT	PIPE NOM. O.D. - IN.	
1/23/2024 13:20	DATE PRINTED	REVIEWED BY	FREIGHT	0.00%	TOTAL ESTIMATED PROJECT COST $282,900,000	TOTAL LENGTH - FT.	

KPMG	Description	Qty	Unit	$/UOM	Material	Labor and Equipment	Subcontracts	Tax & Freight	Subtotal	Risk Assessment %	Risk Assessment Amount	Subtotal Excluding Escalation	Escalation %	Escalation Amount	Estimated Costs	Comments
	CONSTRUCTION CONTRACTOR															
	COMPRESSOR UPGRADE															
	Earthwork and Civil	36,872	CY							21.13%			13.55%			Reduce productivity from 1.35 to 1.25
	Demolition	1	LS							0.00%			13.55%			
	Concrete	5,007	CY							21.13%			13.55%			Reduce concrete manhours/cy from 14 to 9
	Structural Steel	318	TON							14.12%			15.74%			Reduce productivity from 1.35 to 1.25
	Mechanical Utilities	1	LS							0.00%			15.74%			
	Architectural	20,214	SF							12.04%			15.74%			Added $100K to materials and $100K to labor to account for Security cameras, CCTV, networking (phone/internet) etc.; reduced productivity from 1.4 to 1.3
	Machinery & Equipment	53	EA							40.00%			15.74%			Reduce productivity from 1.4 to 1.3
	Piping	25,181	LF							40.00%			15.74%			Reduce piping hours from 4.05 manhours/lf to 2.5 manhours/lf
	Pipe Fabrication	455,549	LBS							21.52%			15.74%			
	Electrical	161,321	LF							40.00%			15.74%			Reduce productivity from 1.4 to 1.3
	Control Systems	636	EA							14.12%			15.74%			Reduce productivity from 1.4 to 1.3
	Painting	1	LS							27.33%			15.74%			Reduce productivity from 1.4 to 1.3
	Insulation	1	LS							27.33%			15.74%			Reduce productivity from 1.8 to 1.4
	Scaffolding	1	LS							14.12%			15.74%			
	Safety Watch	1	LS							9.66%			15.74%			
	DFL Craft Per Diem	1	LS							9.66%			15.74%			
	Craft Bussing	1	LS							9.66%			15.74%			Reduce by 81% based on reduction in total manhours
	Cranes greater than 60 Ton	1	LS							9.66%			15.74%			Reduce by 81% based on reduction in total manhours
	EPC Contractor Fee	1	LS							4.08%			13.55%			Keep Contractor Fee at 15%
	Demo Existing Site Features	1	LS							23.83%			13.55%			
	Communications Relocation	1	LS							21.13%			13.55%			High level ROM received from Field Operations
	Capital and Construction Spare Parts	1	LS							8.50%			15.74%			Added Capital Spares
	Operational Spare Parts (Allowance for Initial Operations)	1	LS							8.50%			18.06%			
	Tax @ 7.75% (Ventura County Rate)	1	LS							0.97%			13.55%			
	Inland Freight	1	LS							8.50%			13.55%			
	Material Handling (10%)	1	LS							8.50%			13.55%			Add 10% for EPC contractor to handle materials procured for the project (Mark-up/handling fee)
Material & Equipment										37.85%						
Construction										62.15%						
	Contractor Cost Allowances											$ -				
Construction	Weather Allowance	2.50%	LOT							4.1%			15.74%			
	Design Allowance	0.00%	LOT		$ -	$ -	$ -		$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	PURCHASED MATERIALS (includes tax and freight)											$ -				
	Pipe and Fittings				$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
	Material-Valves				$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
					$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
	Material-Other				$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
Material & Equipment	Interior Furnishings for Admin Building	1	LS	$ 60,000.00	$ 60,000.00			$ -	$ 60,000	36.3%	$ 21,754	$ 81,754	15.74%	$ 12,866	$ 94,621	Allowance
Material & Equipment	Warehouse Shop Equipment	1	LS	$ 50,000.00	$ 50,000.00			$ -	$ 50,000	36.3%	$ 18,129	$ 68,129	15.74%	$ 10,722	$ 78,851	Allowance
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
	Material-Other Electical				$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
					$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
	Miscellaneous Piping Allowance 5%	0%	LOT		$ -			$ -	$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
	Miscellaneous Electrical Material	0%	%		$ -			$ -	$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	
	Material Allowances											$ -				
	Design Allowance	0.00%	LOT		$ -			$ -	$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	Procurement Allowance	0.00%	LOT		$ -			$ -	$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	Material Allowance	0.00%	LOT		$ -			$ -	$ -	4.1%	$ -	$ -	15.74%	$ -	$ -	
	SCG COMPANY LABOR											$ -				
	MASTER COMPANY LABOR TOTALS											$ -				
	CAPITAL INSTALLATION											$ -				
Company Labor & Project Services	SCG - Project (Field Management)	13956	HR	$ 70.28		$ 980,760.00			$ 980,760	-0.3%	$ (2,881)	$ 977,879	13.55%	$ 132,471	$ 1,110,350	
Company Labor & Project Services	SCG - Project Management	71323	HR	$ 70.00		$ 4,992,582.00			$ 4,992,582	-0.3%	$ (14,664)	$ 4,977,918	13.55%	$ 674,347	$ 5,652,265	
Company Labor & Project Services	SCG - Environmental Services	12888	HR	$ 70.69		$ 911,040.00			$ 911,040	-0.3%	$ (2,676)	$ 908,364	13.55%	$ 123,054	$ 1,031,418	
Company Labor & Project Services	SCG - Engineering Services	17625	HR	$ 70.00		$ 1,233,733.69			$ 1,233,734	-0.3%	$ (3,624)	$ 1,230,110	13.55%	$ 166,640	$ 1,396,750	
Company Labor & Project Services	SCG - Inspectors / CA's	0	HR			$ -			$ -	-0.3%	$ -	$ -	13.55%	$ -	$ -	
Company Labor & Project Services	SCG - Other Departments	350	HR	$ 49.57		$ 17,350.00			$ 17,350	-0.3%	$ (51)	$ 17,299	13.55%	$ 2,343	$ 19,643	
Company Labor & Project Services	SCG - Transmission Field Services	0	HR			$ -			$ -	-0.3%	$ -	$ -	13.55%	$ -	$ -	
Company Labor & Project Services	SCG - Outreach & Public Affairs	8700	HR	$ 70.00		$ 609,000.00			$ 609,000	0.6%	$ 3,606	$ 612,606	13.55%	$ 82,988	$ 695,594	

STAGE GATE 3 ESTIMATE

Ventura Compressor Modernization Project	PROJECT TITLE		Stage 3 SCG Estimating Template Rev 5 (11/1/2017)	PROJECT STATIONING												WOA NUMBER	91651
Other	ASSET			GENERAL MANAGEMENT & ADMINISTRATION (GMA)									0.00%			I/O NUMBER	
1B			ESTIMATE REV 4/23/2020	CONSTRUCTION DURATION									460	MUNICIPALITY	Ventura	LINE NUMBER	
Compressor Upgrade	ACTIVITY		PREPARED BY	TAX									0.0%	OPERATING AREA / DISTRICT		PIPE NOM. O.D. - IN.	
1/23/2024 13:20	DATE PRINTED		REVIEWED BY	FREIGHT									0.00%	TOTAL ESTIMATED PROJECT COST	$282,900,000	TOTAL LENGTH - FT.	

KPMG	Description	Qty	Unit	$/UOM	Material	Labor and Equipment	Subcontracts	Tax & Freight	Subtotal	Risk Assessment %	Risk Assessment Amount	Subtotal Excluding Escalation	Escalation %	Escalation Amount	Estimated Costs	Comments
Company Labor & Project Services	SCG - Union Field Services	11010	HR	$ 71.31		$ 785,100.00			$ 785,100	-0.4%	$ (3,374)	$ 781,726	13.55%	$ 105,899	$ 887,625	
Company Labor & Project Services	SCG - Pipeline Integrity Services	80	HR	$ 80.00		$ 6,400.00			$ 6,400	-0.4%	$ (28)	$ 6,372	13.55%	$ 863	$ 7,236	
	CAPITAL ABANDONMENT											$ -				
	O & M PROJECT											$ -				
	ADDITIONAL COSTS											$ -				
	MASTER ADDITIONAL COSTS TOTALS											$ -				
	CAPITAL INSTALLATION											$ -				
Company Labor & Project Services	PM Services (Stage 1-5)	1	LOT							2.1%			11.39%			See "PM Team" and "Gas Engineering" tabs for details
Design & Engineering	Engineering & Design Services (Stages 1-5)	1	LOT							34.4%			11.39%			
Environmental	Environmental Services	1	LOT				$ 324,085		$ 324,085	12.8%	$ 41,542	$ 365,627	15.74%	$ 57,542	$ 423,169	See "Environmental" tab for details
Environmental	Abatement / IH Services	1	LOT				$ 28,437		$ 28,437	12.8%	$ 3,645	$ 32,082	15.74%	$ 5,049	$ 37,131	See "Environmental" tab for details
Environmental	Water Treatment Services	0	GAL				$ -		$ -	12.8%	$ -	$ -	15.74%	$ -	$ -	See "Environmental" tab for details
Environmental	Hazardous Materials Management (On-Call)	1	LOT				$ 13,430		$ 13,430	12.8%	$ 1,721	$ 15,151	15.74%	$ 2,385	$ 17,536	See "Environmental" tab for details
Environmental	Environmental Mitigation	1	LOT				$ -		$ -	12.8%	$ -	$ -	15.74%	$ -	$ -	See "Environmental" tab for details
Environmental	Environmental Permits. Fees, etc.	1	LOT				$ 25,736		$ 25,736	20.9%	$ 5,371	$ 31,107	15.74%	$ 4,896	$ 36,002	See "Environmental" tab for details
Environmental	Water Storage	1	LOT				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	See Water Storage Stake Holders
Environmental	Water Disposal Services	0	GAL				$ -		$ -	12.8%	$ -	$ -	15.74%	$ -	$ -	See Water Storage Stake Holders
Construction	Construction Management	0	HR				$ 19,299,000		$ 19,299,000	12.5%	$ 2,420,182	$ 21,719,182	15.74%	$ 3,418,122	$ 25,137,304	See "Fluor EPC Estimate" tab and CM tab for details
Construction	CM/Inspection Services	1	LOT				$ 1,117,080		$ 1,117,080	12.5%	$ 140,087	$ 1,257,167	18.06%	$ 227,062	$ 1,484,229	See "PM Team" tab and CM tab for details
Company Labor & Project Services	Surveying Services (Stage 1-5)	1	LOT				$ 307,547		$ 307,547	15.1%	$ 46,346	$ 353,893	18.06%	$ 63,918	$ 417,811	See "Survey" tab for details
Environmental	Total for all crop damaged and restoration	1	LOT				$ -		$ -	8.3%	$ -	$ -	15.74%	$ -	$ -	See "Land" tab for details
Company Labor & Project Services	Land Services (Project Services)	1	LOT				$ 39,800		$ 39,800	2.1%	$ 821	$ 40,621	11.39%	$ 4,626	$ 45,247	See "Land" tab for details
Company Labor & Project Services	Land Services (Easements)	1	LOT				$ 1,029,438		$ 1,029,438	8.3%	$ 85,797	$ 1,115,235	15.74%	$ 175,514	$ 1,290,749	See "Land" tab for details
Company Labor & Project Services	Pre-land Acquisitions	1	LOT				$ -		$ -	8.3%	$ -	$ -	15.74%	$ -	$ -	See "Land" tab for details
Construction	Construction Permits	1	LOT				$ 5,000		$ 5,000	20.9%	$ 1,043	$ 6,043	15.74%	$ 951	$ 6,995	See "Land" tab for details
Construction	Other Direct Costs	1	LOT							13.3%			18.06%			
Company Labor & Project Services	Geotechnical Services	1	LOT				$ -		$ -	34.4%	$ -	$ -	11.39%	$ -	$ -	0
Company Labor & Project Services	Valve Modification Services	1	LOT				$ -		$ -	13.3%	$ -	$ -	18.06%	$ -	$ -	0
Construction	CNG/LNG	1	LOT				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	See "CNG - LNG" tab for details
Company Labor & Project Services	Outreach & Public Affairs	1	LOT				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	Assume Outreach will be all SCG Labor
Company Labor & Project Services	NDE/Field X-ray Services	0	WELDS	$ 200.00			$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
Company Labor & Project Services	NDE/Field X-ray Auditing Services	0	WELDS				$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	
Company Labor & Project Services	Hydrotest Certification Services		LOT				$ 200,000		$ 200,000	8.3%	$ 16,652	$ 216,652	15.74%	$ 34,096	$ 250,749	Based on historical Milbar cost
Company Labor & Project Services	Spreadboss		DAYS	$ 1,200.00			$ -		$ -	0.0%	$ -	$ -	0.00%	$ -	$ -	0
Company Labor & Project Services	Surveying Services Pot Holing		EA				$ -		$ -	15.1%	$ -	$ -	18.06%	$ -	$ -	0
Environmental	Water purchase		GAL						$ -	36.3%	$ -	$ -	15.74%	$ -	$ -	0
Material & Equipment	Trucking Costs		EA				$ -		$ -	13.3%	$ -	$ -	18.06%	$ -	$ -	0
Material & Equipment	Blow down Pipeline - see General Reference tab	0	MCF		$ -		$ -		$ -	4.1%	$ -	$ -	0.00%	$ -	$ -	See "General Ref" tab for details
Other	Other Non-Labor	5.0%	%			$ 476,798			$ 476,798	4.1%	$ 19,724	$ 496,522	0.00%	$ -	$ 496,522	See "General Ref" tab for details

STAGE GATE 3 ESTIMATE

Ventura Compressor Modernization Project	PROJECT TITLE	Stage 3 SCG Estimating Template Rev 5 (11/1/2017)	PROJECT STATIONING			WOA NUMBER	91651
Other	ASSET		GENERAL MANAGEMENT & ADMINISTRATION (GMA)	0.00%		I/O NUMBER	
1B		ESTIMATE REV 4/23/2020	CONSTRUCTION DURATION	460	MUNICIPALITY Ventura	LINE NUMBER	
Compressor Upgrade	ACTIVITY	PREPARED BY	TAX	0.0%	OPERATING AREA / DISTRICT	PIPE NOM. O.D. - IN.	
1/23/2024 13:20	DATE PRINTED	REVIEWED BY	FREIGHT	0.00%	TOTAL ESTIMATED PROJECT COST $282,900,000	TOTAL LENGTH - FT.	

KPMG	Description	Qty	Unit	$/UOM	Material	Labor and Equipment	Subcontracts	Tax & Freight	Subtotal	Risk Assessment %	Risk Assessment Amount	Subtotal Excluding Escalation	Escalation %	Escalation Amount	Estimated Costs	Comments
	ABANDONMENT PROJECT											$ -				
	O & M PROJECT											$ -		$ -		
	GMA-Plant											$ -				
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Plant	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon											$ -				
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-Abandon	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M											$ -				
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	GMA-O&M	1	LOT			$ -			$ -			$ -			$ -	
	Actuals											$ -				
Company Labor & Project Services	Land Services (Contract Labor)	1	LOT			$ -	$ -		$ -			$ -			$ -	
Environmental	Environmental (Contract Labor)	1	LOT				$ 180,526		$ 180,526			$ 180,526			$ 180,526	
Company Labor & Project Services	SCG - Project Management	1	LOT			$ 1,398,450	$ -		$ 1,398,450			$ 1,398,450			$ 1,398,450	
Company Labor & Project Services	SCG - Union	1	LOT			$ -	$ -		$ -			$ -			$ -	
Construction	Construction	1	LOT				$ 114,320		$ 114,320			$ 114,320			$ 114,320	
Company Labor & Project Services	Project Services	1	LOT				$ 2,080,696		$ 2,080,696			$ 2,080,696			$ 2,080,696	
Design & Engineering	Project Engineering	1	LOT				$ 6,426,647		$ 6,426,647			$ 6,426,647			$ 6,426,647	
Company Labor & Project Services	SCG - GMA	1	LOT			$ -	$ -		$ -			$ -			$ -	
Other	Other Non-Labor	1	LOT			$ 20,898			$ 20,898			$ 20,898			$ 20,898	
	TOTAL ESTIMATED PROJECT COST				$ 44,125,482.30	$ 58,334,606.35	$ 108,176,496.30	$ -	$ 326,936,366.78		$ 62,638,556.30			$ 34,026,119.46	$ 282,851,921.35	
									$ 210,636,584.96		Sub+Risk:				$ 423,601,042.55	
															$ (140,749,121.19)	

DIRECT FIELD MH	
ALL_IN COST	
RISK AMOUNT	**$ 62,638,556**
RISK % of TDC	**30%**

Table 1: 2020 FEED Estimate Equipment Costs

Table 1 from above was put into Table 2 for the Base Scope portion. The equipment prices for the (2) Engine & (2) EMD option were adjusted to account for the price increases since the original FEED was completed in 2020.

Revised ROM Estimate Adjustments - Feb 2023 - EDC Case							
Base Scope				**Option 2: (2) EMDs**			
			2020 FEED Est		Feb 2023 Est - EDC Case		
Scope			(4) Natural Gas Engines				
Equipment & Material	Qty	Unit Cost	Total	Qty	Unit Cost	Total	
Engine Compressor Package							updated pricing
EMD Compressor Package							updated pricing
VFD w/Coolers							updated pricing
VFD Building							
Starting Air Compressor/Receiver							
Coolant Storage Drum							
Coolant Drain Sump							
Coolant Charge Pump							
New Transformer (10 MVa)							
New Transformer (7 MVa)							
Metering Panel							
Reclosure							
CEMS Building							
Utility Piping Lot							
TOTAL MECH/ELEC EQ COST							
Construction/Indirects							
ROM Factor (Eq Cost * 2.5)							

Table 3: Additional Engineering Costs Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)							
Misc Cost							
Additional Engineering (ROM)							
SCE T-Line Improvements							included in Supplemental Estimate

Table 4: Additional SCE & SCG Equipment Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)							
SCE Equipment Needed							
2 ea 4160V Oil Filled Transformers			$300,000				
1 Gas Switch for 16KV Service			$250,000				
1 Vacuum Fault Interrupter for 16KV Service			$250,000				
			800000	keep $1MM allowance used previously			
SCG Equipment Needed							
1 ea 480V Transformer			$185,000				
1 ea Metering Panel (use $500k)			500000	included above			

		Alt: Electrical Compressor Plant Integration Extended CPCN Schedule								
		~~GRC Application (N/A)~~	CPCN Proposed Schedule[2]	Development of Refeed RFP[1]	RFP Issued/Eval/Award	Revised FEED	AFE Board Approval	Develop EPC RFP[1]	RFP Issued/Eval/Award	**Total**
Months	SCG Company Labor	~~0~~	26	6	4	12	6	12	12	
	Project Services	~~0~~	26	6	4	12	6	12	12	
Monthly Burn Rate	SCG Company Labor	~~$40,000~~	$40,000	$80,000	$80,000	$100,000	$60,000	$80,000	$80,000	
	Project Services	~~$60,000~~	$60,000	$100,000	$100,000	$200,000	$90,000	$100,000	$100,000	
	Combined	~~$100,000~~	$100,000	$180,000	$180,000	$300,000	$150,000	$180,000	$180,000	
Cost	SCG Company Labor	~~$0~~	$1,040,000	$480,000	$320,000	$1,200,000	$360,000	$960,000	$960,000	**$5,320,000**
	Project Services	~~$0~~	$1,560,000	$600,000	$400,000	$2,400,000	$540,000	$1,200,000	$1,200,000	**$7,900,000**

		~~2022~~	2024	2025	2025	2026	2028	2026	2027	
	Escalation %	~~0.00%~~	-0.95%	-0.09%	-0.09%	1.27%	5.03%	1.27%	3.09%	
Escalation	SCG Company Labor	~~$0.00~~	-$9,835.54	-$426.55	-$284.37	$15,190.30	$18,103.85	$12,152.24	$29,707.39	**$64,607**
	Project Services	~~$0.00~~	-$14,753.31	-$533.19	-$355.46	$30,380.60	$27,155.78	$15,190.30	$37,134.24	**$94,219**

Escalated Cost	SCG Company Labor	~~$0~~	$1,030,164	$479,573	$319,716	$1,215,190	$378,104	$972,152	$989,707	**$5,384,607**
	Project Services	~~$0~~	$1,545,247	$599,467	$399,645	$2,430,381	$567,156	$1,215,190	$1,237,134	**$7,994,219**

Based on 2022 $$

1 Assume FEED and EPC will both be re-bid

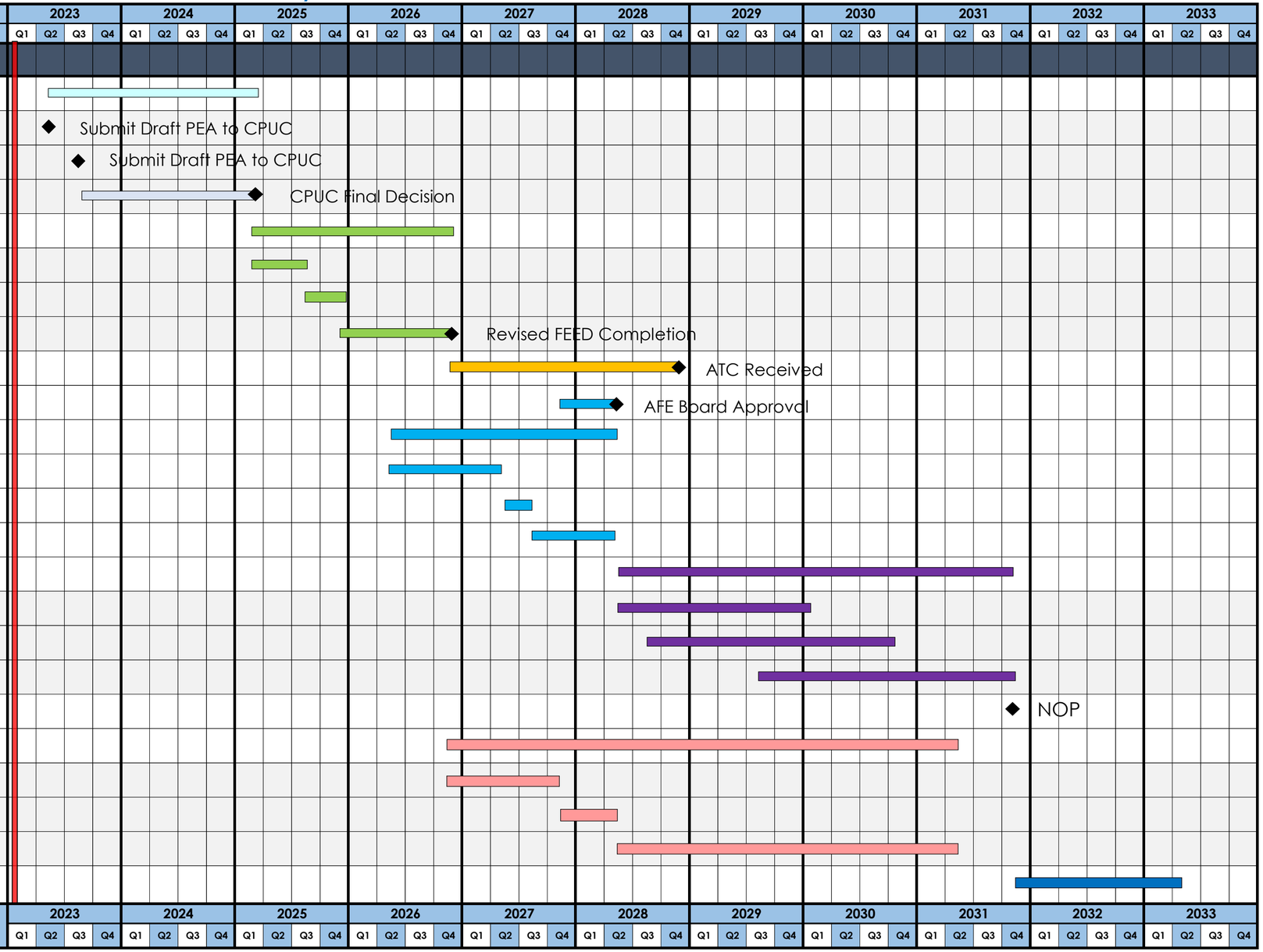
2 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

3 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

Ventura Comp Modernization (Electric Comp. Plant Integration)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Comp Modernization (Electric Comp. Plant Integration)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC	0		**May-23**
3	Submit Final PEA & CPCN Application	0		**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Revised FEED Phase**	**22**	**Feb-25**	**Dec-26**
6	Refresh Scope / RFP Development	6	Feb-25	Aug-25
7	RFP Issue & Award	4	Aug-25	Dec-25
8	Revised FEED Study	12	Dec-25	Dec-26
9	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-26**	**Dec-28**
10	**New AFE Board Approval**	**6**	**Nov-27**	**May-28**
11	**New EPC RFP Development & Award**	**24**	**May-26**	**May-28**
12	EPC RFP Development	12	May-26	May-27
13	EPC RFP Issued	3	May-27	Aug-27
14	EPC Award	9	Aug-27	May-28
15	**EPC Phase**	**42**	**May-28**	**Nov-31**
16	Detailed Engineering (Phase 1 & 2)	21	May-28	Jan-30
17	Procurement	26	Aug-28	Nov-30
18	Construction, Commissioning, Startup	27	Aug-29	Nov-31
19	**In-Service Date (NOP)**	**0**		**Nov-31**
20	**SoCal Edison (Method of Service & Execution)**	**54**	**Dec-26**	**Dec-31**
21	Develop SCE Application & MOS Agreement Signed	12	Dec-26	Dec-27
22	Method of Service Study	6	Dec-27	Jun-28
23	Construction, Commissioning, Startup	36	Jun-28	Jun-31
24	**Closeout**	**18**	**Nov-31**	**May-33**



Schedule Assumptions:

1. **REGULATORY** - CPCN Proceedings will take **18-months** until CPUC Final Decision is made.
2. **ENVIRONMENTAL** - New Air Permit Application Preparation will start after Revised FEED is complete. It will take **24 months** to obtain ATC Approval.
3. **REVISED FEED RFP** - Revised FEED RFP development effort will start after CPUC Final Decision.
4. **REVISED FEED STUDY** - The Revised FEED Study by contractor will take **12-Months** to complete.
5. **AFE** - The new TIC Estimate will be taken to Board for approval once EPC RFP is complete
6. **EPC RFP** - New EPC RFP Development starts as early as possible approximately **7-8 months** before Revised FEED is complete.
7. **EPC EXECUTION** - Execution of the EPC phase up to NOP will take an overall of **42-Months** with Engineering phase-1 Up to 90% Model Review
8. **SCE** - SoCal Edison Method of Service study and execution (engineering, procurement & construction) will take no longer than **54-Months** to complete.
9. **NOP** - NOP/In-Service Date in **Q4-2031**

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Table 1: Cost Index Study Published by

JUGPDSTCM@PCF = Utility Cost Index: Gas Distribution Plant, Pacific Region--Compressor Station Equipment
JUGPSHEF@PCF = Utility Cost Index: Gas Storage Plant, Pacific Region--Gas Holders Excluding Foundation
Construction-related cost index (includes labor and nonlabor)
Source: Global Insight 4th Quarter 2021 utility cost forecast (published January 25, 2022); recorded data from Handy-Whitman

Year	JUGPDSTCM@PCF			JUGPSHEF@PCF		% change
	2021=1.0000	1973=100	% change	2021=1.0000	1973=100	% change
2016	0.8439	689.00	1.62%	0.8183	499.25	1.58%
2017	0.8598	702.00	1.89%	0.8248	503.25	0.80%
2018	0.8917	728.00	3.70%	0.8580	523.50	4.02%
2019	0.9186	750.00	3.02%	0.8896	542.75	3.68%
2020	0.9391	766.75	2.23%	0.9129	557.00	2.63%
2021	1.0000	816.45	6.48%	1.0000	610.12	9.54%
2022	1.0606	865.90	6.06%	1.0183	621.26	1.83%
2023	1.0513	858.35	-0.87%	1.0060	613.78	-1.20%
2024	1.0505	857.71	-0.07%	1.0237	624.58	1.76%
2025	1.0596	865.13	0.87%	1.0480	639.38	2.37%
2026	1.0740	876.86	1.36%	1.0739	655.19	2.47%
2027	1.0934	892.69	1.81%	1.1016	672.11	2.58%
2028	1.1139	909.44	1.88%	1.1297	689.23	2.55%
2029	1.1355	927.06	1.94%	1.1577	706.35	2.48%
2030	1.1574	944.94	1.93%	1.1859	723.55	2.44%
2031	1.1806	963.92	2.01%	1.2153	741.45	2.47%
2032	1.2043	983.27	2.01%	1.2453	759.79	2.47%
2033	1.2285	1003.01	2.01%	1.2761	778.59	2.47%
2034	1.2532	1023.15	2.01%	1.3077	797.86	2.47%
2035	1.2783	1043.69	2.01%	1.3401	817.60	2.47%
2036	1.3040	1064.64	2.01%	1.3732	837.82	2.47%
2037	1.3302	1086.01	2.01%	1.4072	858.55	2.47%
2038	1.3569	1107.82	2.01%	1.4420	879.80	2.47%
2039	1.3841	1130.06	2.01%	1.4777	901.56	2.47%
2040	1.4119	1152.75	2.01%	1.5142	923.87	2.47%
2041	1.4402	1175.89	2.01%	1.5517	946.73	2.47%
2042	1.4692	1199.50	2.01%	1.5901	970.15	2.47%
2043	1.4987	1223.58	2.01%	1.6294	994.15	2.47%
2044	1.5287	1248.15	2.01%	1.6697	1018.75	2.47%
2045	1.5594	1273.20	2.01%	1.7111	1043.95	2.47%
2046	1.5907	1298.76	2.01%	1.7534	1069.78	2.47%
2047	1.6227	1324.84	2.01%	1.7968	1096.25	2.47%
2048	1.6553	1351.44	2.01%	1.8412	1123.37	2.47%
2049	1.6885	1378.57	2.01%	1.8868	1151.17	2.47%
2050	1.7224	1406.25	2.01%	1.9335	1179.65	2.47%

Escalation - From 2022	
Year	Escalation
2022	0.00%
2023	-0.87%
2024	-0.95%
2025	-0.09%
2026	1.27%
2027	3.09%
2028	5.03%
2029	7.06%
2030	9.13%
2031	11.32%
2032	13.55%
2033	15.83%

Table 2: FEED ESCALATION - From 2021

WBS	Name	Year	Escalation
1CC	Earthwork and Civil	2029	13.55%
2CC	Demolition	2029	13.55%
3CC	Concrete	2029	13.55%
4CC	Structural Steel	2030	15.74%
5CC	Mechanical Utilities	2030	15.74%
6CC	Architectural	2030	15.74%
7CC	Machinery & Equipment	2030	15.74%
8CC	Piping	2030	15.74%
9CC	Pipe Fabrication	2030	15.74%
10CC	Electrical	2030	15.74%
11CC	Control Systems	2030	15.74%
12CC	Painting	2030	15.74%
13CC	Insulation	2030	15.74%
14CC	Scaffolding	2030	15.74%
15CC	Safety Watch	2030	15.74%
16CC	DFL Craft Per Diem	2030	15.74%
17CC	Craft Bussing	2030	15.74%
18CC	Cranes greater than 60 Ton	2030	15.74%
19CC	EPC Contractor Fee	2029	13.55%
20CC	Demo Existing Site Features	2029	13.55%
21CC	Communications Relocation	2029	13.55%
22CC	Construction Spare Parts	2030	15.74%
23CC	Operational Spare Parts (Allowance for Initial Operations)	2031	18.06%
24CC	Tax @ 7.75% (Ventura County Rate)	2029	13.55%
25CC	Inland Freight	2029	13.55%
26CC	Material Handling (10%)	2029	13.55%
2M	SCG Labor - Mgmt. & Non Labor	2029	13.55%
2U	SCG Labor - Union T/H	2029	13.55%
2PA	SCG Labor - Outreach & Public Affairs	2029	13.55%
3	Material- Pipe & Fittings	N/A	0.00%
4	Material-Valves	N/A	0.00%
5	Material- Other	2030	15.74%
6D	Engineering / Design Services	2028	11.39%
6P	PM / Project Services	2028	11.39%
6CM	Construction Management	2030	15.74%
6I	Inspection Services	2031	18.06%
6S	Surveying / As-builts	2031	18.06%
6E	Environmental Services	2030	15.74%
6H	Pressure Test Certification Services	2030	15.74%
15W	Water Storage	N/A	0.00%
6X	X-ray / NDE	N/A	0.00%
6LS	Land Services	2030	15.74%
6C	CNG / LNG	N/A	0.00%
6SP	Spreadboss	N/A	0.00%
6M	Miscellaneous Services	2031	18.06%
6PA	Outreach & Public Affairs	N/A	0.00%
7	Permits	2030	15.74%
8	Other Non-Labor Costs	N/A	0.00%
15	GMA	N/A	0.00%
AL	Allowances	2030	15.74%
A	Actuals	N/A	0.00%

Escalation - From 2021	
Year	Escalation
2021	0.00%
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Previous	Current
Based on "old" schedule	Based on 012523 schedule
Year	Year
2028	2029
2028	2029
2028	2029
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
2029	2030
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2028	2029
2028	2029
2028	2029
N/A	N/A
N/A	N/A
2029	2030
2027	2028
2027	2028
2029	2030
2030	2031
2030	2031
2029	2030
2029	2030
N/A	N/A
N/A	N/A
2029	2030
N/A	N/A
N/A	N/A
2030	2031
N/A	N/A
2029	2030
N/A	N/A
N/A	N/A
2029	2030
N/A	N/A

Ventura Compressor Modernization Project

Ventura, CA (Avocado Hybrid Alternative Site Location)

Work Order Authorization #91651

Class 5 Estimate

April 2023

Revision 1

Table of Contents

1. Project Overview

Southern California Gas Company (SoCalGas) transmission systems play a vital role in the delivery of natural gas to millions of residential, commercial, and industrial consumers throughout Southern California. It is therefore essential that gas transmission equipment maintain a high level of reliability and operability and meet Federal and State regulatory agency regulations and comply with Company site technical practices.

This project is being executed to improve reliability and reduce equipment-regulated emissions. It includes the installation of new reciprocating gas engine-driven gas compressors, utilities and associated controls, electrical, instrumentation, and emission control equipment.

The overall goal of this project is to design/engineer/construct a new plant that will consist of two (2) gas-powered compressors and two (2) electric-powered compressors. When completed, the new compressors will have the capability to replace the existing Ventura Site compressors, meet the VCAPCD air emission and safety requirements, maintain sufficient pressure in the existing pipelines, and provide adequate inventory to the La Goleta Storage Field.

This alternative contemplates building an entirely new compressor station, including all necessary appurtenances, on an approximately 15-acre site zoned for agriculture and designated for open space uses. The site is located approximately 3,000 feet west of the existing compressor station site within the County of Ventura, and the surrounding area is developed with agricultural uses and oil/gas fields. The site itself is undeveloped hillside land with slopes upwards of 70% adjacent to an avocado orchard. The slopes would require large amounts of grading and potentially the installation of retaining walls or soil nails to create a level pad for compressor equipment and operational needs. This alternative contemplates the same configuration as the Proposed Project, and thus includes a hybrid configuration of two new gas compressors and two new electric compressors, installation of pipeline, facility infrastructure, and appurtenances to connect to SoCalGas's pipeline system, erecting a building to house the compressors, erecting a permanent office building, erecting a warehouse, and installing security at the site. Development of this site would require the following new off-site infrastructure: (1) widening, regrading, paving of Taylor Ranch Road to be a minimum of 24-feet wide with less than a 20% grade to meet project access requirements; (2) approximately 0.18 miles of a new natural gas pipeline system with two mainline valves that would tie into the exiting natural gas system pipelines; and (3) subterranean utility lines beneath the existing Taylor Ranch Road that would tie into existing facilities at West Main Street. An approximately 5.63-acre temporary construction staging area would be located at the base of Taylor Ranch Road and West Main Street. To accommodate the two electric compressors, approximately 0.83 miles of off-site aboveground electrical utility extensions (including 30 new poles) would also be required.

Currently the project is planned and estimated to be executed in two phases. Phase 1 will be reimbursable and go up to 60% engineering. Phase 2 of the project will be a lump sum from 60% through the end of construction.

Figure 1: Compressor Site

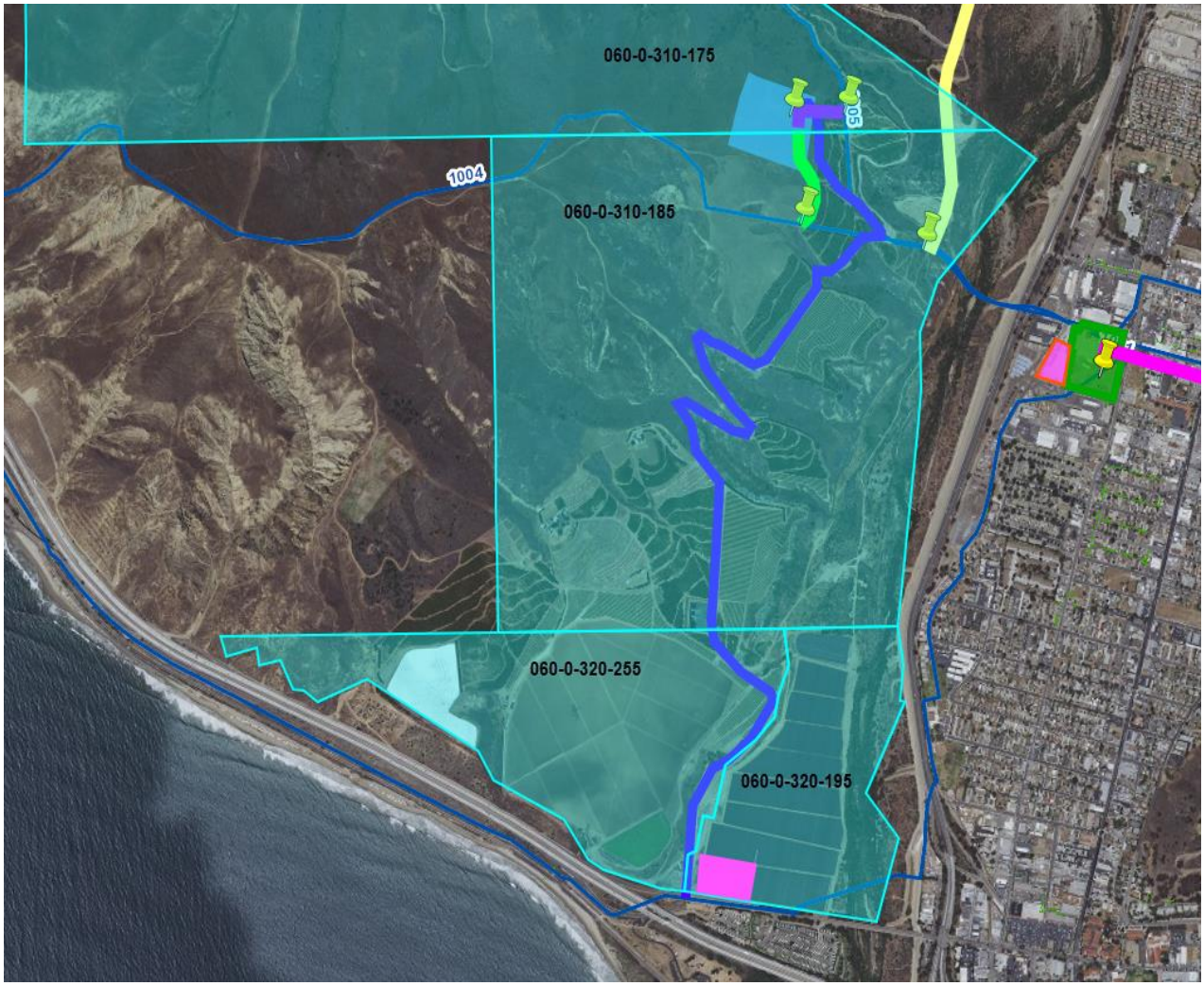


Figure 2: Site Zoning and Relation to Existing Compressor Site

1.2. Reference Documents

- SoCalGas VCM Capital Cost Estimate Rev 1_11Feb2020
- Ventura - TM1 PTD Costs by PO_For Campos Estimate_Function
- VCM P&ID - 111419 _09Dec2019 Comments
- VCMModelReview_20200203 – Navisworks
- CSUP-VCU-PM-BOD-0002_Working_Version_11-15-2019 _Fluor Comments
- EPC SOW Rev B_Final
- E15043-VCM_GE_Support-FTE_Estimate_Rev.B_03-03-2020
- Ventura Env Cost Estimate 01312020
- Ventura Master Staffing Plan EPC_ PMT Only
- Ventura Compressor Station - Land Services Cost Estimate Spreadsheet
- Feasibility_Study_Full
- Burns & McDonnell Electrical Study
- Ventura Electric Motor Driver Analysis Rev C 10/7/21
- Ventura Estimate (CPCN)_Class 3 w ROM Adj (Hybrid Option)_Rev 5
- Class 5 Estimate Ventura Alternative Avocado_ Rev 5
- Class 5 Estimate Ventura Alternative_Avocado_Rev 6

1.3. Estimate Classification and Definitions

1.3.a. Classification and Accuracy

- Pricing is based on current construction costs in Ventura, California
- Construction staging will occur on site.
- Construction will be performed by a General Contractor at Risk (GCAR) using a Lump Sum type of contract
- Estimate pricing is based on full and open competition from local regional contractors.
- The construction, commissioning, and startup schedule is assumed to be 30 months for the compressor station site work and 13 months for the installation of the underground piping (connecting to the new site) and new mainline valves. Both scopes will be executed in parallel with the pipeline and mainline valve work completed before the compressor station.
- The estimate was originally developed in April 2020 utilizing a Class 3 estimate for the existing Ventura Compressor Station site that was modified to account for a hybrid (2 gas – 2 electric drive) compressor setup. Site-specific conditions were then estimated and added to the estimate in accordance with Class 5 AACE estimating standards
- In April 2023, several below-the-line adjustments were made to the estimate which were at either a Class 4 or Class 5 Estimate classification resulting in an overall Class 5 estimate. A revised FEED phase will need to be completed if this alternative site location is chosen.
- Description: Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges.

As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systematic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended—sometimes requiring less than an hour to prepare. Often, little more than the proposed plant type, location, and capacity are known at the time of estimate preparation.

- End Usage: Class 5 estimates are prepared for any number of strategic business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs, and budgeting, long-range capital planning, etc.
- Estimating Methods Used: Class 5 estimates generally use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, and other parametric and modeling techniques.
- Expected Accuracy Range: Typical accuracy ranges for Class 5 estimates are -20% to -50% on the low side, and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate reference information and other risks (after inclusion of an appropriate contingency determination). Ranges could exceed those shown if there are unusual risks.

1.3.b. Contingency

The Ventura Compressor Modernization Avocado Site Project estimate can be divided into two sub-sections. The first section consists of a Class 3 estimate originally developed by Flour with site-specific additions. For this section, a consistent contingency of 30% was applied to each item. The second section of the estimate was developed using ROM costs (Below the Line Changes). For this section, contingency was determined at the estimator's discretion based on experience and historical data from past compressor stations. The contingency was further reviewed and approved by the project manager. The contingency for the line items in this section ranged from 15-40%. The overall contingency for the below-the-line adders section was 29.1% of the costs before escalation and loaders. Contingency calculations exclude escalation

2. Estimate Information

2.1. Scope of the Estimate

The scope of the Ventura Compressor Modernization Avocado Site Project estimate includes the anticipated all-inclusive costs of the following:

- EPC Contractor costs including:
  - Engineering and Design Services
  - Construction
  - Construction Management

- Southern California Gas Company Management, Union Labor, and Non-Labor Costs
- Project Management and Project Services
- Material Procurement and Management
- Survey / As-Builts
- Hydrotest Certification Services
- Environmental Planning, Management, Monitoring, and Abatement Support
- Construction Management
  - Inspection
  - District Personnel (Management, PSEP Liaison, DOM, Union Labor, Instrumentation, and FOS).
  - M&R (Meters and Regulation)
  - Pipeline Integrity
- Land Services
- Permitting

2.2. Key Personnel

Position	Name	Office Phone	Mobile Phone
Sr. Director			
SoCalGas			
Execution Manager			
SoCalGas			
Portfolio Manager			
SoCalGas			
Project Manager			
SoCalGas			
Gas Engineering			
SoCalGas			
Construction Management			
SoCalGas			
Estimating			
Contractor			
Contractor			
SoCalGas			
Environmental			
SoCalGas			
Land Acquisition			
SoCalGas			
Supply Management			
SoCalGas			
Water Management			

Position	Name	Office Phone	Mobile Phone
SoCalGas			
Permitting			
SoCalGas			

2.3. Estimate Schedule

- **Project Kick-Off with Fluor** 7/24/2019
- **Receive Estimate Plan from Fluor** 9/27/2019
- **Fluor Engineering Develop MTO** 10/18/2019
- **Receive Rev 0 Fluor's EPC Estimate** 1/24/2020
- **SCG/Campos Review with Fluor** 2/5/2020
- **Receive Rev 1 Fluor's EPC Estimate** 2/11/2020
- **Incorporate Comments, Sign-Off, Issue Class 3 Est** 4/30/2020
- **Begin revisions to estimate (Below the Line changes)** Feb 2023
- **Finalize ROM Estimate Adjustments** 4/14/2023

2.4. Assumptions and Exclusions

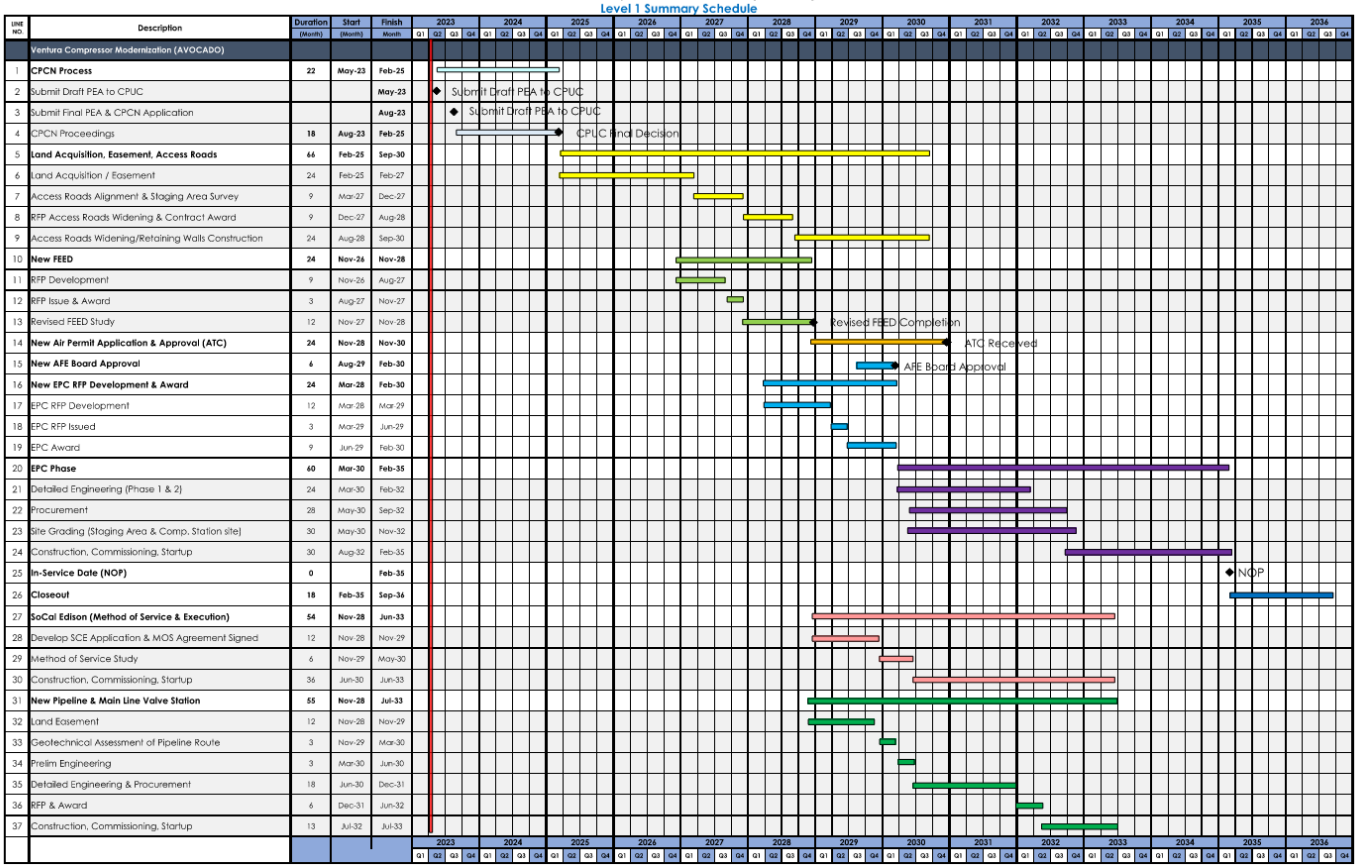
- No night or weekend work will be performed
- No cultural resources are anticipated
- No groundwater will be encountered
- Soil remediation for the existing Ventura site is assumed to be part of a separate WOA and the estimate assumes the EPC contractor will receive a clean, graded site
- Study/design/engineering (if required) of any retrofit/demolition work at the existing compressor site is excluded
- Demolition of the administration and warehouse buildings at the existing Ventura compressor station site is excluded and assumed to be part of the soil remediation contract
- Demolition of the existing Compressor station is excluded from this scope of work.
    - Assumed to take place 1 year after the new facility is constructed and fully operational.
    - Separate price to perform the work will include the removal of old compressor equipment, coolers, and ancillary equipment which is to be sold as complete packages.
    - Selling remaining structures, exhaust stack, piping, controllers, and valves as scrap metal.
    - Existing concrete floor slabs are assumed to remain in place.
    - Assumes the area is less than or equal to the area of the new facility construction footprint.
    - A separate Class 5 estimate of $5MM was completed by Burns & McDonnell for this scope

2.5. Current Project Schedule

The following schedule forms the basis for the updated Class 5 estimate.

- See appendix for enlarged schedule and schedule assumptions.

Ventura Compressor Modernization (Avocado)
Level 1 Summary Schedule



LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (AVOCADO)			
1	**CPCN Process**	22	May-23	Feb-25
2	Submit Draft PEA to CPUC			May-23
3	Submit Final PEA & CPCN Application			Aug-23
4	CPCN Proceedings	18	Aug-23	Feb-25
5	**Land Acquisition, Easement, Access Roads**	66	Feb-25	Sep-30
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Access Roads Alignment & Staging Area Survey	9	Mar-27	Dec-27
8	RFP Access Roads Widening & Contract Award	9	Dec-27	Aug-28
9	Access Roads Widening/Retaining Walls Construction	24	Aug-28	Sep-30
10	**New FEED**	24	Nov-26	Nov-28
11	RFP Development	9	Nov-26	Aug-27
12	RFP Issue & Award	3	Aug-27	Nov-27
13	Revised FEED Study	12	Nov-27	Nov-28
14	**New Air Permit Application & Approval (ATC)**	24	Nov-28	Nov-30
15	**New AFE Board Approval**	6	Aug-29	Feb-30
16	**New EPC RFP Development & Award**	24	Mar-28	Feb-30
17	EPC RFP Development	12	Mar-28	Mar-29
18	EPC RFP Issued	3	Mar-29	Jun-29
19	EPC Award	9	Jun-29	Feb-30
20	**EPC Phase**	60	Mar-30	Feb-35
21	Detailed Engineering (Phase 1 & 2)	24	Mar-30	Feb-32
22	Procurement	28	May-30	Sep-32
23	Site Grading (Staging Area & Comp. Station site)	30	May-30	Nov-32
24	Construction, Commissioning, Startup	30	Aug-32	Feb-35
25	**In-Service Date (NOP)**	0		Feb-35
26	**Closeout**	18	Feb-35	Sep-36
27	**SoCal Edison (Method of Service & Execution)**	54	Nov-28	Jun-33
28	Develop SCE Application & MOS Agreement Signed	12	Nov-28	Nov-29
29	Method of Service Study	6	Nov-29	May-30
30	Construction, Commissioning, Startup	36	Jun-30	Jun-33
31	**New Pipeline & Main Line Valve Station**	55	Nov-28	Jul-33
32	Land Easement	12	Nov-28	Nov-29
33	Geotechnical Assessment of Pipeline Route	3	Nov-29	Mar-30
34	Prelim Engineering	3	Mar-30	Jun-30
35	Detailed Engineering & Procurement	18	Jun-30	Dec-31
36	RFP & Award	6	Dec-31	Jun-32
37	Construction, Commissioning, Startup	13	Jul-32	Jul-33

Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23. Final PEA & CPCN Application Submittal is Due on 24-Aug-23. CPUC Final Decision Approx. 18-months after Application submittal.
2. **LAND ACQUISITION:** Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. 66-months to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. 24-months to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. 24-months after application submittal.
5. **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. 3-6 Months to complete.
6. **New EPC RFP** - Starts as early as possible to finish one quarter after completion of the Revised FEED. The rest of the process will take appox. 12-months to Award the EPC Contract.

2.6. Procurement Clarifications

2.6.a. Freight

Freight has been included in the EPC estimate provided by Fluor at 8%

2.6.b. Tax

Sales tax has been included in the EPC estimate provided by Fluor at 7.75%

2.6.c. Escalation

Escalation was included based on current indices and the current EPC project schedule.

The average overall escalation added to the project is 17.04%

Escalation was applied to each activity based on the midpoint of expenditure for each item. The table below indicates the escalation percentages utilized in the estimate.

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Escalation was applied to all direct costs including contingency since contingency is intended to be spent.

Excluded from escalation were SoCalGas Indirect costs (Loaders) as well as actuals to date.

2.6.d. Allowances

Allowances have been included in the EPC estimate by Fluor and are reflected in the estimate. The table below shows the allowances included by discipline:

Prime Account	Material Design Allowance (MDA)	Material Take-Off Allowance (MTOA)
Site/Civil	N/A	10%
Concrete	N/A	10%
Structural Steel	N/A	10%
Architectural	15%	N/A
Mechanical Equipment	15%	N/A
Piping Large Bore	N/A	5%
Piping Small Bore	N/A	15%
Piping Specialties	N/A	10%
Electrical Equipment	15%	N/A
Electrical Bulks	N/A	20%
Control Systems	N/A	20%

Design allowance does not cover scope changes.

Weather allowance has also been included in the estimate at 2.5% of labor and subcontract costs for construction.

3. EPC Estimate (provided by Fluor) for Class 3 Estimate

3.1. Overall Assumptions and Basis

The overall assumptions and basis presented are a high-level view of the basis of Fluor's estimate. For a more detailed analysis by discipline, please refer to Fluor's attached Basis of Estimate.

- The base estimate is based on 4th quarter 2019 pricing and is escalated accordingly
- Work schedule is based on 10-hour days, 5 days a week, Monday through Friday
- No weekend or night work is anticipated
- Construction is based on Union labor workforce
- The project schedule provided assumes 28 months of construction
- Transportation for craft workers to and from off-site parking areas is required. Bussing equipment cost and the cost of craft labor during transit are included in the estimate based on an assumed 15 minutes per day, twice a day.
- Decommissioning of existing site features (flanging the old assets) has been included in the estimate except for the administration building and warehouse building.
- Demolition of the existing compressors and compressor building has been excluded from this estimate.
- The estimate is based on input from the following Engineering disciplines
    - Civil
    - Structural

- Control Systems
- Piping
- Electrical
- Mechanical
- HSE

3.2. Key Quantities

The following table shows key quantities for the project at the time of the Class 3 Estimate in April 2020. This portion of the estimate did not change with regard to key quantities. However, several of the scope adjustments outlined in sections 4 and 6 have separate quantities that are not accounted for in the table below.

SUMMARY	Qty	UOM
Earthwork and Civil	36,872	CY
Concrete	5,007	CY
Structural Steel	318	TON
Architectural	20,214	SF
Machinery & Equipment	53	EA
Piping	25,181	LF
Pipe Fabrication	455,549	LBS
Electrical	161,321	LF
Control Systems	636	EA

3.3. Equipment and Bulk Materials

The estimate assumes the EPC contractor will purchase all equipment and materials.

Quantities were developed by Fluor's design engineers and priced and labored by Fluor's estimating team.

The estimate includes pricing for all mechanical equipment greater than $15,000 from budgetary vendor quotes. 95% of mechanical equipment was based on budgetary quotes and the rest of the 5% based on in-house pricing.

Budgetary vendor quotes were also received for the following:

- Concrete pricing is based on quoted local area costs for ready-mix concrete at 4500 psi.
- PDC
- MCC
- SWGR #1
- SWGR #2
- Control and On/Off valves
- Relief Valves
- CEMS shelters and associated analyzers
- BPCS equipment

The remainder of the bulk materials were priced based on in-house pricing.

3.4. Craft Labor Rate

The all-in labor rates were developed using current Ventura County Union wage rates and benefits and burdens (fringes and PT&I) obtained from local unions and combined with subcontractor indirect costs. The bare wage rate is a blended 50-hour-per-week rate consisting of 40 standard rate hours and 10 premium time hours.

The subcontractor indirect costs below vary by account (within the ranges shown in parenthesis). They have been applied as a percentage of the Bare Wage Rate and are consistent with historical metrics:

- Small tools and consumables (4%-8%)
- Construction equipment & cranes up to 60 tons (18%-22%)
- Contractor field staffing (10%-20%)
- Temporary facilities and services (12%-20%)
- Miscellaneous expenses (5%)
- Subcontractor fee & contingency (10%-16%)

The all-in rates used in the 2020 Class 3 estimate by major account are shown below

Description	All-In Rate/Hr
Earthwork Civil	$ 141.45
Demo	$ 141.45
Concrete	$ 145.32
Structural Steel	$ 152.36
Building	$ 136.12
Mechanical	$ 171.74
Piping	$ 176.97
Electrical / EICS	$ 168.73
Control Systems	$ 166.16
Painting	$ 121.39
Insulation	$ 140.94
Scaffolding	$ 132.82
Safety Watch	$ 115.00
Subcontractor Rate	$ 250.00

3.5. Productivity

Productivity adjustments were developed based on historical metrics and were applied to Fluor Standard Unit Work Hours. These adjustments include items that may affect craft productivity including craft availability, craft skills, climate and weather, specific site and project information, overtime consequences and site accessibility.

The productivities from Fluor were adjusted to achieve an average productivity of 1.3. The adjusted productivities utilized in the estimate are shown below:

Description	Productivity
Earthwork Civil	1.25
Concrete	1.00
Structural Steel	1.25
Building	1.30
Mechanical	1.30
Piping	1.40
Electrical/EICS	1.30
Control Systems	1.30
Painting	1.30
Insulation	1.40

3.6. Engineering Costs

Engineering costs cover Detail Engineering and Design and Procurement services. The estimate is based on Fluor's historical averages for similarly sized projects.

Engineering support during construction was adjusted based on the historical average seen on the Blythe Plant 4 Compressor project.

3.7. Construction Management

Listed below are the major items included:

- Field office, temporary warehouse, break area, and first-aid office
- Set up and maintenance of temporary power and lighting
- Temporary construction water, and potable water
- Road upgrades, janitorial service, and material offload
- Testing and inspection during construction, and waste removal
- Field staff and office supplies
- Cranes in excess of 60 tons
- Insurance, Bonds, Permits, and Licenses

3.8. Estimate Adjustments to Fluor Class 3 Estimate

- Added allowance for security cameras, CCTV, networking (phone/internet) etc.
    - Added $100K for materials and $100K for labor in the "Architectural" account
- Included ROM estimate from Field Operations for the communications relocation scope of work
    - Added allowance of $525,000
- Added 10% of all materials to account for the material handling and mark-up fees by the EPC contractor
- Fluor assumed only 20% of the craft labor would receive per diem at $100 per day for 5 days a week.
    - Adjusted estimate to reflect 100% of craft labor to receive per diem at $100 per day for 5 days a week

- Added 10% for material handling fee by the construction contractor
- Reduced concrete manhours per cubic yard from 14 to 9 based on historical benchmarks
- Reduced piping manhours per foot from 4.05 to 2.5 based on historical benchmarks
- Reduced productivity from an average of 1.4 to 1.3 based on better conditions in Ventura as opposed to Blythe
- Increased Vendor Representatives and included 700 man-days x $2,500 a day

4. Site-Specific Scope Additions (Not Captured in Flour Estimate)

4.1. Key Quantities

Site-specific, key quantities, added to the Class 3 Estimate in April 2020 are shown below.

SUMMARY	Qty	UOM
Clear & Grub / Grade Laydown Area	5.6	ACRE
Site Grading and Imported Fill	650,000	CY
Disposal of spoils	975,000	Tons
Terraced Retaining Walls	31,500	SF
Slope & Bench Retaining Wall	72,000	SF
Grade and Widen Access Road	313,250	SF
Retaining Wall for Access Road	24,000	SF
Concrete Drainage Ditch	5,500	LF
New Pipelines (Unimproved)	3,485	LF
MLV Station	2	EA
Piles	489	EA

4.2. Site Specific Cost Items Basis

The following items are specific to the Avocado Site and were accounted for in the provided estimate.

- Clear & Grub / Grade Laydown Area
    - Estimate includes (1) crew for 3 months will be required to complete this task
- Site grading and imported fill
    - Includes (1) 10-man civil crew for a total of 12 months which was included in the unit material cost

  - Assumes half of the excavated volume will be imported fill

- Disposal of spoils
  - Includes trucking and dump fees based on the amount of site grading and imported fill amount
  - Assumes a conversion factor of 1.5 tons per CY of excavated soil
- Terraced retaining walls
  - Estimate includes (3) walls, each 700’ long by 15’ high will need to be constructed
  - Estimated using a unit rate per SF of wall installation
- Slope and bench retaining walls
  - Includes (2) walls, each 2400’ long by 15’ high
  - Estimated using a unit rate per SF of wall installation
- Grade and widen access road
  - Includes widening the site access road 25’ wide for a linear distance of 12,530’
  - Cost assumes (1) civil crew will be needed for 24 months
- Retaining wall along access road
  - The estimate anticipates needing a retaining wall along the access road as a result of widening it
  - Includes (1) wall, 3000’ long by 8’ tall
  - Estimated using a reduced unit rate per SF of wall installation due to the reduced height required
- Concrete drainage ditch along access road
  - Estimate includes drainage ditch anticipated to be 5,500’ long
  - Estimated using a unit rate per LF of ditch installation
- New pipeline installation
  - Estimate assumes 3,485 LF of new pipeline will be required for the new site.
  - Material costs were estimated using a unit rate which includes a 20% adder for miscellaneous fittings based on the total LF of new installation
  - Contractor costs for the new install were calculated using a unit rate per LF of new install
- New mainline valve (MLV) station installations
  - Estimate includes (2) MLV stations
  - Estimated costs reflect valve automation, valves, electrical contractor, and associated costs

- New site piles
    - Includes drilling, placing rebar and concrete for (489) piles
        - (232) Of these piles are anticipated for (116) pipe supports with (2) piers each
        - (224) Of these piles are anticipated for (56) pieces of equipment each assumed to require (4) piers
        - (15) Of these piles are expected to support the compressor building
        - (9) Of these piles are expected to support the admin building
        - (9) Of these piles are expected to support the new warehouse
    - Total cost was estimated using a unit cost per pile installation
- This section of the estimate also includes an allowance for the following items:
    - Additional engineering for pipeline and remediation
    - Weather – intended to cover any delays due to weather
    - Additional SCE substation cost – assumes SCE substation is within 5 miles of site

Figure 1: Terraced Retaining Wall

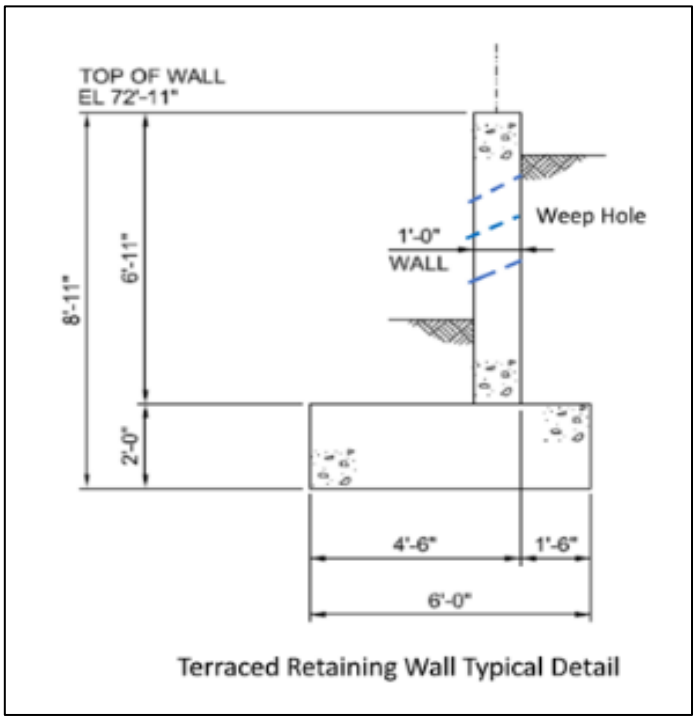


Figure 2: Site Concrete Drainage Ditch

5. Stakeholder Impacts for Class 5 Estimate

5.1. SCG Labor

SCG Non-Union Labor is estimated based upon the existing compressor site staffing plan and project duration provided by the project team beginning January 2020 for the start of Detail Design and ending June 2024 for closeout. This amount was then scaled using a ratio to account for a new preliminary schedule duration of 79 months for this specific location.

5.2. Material – Pipe, Fittings, Valves, and Other

Equipment and materials were included in Fluor's EPC estimate.

Additional materials included by SCG include the following:

- Office furniture for the Administration building at $60,000 allowance
- Shop equipment for the warehouse at $50,000 allowance

5.3. PM / Project Services

Project Management and Support Costs were developed based upon a staffing plan and project duration provided by the project team beginning in January 2020 for the start of Detail Design and ending in December of 2031 for closeout. This cost was then scaled using a ratio to account for a new preliminary schedule duration of 79 months.

Project services include contractor support for:

- Project Management
- Project Controls
- Estimating
- Supply Management

- Field Engineers
- Gas Engineering Support
- Land Services

5.4. 3rd Party Inspection

Inspectors were developed as part of the existing compressor site staffing plan provided by the project team.

30% of this cost was added to the estimate to account for the addition of new pipelines to the scope as compared to the existing site option.

5.5. Surveying / As-Builts

The estimate includes survey support staff for the project and site facility layout and as-builts for both Phase 1 and Phase 2.

The estimate also includes material support in the development of as-built close-out packages.

30% of this cost was added to the estimate to account for the addition of new pipelines to the scope as compared to the existing site option.

5.6. Environmental Services

Environmental services include the following:

- Assumes 15 acres of environmental services to monitor as well as 12,600 LF of new roads/improvements to existing.
- Assumes 58 months of pre-construction planning based on preliminary schedule Alternative Locations Rev2
- Assumed 56 months of construction based on preliminary schedule Alternative Locations Rev2
- Abatement duration assumed 10 tie-ins, with 1 day of abatement per tie-in
- SCG labor to support environmental services
- Construction monitoring, SWPPP Development, air permitting, etc.
- Assumes no CEQA/NEPA documents or other environmental studies/surveys are needed
- Assumes soil remediation for the existing Ventura Compressor Station site is excluded from this capital budget and will be accounted for on another WOA
- Assumes water will be discharged to land for dust control or compaction
- Includes hazardous materials cost for disposal, paint and asbestos sampling, and analysis of soil
- Includes VCAPCD Authority to Construct (ATC) Permit Fee and Construction General Permit/SWPPP fee
- Assumes (3) JD crossings

5.7. Pressure Test Certification Services

An allowance of pressure test certification services has been included at $300K based on the existing compressor site option with an additional $100k to account for hydrotesting the new pipelines

5.8. Land Services

This estimate assumes construction easements will be procured from existing landowners at current rates.

Includes (1) staging area for 48 months

Includes (2) exclusive MLV easements assumed to be 50'x75' in dimension

Includes (2) MLV TCE's assumed to be 8,750 SF each

Includes (2) non-exclusive easements

Includes (3) access road TCE's

Estimate accounts for crop loss on the 15 acres and condemnation legal fees

All labor costs associated with support for land services are included

Assumes the existing land owner in this region will sell egress and ingress rights as well as the proposed site location

5.9. CNG / LNG

No CNG/LNG support has been assumed for this project.

5.10. 3rd Party Outreach & Public Affairs

Included at 1% of the total project cost

5.11. Miscellaneous Services

Miscellaneous Services include the following:

- Stopple Fitting and PCF tapping services for hot tie-in
- Vendor Representatives through construction
- Initial Fills
- Commissioning and Start-up support services

5.12. Permits

This estimate has included the anticipated cost of building permits from the existing compressor site option with an additional amount for environmental permits

5.13. Other Non-Labor Costs

Non-labor costs included in this estimate address travel, meals, expenses, and lodging incurred for SCG Labor.

6. *Scope Adjustments for Hybrid 2 gas, 2 electric Class 5 Estimate (Below the line Changes)*

The scope adjustments listed below are included to capture the various additional costs associated with installing 2 gas and 2 electric drive compressors rather than 4 gas compressors, site-specific conditions not captured in part 1 as well as additional items that resulted from lessons learned during the construction of past compressor projects.

- BMcD electric study adder for the hybrid blend of gas and electric compressors (2 ea) (This adjustment was made “above the line” based on similar changes made in the Ventura Hybrid Base Case estimate.
    - BMcD provided a Class 5 estimate which was the basis used to determine the additional cost
- Additional SCE transformer cost and Method of Service (MOS) Study
    - Added after updated information was received from Southern California Edison (SCE) concerning transformer costs and requirements
    - An additional transformer and Method of Service (MOS) study adjustment was made based on updated information received from SCE and historical Honor Rancho Compressor Modernization project costs
    - Based on the Rev1 B schedule, midpoint escalation was applied to the estimate
    - Accounts for additional SoCal Edison (SCE) and SoCalGas (SCG) electrical equipment including:
        - SCE Equipment
            - (2) EA 4160V Oil-Filled Transformers
            - (1) EA Gas Switch for 16KV service
            - (1) EA Vacuum Fault Interrupter for 16KV service
        - SCG Equipment
            - (1) EA 480V Transformer
            - (1) EA Metering Panel
- FEED engineering addition to cover full FEED contractor engineering
- The estimate includes a new cost intended to cover the addition of (2) vapor recovery unit skids.

  - The price was derived utilizing the historical price from the Blythe Compressor Station which was $6MM for (1) skid. This is also the same amount used for the HRCM estimate
- Deodorizing unit costs were incorporated into the estimate.
  - Based on a quote received from a carbon adsorber vendor (Carbtrol - model: G-15PPL), these adsorbers were priced at $150k ea. The station design max flow rate resulted in (14) total adsorbers needed. An equipment factor of 3 was used to include costs for associated bulk materials and installation of the adsorbers, blowers, and associated bulk materials
  - A larger amount of contingency (40% total) is intended to account for unforeseen pricing associated with a different vendor in the event the Carbtrol units cannot handle the flow rate.
- A cooling motor blower addition was made to cover the cost of blowers for the (2) induction drive compressors.
  - The amount came from historical blower costs from the HRCM station
  - An installation factor of 3 was chosen to account for the necessary concrete pads, interconnected mechanical pipe/valves/fittings, and electrical components.
- Added to the estimate for the addition of a 4160V switchgear, battery charger, batteries, and 15ft run to the new PDC building
  - The amount is based on PDC quotes received for past MCM and HRCM projects
- The estimate includes an additional cost for proponent environmental assessments (PEA) and environmental impact reports (EIR) to be executed during CPCN proceedings and construction.
- Added a new line item intended to offset the additional engineering required for deodorizing and methane capture units
  - The amount is an allowance that was escalated
- An estimate line item was added for the purchase and installation of emission control catalysts at the exhaust side of the (2) gas compressors
  - The cost is from an Aerinox emissions control catalyst quote multiplied by an installation factor of 2. The amount of supporting infrastructure is anticipated to be less for the control catalyst install as compared to other units within the estimate
- An additional cost for EPC contractor insurance, warranty, and letter of credit costs can now be found within the estimate
  - This number was based on historical differences between estimates and actual costs at the MCM and HRCM sites.
- A new line item was added to account for grading and widening the site access road

    - Cost was determined by analyzing the elevation profile of the road and surrounding topography in regions where the turn radius was too small for site traffic
- Two separate line items for (1) additional SCG Company labor, and (2) 3rd Party Project Management/Project Services were estimated as a result of an extended CPCN schedule. The costs associated assume the following:
    - Both FEED and EPC will be re-bid
    - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
    - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
    - Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPUC delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC
- The estimate includes a line item for 3rd party environmental costs
    - Assumes the site doesn't require remediation as it is currently undeveloped farmland
- The estimate includes a line item to add the incremental actual costs charged to the project between October 2021 and December 2022. The previous Class 3 estimate included actuals through September 2021. The actuals amount shown in the estimate assumes $8.8MM of costs will be transferred to the Tech Services group as part of operations and station improvements including: temporary office installation, perimeter security cameras, and fend line methane monitoring.
    - The $8.8MM number for actuals that have been excluded is expected to increase as more costs are accumulated prior to the project start date

7. Indirect Costs (Loaders)

Indirect costs, also known as Loaders were added to the estimate based on calculations resulting from the direct cost estimates (before Loaders) being entered into the TM1 system by the project controls group. The TM1 system takes into account the projected spend of direct costs over the project schedule and calculates the costs of company overhead, property taxes, and financing costs (also referred to as the allowance for funds used during construction (AFUDC)).

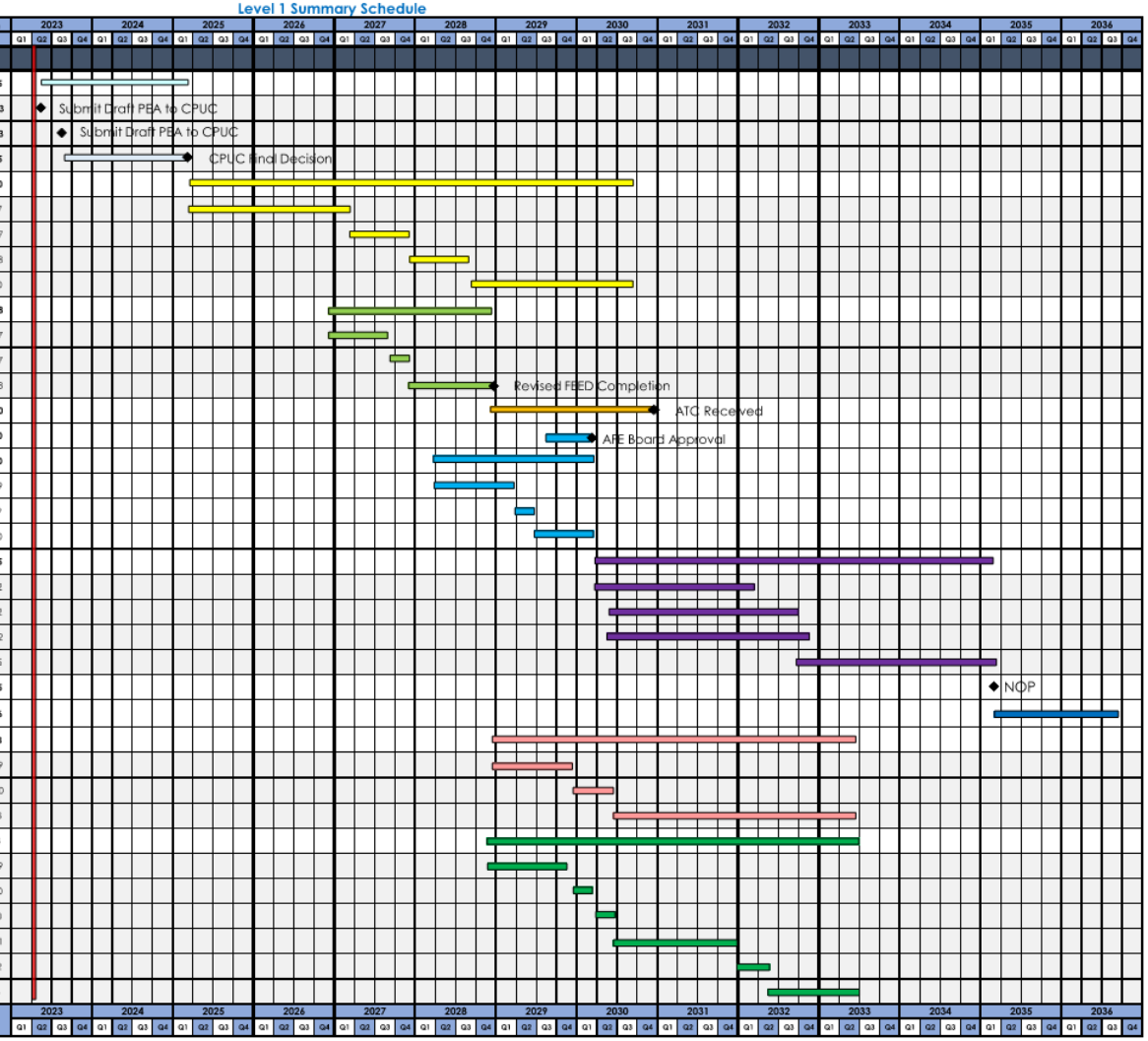
8. Appendix

8.1. Project Schedule & Assumptions

Ventura Compressor Modernization (Avocado)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (AVOCADO)			
1	**CPCN Process**	22	May-23	Feb-25
2	Submit Draft PEA to CPUC			May-23
3	Submit Final PEA & CPCN Application			Aug-23
4	CPCN Proceedings	18	Aug-23	Feb-25
5	**Land Acquisition, Easement, Access Roads**	66	Feb-25	Sep-30
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Access Roads Alignment & Staging Area Survey	9	Mar-27	Dec-27
8	RFP Access Roads Widening & Contract Award	9	Dec-27	Aug-28
9	Access Roads Widening/Retaining Walls Construction	24	Aug-28	Sep-30
10	**New FEED**	24	Nov-26	Nov-28
11	RFP Development	9	Nov-26	Aug-27
12	RFP Issue & Award	3	Aug-27	Nov-27
13	Revised FEED Study	12	Nov-27	Nov-28
14	**New Air Permit Application & Approval (ATC)**	24	Nov-28	Nov-30
15	**New AFE Board Approval**	6	Aug-29	Feb-30
16	**New EPC RFP Development & Award**	24	Mar-28	Feb-30
17	EPC RFP Development	12	Mar-28	Mar-29
18	EPC RFP Issued	3	Mar-29	Jun-29
19	EPC Award	9	Jun-29	Feb-30
20	**EPC Phase**	60	Mar-30	Feb-35
21	Detailed Engineering (Phase 1 & 2)	24	Mar-30	Feb-32
22	Procurement	28	May-30	Sep-32
23	Site Grading (Staging Area & Comp. Station site)	30	May-30	Nov-32
24	Construction, Commissioning, Startup	30	Aug-32	Feb-35
25	**In-Service Date (NOP)**	0		Feb-35
26	**Closeout**	18	Feb-35	Sep-36
27	**SoCal Edison (Method of Service & Execution)**	54	Nov-28	Jun-33
28	Develop SCE Application & MOS Agreement Signed	12	Nov-28	Nov-29
29	Method of Service Study	6	Nov-29	May-30
30	Construction, Commissioning, Startup	36	Jun-30	Jun-33
31	**New Pipeline & Main Line Valve Station**	55	Nov-28	Jul-33
32	Land Easement	12	Nov-28	Nov-29
33	Geotechnical Assessment of Pipeline Route	3	Nov-29	Mar-30
34	Prelim Engineering	3	Mar-30	Jun-30
35	Detailed Engineering & Procurement	18	Jun-30	Dec-31
36	RFP & Award	6	Dec-31	Jun-32
37	Construction, Commissioning, Startup	13	Jul-32	Jul-33



Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23. Final PEA & CPCN Application Submittal is Due on 24-Aug-23. CPUC Final Decision Approx. 18-months after Application submittal.
2. **LAND ACQUISITION:** Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. 66-months to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. 24-months to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. 24-months after application submittal.
5. **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. 3-6 Months to complete.
6. **New EPC RFP** - Starts as early as possible to finish one quarter after completion of the Revised FEED. The rest of the process will take appox. 12-months to Award the EPC Contract.

Ventura Compressor Modernization Project

Avocado Site Hybrid Compressor Option

Estimated Cost

$ 954,000,000

SCG
Class 5 (+100% / -50% Accuracy)

Done by: E2
Rev: 6
Date: 9/21/2023

Avocado - (2) Gas x (2) Electric Compressors

Feasibility Study Mar-23

Description	Qty	UOM	Unit Cost	Total Cost	Comments	Reference Tab for Estimate Details	Year	New	Escalation %	Escalation $
Total EPC (Before Site Specific Additions)	**1**	**LS**			**Based on 2020 FEED Estimate and adjusted for Hybrid Option; See "Base EPC Elec. Study" *Used 2150 HP Cost for Compressors**	Base EPC Elec. Study	2027	2031	18.06%	
~~*Site Demolition*~~	~~0~~	~~SY~~	~~$ -~~	~~$ -~~	~~N/A~~		~~2025~~		~~0~~	$ -
Clear & Grub / Grade Laydown Area	5.6	ACRE	$ 86,589	$ 487,496			2025	2031	18.06%	$ 88,049
Site Grading and Imported Fill (Assume half of excavated volume will be imported fill)	650,000	CY	$ 41	$ 26,649,970			2026	2032	20.43%	$ 5,445,037
Disposal of spoils	975,000	Tons	$ 30	$ 29,250,000	Includes trucking and disposal fees		2026	2032	20.43%	$ 5,976,267
Terraced Retaining wall (15' H x 700' L) x 3	31,500	SF	$ 90	$ 2,835,000			2026	2032	20.43%	$ 579,238
Slope & Bench Retaining wall (15' H x 2400' L) x 2	72,000	SF	$ 90	$ 6,480,000			2026	2032	20.43%	$ 1,323,973
Grade and Widen Access Road (25'W x 12,530 LF)	313,250	SF	$ 25	$ 7,799,940		Estimate Details	2023	2029	13.55%	$ 1,056,640
Retaining wall for access road (8' tall x 3,000 LF)	24,000	SF	$ 60	$ 1,440,000			2023	2029	13.55%	$ 195,073
Concrete Drainage Ditch (5,500 LF)	5,500	LF	$ 85	$ 467,500			2026	2032	20.43%	$ 95,518
~~*New Pipelines (Improved)*~~	~~0~~	~~LF~~	~~$ -~~	~~$ -~~	~~N/A~~		~~2025~~		~~0~~	$ -
New Pipelines (Unimproved)	3,485	LF	$ 364	$ 1,268,467	(2) 16" Lines to L1004 and (2) 16" lines to L1005		2026	2031	18.06%	$ 229,103
MLV Station	2	EA	$ 900,000	$ 1,800,000			2026	2031	18.06%	$ 325,106
Piles	489	EA	$ 25,000	$ 12,225,000			2026	2031	18.06%	$ 2,208,008
Additional Engineering for Pipeline, Retaining Wall, Access Road, and Site Grading	1	LS	$ 1,500,000	$ 1,500,000			2022	2027	9.34%	$ 140,068
Weather Allowance	1	LS	$ 2,000,000	$ 2,000,000	Allowance to cover any delays due to weather	N/A	2026	2032	20.43%	$ 408,634
Additional SCE Substation Cost	1	LS	$ 7,000,000	$ 7,000,000	is available from SCE		2025	2031	18.06%	$ 1,264,299
Total EPC Cost With Cost Adders				**$ 279,916,000**						
SCG Company Labor	1	LS			Based on 2020 Ventura FEED, scaled based on new preliminary schedule of 79 months		N/A		0.00%	
3rd Party Project Services	1	LS			Based on 2020 Ventura FEED, scaled based on new preliminary schedule of 79 months	N/A	2024	2030	15.74%	
3rd Party Inspection Services	1	LS			Based on 2020 Ventura FEED, add 30% for new pipelines		2027	2033	22.85%	
3rd Party Surveying / As-Builts	1	LS			Based on 2020 Ventura FEED, add 30% for new pipelines		2027	2033	22.85%	
3rd Party Environmental	1	LS	$ 10,079,886	$ 10,079,886	Based on input provided by Environmental Group, See "Environmental" Tab	Environmental	2024	2030	15.74%	$ 1,586,353
3rd Party Pressure Test Cert.	1	LS			Based on 2020 Ventura FEED, add $100K allowance for hydrotesting new pipelines	N/A	2026	2032	20.43%	
3rd Party Land Services	1	LS	$ 9,550,523	$ 9,550,523	Based on input provided by Land group, includes crop loss; See "Land" Tab	Land	2024	2030	15.74%	$ 1,503,043
3rd Party Misc. Services	1	LS			Based on 2020 Ventura FEED, reduced commissioning/startup and vendor reps based on commissioning and vendor reps already included in EPC		2027	2033	22.85%	
3rd Party Outreach & Public Affairs	1	LS	$ 3,600,000	$ 3,600,000	Assumes 1% of total project cost	N/A	2024	2029	13.55%	
3rd Party Permits	1	LS			Based on 2020 Ventura FEED, Add allowance of $250K for environmental permits		2022	2029	13.55%	
3rd Party Other Non-Labor	1	LS	$ 697,541	$ 697,541	Based on 5% of total SCG Company Labor Costs		N/A		0.00%	$ -
Total Un-Loaded Direct Cost				**$ 345,749,000**					0.00%	
Contingency	30%			$ 103,724,700		N/A	2027	2032	20.43%	$ 21,192,702
Actuals				$ 22,374,794	as of September 30, 2021 (Directs only, actuals for loaders are included under loaders)	Actuals				
Escalation	17.94%			$ 80,634,045					Total Escalation	$ 80,634,045
Total Un-Loaded Direct Cost w/ Contingency				**$ 552,483,000**						
Loaders	33%			$ 184,287,936	Included as a placeholder, recommend to be verified by project controls, includes actuals for Loaders					
Total Loaded Direct Costs				***$ 737,000,000***	***Class 5 (+100% / -50%)***					

Compressor Upgrade		
Ventura Compressor Modernization Project		
PROJECT SUMMARY		
EPC - Engineering / Design Services		
EPC - Construction		
EPC - Construction Management		
SCG Labor - Mgmt. & Non Labor		$ 8,135,466
SCG Labor - Union T/H		$ 791,500
SCG Labor - Outreach & Public Affairs		$ 609,000
Material- Pipe & Fittings & Valves		$ -
Material-Valves		$ -
Material- Other		$ 110,000
PM / Project Services		$ 15,523,720
Inspection Services		$ 1,117,080
Surveying / As-builts		$ 307,547
Environmental Services		$ 365,952
Pressure Test Certification Services		$ 200,000
Water Storage		$ -
X-ray / NDE		$ -
Land Services		$ 1,029,438
CNG / LNG		$ -
Spreadboss		$ -
Miscellaneous Services		$ 5,960,000
Outreach & Public Affairs		$ -
Permits		$ 30,736
Other Non-Labor Costs		$ 476,798
GMA		$ -
Total Un-Loaded Direct Estimated Cost		**$ 200,415,047**
Actuals as of Jan. 2020		$ 10,221,538
Total Un-Loaded Direct Cost w/Actuals		**$ 210,636,585**
Contingency @ 14.85%		$ 29,753,297
Total Un-Loaded Direct Cost w/Contingency		**$ 240,389,882**
Escalation		$ 5,894,149
Total Un-Loaded Direct Cost w/ Escalation		**$ 246,284,031**
Loaders (Provided by Cost Group)		$ 68,521,769
Total Loaded Project Cost		**$ 314,806,000**

Table 1: 2020 FEED Estimate Equipment Costs

Table 1 from above was put into Table 2 for the Base Scope portion. The equipment prices for the (2) Engine & (2) EMD option were adjusted to account for the price increases since the original FEED was completed in 2020.

Table 2: Revised ROM Estimate Adjustments - Feb 2023

	Base Scope				Hybrid			
			2020 FEED Est			Feb 2023 Est		
Scope			(4) Natural Gas Engines			(2) NG Engine, 2 EMDs		
Equipment & Material	Qty	Unit Cost	Total		Qty	Unit Cost	Total	
Engine Compressor Package								updated pricing
EMD Compressor Package								updated pricing
VFD w/Coolers								updated pricing
VFD Building								
Starting Air Compressor/Receiver								
Coolant Storage Drum								
Coolant Drain Sump								
Coolant Charge Pump								
New Transformer (10 MVa)								
New Transformer (7 MVa)								
Metering Panel								
Reclosure								
CEMS Building								
Utility Piping Lot								
TOTAL MECH/ELEC EQ COST								
Construction/Indirects								
ROM Factor (Eq Cost * 2.5)								

Table 3: Additional Engineering Costs Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)

Misc Cost							
Additional Engineering (ROM)							
SCE T-Line Improvements							
Cost Comparison (ROUNDED)							
							delta

						1.25	$150						
	Description	Qty	UOM	Unit Material	Material Cost	Unit Manhour	Manhours	Labor Cost	Unit Subcontract Cost	Subcontractor Cost	Total Cost	Unit Cost	Comments
1	~~Site Demolition~~	~~0~~	~~SY~~		~~$ -~~		~~0~~	~~$ -~~		~~$ -~~	~~$ -~~	~~$ -~~	~~Included in Land~~
2	Clear & Grub / Grade Laydown Area	5.6	ACRE		$ -	462	3,250	$ 487,496		$ -	$ 487,496	$ 86,589.03	Assume 1 crew x 3 months
3	Site Grading and Imported Fill (Assume half of excavated volume will be imported fill)	650,000	CY	$ 35.00	$ 22,750,000	0.032	26,000	$ 3,899,970		$ -	$ 26,649,970	$ 41.00	Assume 12 months and 10-man crew
4	Disposal of spoils	975,000	Tons						$ 30	$ 29,250,000	$ 29,250,000	$ 30.00	Includes trucking and disposal fees
5	Terraced Retaining wall (15' H x 700' L) x 3	31,500	SF		$ -		0	$ -	$ 90	$ 2,835,000	$ 2,835,000	$ 90.00	See "Cost Ref" Tab
6	Slope & Bench Retaining wall (15' H x 2400' L) x 2	72,000	SF		$ -		0	$ -	$ 90	$ 6,480,000	$ 6,480,000	$ 90.00	
7	Grade and Widen Access Road (25'W x 12,530 LF)	313,250	SF		$ -	0.1328	52,000	$ 7,799,940		$ -	$ 7,799,940	$ 24.90	Assume 1 crew x 24 months
8	Retaining wall for access road (8' tall x 3,000 LF)	24,000	SF		$ -				$ 60	$ 1,440,000	$ 1,440,000	$ 60.00	
9	Concrete Drainage Ditch (5,500 LF)	5,500	LF		$ -		0	$ -	$ 85	$ 467,500	$ 467,500	$ 85.00	
10	~~New Pipelines (Improved)~~	~~0~~	~~LF~~	~~$ 95.00~~	~~$ -~~		~~0~~	~~$ -~~		~~$ -~~	~~$ -~~	~~$ -~~	
11	New Pipelines (Unimproved)	3,485	LF	$ 114.00	$ 397,267		0	$ -	$ 250	$ 871,200	$ 1,268,467	$ 364.00	Added 20% to price to account for misc. fittings
12	MLV Station	2	EA		$ -		0	$ -	$ 900,000	$ 1,800,000	$ 1,800,000	$ 900,000.00	Includes automation, valves, electrical contractor, etc.
13	Piles	489	EA		$ -		0	$ -	$ 25,000	$ 12,225,000	$ 12,225,000	$ 25,000.00	
										TOTALS	$ 90,703,373	$ -	

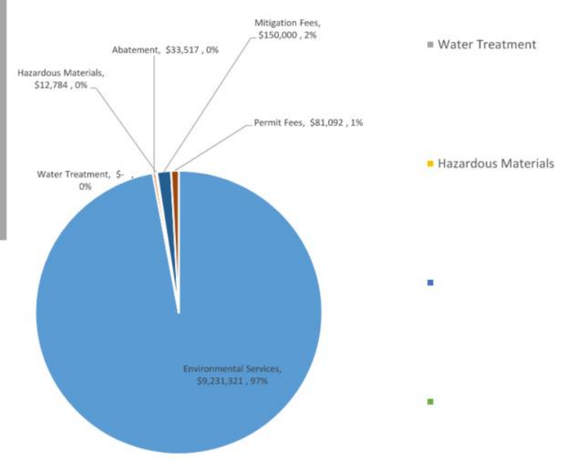
Total Environmental Cost: $ 10,079,886

Version 1.1 10/18/17

Project Detail Item Description	Description/Value	Notes/Assumptions
Project Name	Ventura Avocado Site	
County	Ventura	
Project Type (hydrotest, replacement, valve upgrade, valve installation, valve automation)	Compressor Station	Project costs from when a project is selected through closeout.
Diameter (inches)	NA	
Acres	15	Per construction assumptions
New Road/Road improvments length	3.4 acres 12,600 linear feet	Per construction assumptions. Resurface and widen 12,600 linear feet of Taylor Ranch Road to 24-feet with assumed existing width of12-feet (only new square footage counted in total)
New Pipeline Length (feet)	1,800	Per construction assumptions
Pre Const. Planning Support Duration (weeks)	232	36 months for env permitting plus 22 months per Preliminary Schedule Alternative Locations Rev2
Construction Duration (weeks)	224	56 months per Preliminary Schedule Alternative Locations Rev2
Water Treatment Duration (Months)	0	Hydrostatic test water to be disposed to land for new pipe (no treatment required).
Abatement Duration (days)	10	10 days for tie in to exisiting pipes
Water Volume (gallons)		No water treatment needed. Assume potable water on clean pipe.
Source Water (potable/non-potable)	Potable	Assumes water to be trucked in.
Water Disposal Method (offsite disposal, beneficial reuse, etc.)	Land	Assumes testing new pipe with potable water and disposal to land. Treatment of water not required.
Number of JD crossings	3	Counted anticpated number of JDs on google earth

Instructions for Summary Sheet - Please data enter general project details in the table above (See Columns C and D). This information will then be populated in the other tabs. The pie chart is auto populated.

Costs	Total		Total Hours
Environmental Services	$	9,231,321	
Abatement	$	33,517	
Water Treatment	$	-	
Hazardous Materials	$	12,784	
Mitigation Fees	$	150,000	
Permit Fees	$	81,092	
TOTAL ENVIRONMENTAL COSTS (Purchased Services):	**$**	**9,508,714**	
Internal Labor	$	571,152	**11,928.0**
Total	**$**	**10,079,866**	



Location	APN	OWNER_NAME_1	SITE_ADDR	SITE_CITY	SITE_ZIP	ACREAGE	LAND_SQFT	IMPRV_PCT	OWNER_1_FIRST	OWNER_1_LAST	OWNER_ADDRESS	OWNER_CITY	OWNER_STATE	OWNER_ZIP	MAIL_ADDR	MAIL_CITY	MAI	MAIL_ZIP
Avocado	060-0-310-175	WOOD-CLAEYSSENS FOUNDATION			93001	557	24262920	3.319	WOOD-CLAEYSSENS FOUNDATION		2360 FOOTHILL RD	SANTA BARBARA	CA	93105	2360 FOOTHILL RD	SANTA BARBARA	CA	93105
Avocado	060-0-310-185	WOOD-CLAEYSSENS FOUNDATION			93001	562.79	24515132	47.22	WOOD-CLAEYSSENS FOUNDATION		2360 FOOTHILL RD	SANTA BARBARA	CA	93105	2360 FOOTHILL RD	SANTA BARBARA	CA	93105
Avocado	060-0-320-255	WOOD-CLAEYSSENS FOUNDATION				220.17	9590605	23.09										
Avocado	060-0-320-195	WOOD-CLAEYSSENS FOUNDATION						105.12										
								SUB TOTALS										

Location	APN	USE_CODE_STD_CTGR_DESC	USE_CODE_STD_DESC	ZONING	LANDUSE_ CATEGORY	LANDUSE_ DESC	VAL_ASSD	VAL_ASSD_IMPRV	VAL_ASSD_LAND	Value Per Acre	Value Per Sq Ft	Comp. Station Acres	Comp. Station Cost	Staging Area	Staging Area Term (Mo.)	Staging Area Mo. Cost	Staging Area Costs
Avocado	060-0-310-175	AGRICULTURAL	ORCHARDS, GROVES	AEC-A	AGRICULTURAL	ORCHARD	584116	19388	564728	$ 68,500.00	$ 1.57	15	$ 1,027,500.00	0	0	$ -	$ -
Avocado	060-0-310-185	AGRICULTURAL	FARMS, CROPS	AEC-A	AGRICULTURAL	FARMS	2580708	1218692	1362016	$ 68,500.00	$ 1.57	-	$ -	0	0	$ -	$ -
Avocado	060-0-320-255			CAC-O-1	Orchard	ORCHARD				$ 68,500.00	$ 1.57	-	$ -	0	0	$ -	$ -
Avocado	060-0-320-195			Mult	Truck Croops					$ 68,500.00	$ 1.57	-	$ -	240,000	48	$ 3,145.09	$ 150,964.19
	SUB TOTALS												$ 1,027,500.00				$ 150,964.19

Location	APN	Exclusive Valve Easement (2: 50'x75')	Exclusive Valve Easement Cost	MLV TCE Sq Ft	MLV TCE Term (Mo.)	MLV TCE Mo. Cost	Non-Exclusive Easement Width	Non-Exclusive Easement Length	Non-Exclusive Easement Cost	TCE length	TCE width	TCE Term Mo.	TCE Cost per Mo.	TCE Cost	Access Road Width	Access Road Length	Access Road Cost	Access Road TCE Width	Access Road TCE Length	Access Road TCE Cost	Crop Loss	Condemnation Legal Fees
Avocado	060-0-310-175	3,750	$ 5,897.04	8,750	48	$ 24,000.00	50	300	$ 11,794.08	300	25	48	$ 98.28	$ 24,000.00	25	230	$ 4,521.06	25	230	$ 3,616.85	$ 7,184,560.75	$ 600,000.00
Avocado	060-0-310-185	3,750	$ 5,897.04	8,750	48	$ 24,000.00	50	625	$ 24,570.99	625	25	48	$ 204.76	$ 24,000.00	25	8,700	$ 171,014.12	25	8700	$ 136,811.29	-	-
Avocado	060-0-320-255	-	$ -	-	-	$ -	-	-	$ -			-		-	25	3,600	$ 70,764.46	25	3600	$ 56,611.57	-	-
Avocado	060-0-320-195	-	$ -	-	-	$ -	-	-	$ -			-		-	-	-	$ -					
	SUB TOTALS		$ 11,794.08			$ 48,000.00			$ 36,365.07					$ 48,000.00			$ 246,299.64			$ 197,039.72	$ 7,184,560.75	$ 600,000.00

Table 1 Environmental Summary	
Station Area (Acres)	15
Staging Area (SF)	240,000
Staging Area Rental Duration (Months)	48
Exclusive Easements (EA)	2
Duration for Exclusive Easement (Months)	48
MLV TCEs (EA)	2
MLV TCEs Durations (Months)	48
Non-Exclusive Easements (EA)	2
Duration for Non-Exclusive Easement (Months	48
25' Wide Access Road Length (LF)	12530
Crop Loss ($)	$ 7,184,560.75
Condemnation Legal Fees ($)	$ 600,000.00

Taylor Ranch Road

Reconstruct Taylor Ranch Road as needed. Minimum is 24-feet wide paved road with grade less than 20%.
This assumes the ranch sells us egress and ingress rights and will sell us the proposed site.

ESTIMATION PARAMETERS & NOMINAL VALUES	
Exclusive Easement Fee %	100%
Non-Exclusive Easement Fee %	50%
TCE Annual Return Rate %	10%
Exclusive Easement Nominal Value	$1,500
Non-Exclusive Easement Nominal Value	$1,000
TCE Workspace Monthly Nominal Value	$500

TOTAL **$ 9,550,523.45**

ESTIMATION PARAMETERS & NOMINAL VALUES	
Exclusive Easement Fee %	100%
Non-Exclusive Easement Fee %	50%
TCE Annual Return Rate %	10%
Exclusive Easement Nominal Value	$1,500
Non-Exclusive Easement Nominal Value	$1,000
TCE Workspace Monthly Nominal Value	$500

Alt: Avocado Extended CPCN Schedule Received on 4-10-23										
		CPCN Proposed Schedule	Land Acquisition, Easement, Access Road	Development of Refeed RFP[1]	RFP Issued/Eval/Award	Revised FEED	AFE Board Approval	Develop EPC RFP[1]	RFP Issued/Eval/Award	**Total**
Months	SCG Company Labor	26	7	9	3	12	6	12	12	
	Project Services	26	7	9	3	12	6	12	12	
Monthly Burn Rate	SCG Company Labor	$40,000	$80,000	$80,000	$80,000	$100,000	$60,000	$80,000	$80,000	
	Project Services	$60,000	$100,000	$100,000	$100,000	$200,000	$90,000	$100,000	$100,000	
	Combined	$100,000	$180,000	$180,000	$180,000	$300,000	$150,000	$180,000	$180,000	
Cost	SCG Company Labor	$1,040,000	$560,000	$720,000	$240,000	$1,200,000	$360,000	$960,000	$960,000	**$6,040,000**
	Project Services	$1,560,000	$700,000	$900,000	$300,000	$2,400,000	$540,000	$1,200,000	$1,200,000	**$8,800,000**

		2024	2026	2027	2027	2028	2030	2028	2029	
	Escalation %	-0.95%	1.27%	3.09%	3.09%	5.03%	9.13%	5.03%	7.06%	
Escalation	SCG Company Labor	-$9,835.54	$7,088.81	$22,280.54	$7,426.85	$60,346.18	$32,864.55	$48,276.94	$67,805.93	**$236,254**
	Project Services	-$14,753.31	$8,861.01	$27,850.68	$9,283.56	$120,692.35	$49,296.83	$60,346.18	$84,757.41	**$346,335**

Escalated Cost	SCG Company Labor	$1,030,164	$567,089	$742,281	$247,427	$1,260,346	$392,865	$1,008,277	$1,027,806	**$6,276,254**
	Project Services	$1,545,247	$708,861	$927,851	$309,284	$2,520,692	$589,297	$1,260,346	$1,284,757	**$9,146,335**

Based on 2022 $$

1 Assume FEED and EPC will both be re-bid

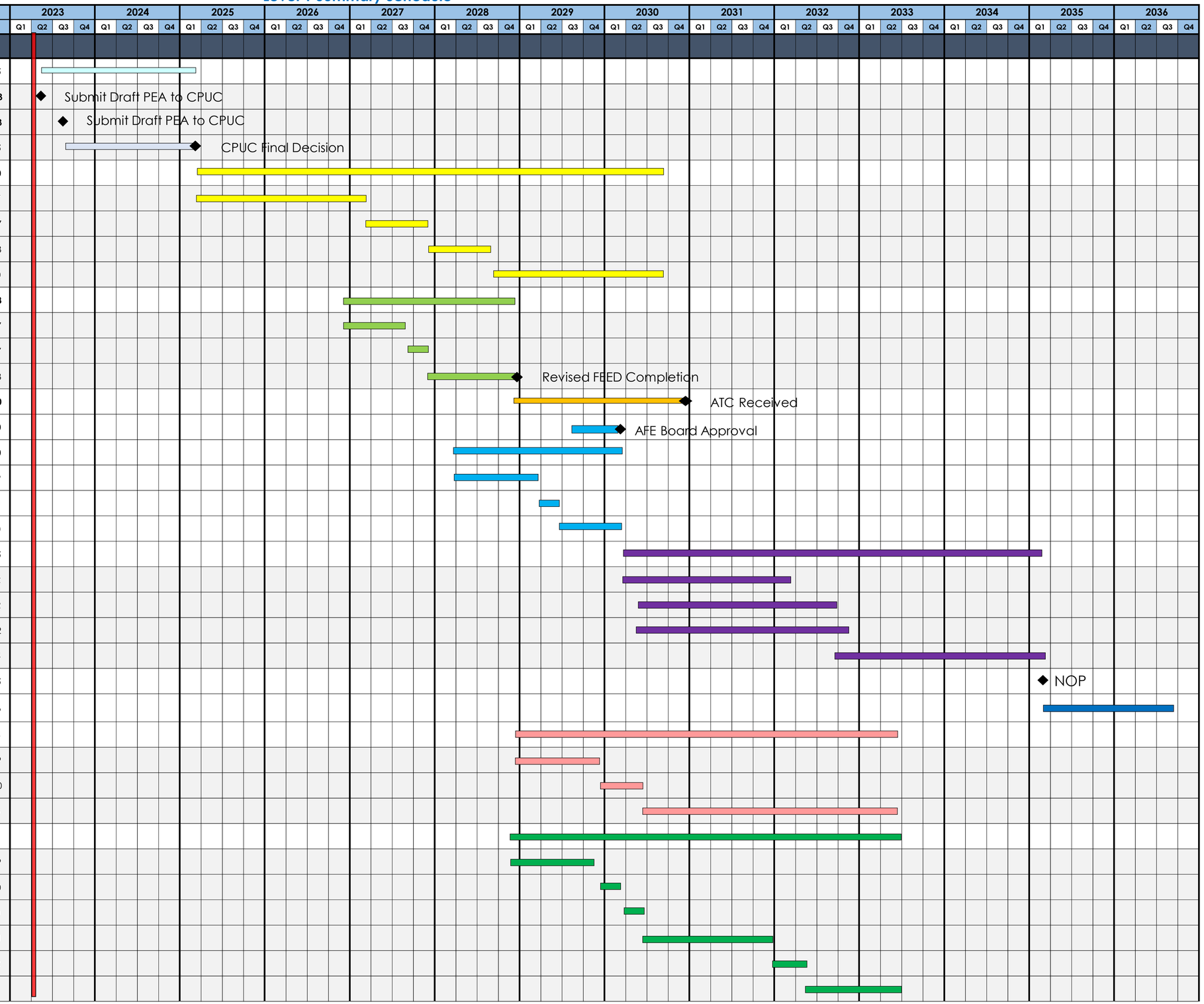
2 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

3 Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPCN delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC

Ventura Compressor Modernization (Avocado)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (AVOCADO)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC			**May-23**
3	Submit Final PEA & CPCN Application			**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Land Acquisition, Easement, Access Roads**	**66**	**Feb-25**	**Sep-30**
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Access Roads Alignment & Staging Area Survey	9	Mar-27	Dec-27
8	RFP Access Roads Widening & Contract Award	9	Dec-27	Aug-28
9	Access Roads Widening/Retaining Walls Construction	24	Aug-28	Sep-30
10	**New FEED**	**24**	**Nov-26**	**Nov-28**
11	RFP Development	9	Nov-26	Aug-27
12	RFP Issue & Award	3	Aug-27	Nov-27
13	Revised FEED Study	12	Nov-27	Nov-28
14	**New Air Permit Application & Approval (ATC)**	**24**	**Nov-28**	**Nov-30**
15	**New AFE Board Approval**	**6**	**Aug-29**	**Feb-30**
16	**New EPC RFP Development & Award**	**24**	**Mar-28**	**Feb-30**
17	EPC RFP Development	12	Mar-28	Mar-29
18	EPC RFP Issued	3	Mar-29	Jun-29
19	EPC Award	9	Jun-29	Feb-30
20	**EPC Phase**	**60**	**Mar-30**	**Feb-35**
21	Detailed Engineering (Phase 1 & 2)	24	Mar-30	Feb-32
22	Procurement	28	May-30	Sep-32
23	Site Grading (Staging Area & Comp. Station site)	30	May-30	Nov-32
24	Construction, Commissioning, Startup	30	Aug-32	Feb-35
25	**In-Service Date (NOP)**	**0**		**Feb-35**
26	**Closeout**	**18**	**Feb-35**	**Sep-36**
27	**SoCal Edison (Method of Service & Execution)**	**54**	**Nov-28**	**Jun-33**
28	Develop SCE Application & MOS Agreement Signed	12	Nov-28	Nov-29
29	Method of Service Study	6	Nov-29	May-30
30	Construction, Commissioning, Startup	36	Jun-30	Jun-33
31	**New Pipeline & Main Line Valve Station**	**55**	**Nov-28**	**Jul-33**
32	Land Easement	12	Nov-28	Nov-29
33	Geotechnical Assessment of Pipeline Route	3	Nov-29	Mar-30
34	Prelim Engineering	3	Mar-30	Jun-30
35	Detailed Engineering & Procurement	18	Jun-30	Dec-31
36	RFP & Award	6	Dec-31	Jun-32
37	Construction, Commissioning, Startup	13	Jul-32	Jul-33



				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033				2034				2035				2036			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Schedule Assumptions:

1 **CPCN Process:** Submittal of the DRAFT PEA is due on **24-May-23**. Final PEA & CPCN Application Submittal is Due on **24-Aug-23.** CPUC Final Decision Approx. **18-months** after Application submittal.
2 **LAND ACQUISITION:**Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. **66-months** to complete.
3 **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. **24-months** to complete.
4 **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. **24-months** after application submittal.
5 **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. **3-6 Months** to complete.
6 **New EPC RFP** - Starts as early as possible to finish **one quarter** after completion of the Revised FEED. The rest of the process will take appox. **12-months** to Award the EPC Contract.
7 **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.**24-months** to complete. The entire EPC Phase is expected to take Approx. **60-Months** up to NOP
8 **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. **54-Months** to complete. (App/MOS/EPC)
9 **NOP** - NOP/In-Service Date in **Q1-2035**

Table 1: Actuals (As of September 30, 2021)		
Total	$	31,727,022
Directs	$	22,374,794
Non-Directs	$	9,352,228

Table 2: Copy of Actuals Report (Sept. 30, 2021)

		EAC	ACT	ETC
Facilities-Ventura Comp-Modernization	All Cost Elements	313,189,529.93	31,727,022.08	281,462,
	Direct Costs	238,333,740.51	22,374,794.01	215,958,
	Direct Labor	9,368,203.80	3,102,275.30	6,265,
	Company Labor	9,368,203.80	3,102,275.30	6,265,
	Mgmt & Non-Union Labor	9,220,072.49	2,954,143.99	6,265,
	Union Labor	148,131.31	148,131.31	
	Non-Labor	228,965,536.71	19,272,518.71	209,693,
	Employee Costs	60,913.74	60,913.74	
	Employee Travel	60,913.74	60,913.74	
	Services	183,056,971.16	18,850,953.16	164,206,
	Services Consultants	22,872,084.64	3,582,503.64	19,289,
	Services Engineering & Construction	157,790,689.36	12,874,252.36	144,916,
	6220005 - SRV-CONTRACTORS-MAJOR PROJECTS	36,837,813.33	8,657,813.33	28,180,
	6220006 - SRV-CONSTRUCTION SERVICES DEPT O...	87,333,000.00	0.00	87,333,
	6220007 - SRV-CONTRACTORS-TIME & EQUIPMENT	1,881.69	1,881.69	
	6220008 - SRV-CONTRACTORS	686,020.33	686,020.33	
	6220009 - SRV-CONTRACTORS-SPECIFIC JOBS	452,448.87	452,448.87	
	6220480 - SRV-ENGINEERING	32,479,525.14	3,076,088.14	29,403,
	Services Government Payments & Permits	378.00	378.00	
	Services Vehicles and Equipment Rental	32,813.70	32,813.70	
	Services Other	2,361,005.46	2,361,005.46	
	Materials	45,632,637.57	145,637.57	45,487,
	Material Compressor Equipment	40,958,766.85	28,766.85	40,930,
	Material Issuances	517.64	517.64	
	Material Other	4,673,353.08	116,353.08	4,557,
	All Other	215,014.24	215,014.24	
	Internal Settlements	230,540.35	230,540.35	
	Vehicle Utilization	32,026.67	32,026.67	
	Other	(47,552.78)	(47,552.78)	
	Non Direct Costs	75,619,598.59	9,352,228.07	66,267,
	Non Direct Costs wo AFUDC	32,821,203.57	5,187,165.07	27,634,
	Non Direct Costs AFUDC	42,798,395.02	4,165,063.00	38,633,

Escalation - From 2021	
Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Table 1: Cost Index Study Published by

JUGPDSTCM@PCF = Utility Cost Index: Gas Distribution Plant, Pacific Region--Compressor Station Equipment
JUGPSHEF@PCF = Utility Cost Index: Gas Storage Plant, Pacific Region--Gas Holders Excluding Foundation
Construction-related cost index (includes labor and nonlabor)
Source: Global Insight 4th Quarter 2021 utility cost forecast (published January 25, 2022); recorded data from Handy-Whitman

	JUGPDSTCM@PCF			JUGPSHEF@PCF		
	2021=1.0000	1973=100	% change	2021=1.0000	1973=100	% change
2016	0.8986	689.00	1.62%	0.8963	499.25	1.58%
2017	0.9156	702.00	1.89%	0.9035	503.25	0.80%
2018	0.9495	728.00	3.70%	0.9399	523.50	4.02%
2019	0.9782	750.00	3.02%	0.9744	542.75	3.68%
2020	1.0000	766.75	2.23%	1.0000	557.00	2.63%
2021	1.0648	816.45	6.48%	1.0954	610.12	9.54%
2022	1.1293	865.90	6.06%	1.1154	621.26	1.83%
2023	1.1195	858.35	-0.87%	1.1019	613.78	-1.20%
2024	1.1186	857.71	-0.07%	1.1213	624.58	1.76%
2025	1.1283	865.13	0.87%	1.1479	639.38	2.37%
2026	1.1436	876.86	1.36%	1.1763	655.19	2.47%
2027	1.1643	892.69	1.81%	1.2067	672.11	2.58%
2028	1.1861	909.44	1.88%	1.2374	689.23	2.55%
2029	1.2091	927.06	1.94%	1.2681	706.35	2.48%
2030	1.2324	944.94	1.93%	1.2990	723.55	2.44%
2031	1.2571	963.92	2.01%	1.3311	741.45	2.47%
2032	1.2824	983.27	2.01%	1.3641	759.79	2.47%
2033	1.3081	1003.01	2.01%	1.3978	778.59	2.47%
2034	1.3344	1023.15	2.01%	1.4324	797.86	2.47%
2035	1.3612	1043.69	2.01%	1.4679	817.60	2.47%
2036	1.3885	1064.64	2.01%	1.5042	837.82	2.47%
2037	1.4164	1086.01	2.01%	1.5414	858.55	2.47%
2038	1.4448	1107.82	2.01%	1.5795	879.80	2.47%
2039	1.4738	1130.06	2.01%	1.6186	901.56	2.47%
2040	1.5034	1152.75	2.01%	1.6587	923.87	2.47%
2041	1.5336	1175.89	2.01%	1.6997	946.73	2.47%
2042	1.5644	1199.50	2.01%	1.7417	970.15	2.47%
2043	1.5958	1223.58	2.01%	1.7848	994.15	2.47%
2044	1.6278	1248.15	2.01%	1.8290	1018.75	2.47%
2045	1.6605	1273.20	2.01%	1.8742	1043.95	2.47%
2046	1.6939	1298.76	2.01%	1.9206	1069.78	2.47%
2047	1.7279	1324.84	2.01%	1.9681	1096.25	2.47%
2048	1.7626	1351.44	2.01%	2.0168	1123.37	2.47%
2049	1.7979	1378.57	2.01%	2.0667	1151.17	2.47%
2050	1.8340	1406.25	2.01%	2.1179	1179.65	2.47%

Ventura Compressor Modernization Project

Ventura, CA (Devils Canyon Alternative Site Location)

Work Order Authorization #91651

Class 5 Estimate

April 2023

Revision 1

Table of Contents

1. Project Overview

Southern California Gas Company (SoCalGas) transmission systems play a vital role in the delivery of natural gas to millions of residential, commercial, and industrial consumers throughout Southern California. It is therefore essential that gas transmission equipment maintain a high level of reliability and operability and meet Federal and State regulatory agency regulations and comply with Company site technical practices.

This project is being executed to improve reliability and reduce equipment-regulated emissions. It includes the installation of new reciprocating gas engine-driven gas compressors, utilities and associated controls, electrical, instrumentation, and emission control equipment.

The overall goal of this project is to design/engineer/construct a new plant that will consist of two (2) gas-powered compressors and two (2) electric-powered compressors. When completed, the new compressors will have the capability to replace the existing Ventura Site compressors, meet the VCAPCD air emission and safety requirements, maintain sufficient pressure in the existing pipelines, and provide adequate inventory to the La Goleta Storage Field.

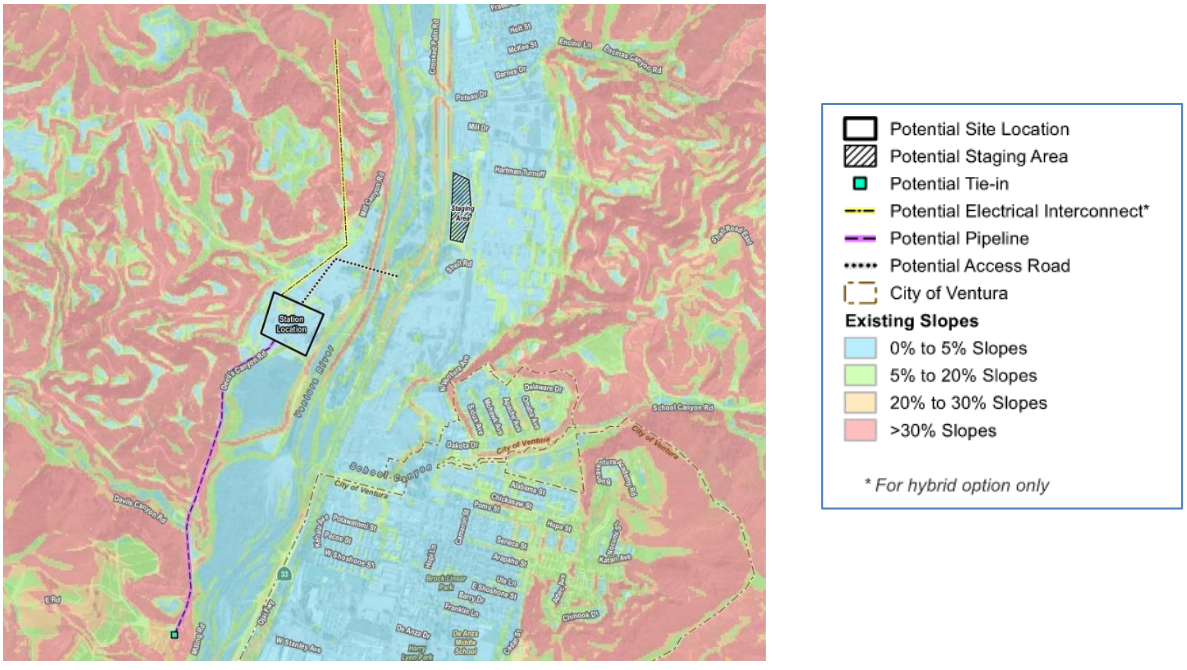
This alternative contemplates building an entirely new compressor station, including all necessary appurtenances, on an approximately 12.88-acre oil extraction site zoned for agriculture and designated for open space uses. It is located approximately 6,000 feet north of the existing compressor station site on the west side of State Route 33 within the County of Ventura. The site is relatively flat and has been previously developed with oilfield operations and is currently partially occupied by oil wells. This alternative contemplates the same configuration of compressors and ancillary construction and installation as the Avocado Site.

Based on preliminary analysis, approximately 5 MW of electric power would be needed, which would require distribution-level service on one unique power line of at least 16 kV. An onsite substation would also be required.

Currently, the project is planned and estimated to be executed in two phases. Phase 1 will be reimbursable and go up to 60% engineering. Phase 2 of the project will be a lump sum from 60% through the end of construction.

Figure 1: Compressor Site in Relation to Existing Compressor Station

Figure 2: Site Topography and Slope



1.1. Document Breakdown Structure

- EPC – Engineering / Design Services
- EPC – Construction
- EPC – Construction Management
- SCG Labor – Management & Non-Labor
- SCG Labor – Union T/H
- SCG Labor – Outreach & Public Affairs
- Material - Other
- PM / Project Services
- Inspection Services
- Surveying / As-Builts
- Environmental Services
- Pressure Test Certification
- Land Services
- Miscellaneous Services
- Permits
- Other Non-Labor Costs

1.2. Reference Documents

- SoCalGas VCM Capital Cost Estimate Rev 1_11Feb2020
- Ventura - TM1 PTD Costs by PO_For Campos Estimate_Function
- VCM P&ID - 111419 _09Dec2019 Comments
- VCMModelReview_20200203 – Navisworks
- CSUP-VCU-PM-BOD-0002_Working_Version_11-15-2019 _Fluor Comments
- EPC SOW Rev B_Final
- E15043-VCM_GE_Support-FTE_Estimate_Rev.B_03-03-2020
- Ventura Env Cost Estimate 01312020
- Ventura Master Staffing Plan EPC_ PMT Only
- Ventura Compressor Station - Land Services Cost Estimate Spreadsheet
- Feasibility_Study_Full
- Burns & McDonnell Electrical Study
- Ventura Electric Motor Driver Analysis Rev C 10/7/21
- Ventura Estimate (CPCN)_Class 3 w ROM Adj (Hybrid Option)_Rev 5
- Class 5 Estimate Ventura Alternative Devil's Canyon_Rev5
- Class 5 Estimate Ventura Alternative Devil's Canyon_Rev6

1.3. Estimate Classification and Definitions

1.3.a. Classification and Accuracy

- Pricing is based on current construction costs in Ventura, California
- Construction staging will occur on site.
- Construction will be performed by a General Contractor at Risk (GCAR) using a Lump Sum type of contract
- Estimate pricing is based on full and open competition from local regional contractors.
- The construction, commissioning, and startup schedule is assumed to be 30 months for the compressor station site work and 13 months for the installation of the underground piping (connecting to the new site) and new mainline valves. Both scopes will be executed in parallel with the pipeline and mainline valve work completed before the compressor station.
- The estimate was originally developed in April 2020 utilizing a Class 3 estimate for the existing Ventura Compressor Station site that was modified to account for a hybrid (2 gas – 2 electric drive) compressor setup. Site-specific conditions were then estimated and added to the estimate per Class 5 AACE estimating standards
- In April 2023, several below-the-line adjustments were made to the estimate which were at either a Class 4 or Class 5 Estimate classification resulting in an overall Class 5 estimate. A revised FEED phase will need to be completed if this alternative site location is chosen.
- Description: Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systematic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended—sometimes requiring less than an hour to prepare. Often, little more than the proposed plant type, location, and capacity are known at the time of estimate preparation.
- End Usage: Class 5 estimates are prepared for any number of strategic business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs, and budgeting, long-range capital planning, etc.
- Estimating Methods Used: Class 5 estimates generally use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, and other parametric and modeling techniques.

- Expected Accuracy Range: Typical accuracy ranges for Class 5 estimates are -20% to -50% on the low side, and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate reference information and other risks (after inclusion of an appropriate contingency determination). Ranges could exceed those shown if there are unusual risks.

1.3.b. Contingency

The Ventura Compressor Modernization Devil's Canyon Site Project estimate can be divided into two sub-sections. The first section consists of a Class 3 estimate originally developed by Flour with site-specific additions. For this section, a consistent contingency of 30% was applied to each item. The second section of the estimate was developed using ROM costs (Below the Line Changes). For this section, contingency was determined at the estimator's discretion based on experience and historical data from past compressor stations. The contingency was further reviewed and approved by the project manager. The contingency for the line items in this section ranged from 15-40%. The overall contingency for the below-the-line adders section was 28.7% of the costs before escalation and loaders.

2. Estimate Information

2.1. Scope of the Estimate

The scope of the Ventura Compressor Modernization Devil's Canyon Site Project estimate includes the anticipated all-inclusive costs of the following:

- EPC Contractor costs including:
  - Engineering and Design Services
  - Construction
  - Construction Management
- Southern California Gas Company Management, Union Labor, and Non-Labor Costs
- Project Management and Project Services
- Material Procurement and Management
- Survey / As-Builts
- Hydrotest Certification Services
- Environmental Planning, Management, Monitoring, and Abatement Support
- Construction Management
  - Inspection
  - District Personnel (Management, PSEP Liaison, DOM, Union Labor, Instrumentation, and FOS).
  - M&R (Meters and Regulation)
  - Pipeline Integrity
- Land Services
- Permitting

2.2. Key Personnel

Position	Name	Office Phone	Mobile Phone
Sr. Director			
SoCalGas			
Execution Manager			
SoCalGas			
Portfolio Manager			
SoCalGas			
Project Manager			
SoCalGas			
Gas Engineering			
SoCalGas			
Construction Management			
SoCalGas			
Estimating			
Contractor			
Contractor			
SoCalGas			
Environmental			
SoCalGas			
Land Acquisition			
SoCalGas			
Supply Management			
SoCalGas			
Water Management			
SoCalGas			
Permitting			
SoCalGas			

2.3. Estimate Schedule

- **Project Kick-Off with Fluor** 7/24/2019
- **Receive Estimate Plan from Fluor** 9/27/2019
- **Fluor Engineering Develop MTO** 10/18/2019
- **Receive Rev 0 Fluor's EPC Estimate** 1/24/2020
- **SCG/Campos Review with Fluor** 2/5/2020
- **Receive Rev 1 Fluor's EPC Estimate** 2/11/2020
- **Incorporate Comments, Sign-Off, Issue Class 3 Est** 4/30/2020

- **Begin revisions to estimate (Below the Line changes)** Feb 2023
- **Finalize ROM Estimate Adjustments** 4/14/2023

2.4. Assumptions and Exclusions

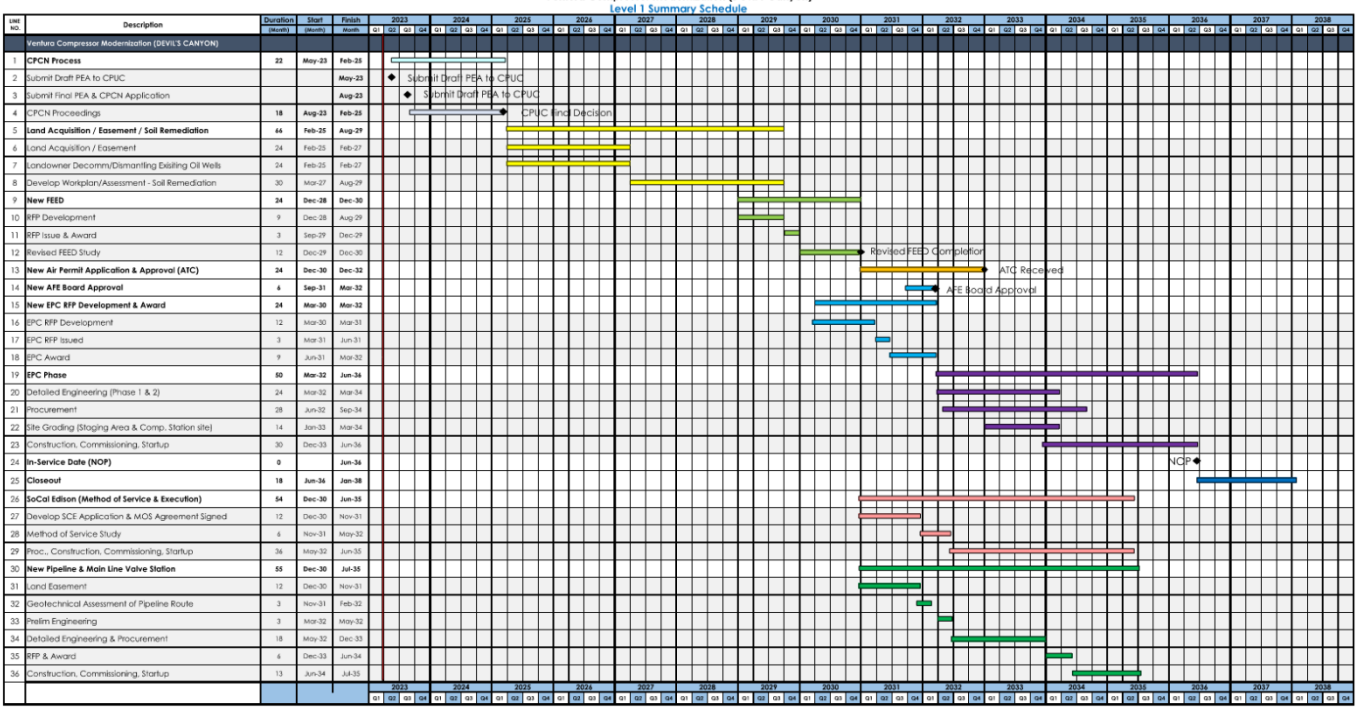
- No night or weekend work will be performed
- No cultural resources are anticipated.
- No groundwater will be encountered
- Soil remediation for the Ventura site is assumed to be part of a separate WOA and the estimate assumes the EPC contractor will receive a clean, graded site
- Study/design/engineering (if required) of any retrofit/demolition work at existing compressor site is excluded
- Demolition of the administration and warehouse buildings at the existing Ventura compressor station site is excluded and assumed to be part of the soil remediation contract
- Demolition of the existing Compressor station is excluded from this scope of work.
    - Assumed to take place 1 year after the new facility is constructed and fully operational.
    - Separate price to perform the work will include the removal of old compressor equipment, coolers, and ancillary equipment which is to be sold as complete packages.
    - Selling remaining structures, exhaust stack, piping, controllers, and valves as scrap metal.
    - Existing concrete floor stabs are assumed to remain in place.
    - Assumes the area is less than or equal to the area of the new facility construction footprint.
    - A separate Class 5 estimate of $5MM was completed by Burns & McDonnell for this scope

2.5. Current Project Schedule

The following schedule forms the basis for the updated Class 5 estimate. See appendix for enlarged schedule and schedule assumptions.

Ventura Compressor Modernization (Devil's Canyon)
Level 1 Summary Schedule

Unit No.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (DEVIL'S CANYON)			
1	**CPCN Process**	22	May-23	Feb-25
2	Submit Draft PEA to CPUC			May-23
3	Submit Final PEA & CPCN Application			Aug-23
4	CPCN Proceedings	18	Aug-23	Feb-25
5	**Land Acquisition / Easement / Soil Remediation**	66	Feb-25	Aug-29
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Landowner Decomm/Dismantling Existing Oil Wells	24	Feb-25	Feb-27
8	Develop Workplan/Assessment - Soil Remediation	30	Mar-27	Aug-29
9	**New FEED**	24	Dec-28	Dec-30
10	RFP Development	9	Dec-28	Aug-29
11	RFP Issue & Award	3	Sep-29	Dec-29
12	Revised FEED Study	12	Dec-29	Dec-30
13	**New Air Permit Application & Approval (ATC)**	24	Dec-30	Dec-32
14	**New AFE Board Approval**	6	Sep-31	Mar-32
15	**New EPC RFP Development & Award**	24	Mar-30	Mar-32
16	EPC RFP Development	12	Mar-30	Mar-31
17	EPC RFP Issued	3	Mar-31	Jun-31
18	EPC Award	9	Jun-31	Mar-32
19	**EPC Phase**	50	Mar-32	Jun-36
20	Detailed Engineering (Phase 1 & 2)	24	Mar-32	Mar-34
21	Procurement	28	Jun-32	Sep-34
22	Site Grading (Staging Area & Comp. Station site)	14	Jan-33	Mar-34
23	Construction, Commissioning, Startup	30	Dec-33	Jun-36
24	**In-Service Date (NOP)**	0		Jun-36
25	**Closeout**	18	Jun-36	Jan-38
26	**SoCal Edison (Method of Service & Execution)**	54	Dec-30	Jun-35
27	Develop SCE Application & MOS Agreement Signed	12	Dec-30	Nov-31
28	Method of Service Study	6	Nov-31	May-32
29	Proc., Construction, Commissioning, Startup	36	May-32	Jun-35
30	**New Pipeline & Main Line Valve Station**	55	Dec-30	Jul-35
31	Land Easement	12	Dec-30	Nov-31
32	Geotechnical Assessment of Pipeline Route	3	Nov-31	Feb-32
33	Prelim Engineering	3	Mar-32	May-32
34	Detailed Engineering & Procurement	18	May-32	Dec-33
35	RFP & Award	6	Dec-33	Jun-34
36	Construction, Commissioning, Startup	13	Jun-34	Jul-35



Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23. Final PEA & CPCN Application Submittal is Due on 24-Aug-23. CPUC Final Decision Approx. 18-months after Application submittal.
2. **LAND ACQUISITION:** Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. 66-months to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. 24-months to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. 24-months after application submittal.
5. **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. 3-6 Months to complete.
6. **New EPC RFP** - Starts as early as possible to finish one quarter after completion of the Revised FEED. The rest of the process will take appox. 12-months to Award the EPC Contract.
7. **EPC EXECUTION** - Phase-I Engineering (90% MR) & Phase-2 (IFC) will take approx. 24-months to complete. The entire EPC Phase is expected to take Approx. 50-Months up to NOP
8. **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. 54-Months to complete. (App/MOS/EPC)
9. **NOP** - NOP/In-Service Date in Q2-2036

2.6. Procurement Clarifications

2.6.a. Freight

Freight has been included in the EPC estimate provided by Fluor at 8%

2.6.b. Tax

Sales tax has been included in the EPC estimate provided by Fluor at 7.75%

2.6.c. Escalation

Escalation was included based on current indices and the current EPC project schedule.

The average overall escalation added to the project is 16.27%

Escalation was applied to each activity based on the midpoint of expenditure for each item. The table below indicates the escalation percentages utilized in the estimate.

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Escalation was applied to all direct costs including contingency since contingency is intended to be spent.

Excluded from escalation were SoCalGas Indirect costs (Loaders) as well as actuals to date.

2.6.d. Allowances

Allowances have been included in the EPC estimate by Fluor and are reflected in the estimate. The table below shows the allowances included by discipline:

Prime Account	Material Design Allowance (MDA)	Material Take-Off Allowance (MTOA)
Site/Civil	N/A	10%
Concrete	N/A	10%
Structural Steel	N/A	10%
Architectural	15%	N/A
Mechanical Equipment	15%	N/A
Piping Large Bore	N/A	5%
Piping Small Bore	N/A	15%
Piping Specialties	N/A	10%
Electrical Equipment	15%	N/A
Electrical Bulks	N/A	20%
Control Systems	N/A	20%

Design allowance does not cover for scope changes.

Weather allowance has also been included in the estimate at 2.5% of labor and subcontract costs for construction.

3. EPC Estimate (provided by Fluor) for Class 3 Estimate

3.1. Overall Assumptions and Basis

The overall assumptions and basis presented is a high-level view of the basis of Fluor's estimate. For a more detailed analysis by discipline, please refer to Fluor's attached Basis of Estimate.

- The base estimate is based on 4th quarter 2019 pricing and is escalated accordingly
- Work schedule is based on 10-hour days, 5 days a week, Monday through Friday
- No weekend or night work is anticipated
- Construction is based on Union labor workforce
- The project schedule provided assumes 28 months of construction
- Transportation for craft workers to and from off-site parking areas is required. Busing equipment cost and the cost of craft labor during transit are included in the estimate based on an assumed 15 minutes per day, twice a day.
- Decommissioning of existing site features (flanging the old assets) has been included in the estimate except for the administration building and warehouse building.
- Demolition of the existing compressors and compressor building has been excluded from this estimate.
- The estimate is based on input from the following Engineering disciplines
    - Civil
    - Structural
    - Control Systems
    - Piping
    - Electrical
    - Mechanical
    - HSE

3.2. Key Quantities

The following table shows key quantities for the project at the time of the Class 3 Estimate in April 2020. This portion of the estimate did not change concerning key quantities. However, several of the scope adjustments outlined in sections 4 and 6 have separate quantities that are not accounted for in the table below.

SUMMARY	Qty	UOM
Earthwork and Civil	36,872	CY
Concrete	5,007	CY
Structural Steel	318	TON
Architectural	20,214	SF
Machinery & Equipment	53	EA
Piping	25,181	LF
Pipe Fabrication	455,549	LBS
Electrical	161,321	LF
Control Systems	636	EA

3.3. Equipment and Bulk Materials

The estimate assumes the EPC contractor will purchase all equipment and materials.

Quantities were developed by Fluor's design engineers and priced and labored by Fluor's estimating team.

The estimate includes pricing for all mechanical equipment greater than $15,000 from budgetary vendor quotes. 95% of mechanical equipment was based on budgetary quotes and the rest of the 5% was based on in-house pricing.

Budgetary vendor quotes were also received for the following:

- Concrete pricing is based on quoted local area costs for ready-mix concrete at 4500 psi.
- PDC
- MCC
- SWGR #1
- SWGR #2
- Control and On/Off valves
- Relief Valves
- CEMS shelters and associated analyzers
- BPCS equipment

The remainder of the bulk materials were priced based on in-house pricing.

3.4. Craft Labor Rate

The all-in labor rates were developed using current Ventura County Union wage rates and benefits and burdens (fringes and PT&I) obtained from local unions and combined with subcontractor indirect costs. The bare wage rate is a blended 50-hour-per-week rate consisting of 40 standard rate hours and 10 premium time hours.

The subcontractor indirect costs below vary by account (within the ranges shown in parenthesis). They have been applied as a percentage of the Bare Wage Rate and are consistent with historical metrics:

- Small tools and consumables (4%-8%)
- Construction equipment & cranes up to 60 tons (18%-22%)
- Contractor field staffing (10%-20%)
- Temporary facilities and services (12%-20%)
- Miscellaneous expenses (5%)
- Subcontractor fee & contingency (10%-16%)

The all-in rates used in the 2020 Class 3 estimate by major account are shown below

Description	All-In Rate/Hr
Earthwork Civil	$ 141.45
Demo	$ 141.45
Concrete	$ 145.32
Structural Steel	$ 152.36
Building	$ 136.12
Mechanical	$ 171.74
Piping	$ 176.97
Electrical / EICS	$ 168.73
Control Systems	$ 166.16
Painting	$ 121.39
Insulation	$ 140.94
Scaffolding	$ 132.82
Safety Watch	$ 115.00
Subcontractor Rate	$ 250.00

3.5. Productivity

Productivity adjustments were developed based on historical metrics and were applied to Fluor Standard Unit Work Hours. These adjustments include items that may affect craft productivity including craft availability, craft skills, climate and weather, specific site and project information, overtime consequences and site accessibility.

The productivities from Fluor were adjusted to achieve an average productivity of 1.3. The adjusted productivities utilized in the estimate are shown below:

Description	Productivity
Earthwork Civil	1.25
Concrete	1.00
Structural Steel	1.25
Building	1.30
Mechanical	1.30
Piping	1.40
Electrical/EICS	1.30
Control Systems	1.30
Painting	1.30
Insulation	1.40

3.6. Engineering Costs

Engineering costs cover Detail Engineering and Design and Procurement services. The estimate is based on Fluor's historical averages for similarly sized projects.

Engineering support during construction was adjusted based on the historical average seen on the Blythe Plant 4 Compressor project.

3.7. Construction Management

Listed below are the major items included:

- Field office, temporary warehouse, break area, and first-aid office
- Set up and maintenance of temporary power and lighting
- Temporary construction water, and potable water
- Road upgrades, janitorial service, and material offload
- Testing and inspection during construction, and waste removal
- Field staff and office supplies
- Cranes in excess of 60 tons
- Insurance, Bonds, Permits, and Licenses

3.8. Estimate Adjustments to Fluor Class 3 Estimate

- Added allowance for security cameras, CCTV, networking (phone/internet) etc.
    - Added $100K for materials and $100K for labor in the “Architectural” account
- Included ROM estimate from Field Operations for the communications relocation scope of work
    - Added allowance of $525,000
- Added 10% of all materials to account for the material handling and mark-up fees by the EPC contractor
- Fluor assumed only 20% of the craft labor would receive per diem at $100 per day for 5 days a week.
    - Adjusted estimate to reflect 100% of craft labor to receive per diem at $100 per day for 5 days a week
- Added 10% for material handling fee by the construction contractor
- Reduced concrete manhours per cubic yard from 14 to 9 based on historical benchmarks
- Reduced piping manhours per foot from 4.05 to 2.5 based on historical benchmarks
- Reduced productivity from an average of 1.4 to 1.3 based on better conditions in Ventura as opposed to Blythe
- Increased Vendor Representatives and included 700 man-days x $2,500 a day

4. Site-Specific Scope Additions (Not Captured in Flour Estimate)

4.1. Key Quantities

Site-specific, key quantities, added to the Class 3 Estimate from April 2020 are shown below.

SUMMARY	Qty	UOM
Clear & Grub / Grade Laydown Area	6.3	ACRE
Site Grading and Imported Fill	103,899	CY
Upgrade / Reinforce Bridge	1	LS
New Pipelines (Unimproved)	21,542	LF
MLV Station	2	EA
Piles	489	EA

4.2. Site Specific Cost Items Basis

The following items are specific to the Devil's Canyon Site and were accounted for in the provided estimate.

- Clear & Grub / Grade Laydown Area
    - Estimate includes (1) crew for 3 months will be required to complete this task
    - Assumes an area of 6 acres will be worked on
- Site grading and imported fill for remediation
    - Assumes the entire 12.88 acres will receive 5' of imported fill
- Upgrade/reinforce bridge
    - Includes an allowance to accommodate changes needed in the event the bridge needs to be upgraded to account for site traffic
- New pipeline installation
    - The estimate assumes 21,542 LF of new pipeline will be required for the new site.
    - Material costs were estimated using a unit rate which includes a 20% adder for miscellaneous fittings based on the total LF of new installation
    - Contractor costs for the new install were calculated using a unit rate per LF of new install
- New mainline valve (MLV) station installations
    - Estimate includes (2) MLV stations
    - Estimated costs reflect valve automation, valves, electrical contractor, and associated costs
- New site piles
    - Includes drilling, placing rebar and concrete for (489) piles
        - (232) Of these piles are anticipated for (116) pipe supports with (2) piers each

- (224) Of these piles are anticipated for (56) pieces of equipment each assumed to require (4) piers
- (15) Of these piles are expected to support the compressor building
- (9) Of these piles are expected to support the admin building
- (9) Of these piles are expected to support the new warehouse

- Total cost was estimated using a unit cost per pile installation

This section of the estimate also includes an allowance for the following items:

- Additional Engineering for Pipeline and Remediation
- Weather – intended to cover any delays due to weather
- Additional SCE Substation Cost – assumes SCE substation is within 5 miles of site

5. Stakeholder Impacts for Class 5 Estimate

5.1. SCG Labor

SCG Non-Union Labor is estimated based upon the existing compressor site staffing plan and project duration provided by the project team beginning January 2020 for the start of Detail Design and ending June 2024 for closeout. This amount was then scaled using a ratio to account for a new preliminary schedule duration of 71 months pertaining to this specific location.

5.2. Material – Pipe, Fittings, Valves, and Other

Equipment and materials were included in Fluor's EPC estimate.

Additional materials included by SCG include the following:

- Office furniture for the Administration building at $60,000 allowance
- Shop equipment for the warehouse at $50,000 allowance

5.3. PM / Project Services

Project Management and Support Costs were developed based upon a staffing plan and project duration provided by the project team beginning in January 2020 for the start of Detail Design and ending in December of 2031 for closeout. This cost was then scaled using a ratio to account for a new preliminary schedule duration of 71 months.

Project services include contractor support for:

- Project Management
- Project Controls

- Estimating
- Supply Management
- Field Engineers
- Gas Engineering Support
- Land Services

5.4. 3rd Party Inspection

Inspectors were developed as part of the existing compressor site staffing plan provided by the project team.

40% of this cost was added to the estimate to account for the addition of new pipelines to the scope as compared to the existing site option.

5.5. Surveying / As-Builts

The estimate includes survey support staff for the project and site facility layout and as-builts for both Phase 1 and Phase 2.

The estimate also includes material support in the development of as-built close-out packages.

40% of this cost was added to the estimate to account for the addition of new pipelines to the scope as compared to the existing site option.

5.6. Environmental Services

Environmental services include the following:

- Excludes environmental services for site remediation work at the existing Ventura site
- Assumes 20.5 acres of environmental to monitor
- Assumes 80.5 months of pre-construction planning based on preliminary schedule Alternative Locations Rev2
- Assumed 50 months of construction based on preliminary schedule Alternative Locations Rev2
- Abatement duration assumed 10 tie-ins, with 1 day of abatement per tie-in
- SCG labor to support environmental services
- Construction monitoring, SWPPP Development, air permitting, etc.
- Assumes no CEQA/NEPA documents or other environmental studies/surveys are needed
- Assumes soil remediation at the existing Ventura site is excluded from this capital budget and will be accounted for on another WOA
- Assumes water will be discharged to land for dust control or compaction
- Includes hazardous materials cost for disposal, paint and asbestos sampling, and analysis of soil
- Includes VCAPCD Authority to Construct (ATC) Permit Fee and Construction General Permit/SWPPP fee

- Assumes (1) JD crossing

5.7. Pressure Test Certification Services

An allowance of pressure test certification services has been included at $300K based on the existing compressor site option ($200k) with an additional $100k to account for hydrotesting the new pipelines

5.8. Land Services

This estimate assumes construction easements will be procured from existing landowners at current rates.

Includes (1) staging area for 48 months

Includes (1) MLV station easements assumed to be 50'x1300' in dimension

Includes (1) MLV TCE assumed to be 8,750 SF

Includes (2) non-exclusive easements

Includes (4) project TCEs

Estimate accounts for condemnation legal fees

All labor costs associated with support for land services are included

Includes demolition and remediation of 12.88 acres as part of the sale of site property

5.9. CNG / LNG

No CNG/LNG support has been assumed for this project.

5.10. 3rd Party Outreach & Public Affairs

Included at 1% of total project cost

5.11. Miscellaneous Services

Miscellaneous Services include the following:

- Stopple Fitting and PCF tapping services for hot tie-in
- Vendor Representatives through construction
- Initial Fills
- Commissioning and Start-up support services

5.12. Permits

This estimate has included the anticipated cost of building permits from the existing compressor site option with an additional amount for environmental permits

5.13. Other Non-Labor Costs

Non-labor costs included in this estimate address travel, meals, expenses, and lodging incurred for SCG Labor.

6. Scope Adjustments for Hybrid 2 gas, 2 electric Class 5 Estimate (Below the line Changes)

The scope adjustments listed below are included to capture the various additional costs associated with installing 2 gas and 2 electric drive compressors rather than 4 gas compressors, site specific conditions not captured in part 1 as well as additional items that resulted from lessons learned during the construction of past compressor projects.

- BMcD electric study adder for the hybrid blend of gas and electric compressors (2 ea) (This adjustment was made “above the line” based on similar changes made in the Ventura Hybrid Base Case estimate.
    - BMcD provided a Class 5 estimate which was the basis used to determine the additional cost
- Additional SCE Transformer cost and Method of Service (MOS) Study
    - Added after updated information was received from Southern California Edison (SCE) concerning transformer costs and requirements
    - An additional transformer and Method of Service (MOS) study adjustment was made based on updated information received from SCE and historical Honor Rancho Compressor Modernization project costs
    - Based on the Rev1 B schedule, midpoint escalation was applied to the estimate
    - Accounts for additional SoCal Edison (SCE) and SoCalGas (SCG) electrical equipment including:
        - SCE Equipment
            - (2) EA 4160V Oil Filled Transformers
            - (1) EA Gas Switch for 16KV service
            - (1) EA Vacuum Fault Interrupter for 16KV service
        - SCG Equipment
            - (1) EA 480V Transformer
            - (1) EA Metering Panel
- FEED engineering addition to cover full FEED contractor engineering
- The estimate includes a new cost intended to cover the addition of (2) vapor recovery unit skids.
    - The price was derived utilizing the historical price from the Blythe Compressor Station which was $6MM for (1) skid. This is also the same amount used for the HRCM estimate
- Deodorizing unit costs were incorporated into the estimate.
    - Based on a quote received from a carbon adsorber vendor (Carbtrol - model: G-15PPL), these adsorbers were priced at $150k ea. The station design max flow rate resulted in (14) total

adsorbers needed. An equipment factor of 3 was used to include costs for associated bulk materials and installation the adsorbers, blowers and associated bulk materials

    - A larger amount of contingency (40% total) is intended to account for unforeseen pricing associated with a different vendor in the event the Carbtrol units cannot handle the flow rate.

- A cooling motor blower addition was made to cover the cost of blowers for the (2) induction drive compressors.
    - The amount came from historical blower costs from the HRCM station
    - An installation factor of 3 was chosen to account for the necessary concrete pads, interconnected mechanical pipe/valves/fittings, and electrical components.
- Added to the estimate for the addition of a 4160V switchgear, battery charger, batteries, and 15ft run to the new PDC building
    - The amount is based on PDC quotes received for past MCM and HRCM projects
- The estimate includes an additional cost for proponent environmental assessments (PEA) and environmental impact reports (EIR) to be executed during CPCN proceedings and construction.
- Added a new line item intended to offset the additional engineering required for deodorizing and methane capture units
    - The amount is an allowance that was escalated
- An estimate line item was added for the purchase and installation of emission control catalysts installed at the exhaust side of the (2) gas compressors
    - The cost is from an Aerinox emissions control catalyst quote multiplied by an installation factor of 2. The amount of supporting infrastructure is anticipated to be less for the control catalyst install as compared to other units within the estimate
- An additional cost for EPC contractor insurance, warranty, and letter of credit costs can now be found within the estimate
    - This number was based on historical differences between estimates and actual costs at the MCM and HRCM sites.
- A new line items was added to account for grading and widening the site access road
    - Cost was determined by analyzing the elevation profile of the road and surrounding topography in regions where the turn radius was too small for site traffic
- Two separate line items for (1) additional SCG Company labor, and (2) 3rd Party Project Management/Project Services were estimated as a result of an extended CPCN schedule. The costs associated assume the following:
    - Both FEED and EPC will be re-bid

- A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
- A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
- Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPUC delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC

- The estimate includes a line item for 3rd party environmental costs
- The estimate includes a line item to add the incremental actual costs charged to the project between October 2021 and December 2022. The previous Class 3 estimate included actuals through September 2021. The actuals amount shown in the estimate assumes $8.8MM of costs will be transferred to the Tech Services group as part of operations and station improvements including: temporary office installation, perimeter security cameras, and fend line methane monitoring.
    - The $8.8MM number for actuals that have been excluded is expected to increase as more costs are accumulated prior to the project start date

7. Indirect Costs (Loaders)

Indirect costs, also known as Loaders were added to the estimate based on calculations resulting from the direct cost estimates (prior to Loaders) being entered into the TM1 system by the project controls group. The TM1 system takes into account the projected spend of direct costs over the project schedule and calculates the costs of company overhead, property taxes, and financing costs (also referred to as the allowance for funds used during construction (AFUDC)).

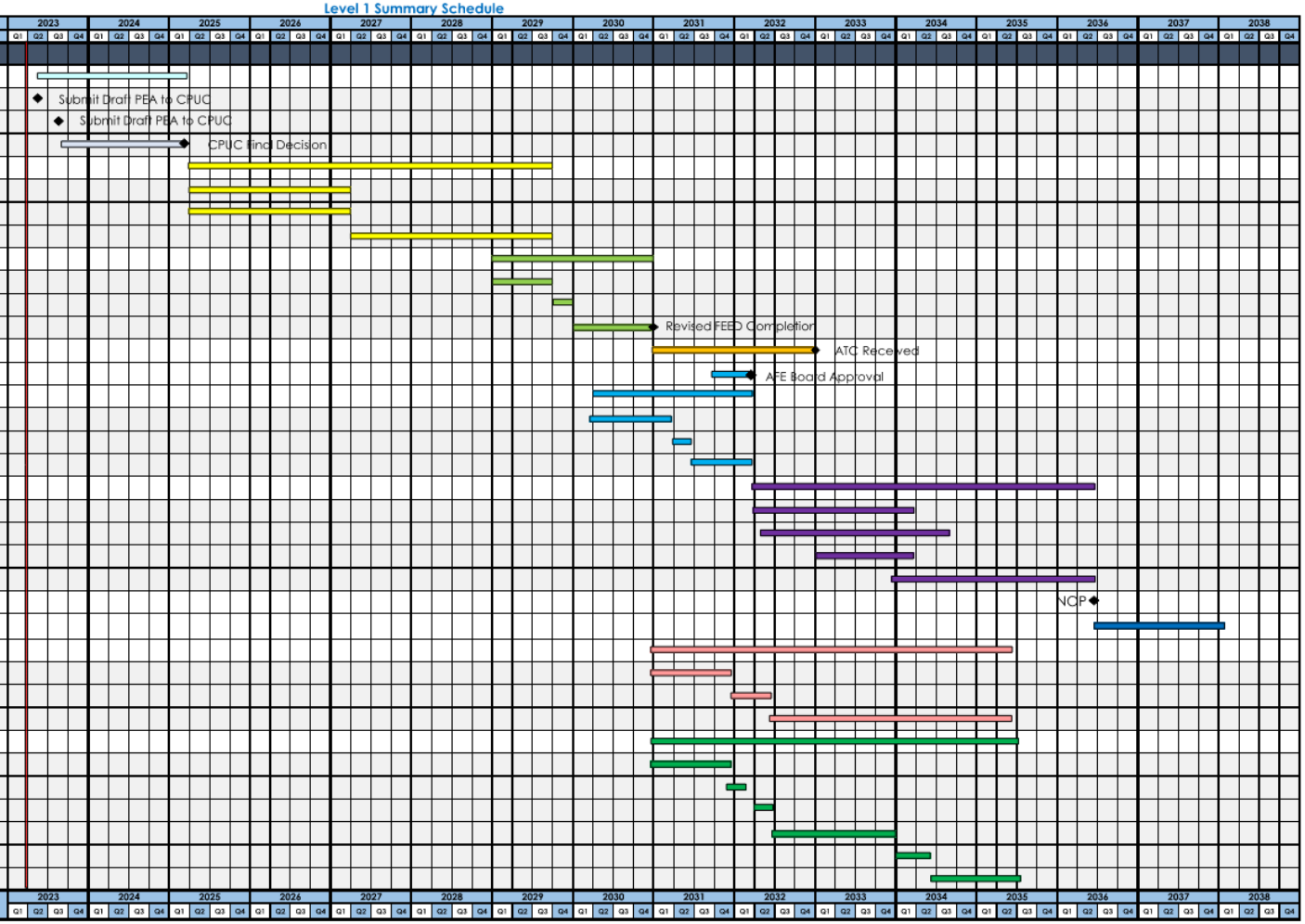
8. Appendix

8.1. Project Schedule & Assumptions

Ventura Compressor Modernization (Devil's Canyon)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (DEVIL'S CANYON)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC			**May-23**
3	Submit Final PEA & CPCN Application			**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Land Acquisition / Easement / Soil Remediation**	**66**	**Feb-25**	**Aug-29**
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Landowner Decomm/Dismantling Exisiting Oil Wells	24	Feb-25	Feb-27
8	Develop Workplan/Assessment - Soil Remediation	30	Mar-27	Aug-29
9	**New FEED**	**24**	**Dec-28**	**Dec-30**
10	RFP Development	9	Dec-28	Aug-29
11	RFP Issue & Award	3	Sep-29	Dec-29
12	Revised FEED Study	12	Dec-29	Dec-30
13	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-30**	**Dec-32**
14	**New AFE Board Approval**	**6**	**Sep-31**	**Mar-32**
15	**New EPC RFP Development & Award**	**24**	**Mar-30**	**Mar-32**
16	EPC RFP Development	12	Mar-30	Mar-31
17	EPC RFP Issued	3	Mar-31	Jun-31
18	EPC Award	9	Jun-31	Mar-32
19	**EPC Phase**	**50**	**Mar-32**	**Jun-36**
20	Detailed Engineering (Phase 1 & 2)	24	Mar-32	Mar-34
21	Procurement	28	Jun-32	Sep-34
22	Site Grading (Staging Area & Comp. Station site)	14	Jan-33	Mar-34
23	Construction, Commissioning, Startup	30	Dec-33	Jun-36
24	**In-Service Date (NOP)**	**0**		**Jun-36**
25	**Closeout**	**18**	**Jun-36**	**Jan-38**
26	**SoCal Edison (Method of Service & Execution)**	**54**	**Dec-30**	**Jun-35**
27	Develop SCE Application & MOS Agreement Signed	12	Dec-30	Nov-31
28	Method of Service Study	6	Nov-31	May-32
29	Proc., Construction, Commissioning, Startup	36	May-32	Jun-35
30	**New Pipeline & Main Line Valve Station**	**55**	**Dec-30**	**Jul-35**
31	Land Easement	12	Dec-30	Nov-31
32	Geotechnical Assessment of Pipeline Route	3	Nov-31	Feb-32
33	Prelim Engineering	3	Mar-32	May-32
34	Detailed Engineering & Procurement	18	May-32	Dec-33
35	RFP & Award	6	Dec-33	Jun-34
36	Construction, Commissioning, Startup	13	Jun-34	Jul-35



Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23. Final PEA & CPCN Application Submittal is Due on 24-Aug-23. CPUC Final Decision Approx. 18-months after Application submittal.
2. **LAND ACQUISITION:** Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. 66-months to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. 24-months to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. 24-months after application submittal.
5. **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. 3-6 Months to complete.
6. **New EPC RFP** - Starts as early as possible to finish one quarter after completion of the Revised FEED. The rest of the process will take appox. 12-months to Award the EPC Contract.
7. **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.24-months to complete. The entire EPC Phase is expected to take Approx. 50-Months up to NOP
8. **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. 54-Months to complete. (App/MOS/EPC)
9. **NOP** - NOP/In-Service Date in Q2-2036

Ventura Compressor Modernization Project

Devil's Canyon Site Hybrid Compressor Option

Estimated Cost

$ 896,000,000

SCG
Class 5 (+100% / -50% Accuracy)

Done by: E2
Rev: 5
Date: 4/12/2023

Devil's Canyon - (2) Gas x (2) Electric Compressors

Description	Qty	UOM	Unit Cost	Total Cost	Comments	Reference Tab for Estimate Details
Total EPC (Before Site Specific Additions)	**1**	**LS**			**Based on 2020 FEED Estimate and adjusted for Hybrid Option; See "Base EPC Elec. Study"**	Base EPC Elec. Study
~~*Site demolition and Remediation*~~	~~0~~	~~ACRE~~	~~$ 830,000~~	~~$ -~~	Assume included as part of the sale of the site, cost re-allocated to Land (See Land tab for more details)	Estimate Details
Clear & Grub / Grade Laydown Area	6.3	ACRE	$ 77,751	$ 487,496		
Imported Fill for remediated soil	103,899	CY	$ 69	$ 7,144,918		
~~*Terraced Retaining wall (15' H x 700' L) x 3*~~	~~0~~	~~SF~~	~~$ -~~	~~$ -~~	~~N/A~~	
~~*Slope & Bench Retaining wall (15' H x 2400' L) x 2*~~	~~0~~	~~SF~~	~~$ -~~	~~$ -~~	~~N/A~~	
Upgrade / Re-inforce Bridge	1	LS	$ 100,000	$ 100,000		
~~*Retaining wall for access road (8' tall x 3,000 LF)*~~	~~0~~	~~SF~~	~~$ -~~	~~$ -~~	~~N/A~~	
~~*Concrete Drainage Ditch (5,500 LF)*~~	~~0~~	~~LF~~	~~$ -~~	~~$ -~~	~~N/A~~	
~~*New Pipelines (Improved)*~~	~~0~~	~~LF~~	~~$ -~~	~~$ -~~	~~N/A~~	
New Pipelines (Unimproved)	21,542	LF	$ 364	$ 7,841,434	(2) 16" Lines to L1004 and (2) 16" lines to L1005	
MLV Station	2	EA	$ 900,000	$ 1,800,000		
Piles	489	EA	$ 25,000	$ 12,225,000		
Additional Engineering for Pipeline and Remediation	1	LS	$ 1,500,000	$ 1,500,000		N/A
Weather Allowance	1	LS	$ 2,000,000	$ 2,000,000	Allowance to cover any delays due to weather	
Additional SCE Substation Cost	1	LS	$ 7,000,000	$ 7,000,000	Additional cost added to bring total SCE cost to $11M, Assumes 5 miles	
Total EPC Cost With Cost Adders				**$ 218,811,000**		
SCG Company Labor	1	LS			Based on 2020 Ventura FEED, scaled based on new preliminary schedule of 71 months	N/A
3rd Party Project Services	1	LS			Based on 2020 Ventura FEED, scaled based on new preliminary schedule of 71 months	
3rd Party Inspection Services	1	LS			Based on 2020 Ventura FEED, add 40% for new pipelines	
3rd Party Surveying / As-Builts	1	LS			Based on 2020 Ventura FEED, add 40% for new pipelines	
3rd Party Environmental	1	LS	$ 9,284,778	$ 9,284,778	Based on input provided by Environmental Group, See "Environmental" Tab	Environmental
3rd Party Pressure Test Cert.	1	LS			Based on 2020 Ventura FEED, add $100K allowance for hydrotesting new pipelines	N/A
3rd Party Land Services	1	LS	$ 24,974,628	$ 24,974,628	Based on input provided by Land group, includes crop loss; See "Land" Tab, includes cost for demo and remediation of existing	Land, Estimate Details & Environmental
3rd Party Misc. Services	1	LS			Based on 2020 Ventura FEED, reduced commissioning/startup and vendor reps based on commissioning and vendor reps already included in EPC	N/A
3rd Party Outreach & Public Affairs	1	LS	$ 3,200,000	$ 3,200,000	Assumes 1% of total cost	
3rd Party Permits	1	LS			Based on 2020 Ventura FEED, Add allowance of $250K for environmental permits	
3rd Party Other Non-Labor	1	LS	$ 626,904	$ 626,904	Based on 5% of total SCG Company Labor Costs	
Total Un-Loaded Direct Cost				**$ 295,232,000**		
Contingency	30%			$ 88,569,600		
Actuals				$ 22,374,794	as of September 30, 2021 (Directs only, actuals for loaders are included under loaders)	Actuals
Escalation	17.07%			$ 65,521,333		
Total Un-Loaded Direct Cost w/ Contingency				**$ 471,698,000**		
Loaders	33%			$ 157,628,886	Included as a placeholder, recommend to be verified by project controls, includes actuals for Loaders	
Total Loaded Project Cost				***$ 629,000,000***	***Class 5 (+100% / -50%)***	

Feasibility Stuc Mar-23

Year	New	Escalation %	Escalation $
2026	2034	25.32%	
~~2025~~		~~0.00%~~	$ -
2026	2033	22.85%	$ 111,391
2026	2033	22.85%	$ 1,632,581
~~2026~~		~~0.00%~~	$ -
~~2026~~		~~0.00%~~	$ -
2026	2032	20.43%	$ 20,432
~~2022~~		~~0.00%~~	$ -
~~2026~~		~~0.00%~~	$ -
~~2026~~		~~0.00%~~	$ -
2026	2034	25.32%	$ 1,985,132
2026	2033	22.85%	$ 411,292
2026	2033	22.85%	$ 2,793,356
2022	2032	20.43%	$ 306,475
2026	2034	25.32%	$ 506,319
2022	2034	25.32%	$ 1,772,115
N/A	N/A	0.00%	
2022	2034	25.32%	
2027	2034	25.32%	
2027	2034	25.32%	
2026	2032	20.43%	$ 1,897,036
2027	2034	25.32%	
2023	2027	9.34%	$ 2,332,090
2027	2034	25.32%	
2024	2031	18.06%	
2024	2031	18.06%	
N/A	N/A	0.00%	$ -
2026	2034		$ -

Total Escalation $ 65,521,333

Compressor Upgrade		
Ventura Compressor Modernization Project		
PROJECT SUMMARY		
EPC - Engineering / Design Services		
EPC - Construction		
EPC - Construction Management		
SCG Labor - Mgmt. & Non Labor		$ 8,135,466
SCG Labor - Union T/H		$ 791,500
SCG Labor - Outreach & Public Affairs		$ 609,000
Material- Pipe & Fittings & Valves		$ -
Material-Valves		$ -
Material- Other		$ 110,000
PM / Project Services		$ 15,523,720
Inspection Services		$ 1,117,080
Surveying / As-builts		$ 307,547
Environmental Services		$ 365,952
Pressure Test Certification Services		$ 200,000
Water Storage		$ -
X-ray / NDE		$ -
Land Services		$ 1,029,438
CNG / LNG		$ -
Spreadboss		$ -
Miscellaneous Services		$ 5,960,000
Outreach & Public Affairs		$ -
Permits		$ 30,736
Other Non-Labor Costs		$ 476,798
GMA		$ -
Total Un-Loaded Direct Estimated Cost		**$ 200,415,047**
Actuals as of Jan. 2020		$ 10,221,538
Total Un-Loaded Direct Cost w/Actuals		**$ 210,636,585**
Contingency @ 14.85%		$ 29,753,297
Total Un-Loaded Direct Cost w/Contingency		**$ 240,389,882**
Escalation		$ 5,894,149
Total Un-Loaded Direct Cost w/ Escalation		**$ 246,284,031**
Loaders (Provided by Cost Group)		$ 68,521,769
Total Loaded Project Cost		**$ 314,806,000**

Table 1: 2020 FEED Estimate Equipment Costs

Table 1 from above was put into Table 2 for the Base Scope portion. The equipment prices for the (2) Engine & (2) EMD option were adjusted to account for the price increases since the original FEED was completed in 2020.

Table 2: Revised ROM Estimate Adjustments - Feb 2023

Base Scope					**Hybrid**			
			2020 FEED Est			Feb 2023 Est		
Scope			(4) Natural Gas Engines			(2) NG Engine, 2 EMDs		
Equipment & Material	Qty	Unit Cost	Total		Qty	Unit Cost	Total	
Engine Compressor Package								updated pricing
EMD Compressor Package								updated pricing
VFD w/Coolers								updated pricing
VFD Building								
Starting Air Compressor/Receiver								
Coolant Storage Drum								
Coolant Drain Sump								
Coolant Charge Pump								
New Transformer (10 MVa)								
New Transformer (7 MVa)								
Metering Panel								
Reclosure								
CEMS Building								
Utility Piping Lot								
TOTAL MECH/ELEC EQ COST								
Construction/Indirects								
ROM Factor (Eq Cost * 2.5)								

Table 3: Additional Engineering Costs Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)								
Misc Cost								
Additional Engineering (ROM)								
SCE T-Line Improvements								
Cost Comparison (ROUNDED)								

							1.25		$150					
	Description	Qty	UOM	Unit Material	Material Cost	Unit Manhour	Manhours	Labor Cost	Unit Subcontract Cost	Subcontractor Cost	Total Cost	Unit Cost	Comments	
1	Site demolition and Remediation	13	ACRE		$ -		0	$ -	$ 830,000	$ 10,690,400	$ 10,690,400	$ 830,000.00	Assume that as part of the sale of the site, cost re-allocated to Land	MOVE TO LAND
2	Clear & Grub / Grade Laydown Area	6	ACRE		$ -	415	3,250	$ 487,496		$ -	$ 487,496	$ 77,750.60	Assume 1 crew x 3 months	
3	Imported Fill for remediated soil	103,899	CY	$ 50.00	$ 5,194,933	0	13,000	$ 1,949,985		$ -	$ 7,144,918	$ 68.77		
4	~~Terraced Retaining wall (15' H x 700' L) x 3~~	~~0~~	~~SF~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 90~~	~~$ -~~	~~$ -~~	~~$ -~~	See "Cost Ref" Tab	
5	~~Slope & Bench Retaining wall (15' H x 2400' L) x 2~~	~~0~~	~~SF~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 90~~	~~$ -~~	~~$ -~~	~~$ -~~		
6	Upgrade / Re-inforce Bridge	1	LS		$ -		0	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000.00	Allowance	
7	~~Retaining wall for access road (8' tall x 3,000 LF)~~	~~0~~	~~SF~~		~~$ -~~				~~$ 60~~	~~$ -~~	~~$ -~~	~~$ -~~		
8	~~Concrete Drainage Ditch (5,500 LF)~~	~~0~~	~~LF~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 85~~	~~$ -~~	~~$ -~~	~~$ -~~		
9	~~New Pipelines (Improved)~~	~~0~~	~~LF~~	~~$ 95.00~~	~~$ -~~		~~0~~	~~$ -~~		~~$ -~~	~~$ -~~	~~$ -~~		
10	New Pipelines (Unimproved)	21,542	LF	$ 114.00	$ 2,455,834		0	$ -	$ 250	$ 5,385,600	$ 7,841,434	$ 364.00	Added 20% to price to account for misc. fittings	
11	MLV Station	2	EA		$ -		0	$ -	$ 900,000	$ 1,800,000	$ 1,800,000	$ 900,000.00	Includes automation, valves, electrical contractor, etc.	
12	Piles	489	EA		$ -		0	$ -	$ 25,000	$ 12,225,000	$ 12,225,000	$ 25,000.00		
										TOTALS	$ 40,289,248	$ -		

Original Total Environmental Cost:	**$ 20,034,790**
Revised Environmental (without remediation)	**$ 9,284,778**
Cost of Remediation (to be allocated to Land)	**$ 10,750,012**

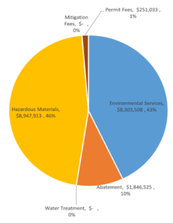
ORIGINAL ENVIRONMENTAL ESTIMATE

Version 1.1 10/18/17

Project Detail Item Description	Description/Value	Notes/Assumptions
Project Name	Ventura Devils Canyon Location	
County	Ventura	
Project Type (hydrotest, replacement, valve upgrade, valve installation, valve automation)	Compressor Station	
Diameter (inches)	NA	
Acres	20.5	15 onsite and 5.5 acres laydown offstie
New Road/Road improvments length (feet)	0	per construction assumptions
New Pipeline Length (feet)	5,280	5,280 linear feet 2x16-inch suction and discharge pipelines
Pre Const. Planning Support Duration (weeks)	322	4.5 years env permitting plus 22 months per Preliminary Schedule Alternative Locations Rev2
Construction Duration (weeks)	200	50 months per Preliminary Schedule Alternative Locations Rev2
Water Treatment Duration (Months)	0	Hydrostatic test water to be disposed to land for new pipe (no treatment required).
Abatement Duration (days)	600	
Water Volume (gallons)		No water treatment needed. Assume potable water on clean pipe.
Source Water (potable/non-potable)	Potable	Assumes water to be trucked in.
Water Disposal Method (offsite disposal, beneficial reuse, etc.)	Land	Assumes testing new pipe with potable water and disposal to land. Treatment of water not required.
Number of JD crossings	1	Counted asasumed JDs on Google Earth

Instructions for Summary Sheet - Please data enter general project details in the table above (See Columns C and D). This information will then be populated in the other tabs. The pie chart is auto populated.

Costs	**Total**	**Total Hours**
Environmental Services	$ 8,303,508	
Abatement	$ 1,846,525	
Water Treatment	$ -	
Hazardous Materials	$ 8,947,913	
Mitigation Fees	$ -	
Permit Fees	$ 251,033	
TOTAL ENVIRONMENTAL COSTS (Purchased Services):	**$ 19,348,978**	
Internal Labor	$ 685,812	**14,328.0**
Total	**$ 20,034,790**	

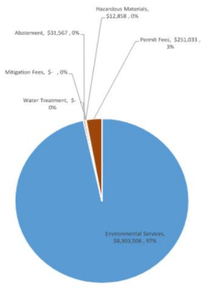


REVISED ENVIRONMENTAL (WITHOUT REMEDIATION)

Version 1.1 10/18/17

Project Detail Item Description	Description/Value	Notes/Assumptions
Project Name	Ventura Devils Canyon Location	
County	Ventura	
Project Type (hydrotest, replacement, valve upgrade, valve installation, valve automation)	Compressor Station	
Diameter (inches)	NA	
Acres	20.5	15 onsite and 5.5 acres laydown offstie
New Road/Road improvments length (feet)	0	per construction assumptions
New Pipeline Length (feet)	5,280	5,280 linear feet 2x16-inch suction and discharge pipelines
Pre Const. Planning Support Duration (weeks)	322	4.5 years env permitting plus 22 months per Preliminary Schedule Alternative Locations Rev2
Construction Duration (weeks)	200	50 months per Preliminary Schedule Alternative Locations Rev2
Water Treatment Duration (Months)	0	Hydrostatic test water to be disposed to land for new pipe (no treatment required).
Abatement Duration (days)	10	assume site is turned over with all abatement is complete Assumme 10 days os abatemetn to tie in to exisiting lines
Water Volume (gallons)		No water treatment needed. Assume potable water on clean pipe.
Source Water (potable/non-potable)	Potable	Assumes water to be trucked in.
Water Disposal Method (offsite disposal, beneficial reuse, etc.)	Land	Assumes testing new pipe with potable water and disposal to land. Treatment of water not required.
Number of JD crossings	1	Counted asasumed JDs on Google Earth

Costs	**Total**	**Total Hours**
Environmental Services	$ 8,303,508	
Abatement	$ 31,567	
Water Treatment	$ -	
Hazardous Materials	$ 12,858	
Mitigation Fees	$ -	
Permit Fees	$ 251,033	
TOTAL ENVIRONMENTAL COSTS (Purchased Services):	**$ 8,598,966**	
Internal Labor	$ 685,812	**14,328.0**
Total	**$ 9,284,778**	



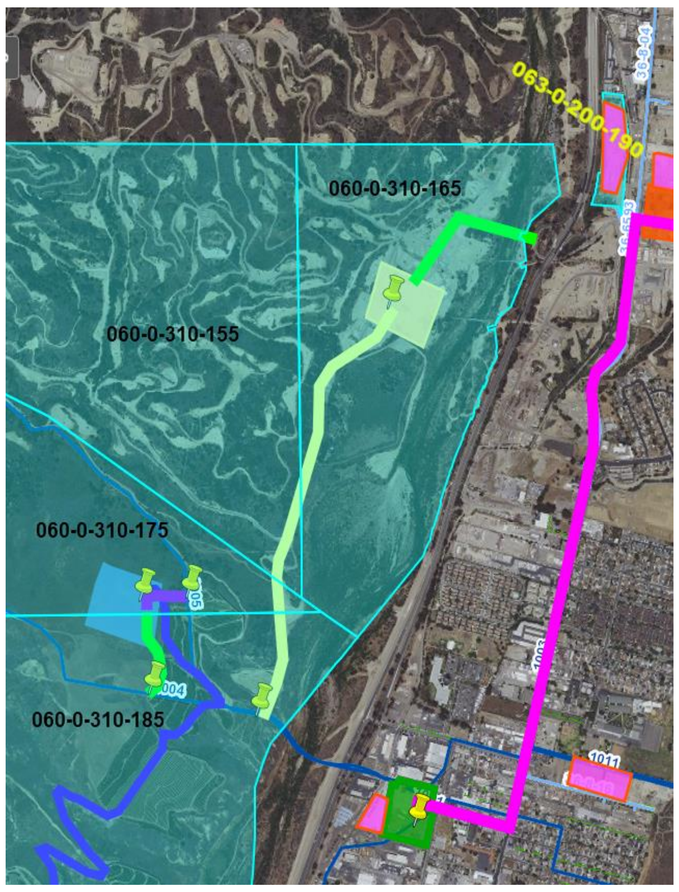
Location	APN	OWNER_NAME_1	ACREAGE	IMPRV_PCT	USE	USE_CODE	ZONING	Value Per Acre	Value Per Sq Ft	Station Acres	Station Cost	Staging Area	Staging Area Costs	MLV Station Sq. Ft.	MLV Station Cost	MLV TCE Sq Ft	MLV TCE Cost	Non-Exclusive Easement Width	Non-Exclusive Easement Length	Non-Exclusive Easement Cost	TCE Width	TCE Length	TCE Cost	Access Road width	Access Road length	Road Cost	Crop Loss	Condemnation Legal Fees
Devil's Canyon Rd	060-0-310-165	WOOD-CLAEYSSENS FOUNDATION	336.04	19.22	AGR	PASTURE	OS160AC	$ 68,500.00	$ 1.57	15	$ 1,027,500.00							50	2500	$ 98,283.98	25	2500	$ 39,313.59	25	1900	$ 37,347.91	$ -	$ 600,000.00
Devil's Canyon Rd	063-0-200-190	Associated Southern Inv Co	10.11		Storage	M3		$ 698,000.00	$ 16.02	-	0	240,000	$ 1,538,292.01							$ -			$ -				$ -	
Devil's Canyon Rd	060-0-310-155	WOOD-CLAEYSSENS FOUNDATION	640			PASTURE	OS160AC	$ 68,500.00	$ 1.57	-	0							50	1000	$ 39,313.59	25	1000	$ 24,000.00				$ -	
Devil's Canyon Rd	060-0-310-175	WOOD-CLAEYSSENS FOUNDATION	557			Orchard	AEC-A	$ 68,500.00	$ 1.57	-	0							50	500	$ 19,656.80	25	500	$ 24,000.00				$ -	
Devil's Canyon Rd	060-0-310-185	WOOD-CLAEYSSENS FOUNDATION	562.79			Orchard	AEC-A	$ 68,500.00	$ 1.57	-	0			3750	$ 5,897.04	8750	$ 5,503.90	50	1300	$ 51,107.67	25	1300	$ 24,000.00				$ -	
								Sub Totals			$ 1,027,500.00		$ 1,538,292.01		$ 5,897.04		$ 5,503.90			$ 208,362.03			$ 111,313.59			$ 37,347.91	$ -	$ 600,000.00

GRAND TOTAL $ 3,534,216.48

ESTIMATION PARAMETERS & NOMINAL VALUES	
Exclusive Easement Fee %	100%
Non-Exclusive Easement Fee %	50%
TCE Annual Return Rate %	10%
Exclusive Easement Nominal Value	$1,500
Non-Exclusive Easement Nominal Value	$1,000
TCE Workspace Monthly Nominal Value	$500

Table 1 Environmental Summary	
Station Area (Acres)	15
Staging Area (SF)	240,000
Staging Area Rental Duration (Months)	48
Exclusive Easements (EA)	0
Duration for Exclusive Easement (Months)	N/A
MLV TCEs (EA)	1
MLV TCEs Durations (Months)	48
Non-Exclusive Easements (EA)	4
Duration for Non-Exclusive Easement (Months)	N/A
25' Wide Access Road Length (LF)	1900
Crop Loss ($)	$ -
Condemnation Legal Fees ($)	$ 600,000.00

65000



		Alt: Devil's Canyon Extended CPCN Schedule									
		~~GRC Application~~ (N/A)	CPCN Proposed Schedule[2]	Land Acquisition, Easement, Access Road	Development of Refeed RFP[1]	RFP Issued/Eval/Award	Revised FEED	AFE Board Approval	Develop EPC RFP[1]	RFP Issued/Eval/Award	**Total**
Months	SCG Company Labor	0	24	48	9	3	12	6	12	12	
	Project Services	0	24	48	9	3	12	6	12	12	
Monthly Burn Rate	SCG Company Labor	$40,000	$40,000	$80,000	$80,000	$80,000	$100,000	$60,000	$80,000	$80,000	
	Project Services	$60,000	$60,000	$100,000	$100,000	$100,000	$200,000	$90,000	$100,000	$100,000	
	Combined	$100,000	$100,000	$180,000	$180,000	$180,000	$300,000	$150,000	$180,000	$180,000	
Cost	SCG Company Labor	$0	$960,000	$3,840,000	$720,000	$240,000	$1,200,000	$360,000	$960,000	$960,000	**$9,240,000**
	Project Services	$0	$1,440,000	$4,800,000	$900,000	$300,000	$2,400,000	$540,000	$1,200,000	$1,200,000	**$12,780,000**

		2022	2024	2027	2029	2029	2030	2032	2030	2031	
	Escalation %	0.00%	-0.95%	3.09%	7.06%	7.06%	9.13%	13.55%	9.13%	11.32%	
Escalation	SCG Company Labor	$0.00	-$9,078.96	$118,829.57	$50,854.45	$16,951.48	$109,548.51	$48,797.63	$87,638.81	$108,671.78	**$532,213**
	Project Services	$0.00	-$13,618.44	$148,536.96	$63,568.06	$21,189.35	$219,097.02	$73,196.44	$109,548.51	$135,839.72	**$757,358**

Escalated Cost	SCG Company Labor	$0	$950,921	$3,958,830	$770,854	$256,951	$1,309,549	$408,798	$1,047,639	$1,068,672	**$9,772,213**
	Project Services	$0	$1,426,382	$4,948,537	$963,568	$321,189	$2,619,097	$613,196	$1,309,549	$1,335,840	**$13,537,358**

Based on 2022 $$

1 Assume FEED and EPC will both be re-bid

2 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

3 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

4 Monthly burn rates

Ventura Compressor Modernization (Devil's Canyon)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (DEVIL'S CANYON)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC			**May-23**
3	Submit Final PEA & CPCN Application			**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Land Acquisition / Easement / Soil Remediation**	**66**	**Feb-25**	**Aug-29**
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Landowner Decomm/Dismantling Exisiting Oil Wells	24	Feb-25	Feb-27
8	Develop Workplan/Assessment - Soil Remediation	30	Mar-27	Aug-29
9	**New FEED**	**24**	**Dec-28**	**Dec-30**
10	RFP Development	9	Dec-28	Aug-29
11	RFP Issue & Award	3	Sep-29	Dec-29
12	Revised FEED Study	12	Dec-29	Dec-30
13	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-30**	**Dec-32**
14	**New AFE Board Approval**	**6**	**Sep-31**	**Mar-32**
15	**New EPC RFP Development & Award**	**24**	**Mar-30**	**Mar-32**
16	EPC RFP Development	12	Mar-30	Mar-31
17	EPC RFP Issued	3	Mar-31	Jun-31
18	EPC Award	9	Jun-31	Mar-32
19	**EPC Phase**	**50**	**Mar-32**	**Jun-36**
20	Detailed Engineering (Phase 1 & 2)	24	Mar-32	Mar-34
21	Procurement	28	Jun-32	Sep-34
22	Site Grading (Staging Area & Comp. Station site)	14	Jan-33	Mar-34
23	Construction, Commissioning, Startup	30	Dec-33	Jun-36
24	**In-Service Date (NOP)**	**0**		**Jun-36**
25	**Closeout**	**18**	**Jun-36**	**Jan-38**
26	**SoCal Edison (Method of Service & Execution)**	**54**	**Dec-30**	**Jun-35**
27	Develop SCE Application & MOS Agreement Signed	12	Dec-30	Nov-31
28	Method of Service Study	6	Nov-31	May-32
29	Proc., Construction, Commissioning, Startup	36	May-32	Jun-35
30	**New Pipeline & Main Line Valve Station**	**55**	**Dec-30**	**Jul-35**
31	Land Easement	12	Dec-30	Nov-31
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34	Detailed Engineering & Procurement	18	May-32	Dec-33
35	RFP & Award	6	Dec-33	Jun-34
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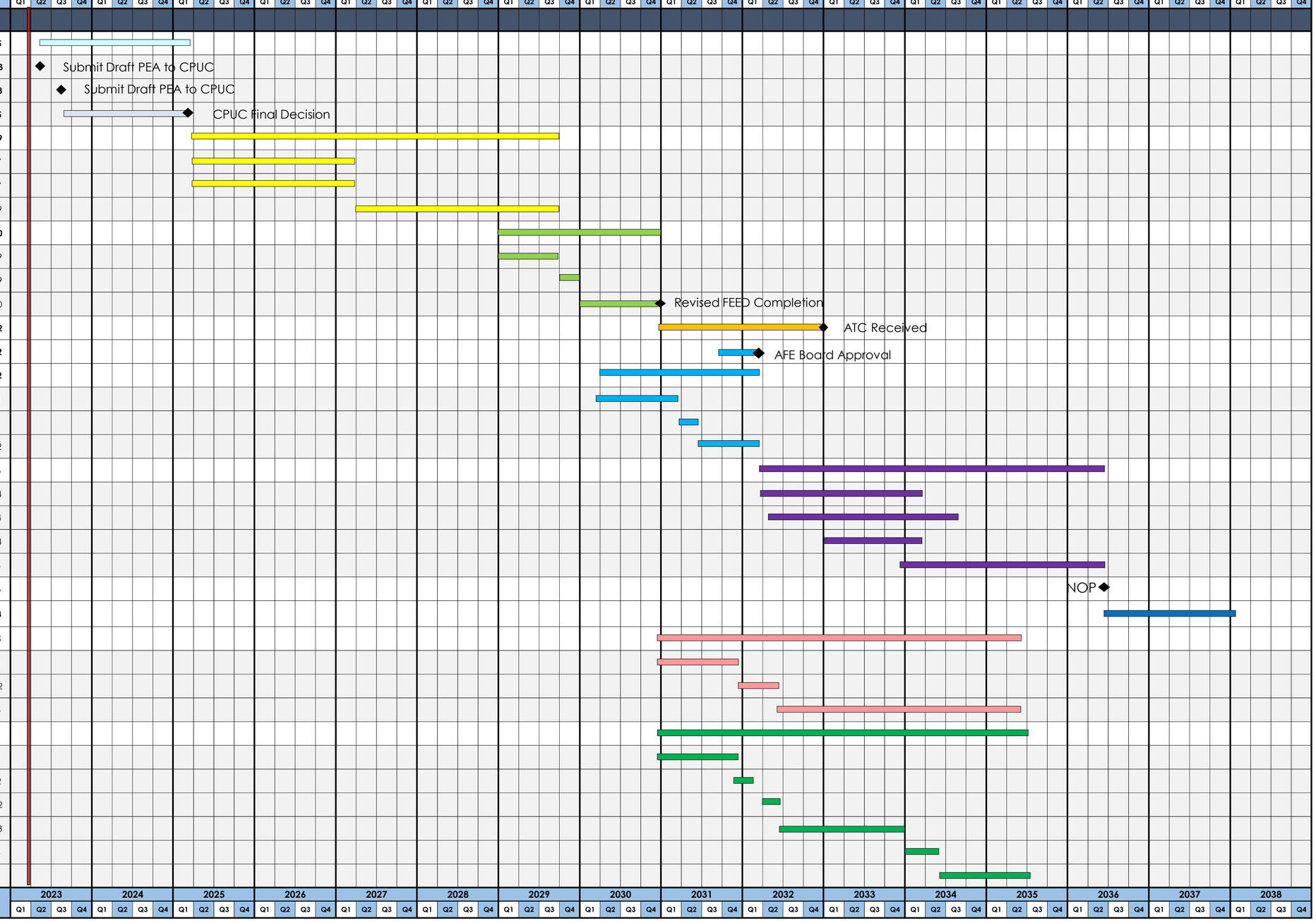


Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on **24-May-23**. Final PEA & CPCN Application Submittal is Due on **24-Aug-23.** CPUC Final Decision Approx. **18-months** after Application submittal.
2. **LAND ACQUISITION:**Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. **66-months** to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. **24-months** to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. **24-months** after application submittal.
5. **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. **3-6 Months** to complete.
6. **New EPC RFP** - Starts as early as possible to finish **one quarter** after completion of the Revised FEED. The rest of the process will take appox. **12-months** to Award the EPC Contract.
7. **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.**24-months** to complete. The entire EPC Phase is expected to take Approx. **50-Months** up to NOP
8. **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. **54-Months** to complete. (App/MOS/EPC)

9 **NOP** - NOP/In-Service Date in **Q2-2036**

Table 1: Actuals (As of September 30, 2021)		
Total	$	31,727,022
Directs	$	22,374,794
Non-Directs	$	9,352,228

Table 2: Copy of Actuals Report (Sept. 30, 2021)

		EAC	ACT	ETC
Facilities-Ventura Comp-Modernization	All Cost Elements	313,189,529.93	31,727,022.08	281,462,
	Direct Costs	238,333,740.51	22,374,794.01	215,958,
	Direct Labor	9,368,203.80	3,102,275.30	6,265,
	Company Labor	9,368,203.80	3,102,275.30	6,265,
	Mgmt & Non-Union Labor	9,220,072.49	2,954,143.99	6,265,
	Union Labor	148,131.31	148,131.31	
	Non-Labor	228,965,536.71	19,272,518.71	209,693,
	Employee Costs	60,913.74	60,913.74	
	Employee Travel	60,913.74	60,913.74	
	Services	183,056,971.16	18,850,953.16	164,206,
	Services Consultants	22,872,084.64	3,582,503.64	19,289,
	Services Engineering & Construction	157,790,689.36	12,874,252.36	144,916,
	6220005 - SRV-CONTRACTORS-MAJOR PROJECTS	36,837,813.33	8,657,813.33	28,180,
	6220006 - SRV-CONSTRUCTION SERVICES DEPT O...	87,333,000.00	0.00	87,333,
	6220007 - SRV-CONTRACTORS-TIME & EQUIPMENT	1,881.69	1,881.69	
	6220008 - SRV-CONTRACTORS	686,020.33	686,020.33	
	6220009 - SRV-CONTRACTORS-SPECIFIC JOBS	452,448.87	452,448.87	
	6220480 - SRV-ENGINEERING	32,479,525.14	3,076,088.14	29,403,
	Services Government Payments & Permits	378.00	378.00	
	Services Vehicles and Equipment Rental	32,813.70	32,813.70	
	Services Other	2,361,005.46	2,361,005.46	
	Materials	45,632,637.57	145,637.57	45,487,
	Material Compressor Equipment	40,958,766.85	28,766.85	40,930,
	Material Issuances	517.64	517.64	
	Material Other	4,673,353.08	116,353.08	4,557,
	All Other	215,014.24	215,014.24	
	Internal Settlements	230,540.35	230,540.35	
	Vehicle Utilization	32,026.67	32,026.67	
	Other	(47,552.78)	(47,552.78)	
	Non Direct Costs	75,619,598.59	9,352,228.07	66,267,
	Non Direct Costs wo AFUDC	32,821,203.57	5,187,165.07	27,634,
	Non Direct Costs AFUDC	42,798,395.02	4,165,063.00	38,633,

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Table 1: Cost Index Study Published by S

JUGPDSTCM@PCF = Utility Cost Index: Gas Distribution Plant, Pacific Region--Compressor Station Equipment

JUGPSHEF@PCF = Utility Cost Index: Gas Storage Plant, Pacific Region--Gas Holders Excluding Foundation

Construction-related cost index (includes labor and nonlabor)

Source: Global Insight 4th Quarter 2021 utility cost forecast (published January 25, 2022); recorded data from Handy-Whitman

	JUGPDSTCM@PCF			JUGPSHEF@PCF		
	2021=1.0000	1973=100	% change	2021=1.0000	1973=100	% change
2016	0.8986	689.00	1.62%	0.8963	499.25	1.58%
2017	0.9156	702.00	1.89%	0.9035	503.25	0.80%
2018	0.9495	728.00	3.70%	0.9399	523.50	4.02%
2019	0.9782	750.00	3.02%	0.9744	542.75	3.68%
2020	1.0000	766.75	2.23%	1.0000	557.00	2.63%
2021	1.0648	816.45	6.48%	1.0954	610.12	9.54%
2022	1.1293	865.90	6.06%	1.1154	621.26	1.83%
2023	1.1195	858.35	-0.87%	1.1019	613.78	-1.20%
2024	1.1186	857.71	-0.07%	1.1213	624.58	1.76%
2025	1.1283	865.13	0.87%	1.1479	639.38	2.37%
2026	1.1436	876.86	1.36%	1.1763	655.19	2.47%
2027	1.1643	892.69	1.81%	1.2067	672.11	2.58%
2028	1.1861	909.44	1.88%	1.2374	689.23	2.55%
2029	1.2091	927.06	1.94%	1.2681	706.35	2.48%
2030	1.2324	944.94	1.93%	1.2990	723.55	2.44%
2031	1.2571	963.92	2.01%	1.3311	741.45	2.47%
2032	1.2824	983.27	2.01%	1.3641	759.79	2.47%
2033	1.3081	1003.01	2.01%	1.3978	778.59	2.47%
2034	1.3344	1023.15	2.01%	1.4324	797.86	2.47%
2035	1.3612	1043.69	2.01%	1.4679	817.60	2.47%
2036	1.3885	1064.64	2.01%	1.5042	837.82	2.47%
2037	1.4164	1086.01	2.01%	1.5414	858.55	2.47%
2038	1.4448	1107.82	2.01%	1.5795	879.80	2.47%
2039	1.4738	1130.06	2.01%	1.6186	901.56	2.47%
2040	1.5034	1152.75	2.01%	1.6587	923.87	2.47%
2041	1.5336	1175.89	2.01%	1.6997	946.73	2.47%
2042	1.5644	1199.50	2.01%	1.7417	970.15	2.47%
2043	1.5958	1223.58	2.01%	1.7848	994.15	2.47%
2044	1.6278	1248.15	2.01%	1.8290	1018.75	2.47%
2045	1.6605	1273.20	2.01%	1.8742	1043.95	2.47%
2046	1.6939	1298.76	2.01%	1.9206	1069.78	2.47%
2047	1.7279	1324.84	2.01%	1.9681	1096.25	2.47%
2048	1.7626	1351.44	2.01%	2.0168	1123.37	2.47%
2049	1.7979	1378.57	2.01%	2.0667	1151.17	2.47%
2050	1.8340	1406.25	2.01%	2.1179	1179.65	2.47%

Ventura Compressor Modernization Project

Ventura, CA (Ventura Steel Alternative Site Location)

Work Order Authorization #91651

Class 5 Estimate

April 2023

Revision 1

Table of Contents

1. Project Overview

Southern California Gas Company (SoCalGas) transmission systems play a vital role in the delivery of natural gas to millions of residential, commercial, and industrial consumers throughout Southern California. It is therefore essential that gas transmission equipment maintain a high level of reliability and operability and meet Federal and State regulatory agency regulations and comply with Company site technical practices.

This project is being executed to improve reliability and reduce equipment-regulated emissions. It includes the installation of new reciprocating gas engine-driven gas compressors, utilities and associated controls, electrical, instrumentation, and emission control equipment.

The overall goal of this project is to design/engineer/construct a new plant that will consist of two (2) gas-powered compressors and two (2) electric-powered compressors. When completed, the new compressors will have the capability to replace the existing Ventura Site compressors, meet the VCAPCD air emission and safety requirements, maintain sufficient pressure in the existing pipelines, and provide adequate inventory to the La Goleta Storage Field.

The Ventura Steel Alternative contemplates building an entirely new compressor station, including all necessary appurtenances, on an approximately 10-acre site with oil extraction infrastructure that is zoned and designated for industrial uses. It is located approximately 7,000 feet north of the existing compressor station site in the City and County of Ventura. This site is relatively flat and there are existing active oil wells on site.

Transmission piping will need to be installed from the closest tap source to the new site location. This will require grading, trenching, pipeline installation, and a potential acquisition of additional pipeline right-of-way.

Based on preliminary analysis, approximately 5 MW of electric power would be needed, which would require distribution-level service on one unique power line of at least 16 kV. An onsite substation would also be required.

Currently, the project is planned and estimated to be executed in two phases. Phase 1 will be reimbursable and go up to 60% engineering. Phase 2 of the project will be a lump sum from 60% through the end of construction.

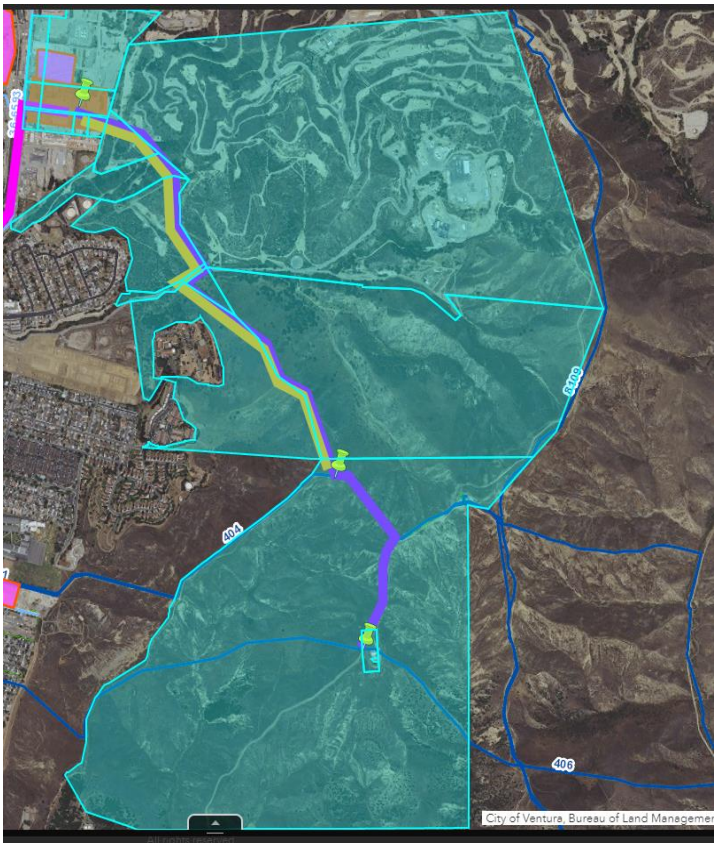


Figure 1: Compressor Site in Relation to Existing Compressor Station

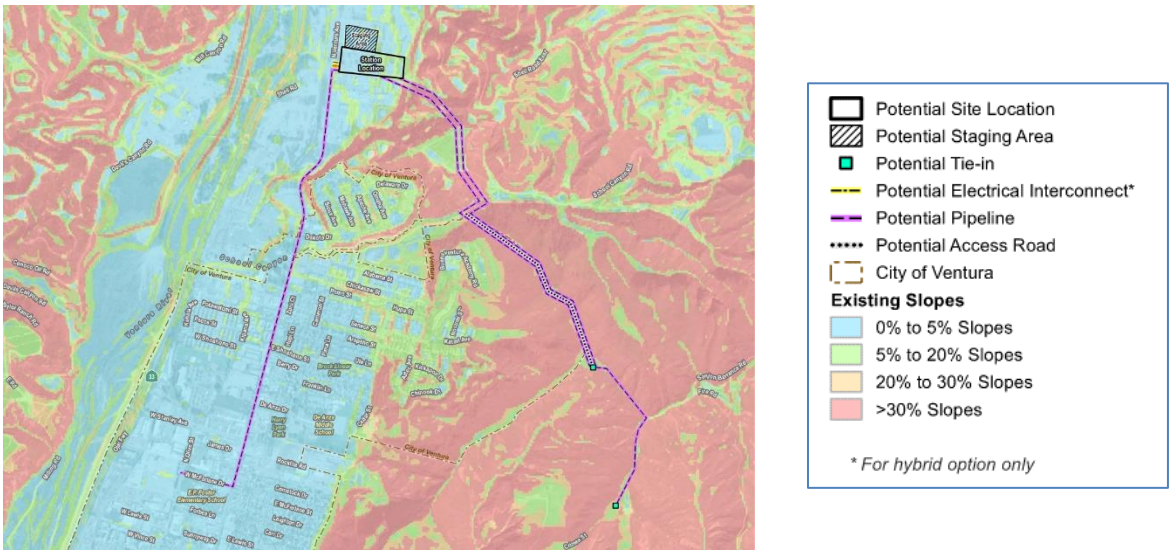


Figure 2: Site Topography and Slope

1.1. Document Breakdown Structure

- EPC – Engineering / Design Services
- EPC – Construction
- EPC – Construction Management
- SCG Labor – Management & Non-Labor
- SCG Labor – Union T/H
- SCG Labor – Outreach & Public Affairs
- Material - Other
- PM / Project Services
- Inspection Services
- Surveying / As-Builts
- Environmental Services
- Pressure Test Certification
- Land Services
- Miscellaneous Services
- Permits
- Other Non-Labor Costs

1.2. Reference Documents

- SoCalGas VCM Capital Cost Estimate Rev 1_11Feb2020
- Ventura - TM1 PTD Costs by PO_For Campos Estimate_Function
- VCM P&ID - 111419 _09Dec2019 Comments
- VCMModelReview_20200203 – Navisworks
- CSUP-VCU-PM-BOD-0002_Working_Version_11-15-2019 _Fluor Comments
- EPC SOW Rev B_Final
- E15043-VCM_GE_Support-FTE_Estimate_Rev.B_03-03-2020
- Ventura Env Cost Estimate 01312020
- Ventura Master Staffing Plan EPC_ PMT Only
- Ventura Compressor Station - Land Services Cost Estimate Spreadsheet
- Feasibility_Study_Full
- Burns & McDonnell Electrical Study
- Ventura Electric Motor Driver Analysis Rev C 10/7/21
- Ventura Estimate (CPCN)_Class 3 w ROM Adj (Hybrid Option)_Rev 5
- Class 5 Estimate Ventura Alternative Ventura Steel_Rev5
- Class 5 Estimate Ventura Alternative Ventura Steel_Rev6

1.3. Estimate Classification and Definitions

1.3.a. Classification and Accuracy

- Pricing is based on current construction costs in Ventura, California
- Construction staging will occur on site.

BASIS OF STAGE 1 ESTIMATE

- Construction will be performed by a General Contractor at Risk (GCAR) using a Lump Sum type of contract
- Estimate pricing is based on full and open competition from local regional contractors.
- The construction, commissioning, and startup schedule is assumed to be 30 months for the compressor station site work and 13 months for the installation of the underground piping (connecting to the new site) and new mainline valves. Both scopes will be executed in parallel with the pipeline and mainline valve work completed before the compressor station.
- The estimate was originally developed in April 2020 utilizing a Class 3 estimate for the existing Ventura Compressor Station site that was modified to account for a hybrid (2 gas – 2 electric drive) compressor setup. Site-specific conditions were then estimated and added to the estimate per Class 5 AACE estimating standards
- In April 2023, several below-the-line adjustments were made to the estimate which were at either a Class 4 or Class 5 Estimate classification resulting in an overall Class 5 estimate. A revised FEED phase will need to be completed if this alternative site location is chosen.
- Description: Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systematic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended—sometimes requiring less than an hour to prepare. Often, little more than the proposed plant type, location, and capacity are known at the time of estimate preparation.
- End Usage: Class 5 estimates are prepared for any number of strategic business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs, and budgeting, long-range capital planning, etc.
- Estimating Methods Used: Class 5 estimates generally use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, and other parametric and modeling techniques.
- Expected Accuracy Range: Typical accuracy ranges for Class 5 estimates are -20% to -50% on the low side, and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate reference information and other risks (after inclusion of an appropriate contingency determination). Ranges could exceed those shown if there are unusual risks.

1.3.b. Contingency

The Ventura Compressor Modernization Ventura Steel Site Project estimate can be divided into two sub-sections. The first section consists of a Class 3 estimate originally developed by Flour with site-specific additions. For this section, a consistent contingency of 30% was applied to each item. The second section of the estimate was developed using ROM costs (Below the Line Changes). For this section, contingency was determined at the estimator's discretion based on experience and historical data from past compressor stations. The contingency was further reviewed and approved by the project manager. The contingency for the line items in this section ranged from 15-40%. The overall contingency for the below-the-line adders section was 28.8% of the costs before escalation and loaders.

2. Estimate Information

2.1. Scope of the Estimate

The scope of the Ventura Compressor Modernization Ventura Steel Site Project estimate includes the anticipated all-inclusive costs of the following:

- EPC Contractor costs including:
  - Engineering and Design Services
  - Construction
  - Construction Management
- Southern California Gas Company Management, Union Labor, and Non-Labor Costs
- Project Management and Project Services
- Material Procurement and Management
- Survey / As-Builts
- Hydrotest Certification Services
- Environmental Planning, Management, Monitoring, and Abatement Support
- Construction Management
  - Inspection
  - District Personnel (Management, PSEP Liaison, DOM, Union Labor, Instrumentation, and FOS).
  - M&R (Meters and Regulation)
  - Pipeline Integrity
- Land Services
- Permitting

2.2. Key Personnel

Position	Name	Office Phone	Mobile Phone
Sr. Director			
SoCalGas			
Execution Manager			
SoCalGas			
Portfolio Manager			

Position	Name	Office Phone	Mobile Phone
SoCalGas			
Project Manager			
SoCalGas			
Gas Engineering			
SoCalGas			
Construction Management			
SoCalGas			
Estimating			
Contractor			
Contractor			
SoCalGas			
Environmental			
SoCalGas			
Land Acquisition			
SoCalGas			
Supply Management			
SoCalGas			
Water Management			
SoCalGas			
Permitting			
SoCalGas			

2.3. Estimate Schedule

- **Project Kick-Off with Fluor** 7/24/2019
- **Receive Estimate Plan from Fluor** 9/27/2019
- **Fluor Engineering Develop MTO** 10/18/2019
- **Receive Rev 0 Fluor's EPC Estimate** 1/24/2020
- **SCG/Campos Review with Fluor** 2/5/2020
- **Receive Rev 1 Fluor's EPC Estimate** 2/11/2020
- **Incorporate Comments, Sign-Off, Issue Class 3 Est** 4/30/2020
- **Begin revisions to estimate (Below the Line changes)** Feb 2023
- **Finalize ROM Estimate Adjustments** 4/14/2023

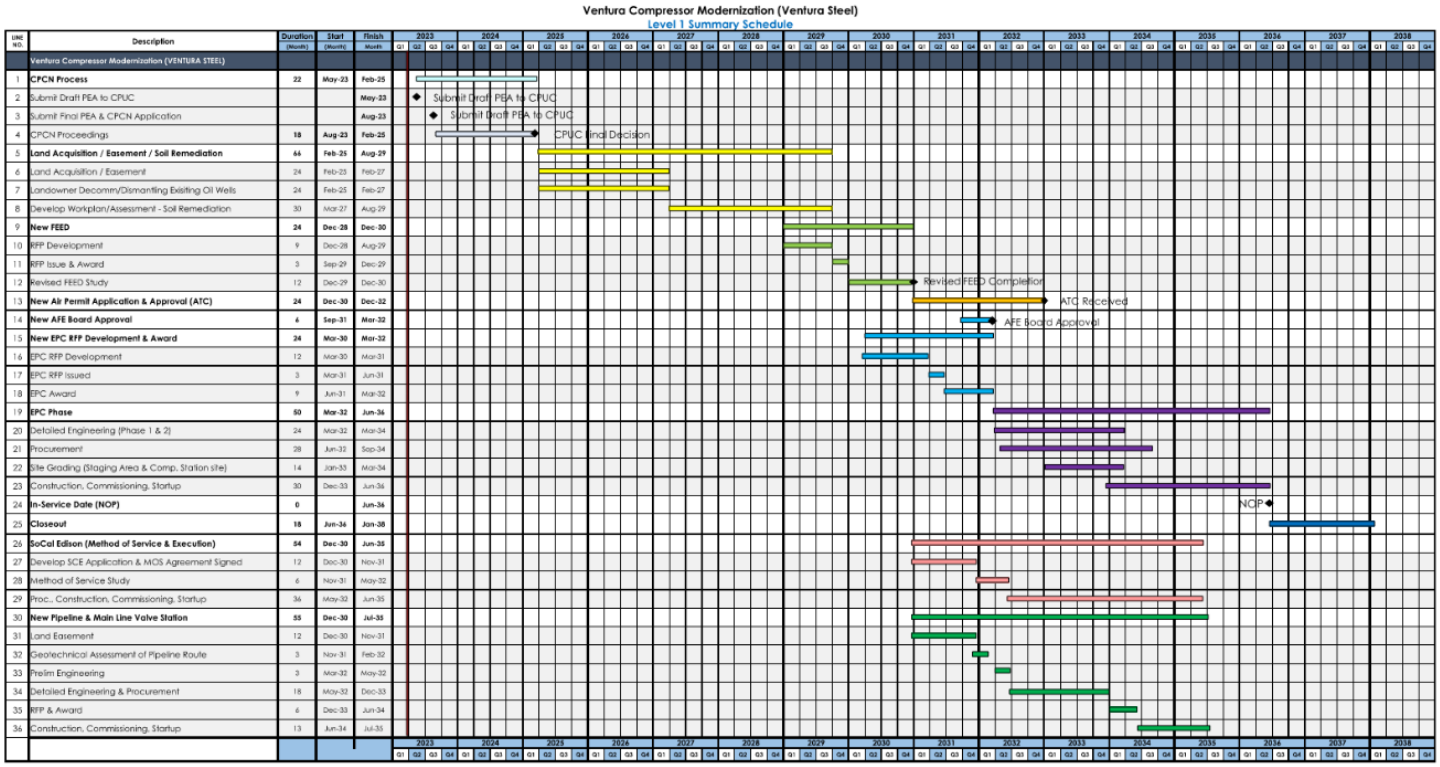
2.4. Assumptions and Exclusions

- No night or weekend work will be performed
- No cultural resources are anticipated.

- No groundwater will be encountered
- Soil remediation for the Ventura site is assumed to be part of a separate WOA and the estimate assumes the EPC contractor will receive a clean, graded site
- Study/design/engineering (if required) of any retrofit/demolition work at existing compressor site is excluded
- Demolition of the administration and warehouse buildings at the existing Ventura compressor station site is excluded and assumed to be part of the soil remediation contract
- Demolition of the existing Compressor station is excluded from this scope of work.
    - Assumed to take place 1 year after the new facility is constructed and fully operational.
    - Separate price to perform the work will include the removal of old compressor equipment, coolers, and ancillary equipment which is to be sold as complete packages.
    - Selling remaining structures, exhaust stack, piping, controllers, and valves as scrap metal.
    - Existing concrete floor slabs are assumed to remain in place.
    - Assumes the area is less than or equal to the area of the new facility construction footprint.
    - A separate Class 5 estimate of $5MM was completed by Burns & McDonnell for this scope

2.5. Current Project Schedule

The following schedule forms the basis for the updated Class 5 estimate. See appendix for enlarged schedule and schedule assumptions.



LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (VENTURA STEEL)			
1	**CPCN Process**	22	May-23	Feb-25
2	Submit Draft PEA to CPUC			May-23
3	Submit Final PEA & CPCN Application			Aug-23
4	CPCN Proceedings	18	Aug-23	Feb-25
5	**Land Acquisition / Easement / Soil Remediation**	66	Feb-25	Aug-29
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Landowner Decomm/Dismantling Existing Oil Wells	24	Feb-25	Feb-27
8	Develop Workplan/Assessment - Soil Remediation	30	Mar-27	Aug-29
9	**New FEED**	24	Dec-28	Dec-30
10	RFP Development	9	Dec-28	Aug-29
11	RFP Issue & Award	3	Sep-29	Dec-29
12	Revised FEED Study	12	Dec-29	Dec-30
13	**New Air Permit Application & Approval (ATC)**	24	Dec-30	Dec-32
14	**New AFE Board Approval**	6	Sep-31	Mar-32
15	**New EPC RFP Development & Award**	24	Mar-30	Mar-32
16	EPC RFP Development	12	Mar-30	Mar-31
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21	Procurement	28	Jun-32	Sep-34
22	Site Grading (Staging Area & Comp. Station site)	14	Jan-33	Mar-34
23	Construction, Commissioning, Startup	30	Dec-33	Jun-36
24	**In-Service Date (NOP)**	0		Jun-36
25	**Closeout**	18	Jun-36	Jan-38
26	**SoCal Edison (Method of Service & Execution)**	54	Dec-30	Jun-35
27	Develop SCE Application & MOS Agreement Signed	12	Dec-30	Nov-31
28	Method of Service Study	6	Nov-31	May-32
29	Proc., Construction, Commissioning, Startup	36	May-32	Jun-35
30	**New Pipeline & Main Line Valve Station**	55	Dec-30	Jul-35
31	Land Easement	12	Dec-30	Nov-31
32	Geotechnical Assessment of Pipeline Route	3	Nov-31	Feb-32
33	Prelim Engineering	3	Mar-32	May-32
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35	RFP & Award	6	Dec-33	Jun-34
36	Construction, Commissioning, Startup	13	Jun-34	Jul-35

Schedule Assumptions:

1 **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23, Final PEA & CPCN Application Submittal is Due on 24-Aug-23. CPUC Final Decision Approx. 18-months after Application submittal.
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6 **New EPC RFP** - Starts as early as possible to finish one quarter after completion of the Revised FEED. The rest of the process will take appox. 12-months to Award the EPC Contract.
7 **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.24-months to complete. The entire EPC Phase is expected to take Approx. 50-Months up to NOP
8 **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. 54-Months to complete. (App/MOS/EPC)
9 **NOP** - NOP/In-Service Date in Q2-2036

2.6. Procurement Clarifications

2.6.a. Freight

Freight has been included in the EPC estimate provided by Fluor at 8%

2.6.b. Tax

Sales tax has been included in the EPC estimate provided by Fluor at 7.75%

2.6.c. Escalation

Escalation was included based on current indices and the current EPC project schedule.

The average overall escalation added to the project is 15.82%

Escalation was applied to each activity based on the midpoint of expenditure for each item. The table below indicates the escalation percentages utilized in the estimate.

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Escalation was applied to all direct costs including contingency since contingency is intended to be spent.

Excluded from escalation were SoCalGas Indirect costs (Loaders) as well as actuals to date.

2.6.d. Allowances

Allowances have been included in the EPC estimate by Fluor and are reflected in the estimate. The table below shows the allowances included by discipline:

Prime Account	Material Design Allowance (MDA)	Material Take-Off Allowance (MTOA)
Site/Civil	N/A	10%
Concrete	N/A	10%
Structural Steel	N/A	10%
Architectural	15%	N/A
Mechanical Equipment	15%	N/A
Piping Large Bore	N/A	5%
Piping Small Bore	N/A	15%
Piping Specialties	N/A	10%
Electrical Equipment	15%	N/A
Electrical Bulks	N/A	20%
Control Systems	N/A	20%

Design allowance does not cover for scope changes.

Weather allowance has also been included in the estimate at 2.5% of labor and subcontract costs for construction.

3. EPC Estimate (provided by Fluor) for Class 3 Estimate

3.1. Overall Assumptions and Basis

The overall assumptions and basis presented is a high-level view of the basis of Fluor's estimate. For a more detailed analysis by discipline, please refer to Fluor's attached Basis of Estimate.

- The base estimate is based on 4th quarter 2019 pricing and is escalated accordingly
- Work schedule is based on 10-hour days, 5 days a week, Monday through Friday
- No weekend or night work is anticipated
- Construction is based on Union labor workforce
- The project schedule provided assumes 28 months of construction
- Transportation for craft workers to and from off-site parking areas is required. Busing equipment cost and the cost of craft labor during transit are included in the estimate based on 15 minutes per day, twice a day.
- Decommissioning of existing site features (flanging the old assets) has been included in the estimate except for the administration building and warehouse building.

- Demolition of the existing compressors and compressor building has been excluded from this estimate.
- The estimate is based on input from the following Engineering disciplines
  - Civil
  - Structural
  - Control Systems
  - Piping
  - Electrical
  - Mechanical
  - HSE

3.2. Key Quantities

The following table shows key quantities for the project at the time of the Class 3 Estimate in April 2020. This portion of the estimate did not change concerning key quantities. However, several of the scope adjustments outlined in sections 4 and 6 have separate quantities that are not accounted for in the table below.

SUMMARY	Qty	UOM
Earthwork and Civil	36,872	CY
Concrete	5,007	CY
Structural Steel	318	TON
Architectural	20,214	SF
Machinery & Equipment	53	EA
Piping	25,181	LF
Pipe Fabrication	455,549	LBS
Electrical	161,321	LF
Control Systems	636	EA

3.3. Equipment and Bulk Materials

The estimate assumes the EPC contractor will purchase all equipment and materials.

Quantities were developed by Fluor's design engineers and priced and labored by Fluor's estimating team.

The estimate includes pricing for all mechanical equipment greater than $15,000 from budgetary vendor quotes. 95% of mechanical equipment was based on budgetary quotes and the rest of the 5% was based on in-house pricing.

Budgetary vendor quotes were also received for the following:

- Concrete pricing is based on quoted local area costs for ready-mix concrete at 4500 psi.
- PDC
- MCC
- SWGR #1
- SWGR #2
- Control and On/Off valves
- Relief Valves
- CEMS shelters and associated analyzers
- BPCS equipment

The remainder of the bulk materials were priced based on in-house pricing.

3.4. Craft Labor Rate

The all-in labor rates were developed using current Ventura County Union wage rates and benefits and burdens (fringes and PT&I) obtained from local unions and combined with subcontractor indirect costs. The bare wage rate is a blended 50-hour-per-week rate consisting of 40 standard rate hours and 10 premium time hours.

The subcontractor indirect costs below vary by account (within the ranges shown in parenthesis). They have been applied as a percentage of the Bare Wage Rate and are consistent with historical metrics:

- Small tools and consumables (4%-8%)
- Construction equipment & cranes up to 60 tons (18%-22%)
- Contractor field staffing (10%-20%)
- Temporary facilities and services (12%-20%)
- Miscellaneous expenses (5%)
- Subcontractor fee & contingency (10%-16%)

The all-in rates used in the 2020 Class 3 estimate by major account are shown below

Description	All-In Rate/Hr
Earthwork Civil	$ 141.45
Demo	$ 141.45
Concrete	$ 145.32
Structural Steel	$ 152.36
Building	$ 136.12
Mechanical	$ 171.74
Piping	$ 176.97
Electrical / EICS	$ 168.73
Control Systems	$ 166.16
Painting	$ 121.39
Insulation	$ 140.94
Scaffolding	$ 132.82
Safety Watch	$ 115.00
Subcontractor Rate	$ 250.00

3.5. Productivity

Productivity adjustments were developed based on historical metrics and were applied to Fluor Standard Unit Work Hours. These adjustments include items that may affect craft productivity including craft availability, craft skills, climate and weather, specific site and project information, overtime consequences and site accessibility.

The productivities from Fluor were adjusted to achieve an average productivity of 1.3. The adjusted productivities utilized in the estimate are shown below:

Description	Productivity
Earthwork Civil	1.25
Concrete	1.00
Structural Steel	1.25
Building	1.30
Mechanical	1.30
Piping	1.40
Electrical/EICS	1.30
Control Systems	1.30
Painting	1.30
Insulation	1.40

3.6. Engineering Costs

Engineering costs cover Detail Engineering and Design and Procurement services. The estimate is based on Fluor's historical averages for similarly sized projects.

Engineering support during construction was adjusted based on the historical average seen on the Blythe Plant 4 Compressor project.

3.7. Construction Management

Listed below are the major items included:

- Field office, temporary warehouse, break area, and first-aid office
- Set up and maintenance of temporary power and lighting
- Temporary construction water, and potable water
- Road upgrades, janitorial service, and material offload
- Testing and inspection during construction, and waste removal
- Field staff and office supplies
- Cranes in excess of 60 tons
- Insurance, Bonds, Permits, and Licenses

3.8. Estimate Adjustments to Fluor Class 3 Estimate

- Added allowance for security cameras, CCTV, networking (phone/internet) etc.
    - Added $100K for materials and $100K for labor in the "Architectural" account
- Included ROM estimate from Field Operations for the communications relocation scope of work
    - Added allowance of $525,000
- Added 10% of all materials to account for the material handling and mark-up fees by the EPC contractor
- Fluor assumed only 20% of the craft labor would receive per diem at $100 per day for 5 days a week.
    - Adjusted estimate to reflect 100% of craft labor to receive per diem at $100 per day for 5 days a week

- Added 10% for material handling fee by the construction contractor
- Reduced concrete manhours per cubic yard from 14 to 9 based on historical benchmarks
- Reduced piping manhours per foot from 4.05 to 2.5 based on historical benchmarks
- Reduced productivity from an average of 1.4 to 1.3 based on better conditions in Ventura as opposed to Blythe
- Increased Vendor Representatives and included 700 man-days x $2,500 a day

4. Site-Specific Scope Additions (Not Captured in Flour Estimate)

4.1. Key Quantities

Site-specific, key quantities, added to the Class 3 Estimate from April 2020 are shown below.

SUMMARY	Qty	UOM
Clear & Grub / Grade Laydown Area	4.9	ACRE
Site Grading and Imported Fill	122,129	CY
New Pipelines (Improved)	9,398	LF
New Pipelines (Unimproved)	16,949	LF
MLV Station	1	EA
Piles	489	EA

4.2. Site Specific Cost Items Basis

The following items are specific to the Ventura Steel Site and were accounted for in the provided estimate.

- Clear & Grub / Grade Laydown Area
    - Estimate includes (1) crew for 3 months will be required to complete this task
- Site grading and imported fill for remediation
    - Assumes the entire 15.14 acres will receive 5’ of imported fill
- New pipeline installation
    - The estimate assumes 9,398 LF of new pipeline installation will be required in improved areas and 16,949 LF will be installed in unimproved areas for the new site.
    - Material costs were estimated using a unit rate which includes a 20% adder for miscellaneous fittings based on the total LF of new installation

- Contractor costs for the new install were calculated using a unit rate per LF of new install

- New mainline valve (MLV) station installations
  - Estimate includes (1) MLV stations
  - Estimated costs reflect valve automation, valves, electrical contractor, and associated costs

- New site piles
  - Includes drilling, placing rebar and concrete for (489) piles
    - (232) Of these piles are anticipated for (116) pipe supports with (2) piers each
    - (224) Of these piles are anticipated for (56) pieces of equipment each assumed to require (4) piers
    - (15) Of these piles are expected to support the compressor building
    - (9) Of these piles are expected to support the admin building
    - (9) Of these piles are expected to support the new warehouse
  - Total cost was estimated using a unit cost per pile installation

This section of the estimate also includes an allowance for the following items:

- Additional Engineering for Pipeline and Remediation
- Weather – intended to cover any delays due to weather
- Additional SCE Substation Cost – assumes SCE substation is within 5 miles of site

5. Stakeholder Impacts for Class 5 Estimate

5.1. SCG Labor

SCG Non-Union Labor is estimated based upon the existing compressor site staffing plan and project duration provided by the project team beginning January 2020 for the start of Detail Design and ending June 2024 for closeout. This amount was then scaled using a ratio to account for a new preliminary schedule duration of 71 months pertaining to this specific location.

5.2. Material – Pipe, Fittings, Valves, and Other

Equipment and materials were included in Fluor's EPC estimate.

Additional materials included by SCG include the following:

- Office furniture for the Administration building at $60,000 allowance

- Shop equipment for the warehouse at $50,000 allowance

5.3. PM / Project Services

Project Management and Support Costs were developed based upon a staffing plan and project duration provided by the project team beginning in January 2020 for the start of Detail Design and ending in December of 2031 for closeout. This cost was then scaled using a ratio to account for a new preliminary schedule duration of 71 months.

Project services include contractor support for:

- Project Management
- Project Controls
- Estimating
- Supply Management
- Field Engineers
- Gas Engineering Support
- Land Services

5.4. 3rd Party Inspection

Inspectors were developed as part of the existing compressor site staffing plan provided by the project team.

50% of this cost was added to the estimate to account for the addition of new pipelines to the scope as compared to the existing site option.

5.5. Surveying / As-Builts

The estimate includes survey support staff for the project and site facility layout and as-builts for both Phase 1 and Phase 2.

The estimate also includes material support in the development of as-built close-out packages.

An additional 50% of this cost was added to the estimate to account for the addition of new pipelines to the scope as compared to the existing site option.

5.6. Environmental Services

Environmental services include the following:

- Excludes environmental services for site remediation work at the existing Ventura site
- Assumes 20.5 acres and 3,600 LF of new road for environmental costs to cover
- Assumes 57 months of pre-construction planning based on preliminary schedule Alternative Locations Rev2
- Assumed 50 months of construction based on preliminary schedule Alternative Locations Rev2
- Abatement duration assumed 10 tie-ins, with 1 day of abatement per tie-in

- SCG labor to support environmental services
- Construction monitoring, SWPPP Development, air permitting, etc.
- Assumes no CEQA/NEPA documents or other environmental studies/surveys are needed
- Assumes soil remediation at the existing Ventura compressor site is excluded from this capital budget and will be accounted for on another WOA
- Assumes water will be discharged to land for dust control or compaction
- Includes hazardous materials cost for disposal, paint and asbestos sampling, and analysis of soil
- Includes VCAPCD Authority to Construct (ATC) Permit Fee and Construction General Permit/SWPPP fee
- Assumes (2) JD crossings

5.7. Pressure Test Certification Services

An allowance of pressure test certification services has been included at $300K based on the existing compressor site option ($200k) with an additional $100k to account for hydrotesting the new pipelines

5.8. Land Services

This estimate assumes construction easements will be procured from existing landowners at current rates.

Includes (1) staging area for 48 months

Includes (1) MLV station easements assumed to be 50'x2600' in dimension

Includes (1) MLV TCE assumed to be 7,500 SF

Includes (5) non-exclusive easements

Includes (5) project TCEs

Estimate accounts for condemnation legal fees

All labor costs associated with support for land services are included

Includes demolition and remediation of existing property as part of the sale of site

5.9. CNG / LNG

No CNG/LNG support has been assumed for this project.

5.10. 3rd Party Outreach & Public Affairs

Included at 1% of total project cost

5.11. Miscellaneous Services

Miscellaneous Services include the following:

- Stopple Fitting and PCF tapping services for hot tie-in

- Vendor Representatives through construction
- Initial Fills
- Commissioning and Start-up support services

5.12. Permits

This estimate has included the anticipated cost of building permits from the existing compressor site option with an additional amount for environmental permits

5.13. Other Non-Labor Costs

Non-labor costs included in this estimate address travel, meals, expenses, and lodging incurred for SCG Labor.

6. *Scope Adjustments for Hybrid 2 gas, 2 electric Class 5 Estimate (Below the line Changes)*

The scope adjustments listed below are included to capture the various additional costs associated with installing 2 gas and 2 electric drive compressors rather than 4 gas compressors, site specific conditions not captured in part 1 as well as additional items that resulted from lessons learned during the construction of past compressor projects.

- BMcD electric study adder for the hybrid blend of gas and electric compressors (2 ea) (This adjustment was made “above the line” based on similar changes made in the Ventura Hybrid Base Case estimate.
    - BMcD provided a Class 5 estimate which was the basis used to determine the additional cost
- Additional SCE Transformer cost and Method of Service (MOS) Study
    - Added after updated information was received from Southern California Edison (SCE) concerning transformer costs and requirements
    - An additional transformer and Method of Service (MOS) study adjustment was made based on updated information received from SCE and historical Honor Rancho Compressor Modernization project costs
    - Based on the Rev1 B schedule, midpoint escalation was applied to the estimate
    - Accounts for additional SoCal Edison (SCE) and SoCalGas (SCG) electrical equipment including:
        - SCE Equipment
            - (2) EA 4160V Oil Filled Transformers
            - (1) EA Gas Switch for 16KV service
            - (1) EA Vacuum Fault Interrupter for 16KV service
        - SCG Equipment
            - (1) EA 480V Transformer

  - (1) EA Metering Panel

- FEED engineering addition to cover full FEED contractor engineering
- The estimate includes a new cost intended to cover the addition of (2) vapor recovery unit skids.
    - The price was derived utilizing the historical price from the Blythe Compressor Station which was $6MM for (1) skid. This is also the same amount used for the HRCM estimate
- Deodorizing unit costs were incorporated into the estimate.
    - Based on a quote received from a carbon adsorber vendor (Carbtrol - model: G-15PPL), these adsorbers were priced at $150k ea. The station design max flow rate resulted in (14) total adsorbers needed. An equipment factor of 3 was used to include costs for associated bulk materials and installation the adsorbers, blowers and associated bulk materials
    - A larger amount of contingency (40% total) is intended to account for unforeseen pricing associated with a different vendor in the event the Carbtrol units cannot handle the flow rate.
- A cooling motor blower addition was made to cover the cost of blowers for the (2) induction drive compressors.
    - The amount came from historical blower costs from the HRCM station
    - An installation factor of 3 was chosen to account for the necessary concrete pads, interconnected mechanical pipe/valves/fittings, and electrical components.
- Added to the estimate for the addition of a 4160V switchgear, battery charger, batteries, and 15ft run to the new PDC building
    - The amount is based on PDC quotes received for past MCM and HRCM projects
- The estimate includes an additional cost for proponent environmental assessments (PEA) and environmental impact reports (EIR) to be executed during CPCN proceedings and construction.
- Added a new line item intended to offset the additional engineering required for deodorizing and methane capture units
    - The amount is an allowance that was escalated
- An estimate line item was added for the purchase and installation of emission control catalysts installed at the exhaust side of the (2) gas compressors
    - The cost is from an Aerinox emissions control catalyst quote multiplied by an installation factor of 2. The amount of supporting infrastructure is anticipated to be less for the control catalyst install as compared to other units within the estimate
- An additional cost for EPC contractor insurance, warranty, and letter of credit costs can now be found within the estimate

        - This number was based on historical differences between estimates and actual costs at the MCM and HRCM sites.
- A new line items was added to account for grading and widening the site access road
    - Cost was determined by analyzing the elevation profile of the road and surrounding topography in regions where the turn radius was too small for site traffic
- Two separate line items for (1) additional SCG Company labor, and (2) 3rd Party Project Management/Project Services were estimated as a result of an extended CPCN schedule. The costs associated assume the following:
    - Both FEED and EPC will be re-bid
    - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
    - A separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED
    - Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPUC delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC
- The estimate includes a line item for 3rd party environmental costs
- The estimate includes a line item to add the incremental actual costs charged to the project between October 2021 and December 2022. The previous Class 3 estimate included actuals through September 2021. The actuals amount shown in the estimate assumes $8.8MM of costs will be transferred to the Tech Services group as part of operations and station improvements including: temporary office installation, perimeter security cameras, and fend line methane monitoring.
    - The $8.8MM number for actuals that have been excluded is expected to increase as more costs are accumulated prior to the project start date

7. Indirect Costs (Loaders)

Indirect costs, also known as Loaders were added to the estimate based on calculations resulting from the direct cost estimates (prior to Loaders) being entered into the TM1 system by the project controls group. The TM1 system takes into account the projected spend of direct costs over the project schedule and calculates the costs of company overhead, property taxes, and financing costs (also referred to as the allowance for funds used during construction (AFUDC)).

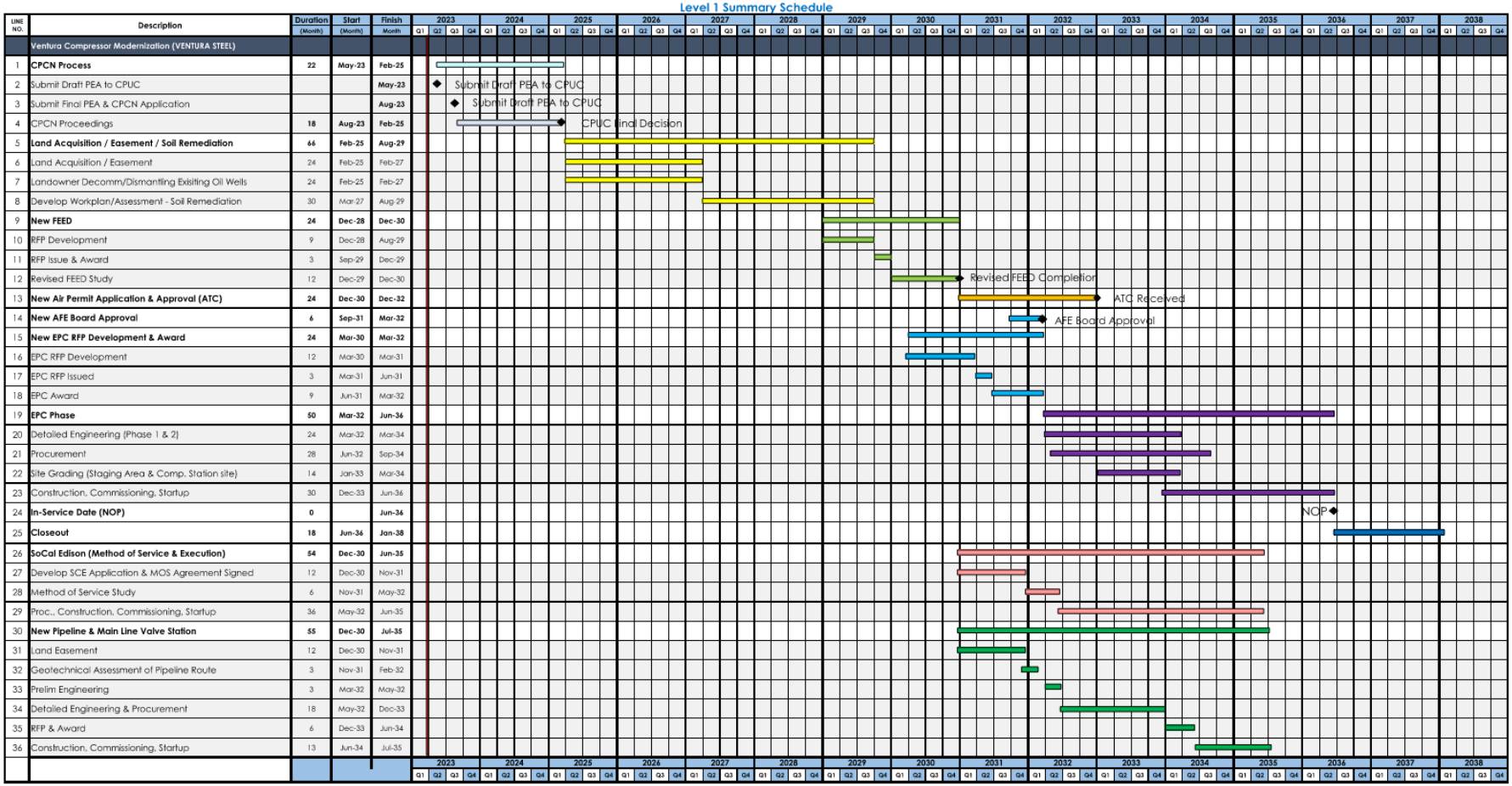
8. Appendix

8.1. Project Schedule & Assumptions

Ventura Compressor Modernization (Ventura Steel)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (VENTURA STEEL)			
1	**CPCN Process**	22	May-23	Feb-25
2	Submit Draft PEA to CPUC			May-23
3	Submit Final PEA & CPCN Application			Aug-23
4	CPCN Proceedings	18	Aug-23	Feb-25
5	**Land Acquisition / Easement / Soil Remediation**	66	Feb-25	Aug-29
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Landowner Decomm/Dismantling Exisiting Oil Wells	24	Feb-25	Feb-27
8	Develop Workplan/Assessment - Soil Remediation	30	Mar-27	Aug-29
9	**New FEED**	24	Dec-28	Dec-30
10	RFP Development	9	Dec-28	Aug-29
11	RFP Issue & Award	3	Sep-29	Dec-29
12	Revised FEED Study	12	Dec-29	Dec-30
13	**New Air Permit Application & Approval (ATC)**	24	Dec-30	Dec-32
14	**New AFE Board Approval**	6	Sep-31	Mar-32
15	**New EPC RFP Development & Award**	24	Mar-30	Mar-32
16	EPC RFP Development	12	Mar-30	Mar-31
17	EPC RFP Issued	3	Mar-31	Jun-31
18	EPC Award	9	Jun-31	Mar-32
19	**EPC Phase**	50	Mar-32	Jun-36
20	Detailed Engineering (Phase 1 & 2)	24	Mar-32	Mar-34
21	Procurement	28	Jun-32	Sep-34
22	Site Grading (Staging Area & Comp. Station site)	14	Jan-33	Mar-34
23	Construction, Commissioning, Startup	30	Dec-33	Jun-36
24	**In-Service Date (NOP)**	0		Jun-36
25	**Closeout**	18	Jun-36	Jan-38
26	**SoCal Edison (Method of Service & Execution)**	54	Dec-30	Jun-35
27	Develop SCE Application & MOS Agreement Signed	12	Dec-30	Nov-31
28	Method of Service Study	6	Nov-31	May-32
29	Proc., Construction, Commissioning, Startup	36	May-32	Jun-35
30	**New Pipeline & Main Line Valve Station**	55	Dec-30	Jul-35
31	Land Easement	12	Dec-30	Nov-31
32	Geotechnical Assessment of Pipeline Route	3	Nov-31	Feb-32
33	Prelim Engineering	3	Mar-32	May-32
34	Detailed Engineering & Procurement	18	May-32	Dec-33
35	RFP & Award	6	Dec-33	Jun-34
36	Construction, Commissioning, Startup	13	Jun-34	Jul-35



Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on 24-May-23. Final PEA & CPCN Application Submittal is Due on 24-Aug-23. CPUC Final Decision Approx. 18-months after Application submittal.
2. **LAND ACQUISITION:** Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. 66-months to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. 24-months to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. 24-months after application submittal.
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6. **New EPC RFP** - Starts as early as possible to finish one quarter after completion of the Revised FEED. The rest of the process will take appox. 12-months to Award the EPC Contract.
7. **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.24-months to complete. The entire EPC Phase is expected to take Approx. 50-Months up to NOP
8. **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. 54-Months to complete. (App/MOS/EPC)
9. **NOP** - NOP/In-Service Date in Q2-2036

Ventura Compressor Modernization Project

Ventura Steel Hybrid Compressor Option

Estimated Cost

$ 945,000,000

SCG
Class 5 (+100% / -50% Accuracy)

Done by: E2
Rev: 5
Date: 4/12/2023

Ventura Steel - (2) Gas x (2) Electric Compressors

	Description	Qty	UOM	Unit Cost	Total Cost	Comments		Year	New	Escalation %	Escalation $
										Mar-23	
	Total EPC (Before Site Specific Additions)	1	LS			Based on 2020 FEED Estimate and adjusted for Hybrid Option; See "Base EPC Elec. Study"	Base EPC Elec. Study	2026	2034	25.32%	
1	~~*Site demolition and Remediation*~~	~~0~~	~~ACRE~~	~~$ 830,000~~	~~$ -~~	Assume included as part of the sale of the site, cost re-allocated to Land	Estimate Details	~~2025~~		0.00%	$ -
2	*Clear & Grub / Grade Laydown Area*	4.9	ACRE	$ 98,884	$ 487,496			2026	2033	22.85%	$ 111,391
3	*Imported Fill for remediated soil*	122,129	CY	$ 66	$ 8,056,452			2026	2033	22.85%	$ 1,840,862
4	~~*Terraced Retaining wall (15' H x 700' L) x 3*~~	~~0~~	~~SF~~	~~$ -~~	~~$ -~~	~~N/A~~		~~2026~~		0.00%	$ -
5	~~*Slope & Bench Retaining wall (15' H x 2400' L) x 2*~~	~~0~~	~~SF~~	~~$ -~~	~~$ -~~	~~N/A~~		~~2026~~		0.00%	$ -
6	*Upgrade / Re-inforce Bridge*	0	LS	$ -	$ -	N/A		~~2026~~		0.00%	$ -
7	~~*Retaining wall for access road (8' tall x 3,000 LF)*~~	~~0~~	~~SF~~	~~$ -~~	~~$ -~~	~~N/A~~		~~2022~~		0.00%	$ -
8	~~*Concrete Drainage Ditch (5,500 LF)*~~	~~0~~	~~LF~~	~~$ -~~	~~$ -~~	~~N/A~~		~~2026~~		0.00%	$ -
9	~~*New Pipelines (Improved)*~~	~~9,398~~	~~LF~~	~~$ 714~~	~~$ 6,710,458~~	~~(1) 16" Line to L1004/1005 at existing site along paved road~~		2026		0.00%	$ -
10	*New Pipelines (Unimproved)*	16,949	LF	$ 414	$ 7,016,803	(1) 16" Line to L1004 and (1) 16" line to L1005		2026	2034	25.32%	$ 1,776,369
11	*MLV Station*	1	EA	$ 1,350,000	$ 1,350,000	Assumes 1 station. Includes New MLVs on L1004 and MLV 1005, bridles, actuators, etc.		2026	2033	22.85%	$ 308,469
12	*Piles*	489	EA	$ 25,000	$ 12,225,000			2026	2033	22.85%	$ 2,793,356
	Additional Engineering for Pipeline and Remediation	1	LS	$ 1,750,000	$ 1,750,000		N/A	2022	2032	20.43%	$ 357,554
	Weather Allowance	1	LS	$ 2,000,000	$ 2,000,000	Allowance to cover any delays due to weather		2026	2034	25.32%	$ 506,319
	Additional SCE Substation Cost	1	LS	$ 7,000,000	$ 7,000,000	Additional cost added to bring total SCE cost to $11M, Assumes 5 miles		2022	2034	25.32%	$ 1,772,115
	Total EPC Cost With Cost Adders				$ 225,309,000					0.00%	
	SCG Company Labor	1	LS			Based on 2020 Ventura FEED, scaled based on new preliminary schedule of 71 months.	N/A	N/A	N/A	0.00%	
	3rd Party Project Services	1	LS			Based on 2020 Ventura FEED, scaled based on new preliminary schedule of 71 months		2022	2034	25.32%	
	3rd Party Inspection Services	1	LS			Based on 2020 Ventura FEED, add 50% for new pipelines		2027	2034	25.32%	
	3rd Party Surveying / As-Builts	1	LS			Based on 2020 Ventura FEED, add 50% for new pipelines		2027	2034	25.32%	
	3rd Party Environmental	1	LS	$ 5,204,849	$ 5,204,849	Based on input provided by Environmental Group, See "Environmental" Tab	Environmental	2026	2032	20.43%	$ 1,063,438
	3rd Party Pressure Test Cert.	1	LS			Based on 2020 Ventura FEED, add $100K allowance for hydrotesting new pipelines	N/A	2027	2034	25.32%	
	3rd Party Land Services	1	LS	$ 43,954,862	$ 43,954,862	Based on input provided by Land group, includes crop loss; See "Land" Tab, includes cost for demo and remediation of existing site, assuming these costs would be included with sale of site	Land, Estimate Details & Environmental	2023	2027	9.34%	$ 4,104,432
	3rd Party Misc. Services	1	LS			Based on 2020 Ventura FEED, reduced commissioning/startup and vendor reps based on commissioning and vendor reps already included in EPC	N/A	2027	2034	25.32%	
	3rd Party Outreach & Public Affairs	1	LS	$ 3,400,000	$ 3,400,000	Allowance		2024	2031	18.06%	
	3rd Party Permits	1	LS			Based on 2020 Ventura FEED, Add allowance of $250K for environmental permits		2024	2031	18.06%	
	3rd Party Other Non-Labor	1	LS	$ 626,904	$ 626,904	Based on 5% of total SCG Company Labor Costs		N/A	N/A	0.00%	$ -
	Total Un-Loaded Direct Cost				$ 316,973,000						
	Contingency	30%			$ 95,091,900			2026	2034	0.00%	$ -
	Actuals				$ 22,374,794	as of September 30, 2021 (Directs only, actuals for loaders are included under loaders)					
	Escalation	16.12%			$ 66,423,498					Total Escalation	$ 66,423,498
	Total Un-Loaded Direct Cost w/ Contingency				$ 500,863,000						
	Loaders	33%			$ 167,253,336	Included as a placeholder, recommend to be verified by project controls, includes actuals for Loaders					
	Total Loaded Project Cost				***$ 668,000,000***	***Class 5 (+100% / -50%)***					

Compressor Upgrade		
Ventura Compressor Modernization Project		
PROJECT SUMMARY		
EPC - Engineering / Design Services		
EPC - Construction		
EPC - Construction Management		
SCG Labor - Mgmt. & Non Labor		$ 8,135,466
SCG Labor - Union T/H		$ 791,500
SCG Labor - Outreach & Public Affairs		$ 609,000
Material- Pipe & Fittings & Valves		$ -
Material-Valves		$ -
Material- Other		$ 110,000
PM / Project Services		$ 15,523,720
Inspection Services		$ 1,117,080
Surveying / As-builts		$ 307,547
Environmental Services		$ 365,952
Pressure Test Certification Services		$ 200,000
Water Storage		$ -
X-ray / NDE		$ -
Land Services		$ 1,029,438
CNG / LNG		$ -
Spreadboss		$ -
Miscellaneous Services		$ 5,960,000
Outreach & Public Affairs		$ -
Permits		$ 30,736
Other Non-Labor Costs		$ 476,798
GMA		$ -
Total Un-Loaded Direct Estimated Cost		**$ 200,415,047**
Actuals as of Jan. 2020		$ 10,221,538
Total Un-Loaded Direct Cost w/Actuals		**$ 210,636,585**
Contingency @ 14.85%		$ 29,753,297
Total Un-Loaded Direct Cost w/Contingency		**$ 240,389,882**
Escalation		$ 5,894,149
Total Un-Loaded Direct Cost w/ Escalation		**$ 246,284,031**
Loaders (Provided by Cost Group)		$ 68,521,769
Total Loaded Project Cost		**$ 314,806,000**

FEED EPC COST	
HYBRID DELTA ADDER	
HYBRID EPC COST	

Table 1: 2020 FEED Estimate Equipment Costs

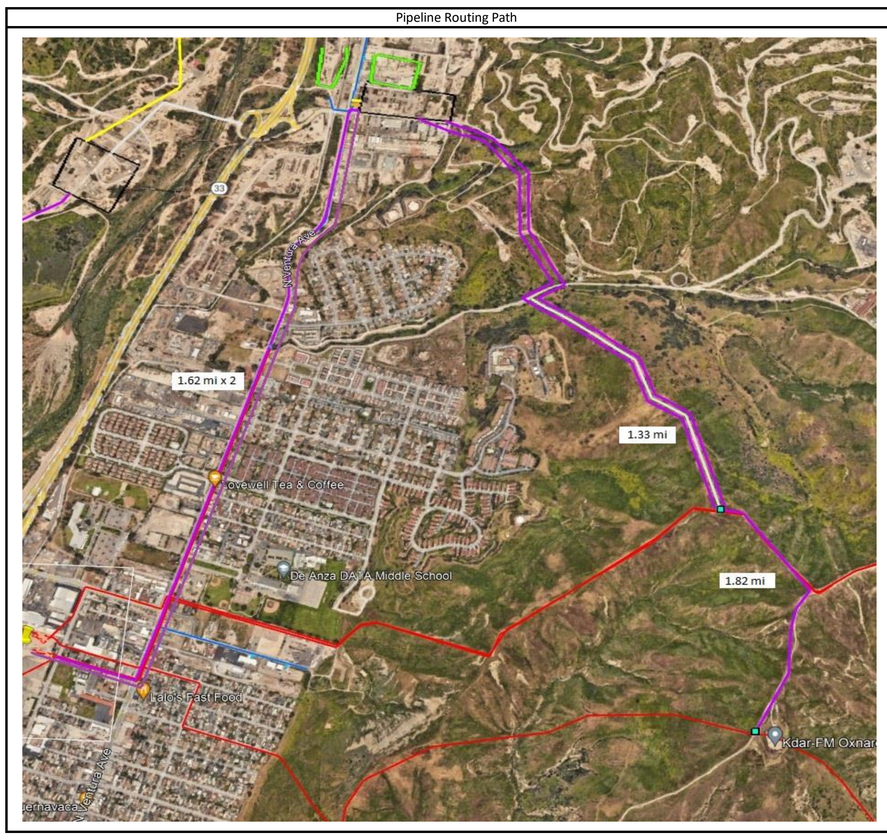
Revised ROM Estimate Adjustments - Feb 2023								
Base Scope					**Hybrid**			
			2020 FEED Est			Feb 2023 Est		
Scope			(4) Natural Gas Engine			(2) NG Engine, 2 EMDs		
Equipment & Material	Qty	Unit Cost	Total		Qty	Unit Cost	Total	
Engine Compressor Package								updated pricing
EMD Compressor Package								updated pricing
VFD w/Coolers								updated pricing
VFD Building								
Starting Air Compressor/Receiver								
Coolant Storage Drum								
Coolant Drain Sump								
Coolant Charge Pump								
New Transformer (10 MVa)								
New Transformer (7 MVa)								
Metering Panel								
Reclosure								
CEMS Building								
Utility Piping Lot								
TOTAL MECH/ELEC EQ COST								
Construction/Indirects								
ROM Factor (Eq Cost * 2.5)								

Table 3: Additional Engineering Costs Required for Hybrid Compressor Configuration After Discussing with Project Team (Not Included in 2020 FEED Estimate)		
Misc Cost		
Additional Engineering (ROM)		
SCE T-Line Improvements		
Cost Comparison (ROUNDED)		
		delta

Table 1 from above was put into Table 2 for the Base Scope portion. The equipment prices for the (2) Engine & (2) EMD option were adjusted to account for the price increases since the original FEED was completed in 2020.

						1.25		$150						
	Description	Qty	UOM	Unit Material	Material Cost	Unit Manhour	Manhours	Labor Cost	Unit Subcontract Cost	Subcontractor Cost	Total Cost	Unit Cost	Comments	
1	Site demolition and Remediation	15.14	ACRE		$ -		0	$ -	$ 830,000	$ 12,566,200	$ 12,566,200	$ 830,000.00	Assume that as part of the sale of the site, demolition and remediation would be included	MOVED TO LAND
2	Clear & Grub / Grade Laydown Area	4.93	ACRE		$ -	527	3,250	$ 487,496		$ -	$ 487,496	$ 98,883.62	Assume 1 crew x 3 months	
3	Imported Fill for remediated soil	122,129.33	CY	$ 50.00	$ 6,106,467	0	13,000	$ 1,949,985		$ -	$ 8,056,452	$ 65.97		
4	~~Terraced Retaining wall (15' H x 700' L) x 3~~	~~0~~	~~SF~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 90~~	~~$ -~~	~~$ -~~	~~$ -~~	See "Cost Ref" Tab	
5	~~Slope & Bench Retaining wall (15' H x 2400' L) x 2~~	~~0~~	~~SF~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 90~~	~~$ -~~	~~$ -~~	~~$ -~~		
6	~~Upgrade / Re-inforce Bridge~~	~~0~~	~~LS~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 50,000~~	~~$ -~~	~~$ -~~	~~$ -~~	Allowance	
7	~~Retaining wall for access road (8' tall x 3,000 LF)~~	~~0~~	~~SF~~		~~$ -~~				~~$ 60~~	~~$ -~~	~~$ -~~	~~$ -~~		
8	~~Concrete Drainage Ditch (5,500 LF)~~	~~0~~	~~LF~~		~~$ -~~		~~0~~	~~$ -~~	~~$ 85~~	~~$ -~~	~~$ -~~	~~$ -~~		
9	New Pipelines (Improved)	9,398	LF	$ 114.00	$ 1,071,418		0	$ -	$ 600	$ 5,639,040	$ 6,710,458	$ 714.00		
10	New Pipelines (Unimproved)	16,949	LF	$ 114.00	$ 1,932,163		0	$ -	$ 300	$ 5,084,640	$ 7,016,803	$ 414.00	Added 20% to price to account for misc. fittings; adjusted install rate to account for hilly terrain	
11	MLV Station	1	EA		$ -		0	$ -	$ 1,350,000	$ 1,350,000	$ 1,350,000	$ 1,350,000.00	Include New MLVs on L1004 and MLV 1005, bridles, actuators, etc.	
12	Piles	489	EA		$ -		0	$ -	$ 25,000	$ 12,225,000	$ 12,225,000	$ 25,000.00		
										TOTALS	$ 48,412,409	$ -		

Pipeline Routing Path



Original Total Environmental Cost:	**$ 9,254,304**
Revised Environmental (without remediation)	**$ 5,204,849**
Cost of Remediation (to be allocated to Land)	**$ 4,049,455**

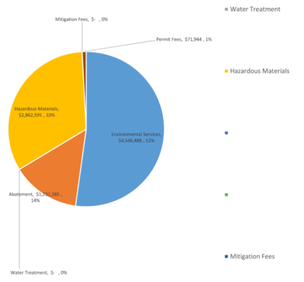
ORIGINAL ENVIRONMENTAL ESTIMATE

Version 1.1 10/18/17

Project Detail

Item Description	Description/Value		Notes/Assumptions
Project Name	Ventura Steel		
County	Ventura		
Project Type (hydrotest, replacement, valve upgrade, valve installation, valve automation)	Compressor Station		
Diameter (inches)	NA		
Acres		20.5	15 onsite and 5.5 acres off site
New Road/Road improvements length (feet)		3600	3,600 linear feet of new 12-foot road for construction access to new pipeline corridor. Assumes existing access from School Canyon Road and Crimea Street Fire Road is adequate
New Pipeline Length (feet)		19,117	Pipeline Corridor #1: 9,398 linear feet of 2x16-inch suction and discharge pipelines located within Ventura Avenue Pipeline Corridor #2: 2,855 linear feet 1x16-inch suction pipeline to new main line valve Pipeline Corridor #3: 6,864 linear feet of 2x16 inch suction pipelines
Pre Const. Planning Support Duration (weeks)		228	3 years env permitting and 21 months per Preliminary Schedule Alternative Locations Rev2
Construction Duration (weeks)		200	50 months per Preliminary Schedule Alternative Locations Rev2
Water Treatment Duration (Months)		0	Hydrostatic test water to be disposed to land for new pipe (no treatment required).
Abatement Duration (days)		400	
Water Volume (gallons)			No water treatment needed. Assume potable water on clean pipe.
Source Water (potable/non-potable)	Potable		Assumes water to be trucked in.
Water Disposal Method (offsite disposal, beneficial reuse, etc.)	Land		Assumes testing new pipe with potable water and disposal to land. Treatment of water not required.
Number of JD crossings		2	Counted assumed JDs on Google Earth

Costs	Total	Total Hours
Environmental Services	$ 4,546,488	
Abatement	$ 1,231,285	
Water Treatment	$ -	
Hazardous Materials	$ 2,862,595	
Mitigation Fees	$ -	
Permit Fees	$ 71,944	
TOTAL ENVIRONMENTAL COSTS (Purchased Services):	**$ 8,712,312**	
Internal Labor	$ 541,992	**11,320.0**
Total	**$ 9,254,304**	



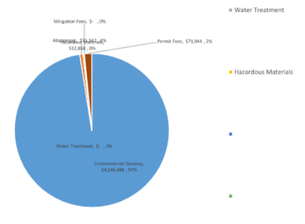
REVISED ENVIRONMENTAL (Without Remediation)

Version 1.1 10/18/17

Project Detail

Item Description	Description/Value		Notes/Assumptions
Project Name	Ventura Steel		
County	Ventura		
Project Type (hydrotest, replacement, valve upgrade, valve installation, valve automation)	Compressor Station		
Diameter (inches)	NA		
Acres		20.5	15 onsite and 5.5 acres off site
New Road/Road improvements length (feet)		3600	3,600 linear feet of new 12-foot road for construction access to new pipeline corridor. Assumes existing access from School Canyon Road and Crimea Street Fire Road is adequate.
New Pipeline Length (feet)		19,117	Pipeline Corridor #1: 9,398 linear feet of 2x16-inch suction and discharge pipelines located within Ventura Avenue Pipeline Corridor #2: 2,855 linear feet 1x16-inch suction pipeline to new main line valve Pipeline Corridor #3: 6,864 linear feet of 2x16 inch suction pipelines
Pre Const. Planning Support Duration (weeks)		228	3 years env permitting and 21 months per Preliminary Schedule Alternative Locations Rev2
Construction Duration (weeks)		200	50 months per Preliminary Schedule Alternative Locations Rev2
Water Treatment Duration (Months)		0	Hydrostatic test water to be disposed to land for new pipe (no treatment required).
Abatement Duration (days)		5	assume site is turned over with all abatement is complete Assumme 10 days os abatemetn to tie in to existing lines
Water Volume (gallons)			No water treatment needed. Assume potable water on clean pipe.
Source Water (potable/non-potable)	Potable		Assumes water to be trucked in.
Water Disposal Method (offsite disposal, beneficial reuse, etc.)	Land		Assumes testing new pipe with potable water and disposal to land. Treatment of water not required.
Number of JD crossings		2	Counted assumed JDs on Google Earth

Costs	Total	Total Hours
Environmental Services	$ 4,546,488	
Abatement	$ 31,567	
Water Treatment	$ -	
Hazardous Materials	$ 12,858	
Mitigation Fees	$ -	
Permit Fees	$ 71,944	
TOTAL ENVIRONMENTAL COSTS (Purchased Services):	**$ 4,662,857**	
Internal Labor	$ 541,992	**11,320.0**
Total	**$ 5,204,849**	

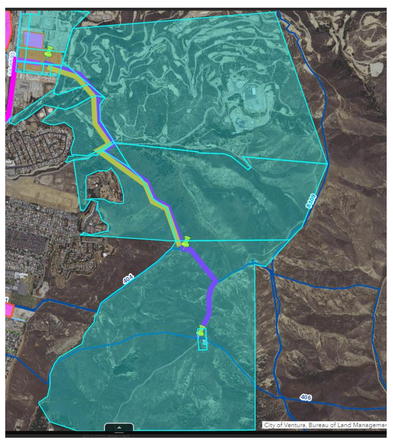


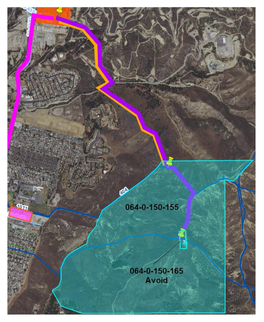
Location	APN	OWNER_NAME_1	SITE_ADD	SITE_CITY	SITE_ZIP	ACREAGE	LAND_SQFT	IMPRV_PC	VAL_TRANSFER	DATE_TRANSFER	DOC_NUMBER	OWNER_1_FIRST	OWNER_1_LAST	OWNER_ADDRESS	OWNER_CITY	OWNER_S	OWNER_Z	MAIL_ADD	MAIL_CITY	MAIL_STA	MAIL_ZIP	USE_CODE_STD_CTGR_DESC	ZONING	Value Per Acre	Value Per Sq Ft	Station Acres	Land Cost ---- Station Cost	Staging Area	Staging Area Costs	MLV Station Sq. Ft.	MLV Station Cost	MLV TCE Sq Ft	MLV TCE Cost	Non-Exclusive Easement Width	Non-Exclusive Easement Length	Non-Exclusive Easement Cost	TCE Width	TCE Length	TCE Month Cost	TCE Cost	Crop Loss	Condemnation Legal Fees
Ventura Steel	063-0-210-115	SHELL OIL CO		VENTURA	93001	1.98	86248					SHELL OIL CO		PO BOX 11164	BAKERSFIELD	CA	93389	PO BOX 11	BAKERSFIE	CA	93389	VACANT LAND	M3	$ 698,000.00	$ 16.02	15	$ 1,382,027.18														$ -	$700,000
Ventura Steel	063-0-210-125	SHELL OIL CO		VENTURA	93001	8.77	382021					SHELL OIL CO		PO BOX 11164	BAKERSFIELD	CA	93389	PO BOX 11	BAKERSFIE	CA	93389	VACANT LAND	M3	$ 698,000.00	$ 16.02		$ 6,121,456.80														$ -	
~~Ventura Steel~~	~~063-0-220-135~~	~~HULL II, JEFFREY BRIAN~~	~~3486 N VEI~~	~~VENTURA~~	~~93001~~	~~1.52~~	~~66432~~	~~41.81~~	~~$ 1,550,000.00~~	~~3/10/2021~~	~~20210310-00051187~~	~~JEFFERY BRIAN~~	~~HULL II~~	~~3486 N VENTURA AVE~~	~~VENTURA~~	~~CA~~	~~93001~~	~~3486 N VEI~~	~~VENTURA~~	~~CA~~	~~93001~~	~~INDUSTRIAL~~	-	~~$ 698,000.00~~	~~$ 16.02~~		~~$ ———~~														~~$ ——~~	
Ventura Steel	063-0-220-145	SISU PROPERTIES LLC	100 E SHEI	VENTURA	93001	3.46	150664	91.29	$ 599,000.00	1/29/2020	20200129-00012704	SISU PROPERTIES LLC		169 VERDI RD	VENTURA	CA	93003	169 VERDI	VENTURA	CA	93003	INDUSTRIAL	-	$ 698,000.00	$ 16.02		$ 2,414,221.12														$ -	
Ventura Steel	063-0-220-155	SISU PROPERTIES LLC	200 E SHEI	VENTURA	93001	1.49	64702	90.96		8/22/2000	2000-0134720	SISU PROPERTIES LLC		169 VERDI RD	VENTURA	CA	93003	169 VERDI	VENTURA	CA	93003	INDUSTRIAL	-	$ 698,000.00	$ 16.02		$ 1,036,776.77														$ -	
Ventura Steel	063-0-220-165	FRAZIER, RAYMOND EARL	300 E SHEI	VENTURA	93001	1.68	73029	64.02		8/30/2013	20130830-00151548	RAYMOND EARL	FRAZIER	PO BOX 516	CAYUCOS	CA	93430	PO BOX 51	CAYUCOS	CA	93430	INDUSTRIAL	-	$ 698,000.00	$ 16.02		$ 1,170,207.58														$ -	
~~Ventura Steel~~	~~063-0-220-085~~	~~WITHERSPOON; GRANT L~~		~~VENTURA~~	~~93001~~	~~3.87~~	~~168577~~		~~$ 600,000.00~~	~~10/2/2002~~	~~2002-0237629~~	~~GRANT L~~	~~WITHERSPOON~~	~~2366 FOSTER AVE~~	~~VENTURA~~	~~CA~~	~~93001~~	~~2366 FOST~~	~~VENTURA~~	~~CA~~	~~93001~~	~~MISCELLANEOUS~~	~~M3~~				~~———~~														~~$ ——~~	
~~Ventura Steel~~	~~063-0-220-095~~	~~WITHERSPOON; GRANT L~~		~~VENTURA~~	~~93001~~	~~s~~	~~43560~~		~~$ 600,000.00~~	~~10/2/2002~~	~~2002-0237629~~	~~GRANT L~~	~~WITHERSPOON~~	~~2366 FOSTER AVE~~	~~VENTURA~~	~~CA~~	~~93001~~	~~2366 FOST~~	~~VENTURA~~	~~CA~~	~~93001~~	~~MISCELLANEOUS~~	~~M3~~				~~———~~														~~$ ——~~	
Ventura Steel	063-0-210-095	Aera Energy LLC																					M3	$ 698,000.00	$ 16.02			240,000	$ 1,538,292.01												$ -	
Ventura Steel	069-0-010-145	Shell Oil Co																					OS160AC	$ 68,500.00	$ 1.57																$ -	
Ventura Steel	069-0-010-165	CRIMSON CALIF PIPELINE LP																					OS160AC	$ 68,500.00	$ 1.57									50	800	$ 31,450.87	25	800	$ 166.67	$ 24,000.00	$ -	
Ventura Steel	069-0-010-175	SHELL OIL CO																					OS160AC	$ 68,500.00	$ 1.57									50	400	$ 15,725.44	25	400	$ 83.33	$ 24,000.00	$ -	
Ventura Steel	069-0-010-020	Smith Lloyd M																					OS160AC	$ 68,500.00	$ 1.57									50	1400	$ 55,039.03	25	1400	$ 291.67	$ 24,000.00	$ -	
Ventura Steel	069-0-020-305	Seneca Gardens Limited																					OS160AC	$ 68,500.00	$ 1.57									50	100	$ 3,931.36	25	100	$ 20.83	$ 24,000.00	$ -	
		Silver Blues Trust / Groover David / Groover																					RPD-1	$ 475,000.00	$ 109.20									50	3300	$ 9,008,620.69	25	3300	$ 687.50	$ 3,603,448.28	$ -	
Ventura Steel	064-0-150-155	Katherine																					OS160AC	$ 68,500.00	$ 1.57					7500	$ 11,794.08	7500	$ 24,000.00	50	2600	$ 102,215.34	25	2600		$ 24,000.00	$ -	
																						Sub Totals				$ 12,124,689.44		$ 1,538,292.01		$ 11,794.08		$ 24,000.00			$ 9,216,982.72				$ 3,723,448.28		$700,000

Table 1 Environmental Summary	
Station Area (Acres)	15
Staging Area (SF)	240,000
Staging Area Rental Duration (Months)	48
Exclusive Easements (EA)	0
Duration for Exclusive Easement (Months)	N/A
MLV TCEs (EA)	1
MLV TCEs Durations (Months)	48
Non-Exclusive Easements (EA)	1
Duration for Non-Exclusive Easement (Months)	N/A
25' Wide Access Road Length (LF)	N/A
Crop Loss ($)	N/A
Condemnation Legal Fees ($)	$700,000

Grand Total **$ 27,339,206.52**

ESTIMATION PARAMETERS & NOMINAL VALUES	
Exclusive Easement Fee %	100%
Non-Exclusive Easement Fee %	50%
TCE Annual Return Rate %	10%
Exclusive Easement Nominal Value	$1,500
Non-Exclusive Easement Nominal Value	$1,000
TCE Workspace Monthly Nominal Value	$550





		Alt: Ventura Steel Extended CPCN Schedule									
		~~GRC Application (N/A)~~	CPCN Proposed Schedule	Land Acquisition, Easement, Access Road	Development of Refeed RFP[1]	RFP Issued/Eval/Award	Revised FEED	AFE Board Approval	Develop EPC RFP[1]	RFP Issued/Eval/Award	**Total**
Months	SCG Company Labor	~~0~~	26	31	9	3	12	6	12	12	
	Project Services	~~0~~	26	31	9	3	12	6	12	12	
Monthly Burn Rate	SCG Company Labor	~~$40,000~~	$40,000	$80,000	$80,000	$80,000	$100,000	$60,000	$80,000	$80,000	
	Project Services	~~$60,000~~	$60,000	$100,000	$100,000	$100,000	$200,000	$90,000	$100,000	$100,000	
	Combined	~~$100,000~~	$100,000	$180,000	$180,000	$180,000	$300,000	$150,000	$180,000	$180,000	
Cost	SCG Company Labor	~~$0~~	$1,040,000	$2,480,000	$720,000	$240,000	$1,200,000	$360,000	$960,000	$960,000	**$7,960,000**
	Project Services	~~$0~~	$1,560,000	$3,100,000	$900,000	$300,000	$2,400,000	$540,000	$1,200,000	$1,200,000	**$11,200,000**

		~~2022~~	2024	2027	2029	2029	2030	2032	2030	2031	
	Escalation %	~~0.00%~~	-0.95%	3.09%	7.06%	7.06%	9.13%	13.55%	9.13%	11.32%	
Escalation	SCG Company Labor	~~$0.00~~	-$9,835.54	$76,744.10	$50,854.45	$16,951.48	$109,548.51	$48,797.63	$87,638.81	$108,671.78	**$489,371**
	Project Services	~~$0.00~~	-$14,753.31	$95,930.12	$63,568.06	$21,189.35	$219,097.02	$73,196.44	$109,548.51	$135,839.72	**$703,616**

Escalated Cost	SCG Company Labor	~~$0~~	$1,030,164	$2,556,744	$770,854	$256,951	$1,309,549	$408,798	$1,047,639	$1,068,672	**$8,449,371**
	Project Services	~~$0~~	$1,545,247	$3,195,930	$963,568	$321,189	$2,619,097	$613,196	$1,309,549	$1,335,840	**$11,903,616**

Based on 2022 $$

1 Assume FEED and EPC will both be re-bid

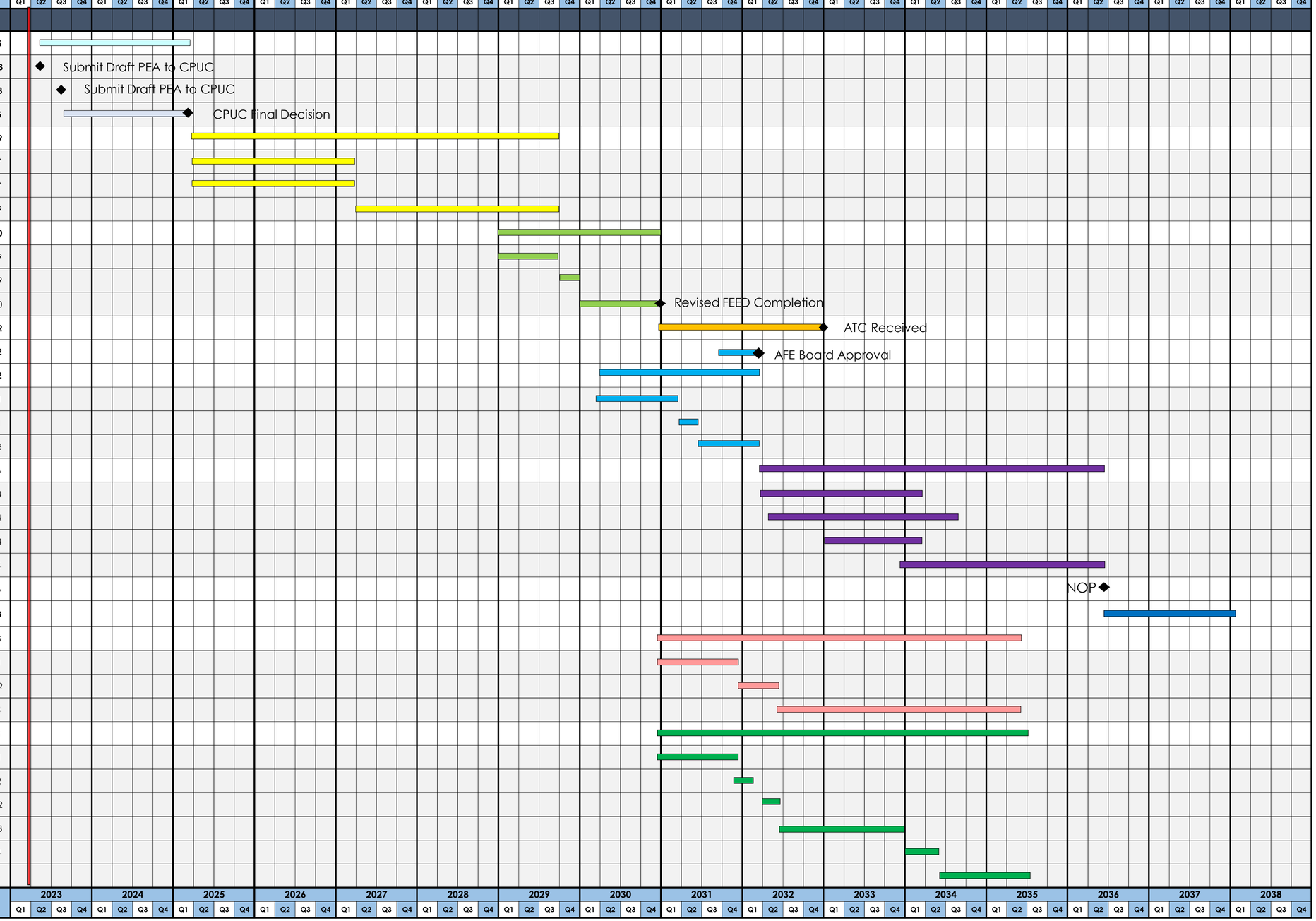
2 Assume a separate SCG project team will manage the EPC RFP apart from the SCG project team managing FEED

3 Monthly burn rates are based on average actual costs and represent a normalized manpower curve that shows a smaller team during CPCN delay, ramping up to RFP FEED, peaking at FEED, and ramping back down to RFP of EPC

Ventura Compressor Modernization (Ventura Steel)

Level 1 Summary Schedule

LINE NO.	Description	Duration (Month)	Start (Month)	Finish Month
	Ventura Compressor Modernization (VENTURA STEEL)			
1	**CPCN Process**	**22**	**May-23**	**Feb-25**
2	Submit Draft PEA to CPUC			**May-23**
3	Submit Final PEA & CPCN Application			**Aug-23**
4	CPCN Proceedings	**18**	**Aug-23**	**Feb-25**
5	**Land Acquisition / Easement / Soil Remediation**	**66**	**Feb-25**	**Aug-29**
6	Land Acquisition / Easement	24	Feb-25	Feb-27
7	Landowner Decomm/Dismantling Exisiting Oil Wells	24	Feb-25	Feb-27
8	Develop Workplan/Assessment - Soil Remediation	30	Mar-27	Aug-29
9	**New FEED**	**24**	**Dec-28**	**Dec-30**
10	RFP Development	9	Dec-28	Aug-29
11	RFP Issue & Award	3	Sep-29	Dec-29
12	Revised FEED Study	12	Dec-29	Dec-30
13	**New Air Permit Application & Approval (ATC)**	**24**	**Dec-30**	**Dec-32**
14	**New AFE Board Approval**	**6**	**Sep-31**	**Mar-32**
15	**New EPC RFP Development & Award**	**24**	**Mar-30**	**Mar-32**
16	EPC RFP Development	12	Mar-30	Mar-31
17	EPC RFP Issued	3	Mar-31	Jun-31
18	EPC Award	9	Jun-31	Mar-32
19	**EPC Phase**	**50**	**Mar-32**	**Jun-36**
20	Detailed Engineering (Phase 1 & 2)	24	Mar-32	Mar-34
21	Procurement	28	Jun-32	Sep-34
22	Site Grading (Staging Area & Comp. Station site)	14	Jan-33	Mar-34
23	Construction, Commissioning, Startup	30	Dec-33	Jun-36
24	**In-Service Date (NOP)**	**0**		**Jun-36**
25	**Closeout**	**18**	**Jun-36**	**Jan-38**
26	**SoCal Edison (Method of Service & Execution)**	**54**	**Dec-30**	**Jun-35**
27	Develop SCE Application & MOS Agreement Signed	12	Dec-30	Nov-31
28	Method of Service Study	6	Nov-31	May-32
29	Proc., Construction, Commissioning, Startup	36	May-32	Jun-35
30	**New Pipeline & Main Line Valve Station**	**55**	**Dec-30**	**Jul-35**
31	Land Easement	12	Dec-30	Nov-31
32	Geotechnical Assessment of Pipeline Route	3	Nov-31	Feb-32
33	Prelim Engineering	3	Mar-32	May-32
34	Detailed Engineering & Procurement	18	May-32	Dec-33
35	RFP & Award	6	Dec-33	Jun-34
36	Construction, Commissioning, Startup	13	Jun-34	Jul-35



Schedule Assumptions:

1. **CPCN Process:** Submittal of the DRAFT PEA is due on **24-May-23**. Final PEA & CPCN Application Submittal is Due on **24-Aug-23.** CPUC Final Decision Approx. **18-months** after Application submittal.
2. **LAND ACQUISITION:**Upon CPUC's Final Decision, "Land Acquisition, easement, and building access roads" will commence and takes and approx. **66-months** to complete.
3. **REVISED FEED** - Revised FEED RFP development starts one quarter prior to completion of Land Acquision and Easement. The overall FEED Phase is expected to take approx. **24-months** to complete.
4. **ENVIRONMENTAL** - New Air Permit Application will be submitted upon completion of the Revised FEED. The ATC Process will take approx. **24-months** after application submittal.
5. **AFE** - Upon completion of the Revised FEED as well as EPC RFP Effort, the new AFE Board Approval process will take place and takes approx. **3-6 Months** to complete.
6. **New EPC RFP** - Starts as early as possible to finish **one quarter** after completion of the Revised FEED. The rest of the process will take appox. **12-months** to Award the EPC Contract.
7. **EPC EXECUTION** - Phase-1 Engineering (90% MR) & Phase-2 (IFC) will take approx.**24-months** to complete. The entire EPC Phase is expected to take Approx. **50-Months** up to NOP
8. **SoCal Edison** - The process starts upon completion of the REVISED FEED and will take approx. **54-Months** to complete. (App/MOS/EPC)

9 **NOP** - NOP/In-Service Date in **Q2-2036**

Table 1: Actuals (As of September 30, 2021)		
Total	$	31,727,022
Directs	$	22,374,794
Non-Directs	$	9,352,228

Table 2: Copy of Actuals Report (Sept. 30, 2021)

		EAC	ACT	ETC
Facilities-Ventura Comp-Modernization	All Cost Elements	313,189,529.93	31,727,022.08	281,462,
	Direct Costs	238,333,740.51	22,374,794.01	215,958,
	Direct Labor	9,368,203.80	3,102,275.30	6,265,
	Company Labor	9,368,203.80	3,102,275.30	6,265,
	Mgmt & Non-Union Labor	9,220,072.49	2,954,143.99	6,265,
	Union Labor	148,131.31	148,131.31	
	Non-Labor	228,965,536.71	19,272,518.71	209,693,
	Employee Costs	60,913.74	60,913.74	
	Employee Travel	60,913.74	60,913.74	
	Services	183,056,971.16	18,850,953.16	164,206,
	Services Consultants	22,872,084.64	3,582,503.64	19,289,
	Services Engineering & Construction	157,790,689.36	12,874,252.36	144,916,
	6220005 - SRV-CONTRACTORS-MAJOR PROJECTS	36,837,813.33	8,657,813.33	28,180,
	6220006 - SRV-CONSTRUCTION SERVICES DEPT O...	87,333,000.00	0.00	87,333,
	6220007 - SRV-CONTRACTORS-TIME & EQUIPMENT	1,881.69	1,881.69	
	6220008 - SRV-CONTRACTORS	686,020.33	686,020.33	
	6220009 - SRV-CONTRACTORS-SPECIFIC JOBS	452,448.87	452,448.87	
	6220480 - SRV-ENGINEERING	32,479,525.14	3,076,088.14	29,403,
	Services Government Payments & Permits	378.00	378.00	
	Services Vehicles and Equipment Rental	32,813.70	32,813.70	
	Services Other	2,361,005.46	2,361,005.46	
	Materials	45,632,637.57	145,637.57	45,487,
	Material Compressor Equipment	40,958,766.85	28,766.85	40,930,
	Material Issuances	517.64	517.64	
	Material Other	4,673,353.08	116,353.08	4,557,
	All Other	215,014.24	215,014.24	
	Internal Settlements	230,540.35	230,540.35	
	Vehicle Utilization	32,026.67	32,026.67	
	Other	(47,552.78)	(47,552.78)	
	Non Direct Costs	75,619,598.59	9,352,228.07	66,267,
	Non Direct Costs wo AFUDC	32,821,203.57	5,187,165.07	27,634,
	Non Direct Costs AFUDC	42,798,395.02	4,165,063.00	38,633,

Year	Escalation
2022	6.06%
2023	5.13%
2024	5.05%
2025	5.96%
2026	7.40%
2027	9.34%
2028	11.39%
2029	13.55%
2030	15.74%
2031	18.06%
2032	20.43%
2033	22.85%
2034	25.32%

Table 1: Cost Index Study Published by

JUGPDSTCM@PCF = Utility Cost Index: Gas Distribution Plant, Pacific Region--Compressor Station Equipment

JUGPSHEF@PCF = Utility Cost Index: Gas Storage Plant, Pacific Region--Gas Holders Excluding Foundation

Construction-related cost index (includes labor and nonlabor)

Source: Global Insight 4th Quarter 2021 utility cost forecast (published January 25, 2022); recorded data from Handy-Whitman

	JUGPDSTCM@PCF					
	2021=1.0000	1973=100	% change	2021=1.0000	1973=100	% change
2016	0.8986	689.00	1.62%	0.8963	499.25	1.58%
2017	0.9156	702.00	1.89%	0.9035	503.25	0.80%
2018	0.9495	728.00	3.70%	0.9399	523.50	4.02%
2019	0.9782	750.00	3.02%	0.9744	542.75	3.68%
2020	1.0000	766.75	2.23%	1.0000	557.00	2.63%
2021	1.0648	816.45	6.48%	1.0954	610.12	9.54%
2022	1.1293	865.90	6.06%	1.1154	621.26	1.83%
2023	1.1195	858.35	-0.87%	1.1019	613.78	-1.20%
2024	1.1186	857.71	-0.07%	1.1213	624.58	1.76%
2025	1.1283	865.13	0.87%	1.1479	639.38	2.37%
2026	1.1436	876.86	1.36%	1.1763	655.19	2.47%
2027	1.1643	892.69	1.81%	1.2067	672.11	2.58%
2028	1.1861	909.44	1.88%	1.2374	689.23	2.55%
2029	1.2091	927.06	1.94%	1.2681	706.35	2.48%
2030	1.2324	944.94	1.93%	1.2990	723.55	2.44%
2031	1.2571	963.92	2.01%	1.3311	741.45	2.47%
2032	1.2824	983.27	2.01%	1.3641	759.79	2.47%
2033	1.3081	1003.01	2.01%	1.3978	778.59	2.47%
2034	1.3344	1023.15	2.01%	1.4324	797.86	2.47%
2035	1.3612	1043.69	2.01%	1.4679	817.60	2.47%
2036	1.3885	1064.64	2.01%	1.5042	837.82	2.47%
2037	1.4164	1086.01	2.01%	1.5414	858.55	2.47%
2038	1.4448	1107.82	2.01%	1.5795	879.80	2.47%
2039	1.4738	1130.06	2.01%	1.6186	901.56	2.47%
2040	1.5034	1152.75	2.01%	1.6587	923.87	2.47%
2041	1.5336	1175.89	2.01%	1.6997	946.73	2.47%
2042	1.5644	1199.50	2.01%	1.7417	970.15	2.47%
2043	1.5958	1223.58	2.01%	1.7848	994.15	2.47%
2044	1.6278	1248.15	2.01%	1.8290	1018.75	2.47%
2045	1.6605	1273.20	2.01%	1.8742	1043.95	2.47%
2046	1.6939	1298.76	2.01%	1.9206	1069.78	2.47%
2047	1.7279	1324.84	2.01%	1.9681	1096.25	2.47%
2048	1.7626	1351.44	2.01%	2.0168	1123.37	2.47%
2049	1.7979	1378.57	2.01%	2.0667	1151.17	2.47%
2050	1.8340	1406.25	2.01%	2.1179	1179.65	2.47%